

A61B

DIAGNOSIS; SURGERY; IDENTIFICATION (usefulness limited to only animals [A61D](#))

Definition statement

This place covers:

Diagnosis

Apparatus, instruments, implements or processes that are either specially adapted or intended to be solely utilised for evaluating, examining, measuring, monitoring, studying or testing particular characteristics and aspects of either living or dead human and animal bodies for medical purposes (i.e. diagnosis). Diagnosis consists of scrutinising the following characteristics or aspects of bodies:

- internal or external portions of the bodies (e.g. lungs);
- abnormal bodily conditions (e.g. sickness, broken bones, detecting foreign bodies, pregnancy);
- mental conditions (e.g. psychotechnics); and
- mental conditions (e.g. psychotechnics); and

Surgery

Apparatus, instruments, implements or processes that are either specially adapted or intended to be solely utilised for medical procedures employing physical actions (e.g. laser cutting, pressure of fluid) on portions of human or animal bodies to correct, enhance or inspect (e.g. autopsies) them for medical purposes (i.e. surgery). Surgery consists of the following medical procedures:

- repositioning (e.g. aligning broken bones or opening wounds) parts of bodies;
- stabilising (e.g. inserting bone pins) to prevent harmful movement of parts of bodies;
- repairing (e.g. fastening skin together or removing cancerous tissue) bodies;
- facilitating the occurrence of naturally occurring bodily functions (e.g. child birth or passing kidney stones) that are out of the ordinary;
- introducing, collecting or removing cells and organs (e.g. inseminations, tissue sampling, hair transplants, skin grafting, biopsies, organ harvesting) to or from bodies; and
- introducing or taking out foreign objects (e.g. replacement heart valves, bullets) to or from bodies.

Identification

Apparatus, instruments, implements or processes that are either specially adapted or intended to be solely utilised in procedures for identifying individual human beings (e.g. finger printing, by recognition of shape or dimension of body part) using unique characteristics of their bodies or behaviour (i.e. identification).

Accessories therefor

Adjunct or supplementary means (i.e. accessories) specially adapted for use in, or intended for exclusive use in, diagnosis, surgery or identification. These adjunct or supplementary means contribute to the effectiveness (e.g. surgical drapes) or safety (e.g. operating gloves) of a medical procedure, but may or may not (e.g. protective covers for scalpels) themselves involve any direct contact with a body.

Components of diagnosis, surgery or identification means with structural features limiting their usefulness to medical procedures.

Relationships with other classification places

Several subclasses provide for subject matter that is used for "diagnosis". The relationship between these subclasses with regard to the type of 'diagnosis' covered by each is as follows:

Relationships with other classification places

Subclass [A61B](#) provides for diagnosis in general.

Subclass [A61B](#) also provides for any surgical or identification apparatus or methods when

- the apparatus or methods are combined with diagnosis means; or
- the apparatus can be used for diagnosis and either surgery or identification.

Subclass [A61B](#) additionally provides for any diagnostic apparatus or methods combined with therapy apparatus or method normally covered by subclass [A61H](#), subclass [A61M](#) or subclass [A61N](#) when

- the same apparatus or methods are used for both purposes; or
- combined together but only useable separately.

Subclass [A61H](#) provides for diagnostic means or steps that are combined with massage and physical therapy apparatus or methods used for the treatment of disease or disability (i.e. an abnormal condition of the body) by utilisation of direct mechanical energy, i.e. when the diagnostic means or step is used solely for operational feedback purposes to enhance therapy.

Subclass [A61M](#) provides for diagnostic means or steps that are combined with syringes, suction, pumping or atomising devices for medical use (e.g. cups, breast relievers, irrigators, sprays, powder insufflators, atomisers or inhalers), apparatus for general or local anaesthetics, devices or methods for causing a change in the state of consciousness, catheters, dilators or apparatus for introducing media into the body other than orally, i.e. when the diagnostic monitoring means or step is used solely for operational feedback purposes to enhance treatment or to enhance delivery of the media.

Subclass [A61N](#) provides for diagnostic means or steps that are combined with medical treatment therapy apparatus or methods used for the treatment of disease or disability by utilisation of forms of energy other than direct mechanical energy, i.e. when the diagnostic monitoring means or step is used solely for operational feedback purposes to enhance therapy.

References

Limiting references

This place does not cover:

Veterinary instruments, implements, tools or methods specially adapted so as to limit their usefulness to only animals	A61D
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Operating tables and auxiliary devices for these tables	A61G 13/00
Operating chairs	A61G 15/00
Physical therapy apparatus that includes diagnostic feedback means for influencing operation	A61H
Apparatus for artificial respiration or heart stimulation	A61H 31/00
Containers specially adapted for medical or pharmaceutical purposes	A61J 1/00
Devices for administering medicines orally	A61J 7/00
Materials for surgical sutures or for ligaturing blood vessels	A61L 17/00
Surgical adhesives or cements and adhesives for colostomy devices	A61L 24/00
Materials for colostomy devices	A61L 28/00

Syringes, suction, pumping or atomising devices for medical use (e.g. cups, breast relievers, irrigators, sprays, powder insufflators, atomisers or inhalers), apparatus for general or local anaesthetics, devices or methods for causing a change in the state of consciousness, catheters, dilators or apparatus for introducing media into the body other than orally	A61M
Non-surgical treatment of medical conditions or physical injuries by utilisation of forms of energy not directly generated by mechanical apparatus, devices or means that includes diagnostic feedback means for influencing its operation	A61N
Measuring or testing processes involving enzymes or microorganisms	C12Q 1/00
Analysing samples of biological material	G01N
Obtaining records using waves other than optical waves and viewing such records by using optical means	G03B 42/00

A61B 1/00

Instruments for performing medical examinations of the interior of cavities or tubes of the body by visual or photographic inspection, e.g. endoscopes (examination of body cavities or body tracts using ultrasonic, sonic or infrasonic waves [A61B 8/12](#); endoscopic instruments for taking cell samples or for biopsy [A61B 10/04](#)); Illuminating arrangements therefor (for the eyes [A61B 3/00](#))

References

Limiting references

This place does not cover:

Apparatus for testing the eyes; Instruments for examining the eyes	A61B 3/00
Diagnosis using ultrasonic, sonic or infrasonic waves in body cavities or body tracts, e.g. by using catheters	A61B 8/12
Endoscopic instruments for taking cell samples or for biopsy	A61B 10/04

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical probes as there is no visual image channel	A61B 5/0059
Surgical instruments, devices or methods, e.g. tourniquets	A61B 17/00
Endoscopic surgical instruments	A61B 2017/0034
Endoscopic surgical instruments	A61B 17/32
Surgical instruments using a laser beam being directed along or through a flexible conduit, e.g. an optical fibre; Hand-pieces therefor	A61B 18/22
Catheters, e.g. flexible tubes	A61M 25/00
Industrial endoscopes, e.g. borescopes; optical details thereof, e.g. particularly lens and optical fibre details	G02B 23/24

Special rules of classification

[A61B 1/00](#) - [A61B 1/127](#) deal with technical features of endoscopes. From [A61B 1/227](#) - [A61B 1/32](#) endoscopes are classified according to the body cavity where they are intended to be used.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

rod-lens	a number of glass rods with specially shaped ends, that are used in rigid endoscopes instead of several thin glass lenses to improve image transmission properties and widen the field of view.
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A61B 1/00002

{Operational features of endoscopes}

Definition statement

This place covers:

Operational signal transmission and data processing related with endoscopes if not provided in other, more specific technical fields.

A61B 1/00006

{of control signals}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Automatic control of imaging devices	A61B 1/045
Automatic control of illumination devices	A61B 1/0655

A61B 1/00009

{of image signals during a use of endoscope}

Definition statement

This place covers:

Operational image processing for display during use of the endoscope, e.g. on-chip or by the camera control unit.

A61B 1/000094

{extracting biological structures}

Definition statement

This place covers:

Extracting and/or emphasizing biological structures by image processing e.g. blood vessels for assessing depth, thickness, shape or patterns.

A61B 1/000095**{for image enhancement}****Definition statement***This place covers:*

Enhancement processing of live image output quality, e.g. denoising, artifact removal, deblurring, edge enhancement.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Image fusion, information overlay or enrichment	A61B 1/0005
Image enhancement or restoration	G06T 5/00

A61B 1/000096**{using artificial intelligence}****Definition statement***This place covers:*

Artificial intelligence and machine learning, e.g. details of AI model and its implementation, the training process, or training data generation.

A61B 1/00011**{characterised by signal transmission}****Definition statement***This place covers:*

All types of signal transmission.

A61B 1/00016**{using wireless means}****Definition statement***This place covers:*

Wireless data transmission between probe within the body and external receiver.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Endoradiosondes	A61B 5/07
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A61B 1/00018**{using electrical cables}****Definition statement***This place covers:*

Wire based data transmission by electrical signals.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Electrical cables as such	A61B 1/00114
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A61B 1/00022**{removable}****Definition statement***This place covers:*

Exchangeable memory like memory cards, e.g. for image recording or changing endoscope function.

A61B 1/00032**{internally powered}****Definition statement***This place covers:*

Power source integral with the endoscope, e.g. batteries.

A61B 1/00036**{Means for power saving, e.g. sleeping mode}****Definition statement***This place covers:*

- Power saving features, e.g. in capsule endoscopes or displays
- Sleep/stand-by modes or varying sampling/transmission rates.

A61B 1/00039**{provided with input arrangements for the user}****Definition statement***This place covers:*

All types of user input/interface means.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Deflection control handles	A61B 1/0052
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A61B 1/0004

{for electronic operation}

Definition statement

This place covers:

Data input means, e.g. keyboards, touch screens, GUIs or voice recording.

A61B 1/00042

{for mechanical operation}

Definition statement

This place covers:

Control means, e.g. knobs, switches, joysticks, remote or voice control.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Deflection control handles	A61B 1/0052
Handles for tip steering devices of catheters	A61M 25/0136

A61B 1/00043

{provided with output arrangements}

Definition statement

This place covers:

All types of output means, e.g. visual or acoustic.

A61B 1/00048

{Constructional features of the display}

Definition statement

This place covers:

Display construction, e.g. portable, head mounted displays, supports for displays.

A61B 1/0005**{combining images e.g. side-by-side, superimposed or tiled}****Definition statement***This place covers:*

Display of images obtained by endoscopes, combinations of images, combination of images and other data, e.g. graphs, ECG curves, pulse waveforms, alphanumeric data.

A61B 1/00052**{positioned at proximal end of the endoscope body}****Definition statement***This place covers:*

Small display screen at the proximal end of the endoscope shaft, e.g. mounted on the handle.

A61B 1/00055**{for alerting the user}****Definition statement***This place covers:*

Alerting/indicating to user of an operative condition/fault, e.g. by voice synthesiser, indicator lights. Includes physiological parameter of patient during endoscopic examination.

A61B 1/00057**{provided with means for testing or calibration}****Definition statement***This place covers:*

All types of endoscope testing, e.g. optical performance, leak detection. Testing operation of endoscope, fault detection.

A61B 1/00059**{provided with identification means for the endoscope}****Definition statement***This place covers:*

Endoscope provided with identification means, e.g. barcode, memory chip (ROM), coded resistor etc. May also include other data, e.g. operating data, manufacturer's serial number etc.

A61B 1/00062**{provided with means for preventing overuse}****Definition statement***This place covers:*

Limiting the number and/or duration of uses of an endoscope, e.g. by a counter/timer. Also limiting use to one patient by configuring endoscope to patient ID. Counting usage for payment.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Identification means	A61B 1/00059
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A61B 1/00066**{Proximal part of endoscope body, e.g. handles ([A61B 1/0052](#) takes precedence)}****Definition statement***This place covers:*

Structural or operational features of the handle, e.g. control elements.

References**Limiting references***This place does not cover:*

Control elements, e.g. on the handle for controlled bending of the shaft	A61B 1/0052
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A61B 1/00068**{Valve switch arrangements}****Definition statement***This place covers:*

Construction of valve switches for controlling suction/water/air supply.

A61B 1/00071**{Insertion part of the endoscope body ([A61B 1/0055](#) takes precedence)}****Definition statement***This place covers:*

Details of endoscope shaft/sheath construction, e.g. layers.

References

Limiting references

This place does not cover:

Constructional details of flexible insertion parts, e.g. vertebral elements	A61B 1/0055
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A61B 1/00073

{with externally grooved shaft}

Definition statement

This place covers:

Groove(s) on external surface of endoscope to receive additional channel(s), e.g. for tools, suction, rinsing etc.

A61B 1/00078

{with stiffening means}

Definition statement

This place covers:

Details of endoscope shaft/sheath construction, including oversleeves, for stiffening.

A61B 1/0008

{characterised by distal tip features}

Definition statement

This place covers:

Distal tip features not separately provided for below, e.g. distal tips with certain shapes, protective caps, strengthening means, vibrating elements, heating etc.

A61B 1/00082

{Balloons}

Definition statement

This place covers:

Distal fluid inflatable balloons, e.g. for retaining endoscope in a fixed position within a body cavity or for enlarging visual field etc.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Balloon catheters	A61M 25/10 - A61M 25/1025
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A61B 1/00085**{Baskets}****Definition statement**

This place covers:

Distal expandable basket/cage structure, e.g. for retaining endoscope at a fixed position within the body cavity or for spacing the imaging lens from the tissue surface.

A61B 1/00087**{Tools ([A61B 17/00234](#) takes precedence)}****Definition statement**

This place covers:

Distal tip tool as part of, mounted on or attached to the endoscope shaft or oversleeve, e.g. for displacing/cutting tissue.

References**Limiting references**

This place does not cover:

Tools for introduction through a working channel	A61B 17/00234
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Working channel for introduction of, e.g. surgical tools	A61B 1/018
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A61B 1/00089**{Hoods}****Definition statement**

This place covers:

Distal hood, e.g. projecting beyond the lens/window plane, for restricting field of view.

A61B 1/00091**{Nozzles}****Definition statement**

This place covers:

Distal nozzles/baffles/fluid deflectors, e.g. for directing rinsing fluid on to the distal lens/window.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tool deflectors	A61B 1/00098
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A61B 1/00094

{Suction openings}

Definition statement

This place covers:

Distal suction openings for removing fluid/debris; openings may be in an endoscope oversleeve.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Suction openings for propulsion	A61B 1/00156
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A61B 1/00096

{Optical elements}

Definition statement

This place covers:

Distal optical features, e.g. window shapes, lens arrangements, mirrors, prisms or filters arranged in the distal tip of an insertion section.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For variation of viewing angle	A61B 1/00174
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A61B 1/00097

{Sensors}

Definition statement

This place covers:

Additional non-imaging sensor(s) in the vicinity of the distal tip, e.g. force/pressure sensors for contact detection, distance/time-of-flight sensors for depth/distance detection of objects, temperature sensors for thermal control or patient safety; light/CO₂ detection for endotracheal navigation.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring for diagnostic purposes	A61B 5/00
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A61B 1/00098

{Deflecting means for inserted tools}

Definition statement

This place covers:

Distal deflector for a tool/instrument/optical fibre introduced through an endoscope channel.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tool/instrument channels	A61B 1/018
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A61B 1/00103

{designed for single use}

Definition statement

This place covers:

Disposable endoscope or endoscope parts explicitly intended for single use only and usually not sterilizable.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Prevention of overuse	A61B 1/00062
Modular construction	A61B 1/00105

A61B 1/00105

{characterised by modular construction}

Definition statement

This place covers:

Modular construction of endoscope allows parts to be exchanged/replaced, e.g. different shafts used with the same handle. Also for disassembly of parts for easier cleaning. Multiple endoscopes interchangeably connected to a monitor unit.

A61B 1/00108

{characterised by self-sufficient functionality for stand-alone use}

Definition statement

This place covers:

Portable endoscopes not requiring a physical connection to further supply or monitor units, e.g. including integrated power supply, light source and video controller, suction and fluid supply, telemetry and/or display means.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wireless data transmission	A61B 1/00016
Integrated data storages	A61B 1/0002
Integrated power supply	A61B 1/00032
Integral display units	A61B 1/00052

A61B 1/0011

{Manufacturing of endoscope parts}

Definition statement

This place covers:

All types of steps/processes in manufacturing / assembling endoscopes or parts thereof.

A61B 1/00112

{Connection or coupling means}

Definition statement

This place covers:

All types of couplings are included here, e.g. optical, mechanical, electrical.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Medical aspects of connections	A61M 39/00
Details of coupling devices	H01R 13/00

A61B 1/00114**{Electrical cables in or with an endoscope}****Definition statement***This place covers:*

Details of electrical cables. Includes cable construction and cable arrangements.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Electrical conductors and cables in general	H01B
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A61B 1/00117**{Optical cables in or with an endoscope}****Definition statement***This place covers:*

Details of optical cables, e.g. light supply cables for connection to an external light source.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Connectors as such	A61B 1/00126
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A61B 1/00119**{Tubes or pipes in or with an endoscope}****Definition statement***This place covers:*

Also universal cables for combined water/air/suction supply.

A61B 1/00124**{electrical, e.g. electrical plug-and-socket connection}****Definition statement***This place covers:*

Details of any type of electrical connector used with endoscopes, includes connectors at the distal end of a cable projecting from the operation portion and connectors mounted on the operation portion.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electrical couplings in general	H01R 13/00
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A61B 1/00128

{mechanical, e.g. for tubes or pipes}

Definition statement

This place covers:

Details of any type of mechanical connector used with endoscopes, includes connectors or adaptors at the proximal end of the working channel.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Forceps plugs for sealing or closing of working channels	A61B 1/00137
Surgical tool connectors	A61B 2017/00477

A61B 1/00133

{Drive units for endoscopic tools inserted through or with the endoscope}

Definition statement

This place covers:

Drive unit for attachment to an endoscope for driving/introducing a tool/instrument. May be manual or motor driven.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Holding or positioning of the endoscope	A61B 1/00147
Guiding of flexible endoscopes as such	A61B 1/01
Operating/actuating an endoscopic tool	A61B 2017/00367
Introducing catheters	A61M 25/01
Introducing guidewires	A61M 25/09041

A61B 1/00135

{Oversleeves mounted on the endoscope prior to insertion}

Definition statement

This place covers:

Separate oversleeve tube and optical assembly. The optical assembly is inserted into the oversleeve prior to use in a body cavity. The oversleeve may have features like additional working channels for instruments, rinsing or suction channels, illumination channels or further distal tools.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sanitary sheaths for hygiene mainly	A61B 1/00142
Guide tubes to aid endoscope insertion	A61B 1/00154
Guiding flexible endoscopes	A61B 1/01

Synonyms and Keywords

In patent documents, the word/expression in the first column is often used instead of the word/expression in the second column, which is used in the classification scheme of this place:

"sheath"	"oversleeve"
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A61B 1/00137

{End pieces at either end of the endoscope, e.g. caps, seals or forceps plugs}

Definition statement

This place covers:

For closing or sealing openings at both ends of an endoscope, e.g. forceps plugs for the proximal end of a working channel.

A61B 1/0014

{Fastening element for attaching accessories to the outside of an endoscope, e.g. clips, clamps or bands}

Definition statement

This place covers:

Any type of fastening element to attach an accessory/tool/channel to the outside of the endoscope shaft, e.g. clip, clamp, loop, band.

A61B 1/00142**{with means for preventing contamination, e.g. by using a sanitary sheath}****Definition statement***This place covers:*

Prevention of contamination with bodily fluids of a patient, e.g. by a hygienic sheath covering the insertion tube of an endoscope.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Oversleeves or sheaths not mainly for hygiene, but comprising additional technical features like working channels	A61B 1/00135
Drapes for protection of surgical instruments	A61B 46/10

A61B 1/00144**{Hygienic packaging}****Definition statement***This place covers:*

Packages for keeping endoscope sterile before use/in storage.

A61B 1/00147**{Holding or positioning arrangements}****Definition statement***This place covers:*

Means for holding and/or changing the position (advancing, rotating, pivoting etc.) of an endoscope with respect to the patient/cavity.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Locating endoscope position inside of the body	A61B 5/06
Tracking endoscopes with NMR	G01R 33/285

A61B 1/00148**{using anchoring means}****Definition statement***This place covers:*

Propelling, advancing or securing of an endoscope in direct physical contact with tissue or anatomical structures of a patient, e.g. by balloons or tissue anchors provided on/with the endoscope.

A61B 1/00149**{using articulated arms}****Definition statement***This place covers:*

Articulated arms for holding and positioning an endoscope.

A61B 1/00151**{using everted tubes}****Definition statement***This place covers:*

Propelling/advancing endoscope by everted tube means, e.g. by turning the tube inside out.

A61B 1/00154**{using guiding arrangements for insertion}****Definition statement***This place covers:*

Guiding arrangements positioned at the opening of a body cavity to aid insertion of the endoscope along the guiding arrangement and into the cavity, e.g. guide tubes or wires not fixed or attached to the endoscope shaft.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Oversleeve to cover an endoscope prior to insertion	A61B 1/00135
Access ports for surgical instruments	A61B 17/3421

A61B 1/00156**{using self propulsion}****Definition statement***This place covers:*

Probe operating inside the body without physical contact with the external environment.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Capsule endoscopes	A61B 1/041
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A61B 1/00158**{using magnetic field}****Definition statement***This place covers:*

The probe, e.g. a capsule endoscope, is guided by a magnetic field controlled by the operator. Also for controlled bending of endoscope insertion tube by magnetic forces.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Determining endoscope position using magnetic field	A61B 5/062
Manipulators for magnetic surgery	A61B 34/73

A61B 1/0016**{using motor drive units}****Definition statement***This place covers:*

Drive unit, e.g. proximal motor, for insertion of an endoscope into the body.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Drive unit for introduction of an endoscopic tool into the endoscope	A61B 1/00133
Pumps for everted tubes	A61B 1/00151
Guiding arrangements for flexible endoscopes in general	A61B 1/01
Introducing catheters	A61M 25/01
Introducing guidewires	A61M 25/09041

A61B 1/00163**{Optical arrangements ([A61B 1/002](#), [A61B 1/06](#) take precedence)}****Definition statement***This place covers:*

Details of optical arrangements for transmitting image within the endoscope not covered by any lower ranking class. Includes jointed image paths using mirrors/prisms.

References

Limiting references

This place does not cover:

Rod-lens arrangements	A61B 1/002
Illuminating arrangements	A61B 1/06

Informative references

Attention is drawn to the following places, which may be of interest for search:

Distal optical elements	A61B 1/00096
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A61B 1/00165

{with light-conductive means, e.g. fibre optics ([A61B 1/07](#) takes precedence)}

Definition statement

This place covers:

Guiding light from distal to proximal end of the endoscope, not limited to imaging.

References

Limiting references

This place does not cover:

Guiding in particular illumination light from proximal to distal end of the endoscope	A61B 1/07
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Light guides per se	G02B 6/00
Light guides for industrial endoscopes	G02B 23/26

A61B 1/00167

{Details of optical fibre bundles, e.g. shape or fibre distribution}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical fibre arrangements for illumination	A61B 1/07
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A61B 1/0017**{Details of single optical fibres, e.g. material or cladding}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Optical fibres for illumination	A61B 1/07
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A61B 1/00172**{with means for scanning}****Definition statement***This place covers:*

2D/3D scanning of illumination and/or imaging light beams.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Distal mechanical or optical elements	A61B 1/0008
Optical coherence tomography	A61B 5/0066
Confocal scanning	A61B 5/0068
Optical scanning systems in general	G02B 26/10

A61B 1/00174**{characterised by the viewing angles}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Distal optical features in general	A61B 1/00096
Detachable distal elements	A61B 1/00101

A61B 1/00177**{for 90 degrees side-viewing}****Definition statement***This place covers:*

Optical element at distal end of endoscope allows side-viewing.

A61B 1/00179**{for off-axis viewing}****Definition statement***This place covers:*

Optical element at distal end of endoscope sets the field-of-view at an angle to the longitudinal axis of the endoscope i.e. between 0-90 degrees, in forward or rearward direction.

A61B 1/00181**{for multiple fixed viewing angles ([A61B 1/00193](#) takes precedence)}****Definition statement***This place covers:*

Optical elements allow multiple different fixed views, e.g. combining either alternative or simultaneous 0 degree frontal and 90 degrees side-viewing.

References**Limiting references***This place does not cover:*

Stereoscopic viewing	A61B 1/00193
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A61B 1/00183**{for variable viewing angles}****Definition statement***This place covers:*

Optical element at distal end of endoscope allows variable field of view, e.g. by rotation or deflection of a distal optical element.

A61B 1/00186**{with imaging filters}****Definition statement***This place covers:*

Filters in the optical imaging path of an endoscope.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Filters in the optical illumination path of an endoscope	A61B 1/0646
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A61B 1/00188**{with focusing or zooming features}****Definition statement***This place covers:*

Optical and/or mechanical arrangements for adjusting the focal point or magnification of an endoscope, e.g. for auto-focus or endo-microscopy.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Confocal scanning	A61B 5/0068
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A61B 1/0019**{characterised by variable lenses}****Definition statement***This place covers:*

Lens with variable refractive properties, e.g. fluid filled lens, Alvarez lens.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Variable lenses as such	G02B 3/14
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A61B 1/00193**{adapted for stereoscopic vision}****Definition statement***This place covers:*

Stereoscopic or three dimensional imaging, e.g. by combining images from two laterally spaced cameras.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Stereoscopic vision for industrial endoscopes	G02B 23/2415
---	------------------------------

A61B 1/00194**{adapted for three-dimensional imaging}****Definition statement***This place covers:*

Image acquisition and related image processing for three-dimensional imaging (3D), e.g. based on passive or active triangulation.

A61B 1/00195**{with eyepieces}****Definition statement***This place covers:*

Features of the eyepiece, e.g. lens arrangement, attachment to endoscope shaft/camera etc. Includes binocular eyepieces.

A61B 1/00197**{characterised by multiple eyepieces}****Definition statement***This place covers:*

Multiple eyepieces allowing more than one observer to view the image.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Binocular eyepieces	A61B 1/00195
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A61B 1/002**having rod-lens arrangements ([A61B 1/055](#) takes precedence)****References****Limiting references***This place does not cover:*

Rod-lens arrangements in combination with a camera	A61B 1/055
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Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "Rod lens" and "Hopkins optics"

A61B 1/005**Flexible endoscopes****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Catheters without visualisation	A61M 25/00
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A61B 1/0051**{with controlled bending of insertion part}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Tip steering of catheters	A61M 25/0133
Articulated or flexible manipulators	B25J 1/02
Crawling robots for pipe lines	F16L 55/28 , F16L 55/34

A61B 1/0052**{Constructional details of control elements, e.g. handles}****Definition statement**

This place covers:

Operating elements for active control of bending, e.g. mechanical levers, dials or pulleys, but also electrical switches usually mounted on the handle.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Endoscope handles in general	A61B 1/00066
Force transmission elements, e.g. control wires	A61B 1/0057
Controlled bending of the insertion part using shape memory elements	A61B 1/0058
Handles for tip steering devices of catheters	A61M 25/0136

A61B 1/0055**{Constructional details of insertion parts, e.g. vertebral elements}****Definition statement***This place covers:*

Backbone elements repetitively aligned and movably connected to each other to provide stability and flexibility to the insertion tube.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Articulations	A61B 1/008
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A61B 1/0057**{Constructional details of force transmission elements, e.g. control wires}****Definition statement***This place covers:*

Operating elements for transmission of forces for the purpose of e.g. bending, flexing, twisting, pivoting or rotation of a flexible portion of the insertion tube.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Control elements, e.g. on the handle	A61B 1/0052
Articulations	A61B 1/008

A61B 1/008**Articulations****Definition statement***This place covers:*

Means for interconnecting (rigid) backbone elements of the shaft to provide flexibility, e.g. hinges, joints or pivots.

A61B 1/009**{with bending or curvature detection of the insertion part}****Definition statement***This place covers:*

Determining the bending state, curvature or shape of the insertion part by features inherent to the endoscope, not for locating or tracking the endoscope with respect to the body.

A61B 1/01

Guiding arrangements therefore

Definition statement

This place covers:

Guiding means, which are independent from the flexible endoscope and its integrated tip steering mechanisms, e.g. guide wires or insertion aids.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Guide tubes	A61B 1/00154
Guiding arrangements for catheters	A61M 25/01

A61B 1/0125

{Endoscope within endoscope}

Definition statement

This place covers:

Combination of at least 2 endoscopes, where one endoscope is introduced into the body cavity, e.g. by passing it through a channel of another endoscope.

A61B 1/015

Control of fluid supply or evacuation

Definition statement

This place covers:

Controlling fluid supply or evacuation to or from cavities of the human body.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fluid supply or evacuation to distal balloons	A61B 1/00082
Fluid supply or evacuation for cleaning purposes post-use	A61B 1/121
Fluid supply or evacuation for cleaning purposes in-use	A61B 1/126

A61B 1/018**for receiving instruments****Definition statement**

This place covers:

All kind of working channels for insertion of medical instruments through the endoscope shaft, e.g. for minimally invasive surgery.

A61B 1/04**combined with photographic or television appliances****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Camera adapters	G03B 17/48
Television cameras	H04N 23/00

A61B 1/041**{Capsule endoscopes for imaging}****Definition statement**

This place covers:

Small mostly capsule type cameras, usually but not necessarily swallowed for minimally invasive visual documentation e.g. of the gastroenterologic tract or blood vessels. Often in combination with miniaturized on-board diagnostic or therapeutic tools.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Wireless transmission of control or image signals	A61B 1/00016
Internal power supply, e.g. by batteries	A61B 1/00032
Capsule type diagnostic sensors without visualization	A61B 5/07

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "Capsule endoscope" and "Pill camera"

A61B 1/042**{characterised by a proximal camera, e.g. a CCD camera}****Definition statement***This place covers:*

Endoscopic cameras integrated into or detachably fixed to the proximal end of an endoscope.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Cameras in the distal end portion of an endoscope	A61B 1/05
Image processing e.g.	G06T 7/0012
Details of the TV cameras	H04N 23/00

A61B 1/043**{for fluorescence imaging}****Definition statement***This place covers:*

Visual imaging of tissue fluorescence induced e.g. by exogenously administered fluorophores or endogenous autofluorescence.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Filters in the imaging path	A61B 1/00186
Monochromatic illumination	A61B 1/063
Polychromatic illumination	A61B 1/0638
Filters in the illumination path	A61B 1/0646
Detection of tissue fluorescence not resulting in an image	A61B 5/0059

A61B 1/044**{for absorption imaging}****Definition statement***This place covers:*

Visual imaging of tissue absorbance with or without contrast agents, e.g. using infrared light.

A61B 1/046**{for infrared imaging}****Definition statement***This place covers:*

Infrared (IR) or near infrared (NIR) imaging indent from the used light source.

A61B 1/051**{Details of CCD assembly}****Definition statement***This place covers:*

Details of mounting the CCD chip in the distal tip of the endoscope.

A61B 1/06**with illuminating arrangements****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Illumination arrangements for industrial endoscopes	G02B 23/2461
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A61B 1/0605**{for spatially modulated illumination}****Definition statement***This place covers:*

Illumination arrangements with spatially modulated light patterns, e.g. LCDs or spatially arranged illumination fibers.

A61B 1/0607**{for annular illumination}****Definition statement***This place covers:*

Illumination arrangements where light exits the endoscope forwardly in multiple points or circularly, including illumination sources for the oral cavity not incorporated in the endoscope shaft.

A61B 1/0615**{for radial illumination}****Definition statement***This place covers:*

Illumination arrangements where light exits the endoscope radially (perpendicularly to the longitudinal axis). Single or multiple illumination ports.

A61B 1/0623**{for off-axis illumination}****Definition statement***This place covers:*

Illumination of cavity at an angle to the longitudinal axis of the endoscope other than at 90 degrees.

A61B 1/0625**{for multiple fixed illumination angles}****Definition statement***This place covers:*

Optical elements allow multiple different fixed illumination angles, e.g. combining either alternative or simultaneous 0 degrees frontal and 90 degrees side illumination.

A61B 1/0627**{for variable illumination angles}****Definition statement***This place covers:*

Optical element at distal end of endoscope allows variable illumination angles, e.g. by rotation or deflection of a distal optical element.

A61B 1/063**{for monochromatic or narrow-band illumination}****Definition statement***This place covers:*

- Lasers or laser diodes
- Quasi-monochromatic light sources like narrow-band filtered lamps or LEDs.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Illumination filters	A61B 1/0646
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A61B 1/0638**{providing two or more wavelengths}****Definition statement***This place covers:*

Illumination with multiple spectral bands, e.g. for fluorescence endoscopy.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Fluorescence spectroscopy without visual imaging	A61B 5/0071 or G01N 21/64
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A61B 1/0646**{with illumination filters}****Definition statement***This place covers:*

Optical filters provided in the illumination path of the endoscope, e.g. for fluorescence endoscopy.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Filters in the optical imaging path of an endoscope	A61B 1/00186
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A61B 1/0653**{with wavelength conversion}****Definition statement***This place covers:*

Endoscope comprising one or several light source(s), e.g. semiconductor light source or LEDs, that illuminate(s) a fluorescent material, e.g. phosphor, to emit light at a different wavelength than the exciting light.

A61B 1/0655**{Control therefor}****Definition statement***This place covers:*

Automatic control of illumination-related settings such as intensity, spectral, geometric or pulse properties e.g. of the light source, apertures or other optical elements in the illumination path and based e.g. on measured parameters or image processing.

A61B 1/0661**{Endoscope light sources}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Lightning devices in general	F21L
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A61B 1/0669**{at proximal end of an endoscope}****Definition statement***This place covers:*

External or internal light sources coupled to or positioned at the proximal end of an endoscope for illumination.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Cables to couple a light source to an endoscope	A61B 1/00117
Connectors to couple a light source to an endoscope	A61B 1/00126

A61B 1/0692**{head mounted}****Definition statement***This place covers:*

Headlamps, e.g. used for dental or ENT applications.

A61B 1/07**using light-conductive means, e.g. optical fibres****Definition statement***This place covers:*

Guiding illumination light from proximal to distal end of the endoscope.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Guiding light from distal to proximal end of the endoscope, not limited to imaging	A61B 1/00165
Details of optical fibre bundles	A61B 1/00167

Details of single optical fibre structure	A61B 1/0017
Light guides per se	G02B 6/00
Light guides for illumination in industrial endoscopes	G02B 23/2469

A61B 1/12

with cooling or rinsing arrangements

Definition statement

This place covers:

Fluid supply or evacuation for functional purposes of the endoscope.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Control of fluid supply or evacuation	A61B 1/015
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A61B 1/121

{provided with means for cleaning post-use}

Definition statement

This place covers:

Cleaning, e.g. physically, of endoscopes and/or parts thereof after use.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cleaning of endoscopes in-use	A61B 1/126
Cleaning of surgical instruments	A61B 90/70
Cleaning of dental instruments	A61C 19/002
Disinfection or sterilisation of materials or objects, in general; Accessories therefor	A61L 2/00
Cleaning of hollow articles in general	B08B 9/00

A61B 1/122

{using cleaning tools, e.g. brushes}

Definition statement

This place covers:

Tools for cleaning endoscopes after use, e.g. cleaning swabs or brushes inserted into endoscope channel.

A61B 1/123**{using washing machines}****Definition statement***This place covers:*

Washing machines specially adapted for cleaning endoscopes.

A61B 1/125**{using fluid circuits}****Definition statement***This place covers:*

Fluid circulation in the endoscope during endoscope cleaning cycle.

A61B 1/126**{provided with means for cleaning in-use}****Definition statement***This place covers:*

Active cleaning of endoscope parts during use, e.g. of distal windows to maintain vision.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Distal nozzles	A61B 1/00091
Cleaning of endoscopes post-use	A61B 1/121

A61B 1/127**{with means for preventing fogging ([A61B 1/253](#) takes precedence)}****Definition statement***This place covers:*

Prevention of fogging, e.g. by dedicated covers or coatings.

References**Limiting references***This place does not cover:*

Means for preventing fogging of dentist's mirrors	A61B 1/253
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A61B 1/128**{provided with means for regulating temperature}****Definition statement***This place covers:*

Monitoring/controlling/regulation of temperature in an endoscope (shaft or handle) and related units like proximal light sources.

A61B 1/24**for the mouth, i.e. stomatoscopes, e.g. with tongue depressors; Instruments for opening or keeping open the mouth****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Light-based diagnosis of oral or dental tissue	A61B 5/0088
Tongue depressors per se	A61B 13/00
Instruments for opening or keeping open the mouth combined with saliva removers	A61C 17/10
Mouth openers for animals	A61D 15/00

A61B 1/32**Devices for opening or enlarging the visual field, e.g. of a tube of the body****Definition statement***This place covers:*

Devices for enlarging natural openings of the human body for visual inspection, e.g. specula or the like.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Tractors for holding wounds open	A61B 17/02
Surgical trocars for introduction into natural body openings	A61B 2017/345
Dilators	A61M 29/00

A61B 3/00

Apparatus for testing the eyes; Instruments for examining the eyes (eye inspection using ultrasonic, sonic or infrasonic waves [A61B 8/10](#))

References

Limiting references

This place does not cover:

Eye inspection using ultrasonic, sonic or infrasonic waves	A61B 8/10
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for treatment of the eyes	A61F 9/00
Exercisers for the eyes	A61H 5/00
Optical systems in general	G02B
Spectacles and contact lenses	G02C

Special rules of classification

[A61B 3/02](#) - [A61B 3/09](#) for subjective testing, i.e. with patient feedback and [A61B 3/10](#) - [A61B 3/158](#) for objective testing, i.e. without patient feedback.

The breakdown indexing codes and orthogonal indexing codes are to be used for classifying the invention information (in addition to the invention symbols) in case the invention is insufficiently classified by an invention information symbol. They are also to be used for classifying the additional information.

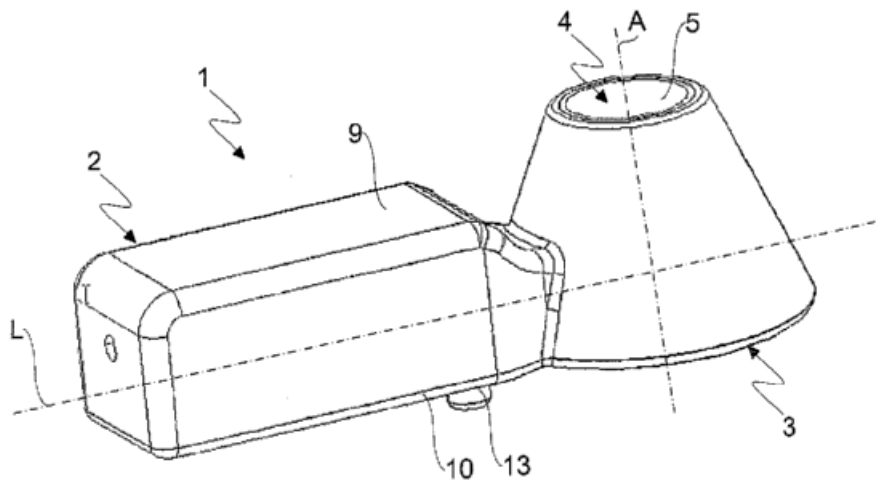
A61B 3/0008

{provided with illuminating means ([A61B 3/117](#), [A61B 3/14](#) take precedence)}

Definition statement

This place covers:

Illuminating means for examining the eyes (not related to a specific measuring instrument)



WO 2011/148349

References

Limiting references

This place does not cover:

Illumination for examining the anterior chamber or the anterior chamber angle	A61B 3/117
Illumination for objective testing apparatus	A61B 3/14

Informative references

Attention is drawn to the following places, which may be of interest for search:

Goniolenses used for laser treatment	A61F 9/009
Illuminating means for optical instruments	G02B 27/00

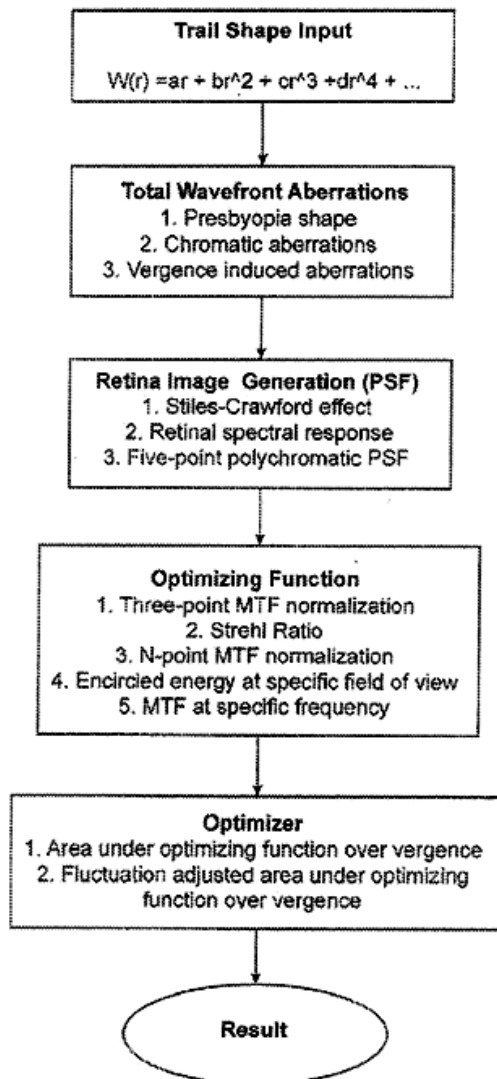
A61B 3/0025

{characterised by electronic signal processing, e.g. eye models}

Definition statement

This place covers:

Use of any type of eye model, e.g. to aid in measurement of visual function or checking correct prescription of corrective lens.



US 2012/249950

Determination of parameters of contact lenses or of intraocular lenses on the basis of ophthalmic measurements

Correlation of eye images taken at different times

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Planning of eye laser surgery	A61F 2009/00878
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Computer processing of eye images	G06T 2207/30041
Medical models	G09B 23/28

A61B 3/0033

{characterised by user input arrangements}

Definition statement

This place covers:

All types of user input/interface means, e.g. particular keyboard/switch layouts, control desks/panels, voice-controlled, light pen, touch screen, joysticks, cursors etc.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Adjusting devices, e.g. operated by control lever	A61B 3/0075
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A61B 3/005

{Constructional features of the display}

Definition statement

This place covers:

Display construction, e.g. portable, supports for displays.

A61B 3/0058

{for multiple images}

Definition statement

This place covers:

Display of images obtained by all types of apparatus in [A61B 3/00](#), combinations of images, e.g. side-by-side, superimposed, tiled etc., combination of images and/or other data, e.g. graphs, waveforms, alphanumeric data, questionnaires, patient reports etc.

A61B 3/0066

{with identification means for the apparatus}

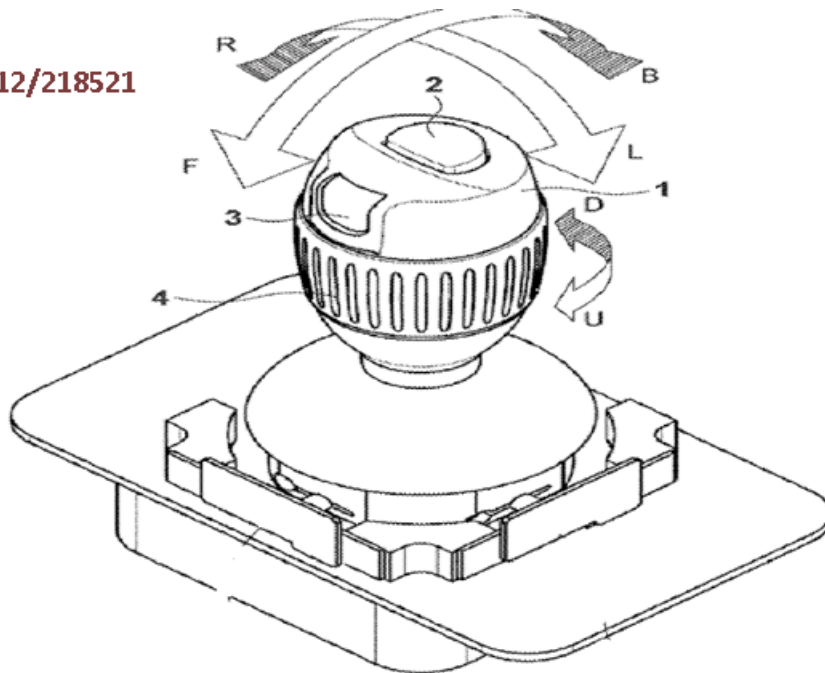
Definition statement

This place covers:

Identification of apparatus or component parts of the apparatus by any means, e.g. RFID, bar code, coded resistors, EPROM etc.

A61B 3/0075**{provided with adjusting devices, e.g. operated by control lever}****Definition statement***This place covers:*

Control levers for ophthalmic apparatus

US 2012/218521**References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

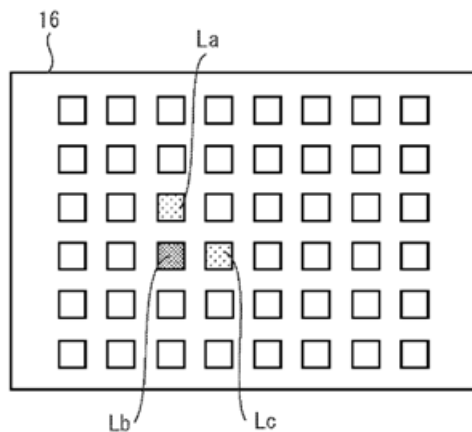
Manipulators as such	B25J
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A61B 3/0083**{provided with means for patient positioning}****Definition statement***This place covers:*

Means for positioning of a patient with respect to apparatus, e.g. head-rests, chin-rests, seats etc.
 Adjustable positioning, e.g. sliding elements or motor driven structures.

A61B 3/0091**{Fixation targets for viewing direction}****Definition statement***This place covers:*

Details or arrangements of fixation targets or lights.

**US 2010/296056**

The fixation light 16 includes a plurality of LEDs arranged in a lattice shape. By lighting one LED, the fixation light 16 can guide a sight line of the subject's eye E to a direction of the LED lighting.

Also to relax the accommodation power

A61B 3/022**{for testing contrast sensitivity}****Definition statement***This place covers:*

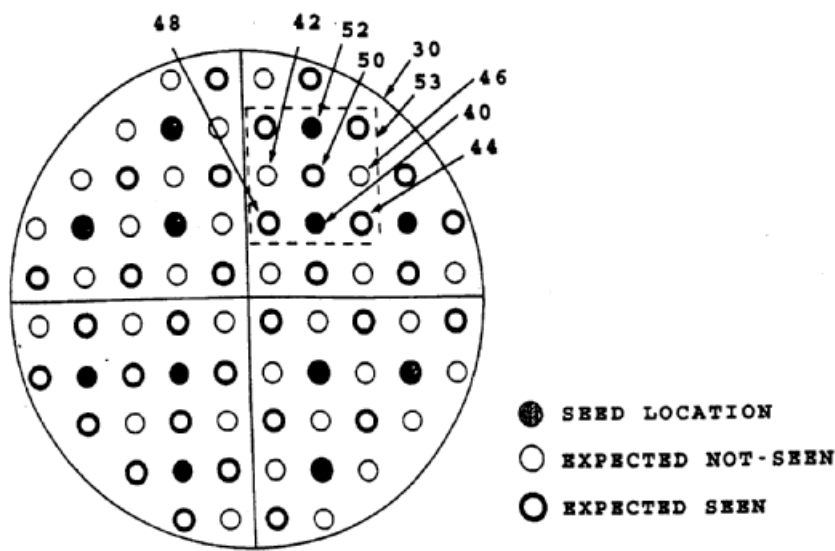
Examination or measurement of the contrast sensitivity of the eye.

A61B 3/024

for determining the visual field, e.g. perimeter types

Definition statement

This place covers:
Determining the field of vision



US 5 050 983

A61B 3/032

Devices for presenting test symbols or characters, e.g. test chart projectors
([A61B 3/036](#) takes precedence)

References

Limiting references

This place does not cover:

For testing astigmatism	A61B 3/036
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A61B 3/04

Trial frames; Sets of lenses for use therewith

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ophthalmic lenses per se	G02C 7/02
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A61B 3/10

Objective types, i.e. instruments for examining the eyes independent of the patients' perceptions or reactions

Definition statement

This place covers:

Measurements on the eye without the patient's feedback.

Besides the below-listed fields, the following is included:

- detect the features (e.g., position, fitting) of a contact lens or an intraocular lens
- examining the eyelid
- evaluate a contrast agent on the eye surface
- fluorescence examination
- scanning laser ophthalmoscope
- examination of light scattering

A61B 3/1005

**{for measuring distances inside the eye, e.g. thickness of the cornea
([A61B 3/11](#) takes precedence)}**

References

Limiting references

This place does not cover:

For measuring interpupillary distance or diameter of pupils	A61B 3/11
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A61B 3/101

{for examining the tear film}

Definition statement

This place covers:

Measurement of any quantity related to tear secretion or tear film production, e.g. volume, flow, or film thickness.

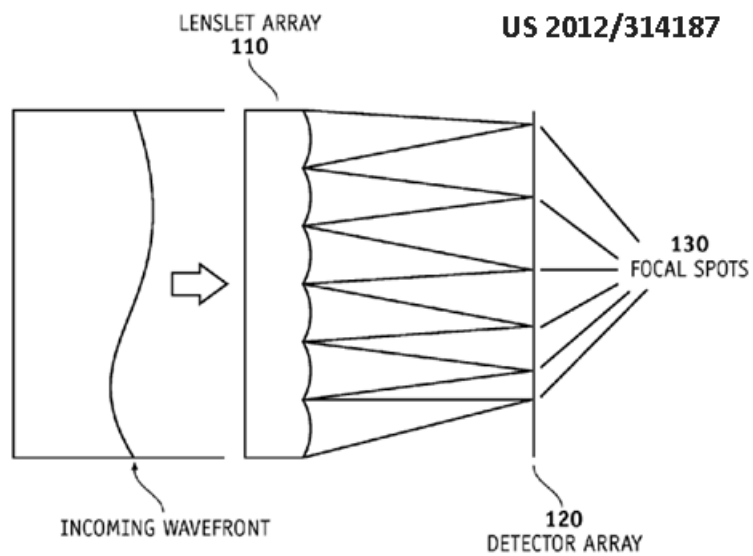
Synonyms and Keywords

In patent documents, the following words/expressions are often used with the meaning indicated:

Examining	Measuring.
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A61B 3/1015**{for wavefront analysis}****Definition statement***This place covers:*

Measuring optical aberrations of the eye or corneal topography with wavefront sensor.

**Synonyms and Keywords**

wavefront sensor, Hartmann sensor, shack sensor, lenslet array, microlens array

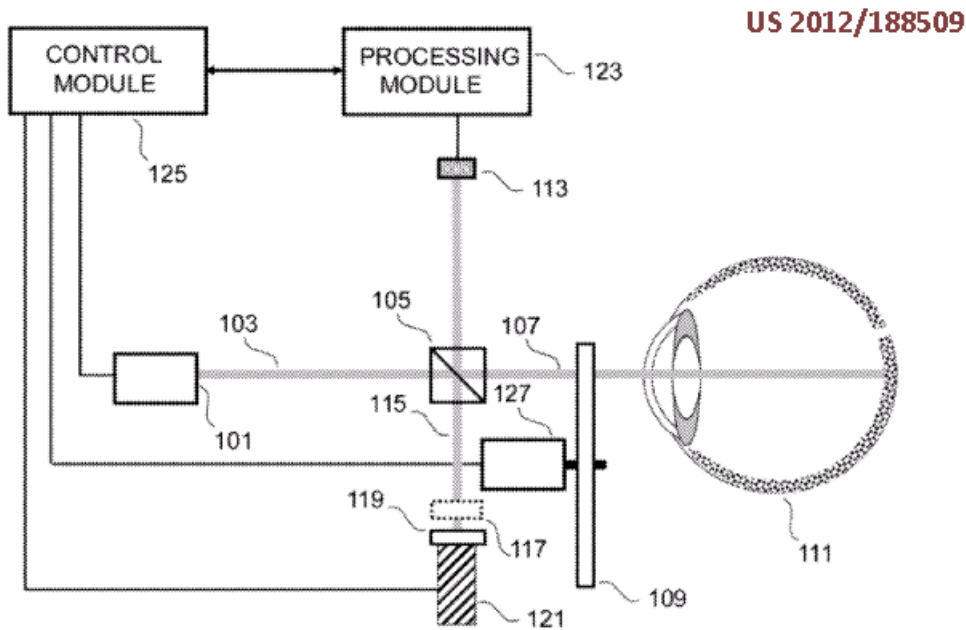
A61B 3/102

{for optical coherence tomography [OCT]}

Definition statement

This place covers:

By optical coherence tomography, also in combination and sharing optical components with scanning laser ophthalmoscopy.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical coherence tomography of body tissue in general	A61B 5/0066
Optical coherence tomography as such	G01N 21/4795

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "optical coherence tomography", "OCT", "OCDR", "optical coherence domain relectometry", "optical coherence imaging", "low coherence interferometry" and "partial coherence tomography"

A61B 3/1025

{for confocal scanning}

Definition statement

This place covers:

Scanning the eye wherein a detector receives only the reflected light focussed on a single point in the eye tissue, e.g. cornea or retina.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Confocal scanning of body tissue in general	A61B 5/0068
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A61B 3/103

for determining refraction, e.g. refractometers, skiascopes

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wavefront analyser	A61B 3/1015
Intraocular lenses	A61F 2/16
Eye surgery	A61F 9/007
Lenses	G02B 7/02
Contact lenses	G02B 7/04
Spectacles	G02C

A61B 3/1035

{for measuring astigmatism (testing astigmatism [A61B 3/036](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Computation of astigmatism based on input values	A61B 3/0025
Testing astigmatism	A61B 3/036

Special rules of classification

This field mostly relates to processing of ophthalmic data in order to estimate astigmatism.

A61B 3/107

for determining the shape or measuring the curvature of the cornea

Definition statement

This place covers:

Measurement of corneal topography, e.g. by projecting a light pattern (moiré, placido rings) on the cornea;

Examination of limbus.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wavefront analyser	A61B 3/1015
Examination of anterior and posterior chambers	A61B 3/117
Eye surgery	A61F 9/007
Measuring curvature by projecting a pattern	G01B 11/25

A61B 3/111

{for measuring interpupillary distance}

Definition statement

This place covers:

Measurement of interpupillary distance in the context of diagnostic procedures.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring geometric parameters required to locate ophthalmic lenses in spectacles frames	G02C 13/005
--	-----------------------------

A61B 3/113

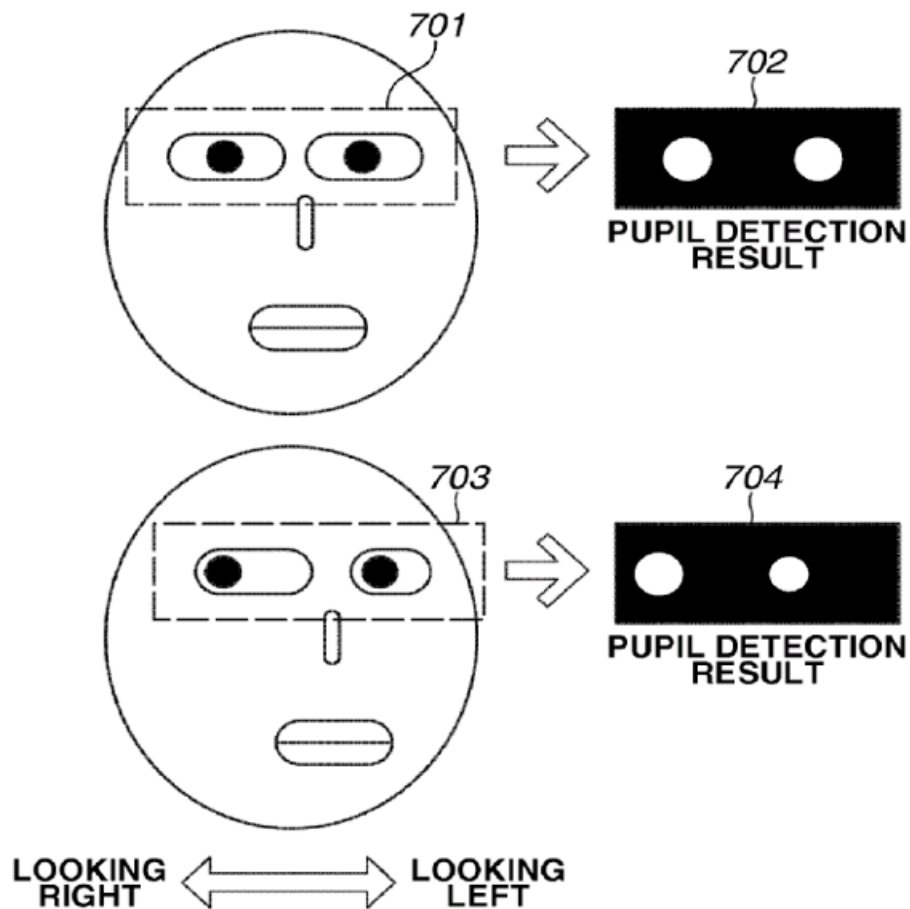
for determining or recording eye movement

Definition statement

This place covers:

Eye tracking mainly for diagnostic purposes.

Example: Using imagine processing.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electrooculography [EOG], e.g. detecting nystagmus	A61B 5/398 , A61B 5/4863
Tracking eye movements during eye surgery	A61F 2009/00846
Means for monitoring data relating to the user, e.g. head-tracking, eye-tracking	G02B 27/00
Man-machine interfaces	G06F 3/01
For photography	G06F 3/013

A61B 3/117

for examining the anterior chamber or the anterior chamber angle, e.g. gonioscopes

Definition statement

This place covers:

Examination of the anterior chamber: Space between the cornea and the iris.

Examination of the posterior chamber: Iris, ciliary body, lens.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Examination of the cornea	A61B 3/107
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A61B 3/1176

{for determining lens opacity, e.g. cataract}

Definition statement

This place covers:

Any type of apparatus for determining, measuring or examining the opacity of the lens, e.g. due to cataract.

A61B 3/12

for looking at the eye fundus, e.g. ophthalmoscopes ([A61B 3/13](#) takes precedence)

References

Limiting references

This place does not cover:

Ophthalmic microscopes	A61B 3/13
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Informative references

Attention is drawn to the following places, which may be of interest for search:

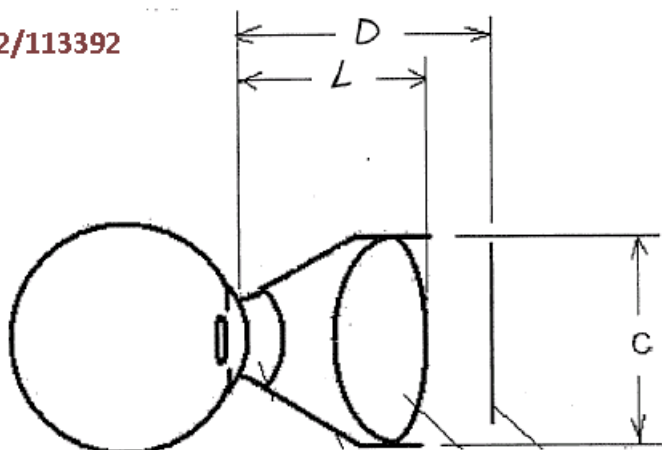
Documentation by photo or video means	A61B 3/14
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A61B 3/125**with contact lenses****Definition statement**

This place covers:

Lens adapted to be placed on the cornea for direct observation of the retina

US 2012/113392

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Contact lenses per se	G02C 7/04
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A61B 3/13**Ophthalmic microscopes****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Operation microscopes	A61B 90/20
Surgical microscopes	G02B 21/0012

A61B 3/14**Arrangements specially adapted for eye photography****Definition statement**

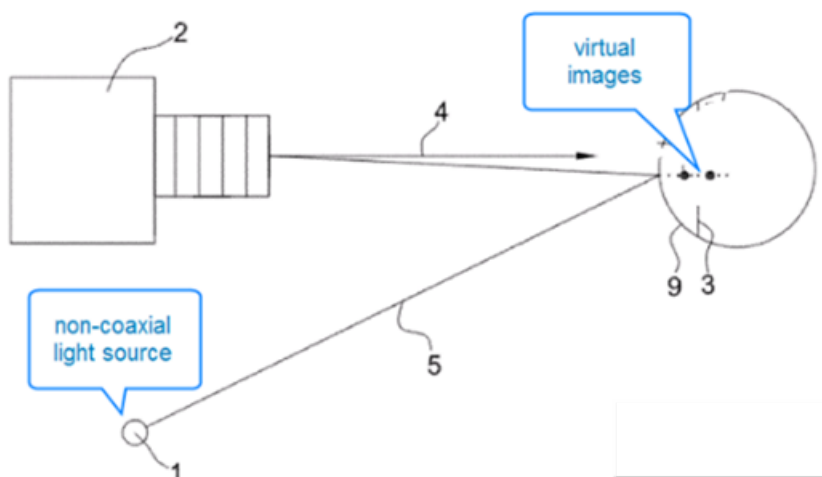
This place covers:

Means for focusing an eye image detector:

Definition statement

- Adaptive optics;
- Camera adapters;
- Focusing features;
- Eye spectrometry; or
- Evaluation of eye-detector distance.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus or arrangements for taking photographs per se	G03B
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A61B 3/158

{of corneal reflection}

Definition statement

This place covers:

Means for stopping, e.g. polarised light reflected from the cornea to enhance detection of light reflected from the retina, e.g. in eye fundus examinations.

A61B 3/16

for measuring intraocular pressure, e.g. tonometers

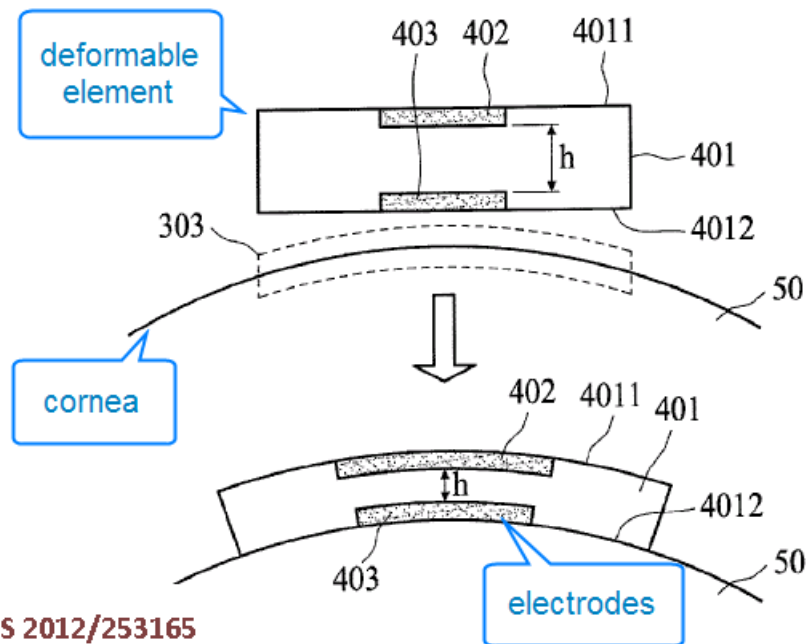
Definition statement

This place covers:

Detect intraocular pressure.

Definition statement

E.g., using a deformable element in contact with the cornea

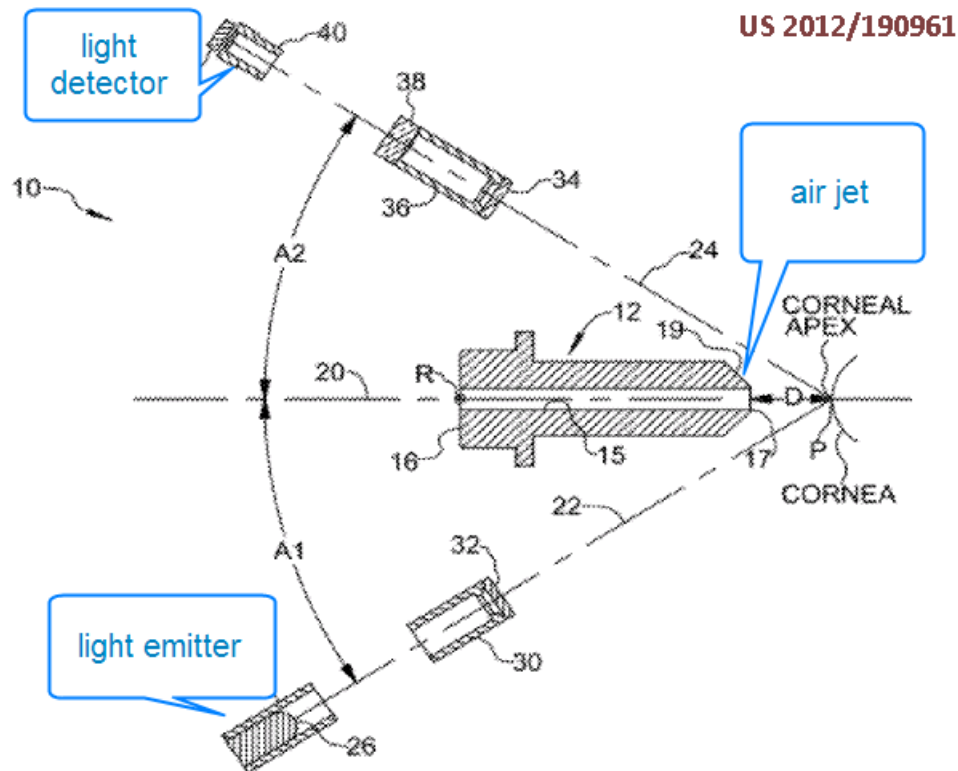


Also:

- using deformable item on the eye surface
- causing eye deformation using ultrasound waves
- using implanted sensor

A61B 3/165**{Non-contacting tonometers}****Definition statement***This place covers:*

Detect intraocular pressure by deforming the eye surface with a gas jet and measuring the deformation of the eye surface

**A61B 3/18****Arrangement of plural eye-testing or -examining apparatus****Definition statement***This place covers:*

Combinations of eye-testing apparatus in a single workstation, e.g. at a test station.

A61B 3/185**{characterised by modular construction}****Definition statement***This place covers:*

Apparatus may be modified for different applications by exchanging component parts.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Attachment of cameras or photography equipment	A61B 3/14 - A61B 3/158
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A61B 5/00

Measuring for diagnostic purposes (radiation diagnosis [A61B 6/00](#); diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); Identification of persons

References

Limiting references

This place does not cover:

Radiation diagnosis	A61B 6/00
Diagnosis by ultrasonic, sonic or infrasonic waves	A61B 8/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring or recording in general	G01
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Special rules of classification

The breakdown symbols (i.e. the non "parallel" or non "mirror" symbols) and "orthogonal" symbols are to be used for classifying the invention information (in addition to the invention symbols) in case the invention is insufficiently classified by an invention information symbol. They are also to be used for classifying the additional information. They are stored in the additional information field.

A61B 5/0002

{Remote monitoring of patients using telemetry, e.g. transmission of vital signals via a communication network (endoradiosondes [A61B 5/07](#))}

References

Limiting references

This place does not cover:

Endoradiosondes	A61B 5/07
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Transmitting measured data in general	G01D 5/00 , G08C
Transmission	H04B
Transmission of digital information	H04L
Wireless communication networks	H04W

A61B 5/0017**{transmitting optical signals}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Transmission by light	H04B 10/00
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A61B 5/0033**{Features or image-related aspects of imaging apparatus, e.g. for MRI, optical tomography or impedance tomography apparatus; Arrangements of imaging apparatus in a room}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Image data processing or generation	G06T
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Special rules of classification

Documents in this subgroup should be also be classified according to type of imaging apparatus in other subgroups of [A61B 5/00](#).

A61B 5/0036**{including treatment, e.g., using an implantable medical device, ablating, ventilating}****Definition statement***This place covers:*

Imaging apparatus, for example employing electron or nuclear magnetic resonance, including surgical and therapeutic techniques to facilitate healing.

Implantable medical device may include pacemakers. Ablating includes cutting, eroding, melting, evaporating, or vaporizing. Ventilating includes oxygenating, aerating.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Diagnosis combined with treatment in closed-loop systems or methods	A61B 5/4836
Monitoring or testing the effects of treatment, e.g. of medication	A61B 5/4848
for verifying the position of the patient with respect to the therapeutic radiation beam	A61N 5/1049

A61B 5/0048

{Detecting, measuring or recording by applying mechanical forces or stimuli
([A61B 5/021](#), [A61B 5/4884](#) and [A61B 9/00](#) take precedence)}

Definition statement

This place covers:

Testing or evaluating the body or part of the body by applying mechanical forces or stimuli and measuring the response of the body or tissue to the mechanical force or stimulus.

References**Limiting references**

This place does not cover:

Measuring pressure in heart or blood vessels	A61B 5/021
Stress testing	A61B 5/4884
Examination by percussion	A61B 9/00

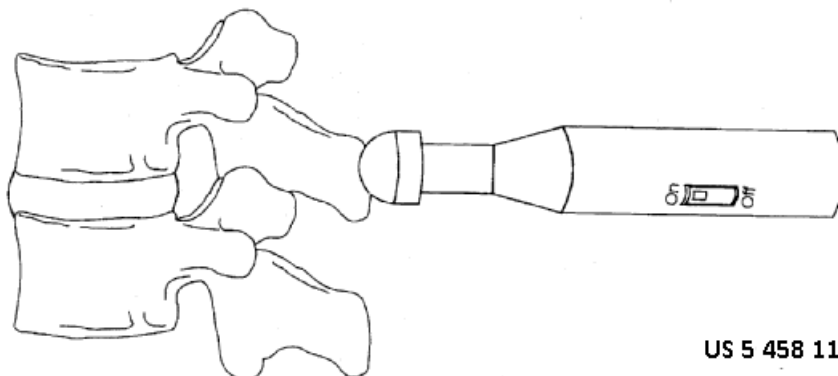
A61B 5/0051

{by applying vibrations}

Definition statement

This place covers:

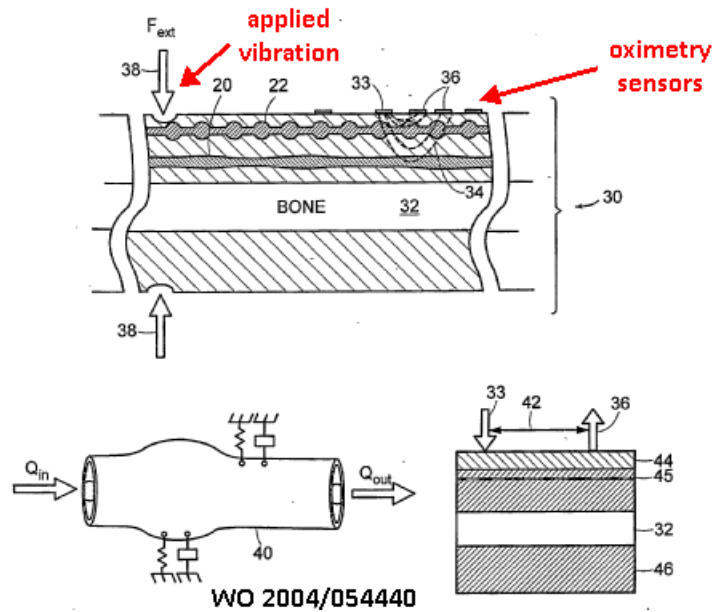
- 1) Vibration stimulator, e.g. for detecting pain threshold



US 5 458 119

Definition statement

2) Apply stimulation while carrying out measurements, e.g. oximetry:



References

Limiting references

This place does not cover:

Applying ultrasound vibrations	A61B 8/00
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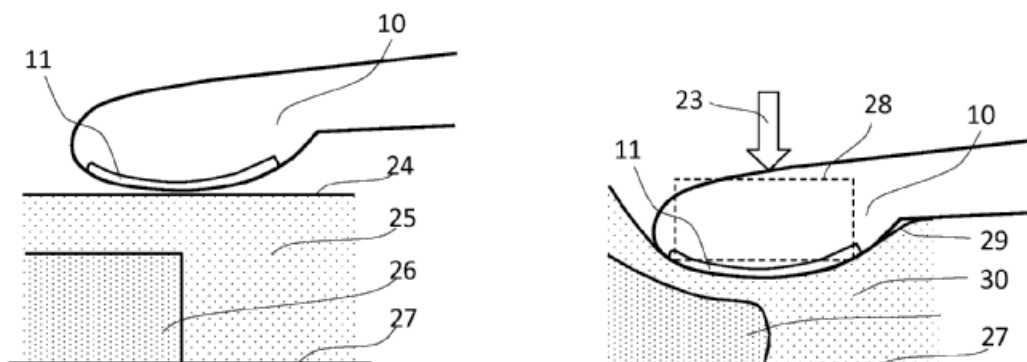
A61B 5/0053

{by applying pressure, e.g. compression, indentation, palpation, grasping, gauging}

Definition statement

This place covers:

Applying compression during a measurement:



US 2011/054357

Holding skin for skin gauges, palpation, indentation

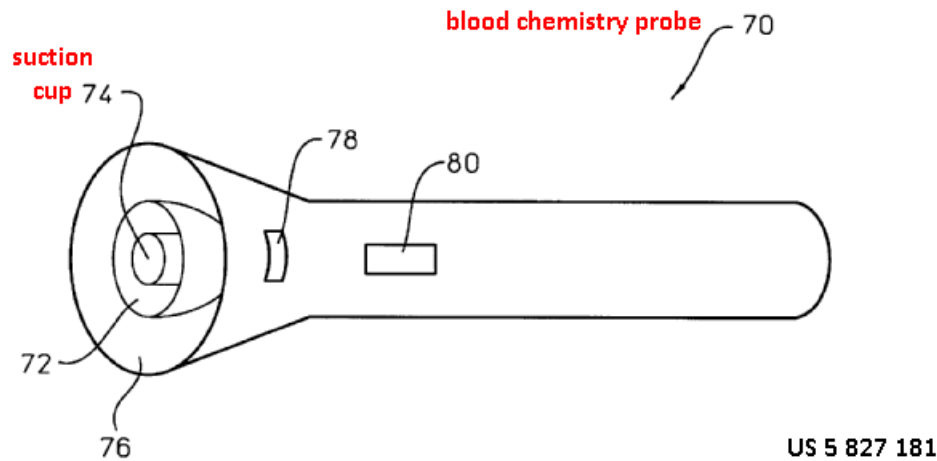
A61B 5/0055

{by applying suction}

Definition statement

This place covers:

Applying suction or vacuum at the measurement area during the measurement, e.g. to increase blood pressure:



References

Limiting references

This place does not cover:

Apply suction to enhance body fluid extraction	A61B 5/150099
Apply suction to attach sensor to the body surface	A61B 5/6834

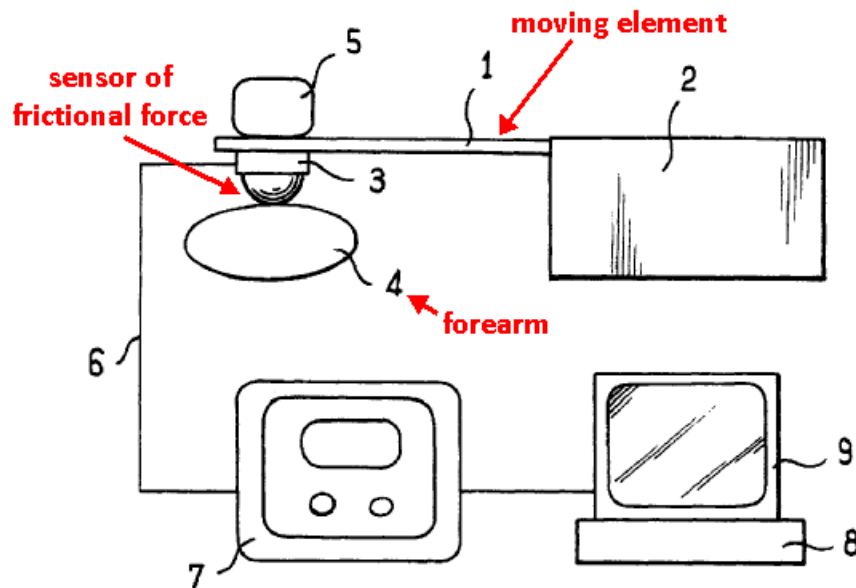
A61B 5/0057

{by applying motion other than vibrations, e.g. rolling, rubbing, applying a torque, tribometry}

Definition statement

This place covers:

Applying torque, friction etc. to a body part during the measurement of an effect of this force



US 6 309 363

A61B 5/0059

{using light, e.g. diagnosis by transillumination, diascopy, fluorescence (photoacoustic [A61B 5/0093](#); optical measurement of heart rate [A61B 5/02416](#); optical measurement of blood flow [A61B 5/0261](#); optical measurement of analytes [A61B 5/1455](#))}

Definition statement

This place covers:

Testing or evaluating the body, parts of the body or body tissues by applying light and measuring the change in light characteristics caused by the interaction of the light with the body or tissue. Light includes near infrared (NIR), visible or ultraviolet (UV) spectra.

References**Limiting references**

This place does not cover:

Photoacoustic or acousto-optic imaging	A61B 5/0093
Optical measurement of heart rate	A61B 5/02416
Optical measurement of blood flow	A61B 5/0261
Optical measurement of analytes	A61B 5/1455

Informative references

Attention is drawn to the following places, which may be of interest for search:

Features or image-related aspects of imaging apparatus	A61B 5/0033
Medical imaging apparatus involving image processing or analysis	A61B 2576/00
Spectrometry	G01J 3/00
Optical measurement in general	G01N 21/00

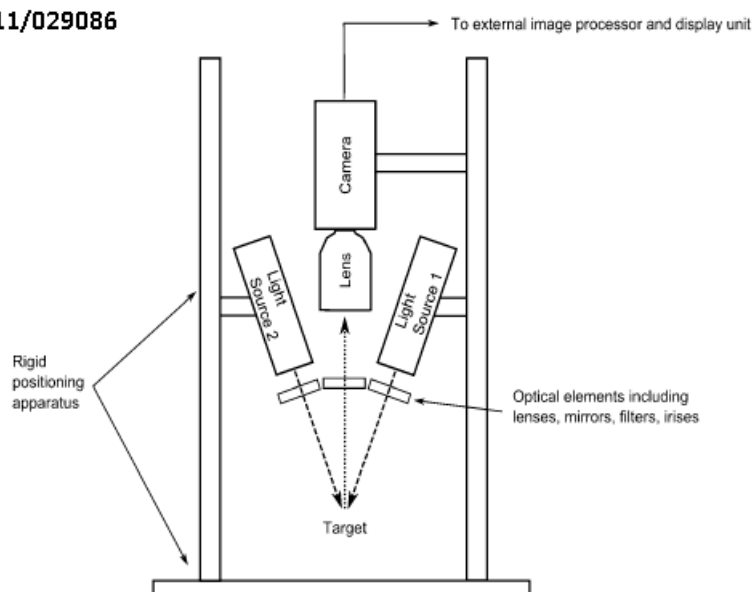
A61B 5/0062**{Arrangements for scanning}****Definition statement**

This place covers:

Diagnosis using scanned light, e.g.:

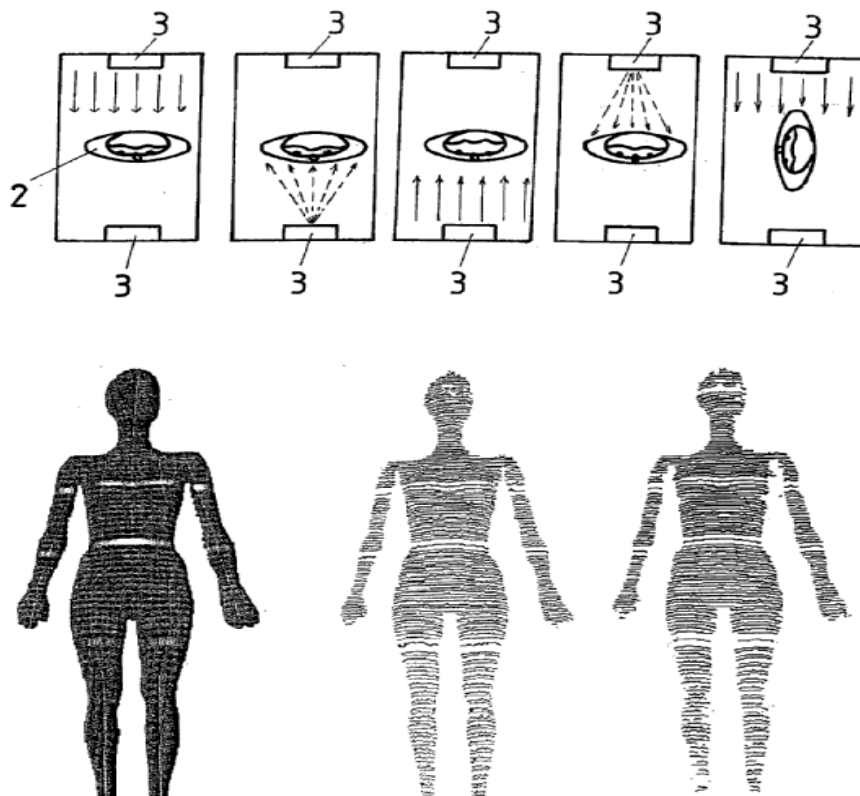
Laser speckle imaging

WO 2011/029086



A61B 5/0064**{Body surface scanning}****Definition statement***This place covers:*

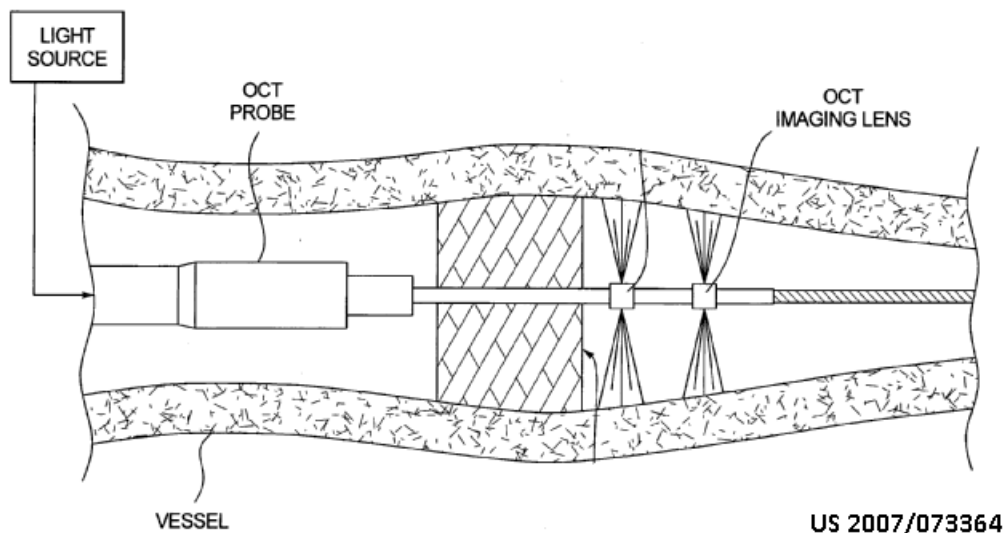
Apparatus for optical scanning of the external body surface:



EP 1 207 367

A61B 5/0066**{Optical coherence imaging}****Definition statement***This place covers:*

Detection using coherent light emission

**References****Limiting references***This place does not cover:*

OCT for eye diagnosis	A61B 3/102
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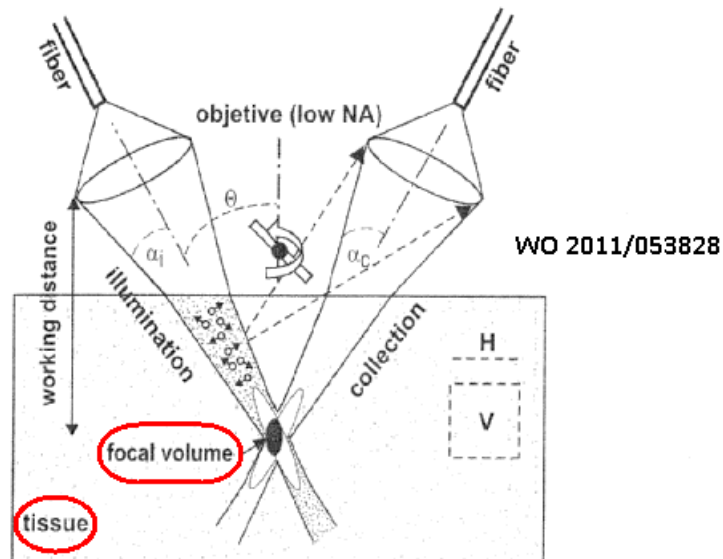
Informative references*Attention is drawn to the following places, which may be of interest for search:*

OCT in general	G01B 9/02 , G01N 21/47
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A61B 5/0068**{Confocal scanning}****Definition statement**

This place covers:

The use of confocal scanning techniques, e.g. confocal laser scanning microscopy in order to obtain images at selected depths of body tissue.

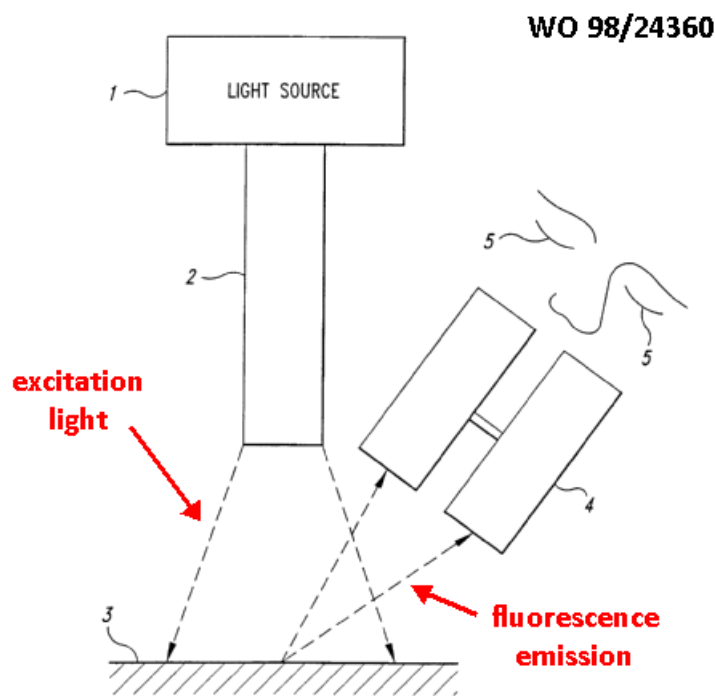
**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Confocal scanning surgical probes	G02B 21/002
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A61B 5/0071**{by measuring fluorescence emission}****Definition statement***This place covers:*

Detecting fluorescence emission as a result of irradiating excitation light



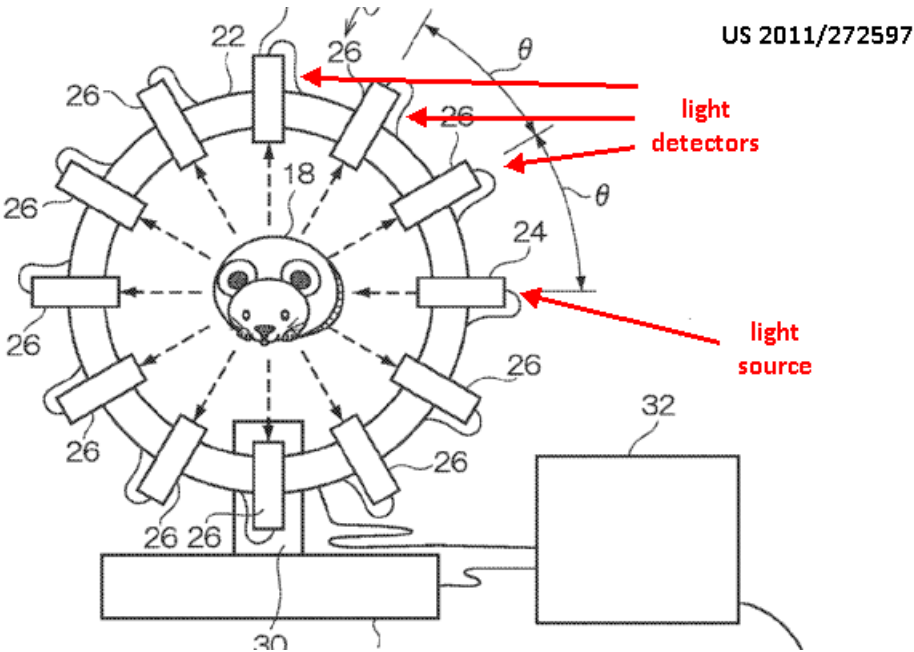
A61B 5/0073

{by tomography, i.e. reconstruction of 3D images from 2D projections
([A61B 5/0066](#) takes precedence)}

Definition statement

This place covers:

Reconstructing volumes using light irradiated into the body and scattered outside the body



References

Limiting references

This place does not cover:

Optical coherence tomography	A61B 5/0066
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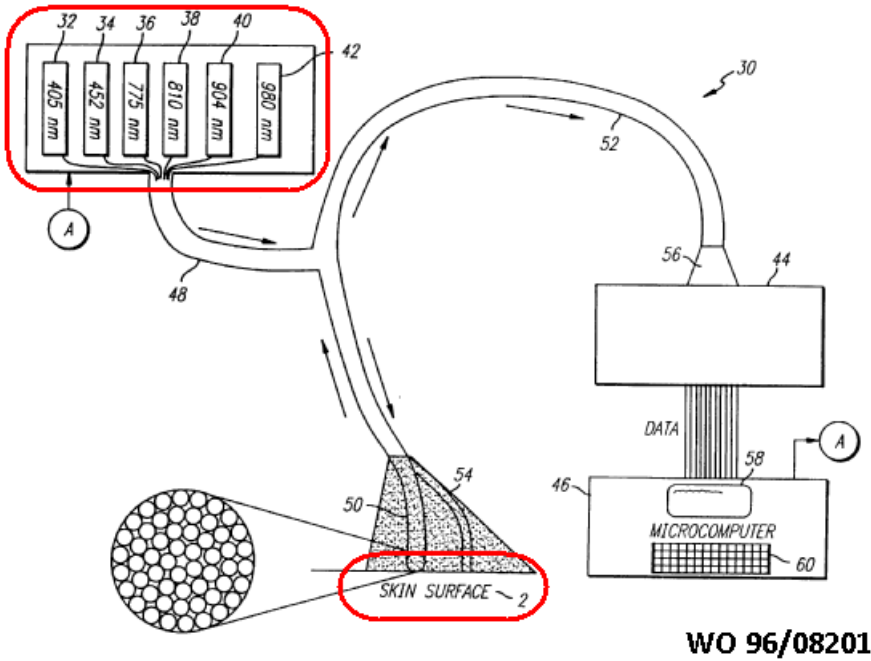
A61B 5/0075

{by spectroscopy, i.e. measuring spectra, e.g. Raman spectroscopy, infrared absorption spectroscopy ([A61B 5/0071](#) takes precedence)}

Definition statement

This place covers:

Evaluating spectral properties of body parts



References

Limiting references

This place does not cover:

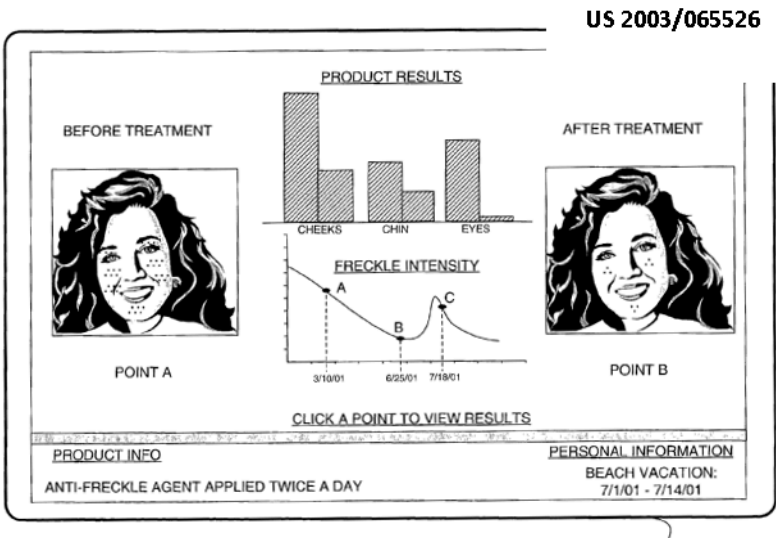
Measuring fluorescence emission	A61B 5/0071
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A61B 5/0077

{Devices for viewing the surface of the body, e.g. camera, magnifying lens}

Definition statement

This place covers:
Apparatus for viewing and taking images of the surface of the body. Documents may include diagnostic evaluation of images, e.g. evaluation of images taken with a camera at different times



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for image acquisition of a particular organ of body part	A61B 5/004
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A61B 5/0082

{adapted for particular medical purposes}

Definition statement

This place covers:
Devices using light adapted for a particular medical procedure, e.g. dentistry, mammography, insertion into the body

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Particular medical applications	A61B 5/40 - A61B 5/48
Relationship between the sensor and the patient	A61B 5/68

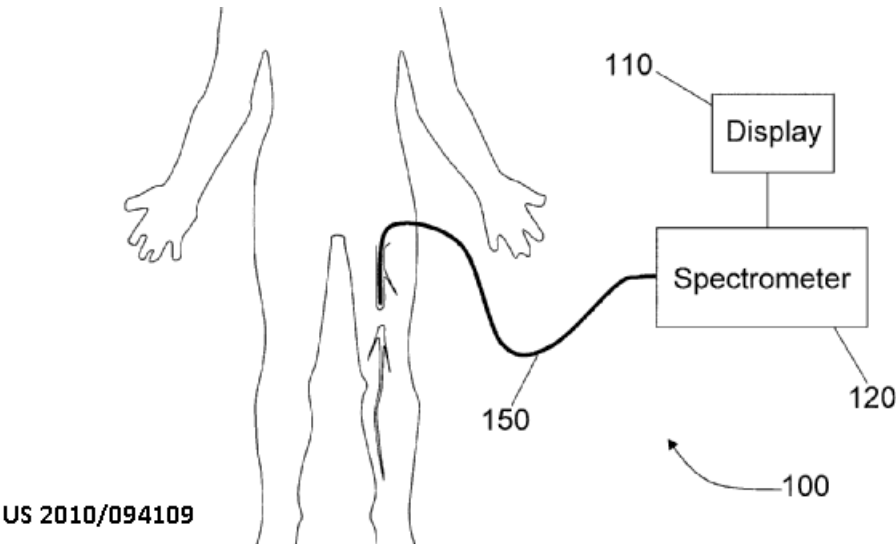
A61B 5/0084

{for introduction into the body, e.g. by catheters ([A61B 5/1459](#) takes precedence)}

Definition statement

This place covers:

Inspecting the composition of body tissues using light probes introduced into the body



References

Limiting references

This place does not cover:

Invasive probes for taking images (i.e. endoscopes)	A61B 1/00
Invasive optical sensors	A61B 5/1459

Informative references

Attention is drawn to the following places, which may be of interest for search:

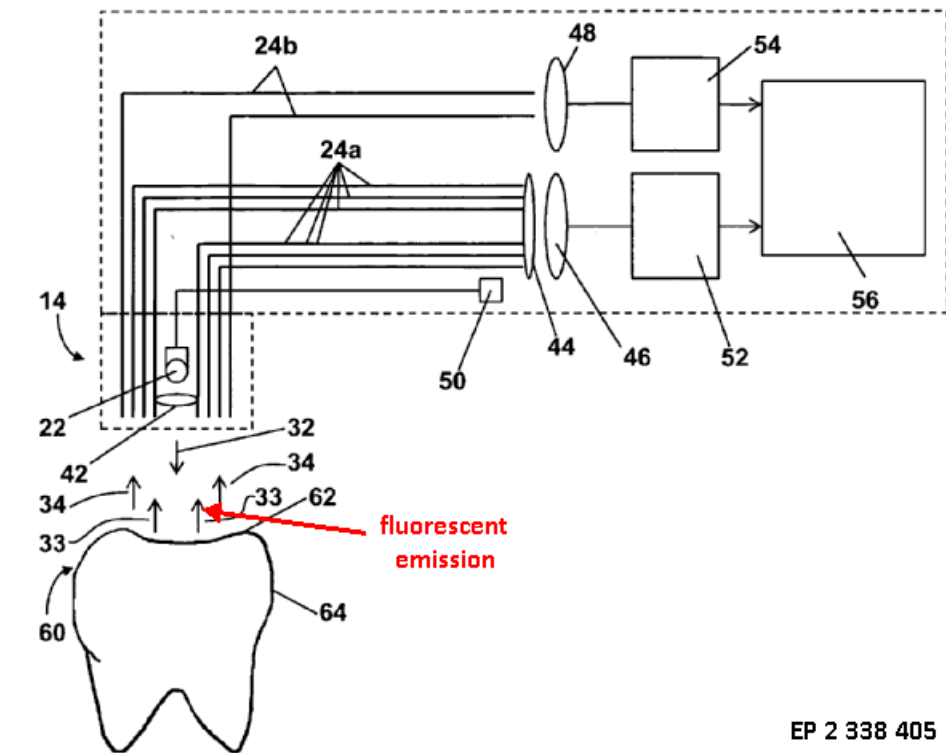
Probes mounted on invasive devices	A61B 5/6846
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A61B 5/0088

{for oral or dental tissue}

Definition statement

This place covers:
Detecting properties of all types of oral or dental tissue, e.g. teeth, gums, tongue



EP 2 338 405

References

Limiting references

This place does not cover:

Imaging the oral region	A61B 1/24
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring instruments specially adapted for dentistry	A61C 19/04
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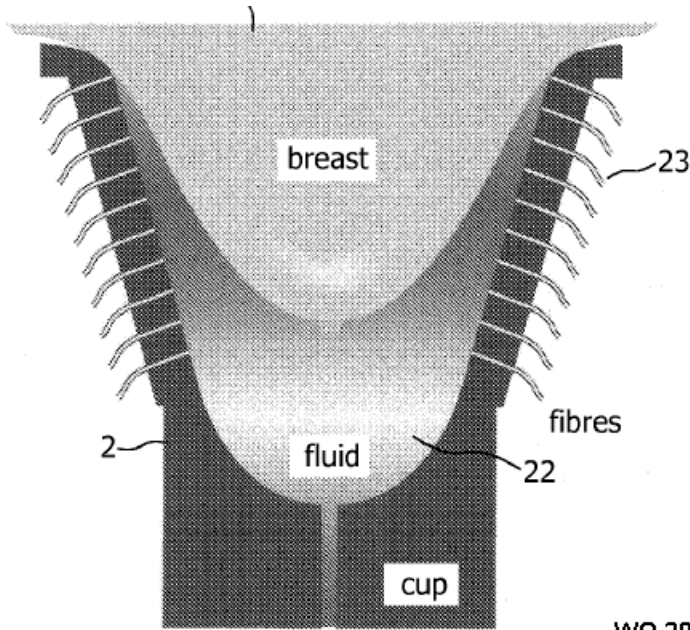
A61B 5/0091

{for mammography}

Definition statement

This place covers:

Detection of breast cancer or other properties using light



References

Limiting references

This place does not cover:

X-ray mammography	A61B 6/502
Ultrasound mammography	A61B 8/0825

Informative references

Attention is drawn to the following places, which may be of interest for search:

Breast evaluation in general	A61B 5/4312
Biopsy instruments for the breast	A61B 10/0041

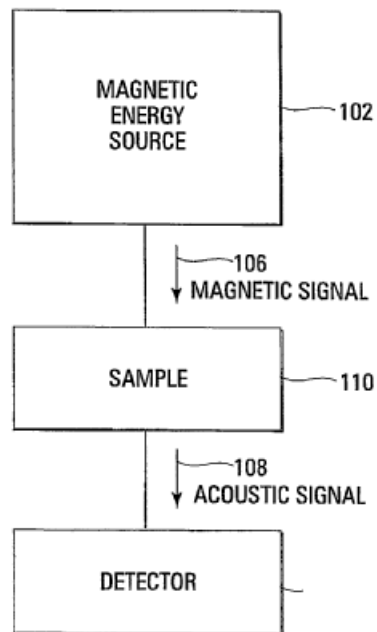
A61B 5/0093

{Detecting, measuring or recording by applying one single type of energy and measuring its conversion into another type of energy}

Definition statement

This place covers:

E.g., magnetoacoustic examination: apply magnetic energy, detect resulting acoustic radiation



WO 2006/122232

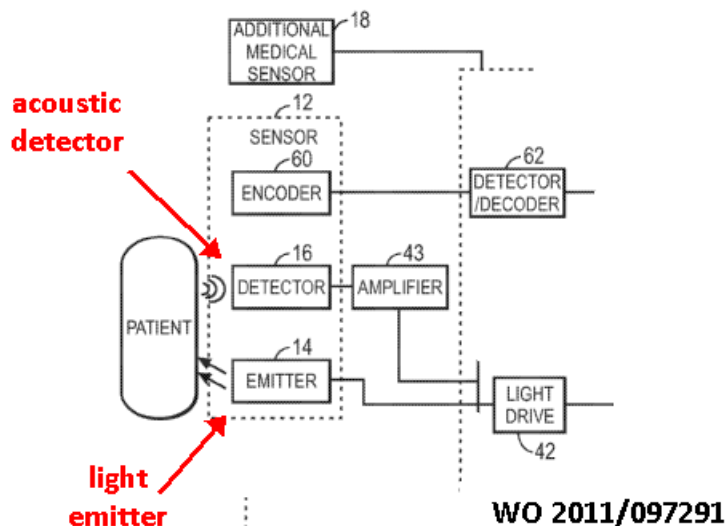
A61B 5/0095

{by applying light and detecting acoustic waves, i.e. photoacoustic measurements}

Definition statement

This place covers:

Apply light, detect resulting acoustic emission

**A61B 5/0097**

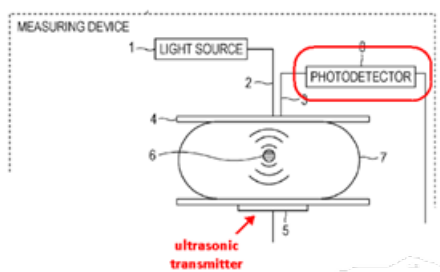
{by applying acoustic waves and detecting light, i.e. acousto-optic measurements}

Definition statement

This place covers:

Apply acoustic (e.g. ultrasonic) energy, detect resulting light emission.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional details for analysing materials using opto-acoustic interaction, e.g. acousto-optic effect	G01N 29/2418
Acousto-optical imaging in general	G01S 15/8965

A61B 5/01

Measuring temperature of body parts {; Diagnostic temperature sensing, e.g. for malignant or inflamed tissue} (clinical contact thermometers [G01K 13/20](#))

References

Limiting references

This place does not cover:

Clinical contact thermometers	G01K 13/20
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Transmission of temperature signals	A61B 5/0008
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A61B 5/02

Detecting, measuring or recording for evaluating the cardiovascular system, e.g. pulse, heart rate, blood pressure or blood flow

Definition statement

This place covers:

Apparatus for detecting, measuring or recording physiological parameters related to diagnosis of the cardiovascular system. It includes apparatus where calculation of health indices, e.g. an arterial index, are made or apparatus for monitoring trends in the patient's condition by analysis of the physiological data, e.g. ambulatory blood pressure monitoring.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring a physiological parameter of a patient undergoing therapy, e.g. for controlling the administration of therapy	A61M 2230/00
Controlling electrotherapy using a measured physiological parameter	A61N 1/365
Electrotherapy combined with monitoring a physiological parameter	A61N 1/3702
Measuring a physiological parameter of a user of sports apparatus	A63B 2230/00

Special rules of classification

Multiple subgroups may be allocated if the particular physiological parameter is essential for the determination of a diagnosis or calculation of a health index.

A61B 5/02035

{Determining blood viscosity}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Investigating flow properties of materials, e.g. viscosity	G01N 11/00
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A61B 5/0205

Simultaneously evaluating both cardiovascular conditions and different types of body conditions, e.g. heart and respiratory condition

Definition statement

This place covers:

Apparatus for detecting, measuring or recording multiple physiological parameters where at least one parameter is a cardiovascular parameter. Combinations with any other physiological parameters, not only a respiratory condition, are allowed, e.g. measurement of heart rate, movement activity and blood glucose concentration. Multiparameter vital signs monitoring.

Special rules of classification

Additional information should be given for specific parameters to show the combination of physiological parameters measured, e.g. [A61B 5/024](#), [A61B 5/0816](#) and [A61B 5/14532](#).

A61B 5/02055

{Simultaneously evaluating both cardiovascular condition and temperature}

Definition statement

This place covers:

Simultaneously evaluating both cardiovascular condition and body temperature. Multiple vital signs monitoring where at least one cardiovascular parameter is measured with body temperature, e.g. heart rate and temperature.

References

Limiting references

This place does not cover:

Remote monitoring of patients by using telemetry of temperature signals	A61B 5/0008
Details of apparatus calibration for compensation or correction of the measured physiological value using ambient temperature	A61B 2560/0252
Clinical thermometers	G01K 5/00
Special purpose thermometers	G01K 13/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring temperature of a patient undergoing therapy, e.g. for controlling administration of therapy	A61M 2230/50
Controlling electrotherapy using body or blood temperature	A61N 1/3655
Measuring temperature of a user of sports apparatus	A63B 2230/50

A61B 5/021**Measuring pressure in heart or blood vessels****Definition statement**

This place covers:

Apparatus for detecting, measuring or recording blood pressure, diastolic pressure, systolic pressure, arterial pressure, venous pressure. Includes measuring pressure in specific blood vessels, e.g. aortic pressure.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Detecting, measuring or recording fluid pressure within the body other than blood pressure	A61B 5/03
Means for maintaining contact with the body by monitoring or controlling sensor contact pressure	A61B 5/6843
Details of pressure sensors specially adapted for sensing pressure in vivo	A61B 2562/00
Measuring heartbeat characteristics, e.g. blood pressure modulation, during the administration of therapy	A61M 2230/04
Measuring blood pressure during the administration of therapy	A61M 2230/30
Heart stimulators controlled by a blood pressure signal	A61N 1/36564
Measuring heartbeat characteristics, e.g. blood pressure modulation, of a user of sporting apparatus	A63B 2230/04
Measuring blood pressure of a user of sporting apparatus	A63B 2230/30
Measuring fluid pressure by mechanical pressure-sensitive elements in general	G01L 7/00
Measuring fluid pressure by electric or magnetic pressure-sensitive elements in general	G01L 9/00

A61B 5/0215**by means inserted into the body****Definition statement***This place covers:*

All types of apparatus for detecting, measuring or recording blood pressure invasively including catheters, needle probes, guidewires and implanted devices. Blood pressure may be measured in blood vessels or in the heart itself.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring pressure in other body cavities	A61B 5/036
Constructional details of invasive sensing devices	A61B 5/6847 - A61B 5/6866
Solid probes	A61B 17/00 , A61M 25/09 , A61M 29/00
Catheters, e.g. for introducing media or drainage	A61M 25/00

A61B 5/02154**{by optical transmission}****Definition statement***This place covers:*

Apparatus for detecting, measuring or recording blood pressure in a blood vessel or the heart comprising optical means for transmitting the pressure change, e.g. deflection of a pressure sensitive membrane is detected optically.

References**Limiting references***This place does not cover:*

Optical transmission of a pressure signal from the patient to a remote site	A61B 5/0017
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Transmitting or indicating the displacement of pressure sensitive flexible diaphragms using photoelectric means	G01L 9/0076
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A61B 5/02156**{Calibration means}****Definition statement***This place covers:*

Methods or apparatus for calibrating the pressure sensor response. May include correction or compensation of the measured value, e.g. due to drift.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Details of apparatus for calibration, e.g. calibration protocols	A61B 2560/0223
Sensors provided with means for identification combined with means for recording calibration data, e.g. on memory chip	A61B 2562/085
Testing or calibrating of apparatus for measuring fluid pressure	G01L 27/00

A61B 5/02158**{provided with two or more sensor elements}****Definition statement***This place covers:*

Apparatus provided with two or more pressure sensors for measuring the blood pressure in the body, e.g. two pressure transducers mounted on a catheter.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Details of pressure sensors, e.g. in a linear arrangement	A61B 2562/043
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A61B 5/022

**by applying pressure to close blood vessels, e.g. against the skin;
Ophthalmodynamometers**

Definition statement*This place covers:*

Apparatus for detecting, measuring or recording blood pressure where the blood vessel is fully occluded during part of the measurement cycle and then released to allow blood flow.

A61B 5/02233**{Occluders specially adapted therefor (tourniquets [A61B 17/132](#))}****Definition statement***This place covers:*

Details of occluders, e.g. construction of inflatable cuffs, adjustable clamps.

References**Limiting references***This place does not cover:*

Tourniquets	A61B 17/132
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A61B 5/023**the pressure transducers comprising a liquid column****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring pressure of a fluid using liquid as a pressure sensitive medium, e.g. liquid-column gauges	G01L 7/18
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A61B 5/0235**Valves specially adapted therefor****Definition statement***This place covers:*

Details of valves specially adapted for use in blood pressure measuring apparatus, e.g. valves for releasing air from an inflatable cuff. Includes valves used in any part of the apparatus..

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Valves for medical use	A61M 39/22
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Special rules of classification

This subgroup is not restricted to apparatus where the blood vessel is occluded.

A61B 5/024**Measuring pulse rate or heart rate****Definition statement**

This place covers:

Apparatus for detecting, measuring or recording pulse rate or heart rate, e.g. given in beats per minute.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Evaluating a cardiovascular condition not otherwise provided for, e.g. pulse waveform shape analysis	A61B 5/02
Simultaneously evaluating both cardiovascular conditions and different types of body conditions	A61B 5/0205
Measuring pressure in heart or blood vessels	A61B 5/021
Ballistocardiography [BCG]	A61B 5/1102
Measuring a physiological parameter to provide biofeedback to patient, e.g. measuring heart rate to allow patient to control the heart rate	A61B 5/486
Measuring heart rate of a patient during administration of therapy	A61M 2230/06
Measuring heart rate of a user of sports apparatus	A63B 2230/06

A61B 5/02416

**{using photoplethysmograph signals, e.g. generated by infrared radiation
([A61B 5/14552](#) takes precedence)}**

Definition statement

This place covers:

Apparatus for detecting, measuring or recording pulse rate or heart rate using an optical sensor for detecting photoplethysmograph signals.

References**Limiting references**

This place does not cover:

Measuring blood flow using plethysmography	A61B 5/0295
Using optical sensors for measuring blood gases, e.g. details of photometrical oximeters	A61B 5/14552

A61B 5/02427

{Details of sensor}

Definition statement

This place covers:

Details of optical sensors for detecting photoplethysmograph signals. Includes constructional details of sensors, arrangements of sensors in housings or probes.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of optical sensors specially adapted for measuring blood gases	A61B 5/14552
Details of optical sensors specially adapted for in-vivo measurements	A61B 2562/0233

A61B 5/02438

{with portable devices, e.g. worn by the patient}

Definition statement

This place covers:

All types of portable devices for detecting, measuring or recording pulse or heart rate. Heart rate devices may be worn on any part of the body or be incorporated in a portable device providing a non-medical function, e.g. a music player.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements of detecting, measuring or recording means where the sensors are mounted on worn items	A61B 5/6802
Arrangements of detecting, measuring or recording means where the sensors are mounted on a non-medical device	A61B 5/6887
Constructional details of apparatus, low-profile patch shaped housings	A61B 2560/04
Apparatus with built-in sensors	A61B 2560/0462

A61B 5/02444

{Details of sensor ([A61B 5/02427](#) takes precedence)}

Definition statement

This place covers:

Details of sensors for measuring heart or pulse rate not covered by [A61B 5/02416](#) or [A61B 5/0245](#). For example, pressure sensors, strain gauges or accelerometers for measuring the tissue deformation due to the pulse wave. Includes sensor construction and arrangements of sensors in housings or probes.

References

Limiting references

This place does not cover:

Details of optical sensors for measuring heart rate	A61B 5/02427
Details of ECG sensors for measuring heart rate	A61B 5/0245

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of sensors specially adapted for in-vivo measurements	A61B 2562/00
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A61B 5/0245

by using sensing means generating electric signals, {i.e. ECG signals}

Definition statement

This place covers:

Apparatus for measuring, detecting or recording the heart rate using the detection ECG signals.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bioelectric electrodes therefor	A61B 5/28
Detecting specific parameters of the electrocardiograph cycle	A61B 5/349
Apparatus with built-in electrodes	A61B 2560/0468

A61B 5/025

within occluders, e.g. responsive to Korotkoff sounds

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electric stethoscopes	A61B 7/04
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A61B 5/026

Measuring blood flow {([A61B 3/1233](#), [A61B 3/1241](#) take precedence)}

Definition statement

This place covers:

Apparatus for measuring, detecting or recording blood flow or perfusion of blood in tissue. The extent of blood flow detected is not always given as a flow rate, e.g. in ml/s.

References**Limiting references**

This place does not cover:

Apparatus, instrument for testing the eyes	A61B 3/1233 , A61B 3/1241
Measuring volume flow or mass flow in general	G01F 1/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Controlling therapy by using blood flow rate	A61N 1/36571
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A61B 5/0265

using electromagnetic means, e.g. electromagnetic flowmeter

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring volume flow or mass flow using electromagnetic flowmeters	G01F 1/58
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A61B 5/027

using catheters

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Details of catheters for measuring	A61B 5/6852
Catheters, e.g. for introducing media or drainage	A61M 25/00

A61B 5/029

Measuring blood output from the heart, e.g. minute volume

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Heart stimulators controlled by a blood flow signal	A61N 1/36571
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A61B 5/0295

using plethysmography, i.e. measuring the variations in the volume of a body part as modified by the circulation of blood therethrough, e.g. impedance plethysmography

References**Limiting references**

This place does not cover:

Detecting, measuring or recording devices for evaluating the respiratory organs by impedance pneumography	A61B 5/086
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Impedance plethysmography not specifically for determining blood flow or perfusion	A61B 5/0535
Measuring volume of limbs, e.g. by plethysmography	A61B 5/1073

A61B 5/03

Measuring fluid pressure within the body other than blood pressure, e.g. cerebral pressure {; Measuring pressure in body tissues or organs (determining bladder or urethral pressure [A61B 5/205](#))}

Definition statement

This place covers:

Apparatus for detecting, measuring or recording fluid pressure within any part of the body other than blood pressure of the heart or blood vessels.

References**Limiting references**

This place does not cover:

Determining bladder or urethral pressure	A61B 5/205
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring blood pressure	A61B 5/021
Details of pressure sensors specially adapted for in vivo measurements	A61B 2562/0247
Measuring fluid pressure by electric or magnetic pressure sensitive elements in general	G01L 9/00

A61B 5/031**{Intracranial pressure}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring blood pressure by means inserted into the body	A61B 5/0215
Constructional details of invasive sensing devices, e.g. burr holes	A61B 5/6864
Catheters, e.g. for introducing media or drainage	A61M 25/00
Devices for cerebrospinal drainage	A61M 27/006

A61B 5/036**{by means introduced into body tracts ([A61B 5/032](#) and [A61B 5/035](#) take precedence)}****References****Limiting references***This place does not cover:*

Detecting, measuring or recording spinal fluid pressure	A61B 5/032
Detecting, measuring or recording uterine pressure using intra-uterine probes	A61B 5/035

Informative references*Attention is drawn to the following places, which may be of interest for search:*

Measuring blood pressure by means inserted into the body	A61B 5/0215
Constructional details of invasive sensing devices	A61B 5/6847 - A61B 5/6866
Catheters, e.g. for introducing media or drainage	A61M 25/00

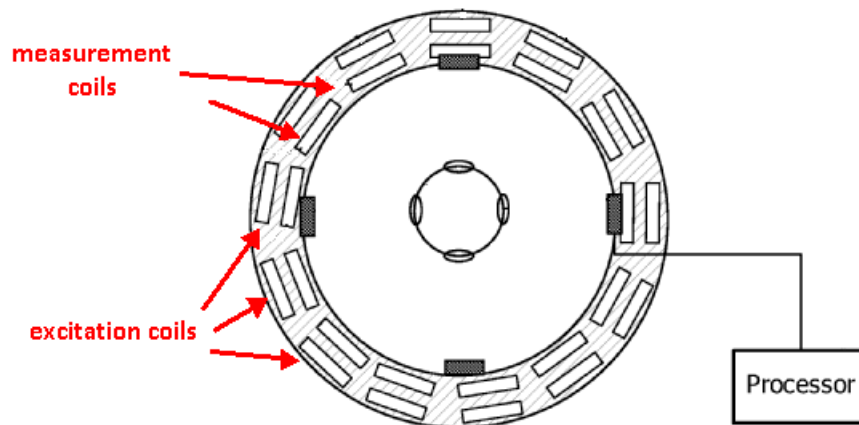
A61B 5/05**Detecting, measuring or recording for diagnosis by means of electric currents or magnetic fields; Measuring using microwaves or radio waves (measuring movement of the entire body or parts thereof [A61B 5/11](#); detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof [A61B 5/24](#))****Definition statement***This place covers:*

Measurements carried out while applying a magnetic field, an electric field or an electromagnetic field, e.g.:

- Magnetic induction tomography; or

- Measurements of microwaves modified by parts of the body.

Illustrative example of subject matter classified in this place:



The Figure illustrates measurement coils.

References

Limiting references

This place does not cover:

Detecting movement of the body	A61B 5/11
Detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B 5/24

Informative references

Attention is drawn to the following places, which may be of interest for search:

Features or image-related aspects of imaging apparatus	A61B 5/0033
Impedance plethysmography	A61B 5/0295

A61B 5/053

Measuring electrical impedance or conductance of a portion of the body

References

Informative references

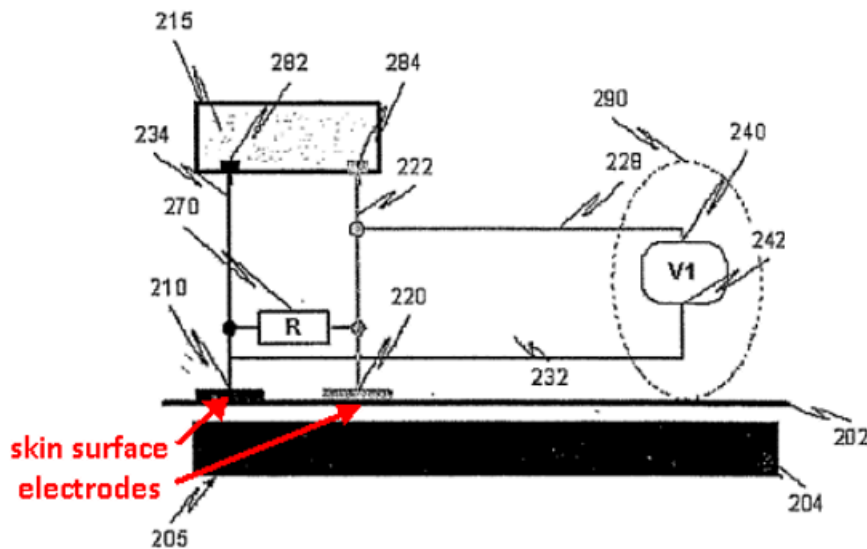
Attention is drawn to the following places, which may be of interest for search:

Determining position of an invasive probe using impedance measurements	A61B 5/063
Measuring impedance in general	G01R 27/00

A61B 5/0531**Measuring skin impedance****Definition statement**

This place covers:

Measuring skin impedance, conductance or resistance by applying a current or voltage to the skin.

**A61B 5/0532****especially adapted for acupuncture or moxibustion****Definition statement**

This place covers:

Using skin conductance measurement to detect acupuncture points

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Evaluating the autonomic nervous system	A61B 5/4035
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A61B 5/0533**Measuring galvanic skin response****Definition statement**

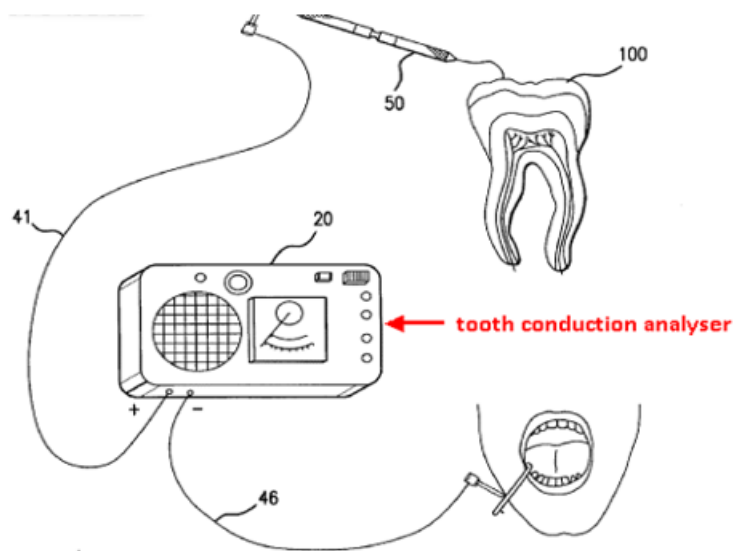
This place covers:

Measurements are carried out while presenting a stimulus (visual, auditory, auditive, etc.) to the subject of the examination

A61B 5/0534
for testing vitality of teeth

Definition statement

This place covers:
Conductance / impedance measurement on teeth



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

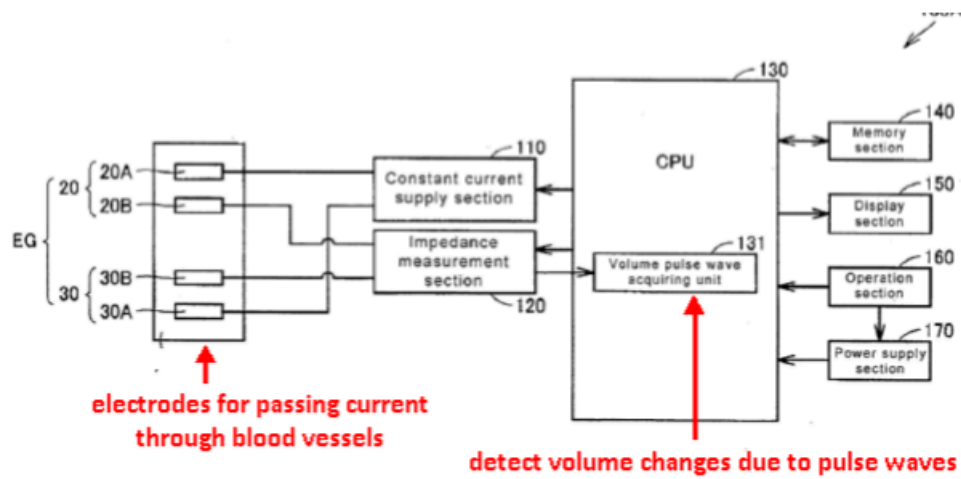
Evaluation of teeth in general	A61B 5/4547
Sensors adapted for attachment to the mouth	A61B 5/682
Dental radiography	A61B 6/51
Measuring instruments specially adapted for dentistry	A61C 19/04

A61B 5/0535

Impedance plethysmography (for measuring blood flow [A61B 5/0295](#))

Definition statement

This place covers:
Detection of volume changes by impedance measurements



References

Limiting references

This place does not cover:

Impedance plethysmography for measuring blood flow	A61B 5/0295
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Informative references

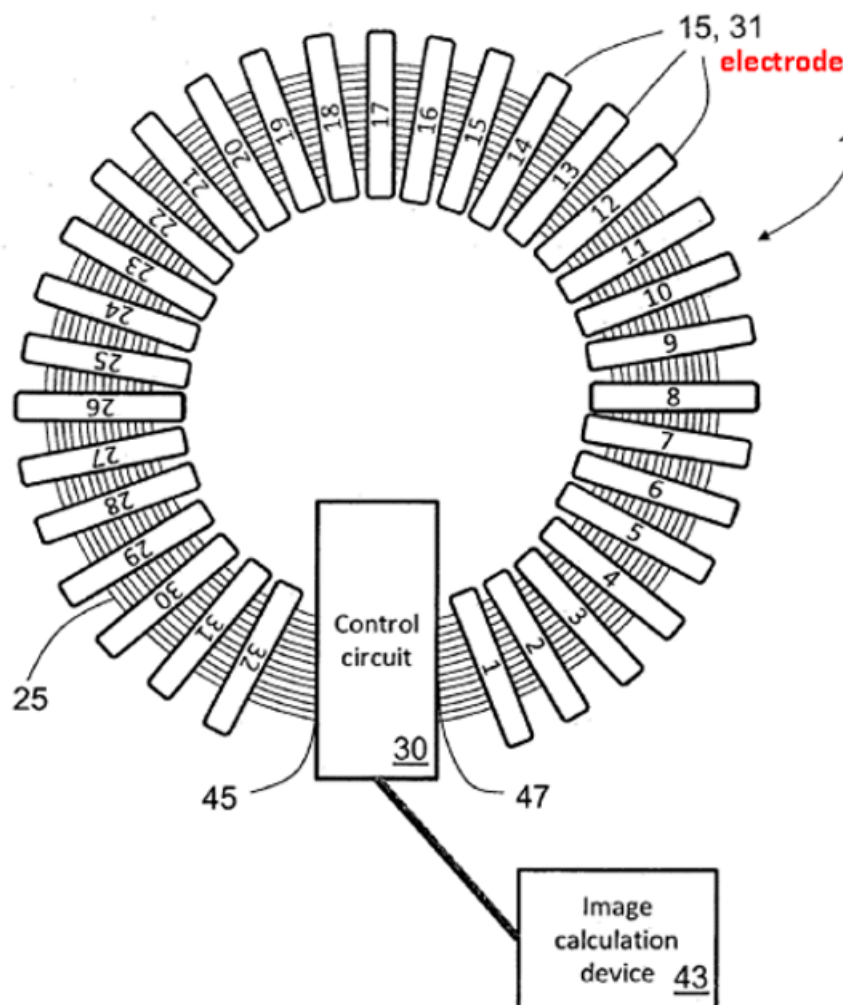
Attention is drawn to the following places, which may be of interest for search:

Detection of electrical impedance of respiratory organs	A61B 5/086
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A61B 5/0536**Impedance imaging, e.g. by tomography****Definition statement**

This place covers:

Reconstruction of images of parts of the body by means of impedance measurements:

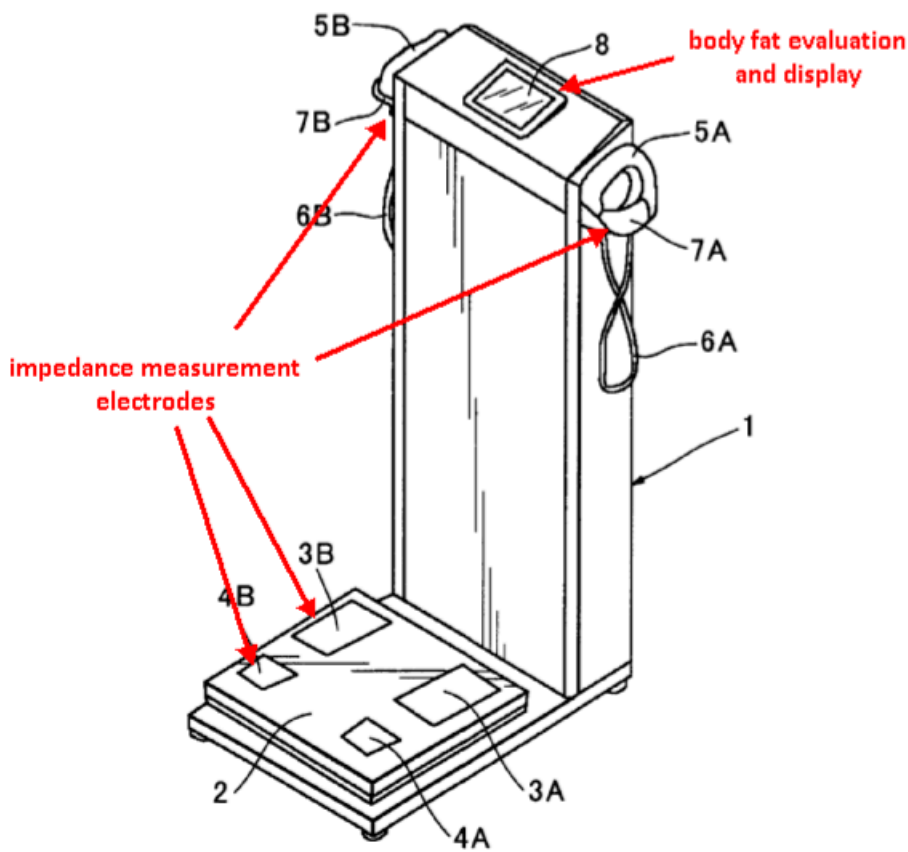


A61B 5/0537

Measuring body composition by impedance, e.g. tissue hydration or fat content

Definition statement

This place covers:
Fat content evaluation: measuring various parameters of body composition including body fat composition, lean body mass, body-fat ratio, tissue hydration, total body water, extracellular fluid volume etc..



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Weighing apparatus for diet control	G01G 19/4146
ICT specially adapted for therapies or health-improving plans (e.g. for handling prescriptions, for steering therapy or for monitoring patient compliance) relating to nutrition control (e.g. diets)	G16H 20/60

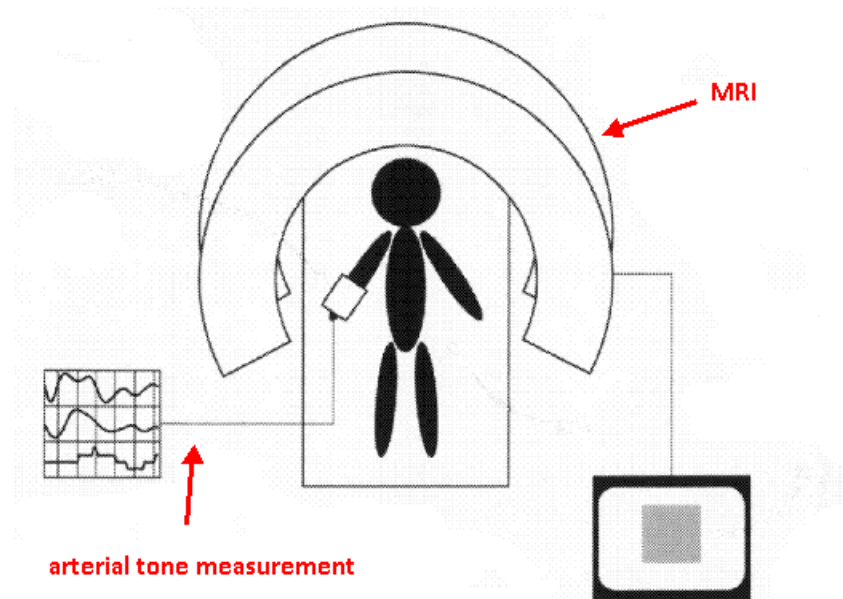
A61B 5/055

involving electronic [EMR] or nuclear [NMR] magnetic resonance, e.g. magnetic resonance imaging

Definition statement

This place covers:

[A61B 5/055](#) mainly covers the relationship between magnetic resonance apparatus (NMR, MRS, MRI, fMRI etc.) and other devices classified in [A61B 5/00](#). This subgroup does not include specific MR arrangements and MR processes as such which are already covered in [G01R 33/20](#), however includes documents where the diagnostic application of MR predominates rather than the system details or the details of the MR process. The following image shows an example of an MRI device with arterial tone measurement output.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Features or image-related aspects of imaging apparatus	A61B 5/0033
Adapted for image acquisition of a particular organ or body part	A61B 5/004
Diagnosing or monitoring cognitive diseases, e.g. Alzheimer, prion diseases or dementia	A61B 5/4088
Touch or pain perception evaluation	A61B 5/4824
Surgical systems with NMR or MRI images on a monitor during operation	A61B 2090/374
In vivo contrast agents	A61K 49/00
Arrangements or instruments for measuring magnetic variables involving electronic or nuclear magnetic resonance, in general	G01R 33/20
Invasive instruments, e.g. catheters or biopsy needles, specially adapted for tracking, guiding or visualization by NMR	G01R 33/285
Using nuclear magnetic resonance [NMR]	G01R 33/44

With selection of signals or spectra from particular regions of the volume, e.g. in vivo spectroscopy	G01R 33/483
Signal processing systems, e.g. using pulse sequences	G01R 33/54
Image enhancement or correction, e.g. subtraction or averaging techniques, e.g. improvement of signal-to-noise ratio and resolution	G01R 33/56

Special rules of classification

There is an overlap between the scope of [G01R 33/20](#) (or its relevant subgroup) and [A61B 5/055](#) in the sense that, depending on the disclosure of a given document, the document may have to be classified in [G01R 33/20](#) (or its relevant subgroup) only, in [A61B 5/055](#) only or in both places.

For instance:

- if the invention information of a document to be classified is primarily directed to the MR process as such (e.g. a novel pulse sequence which, according to the document, facilitates the diagnosis of a disease on the basis of the resulting MR images wherein the document merely mentions the diagnosis but does not specifically disclose its implementation in detail), the document should be classified in [G01R 33/20](#) (or its relevant subgroup) only and the additional information related to the diagnosis may be classified using the appropriate Indexing Code corresponding to [A61B 5/055](#).
- if the invention information of the document is primarily directed to the diagnosis as such (e.g. a novel way of processing MRI data in order to enable the diagnosis of a disease wherein the MRI data was acquired using a commonly known standard MRI technique), the document should be classified in [A61B 5/055](#) only.
- documents where the focus lies in diagnostic features as well as in technical details of the MR apparatus or details of the MR process should be classified in both [A61B 5/055](#) and [G01R 33/20](#).

A61B 5/06

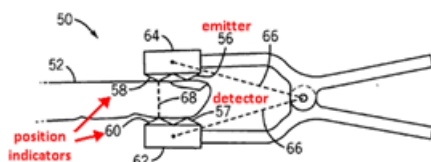
Devices, other than using radiation, for detecting or locating foreign bodies {; Determining position of diagnostic devices within or on the body of the patient}

Definition statement

This place covers:

Position sensors on a diagnostic device to detect relative positions of different components.

Illustrative example of subject matter classified in this place:



The Figure illustrates sensor (50) configured to provide position data for the emitter (56) and detector (57). Sensor (50) comprises a sensor body that includes the emitter (56), detector (57) and one or more position indicators (58, 60).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Instruments for removing foreign bodies	A61B 17/50
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Surgical navigation systems; Devices for tracking or guiding surgical instruments, e.g. for frameless stereotaxis	A61B 34/20
Surgical systems for stereotaxic surgery, e.g. frame-based stereotaxis	A61B 90/10

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

foreign body	tissue or material which does not belong to or desired within the patient body by nature, e.g. tumour, retained metal, implant, diagnostic device
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A61B 5/061

{Determining position of a probe within the body employing means separate from the probe, e.g. sensing internal probe position employing impedance electrodes on the surface of the body ([A61B 1/00158](#) takes precedence)}

Definition statement

This place covers:

External tracking device detecting position of:

- 1) Invasive probes comprising position indicating element
- 2) Markers placed on the surface of the body

References

Limiting references

This place does not cover:

Endoscope provided with position sensors, e.g. internally mounted	A61B 1/00158
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A61B 5/062

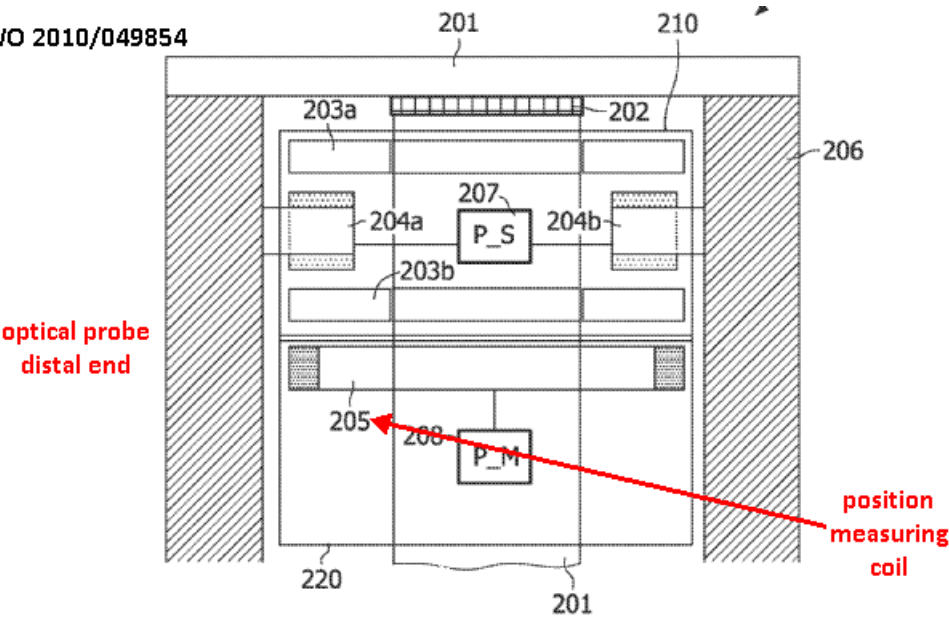
{using magnetic field}

Definition statement

This place covers:

Probes comprising magnet or electromagnetic coil

WO 2010/049854



References

Limiting references

This place does not cover:

MRI tracking of surgical probes	G01R 33/287
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Informative references

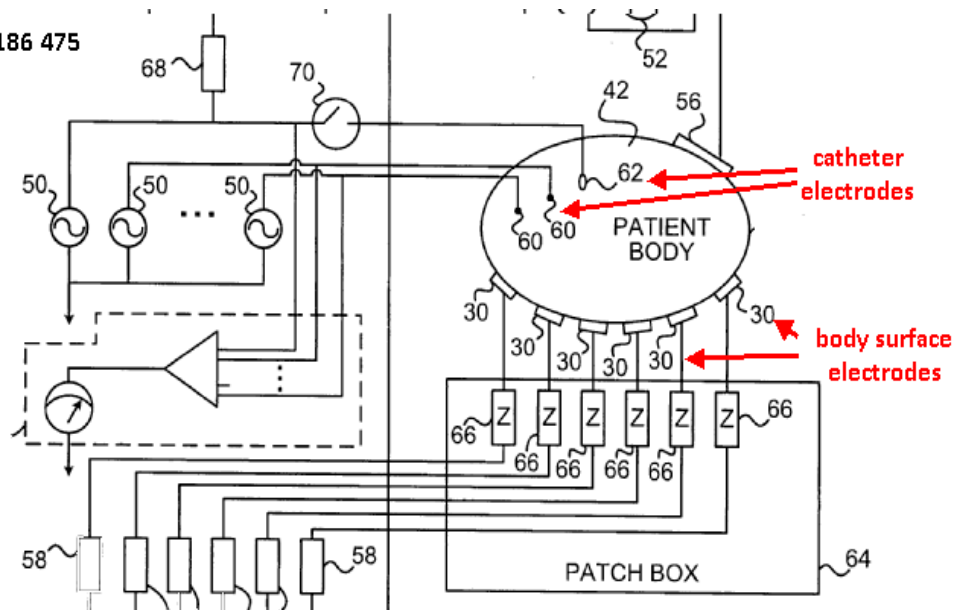
Attention is drawn to the following places, which may be of interest for search:

Electromagnetic tracking of surgical instruments	A61B 2034/2051
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A61B 5/063**{using impedance measurements}****Definition statement***This place covers:*

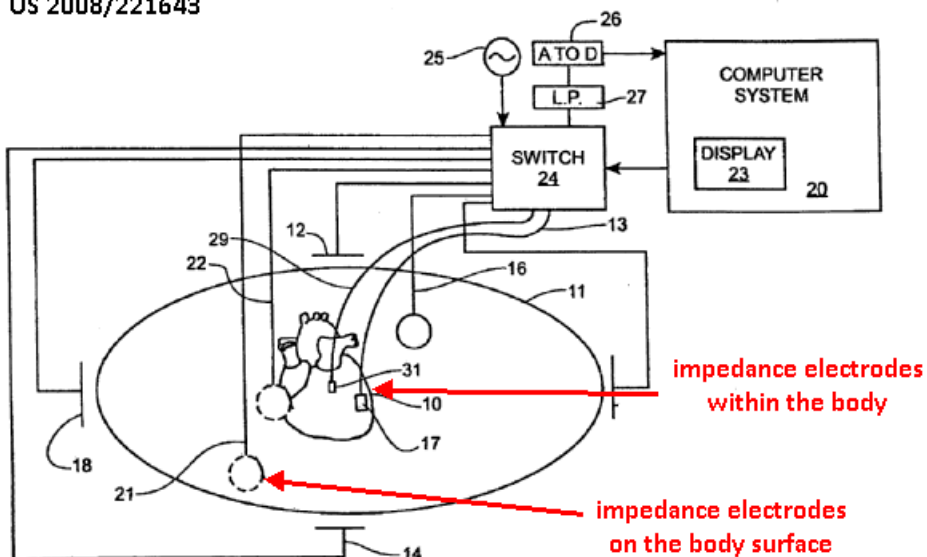
Impedance measurement means for detecting the position of an invasive probe

EP 2 186 475



The coordinates of a catheter inside the body are determined by passing currents between catheter electrodes 60, 62 and body surface electrodes 30.

US 2008/221643



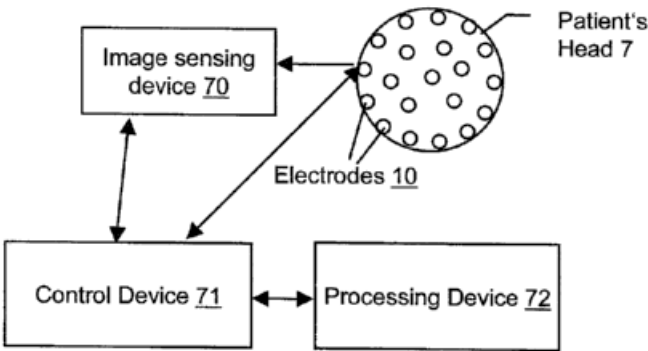
A61B 5/064

{using markers ([A61B 5/062](#) takes precedence)}

Definition statement

This place covers:

- 1) Detecting position of markers associated with a sensor, the markers being placed on the surface of the body of the patient.

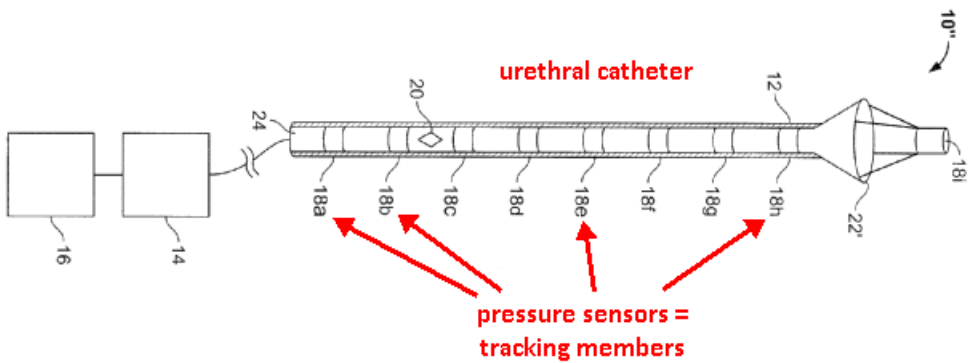


US 2011/066020

Position Detecting System 700

- 2) Tracking position of markers associated with an invasive probe

US 2010/069784



The position and movement of the tracking members are tracked by the control unit 14.

The pressure sensors in rings 18a-18i serve as the tracking members.

References

Limiting references

This place does not cover:

Using magnetic fields	A61B 5/062
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A61B 5/065

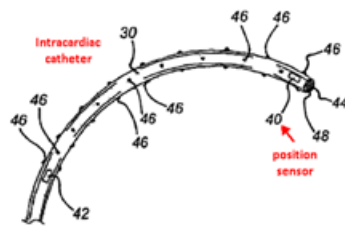
{Determining position of the probe employing exclusively positioning means located on or in the probe, e.g. using position sensors arranged on the probe}

Definition statement

This place covers:

The diagnostic device is provided with means for detecting its own position within the body.

Illustrative example of subject matter classified in this place:



The Figure illustrates position sensors which detect positions relative to their own reference frame, e.g., gyroscopes, accelerometers.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Surgical navigation systems using accelerometer or inertia sensors	A61B 2034/2048
Surgical navigation systems using mechanical position encoders	A61B 2034/2059
Surgical navigation systems using shape-sensors, e.g. fibre shape sensors with Bragg gratings	A61B 2034/2061
Sensors for guiding a catheter or medical tube	A61M 2025/0166

A61B 5/066

{Superposing sensor position on an image of the patient, e.g. obtained by ultrasound or x-ray imaging}

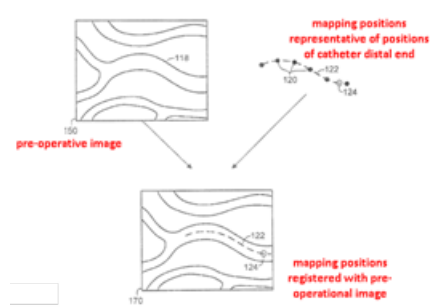
Definition statement

This place covers:

Registration of pre-operative images with detected positions of a diagnostic device, e.g. using shape-sensing or pattern matching.

Definition statement

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Surgical navigation systems; Devices for tracking or guiding surgical instruments, e.g. for frameless stereotaxis	A61B 34/20
Image-guided surgery systems	A61B 90/37
Visualisation of invasive instruments using MRI	G01R 33/285

A61B 5/07

Endoradiosondes

Definition statement

This place covers:

Wireless data transmission between diagnostic device within the body, e.g. implanted or ingested and external monitor.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

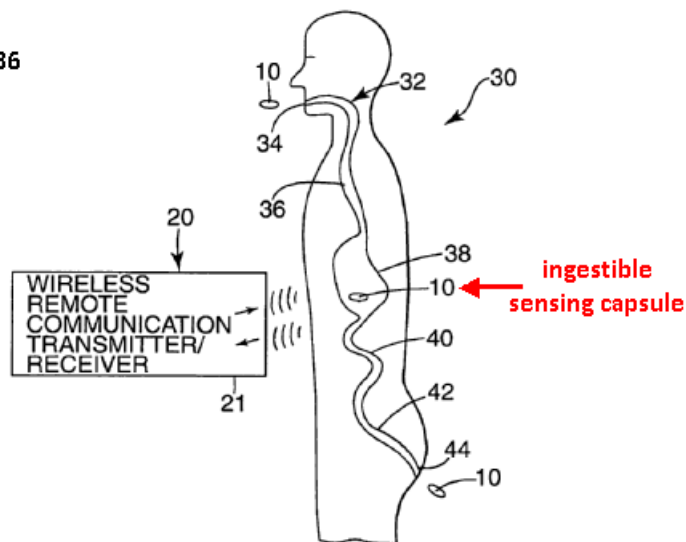
Endoscopes for imaging	A61B 1/041
Transmission of measured data from implanted circuitry	A61B 5/0031

A61B 5/073**{Intestinal transmitters}****Definition statement**

This place covers:

Swallowed capsules travelling through the GI system

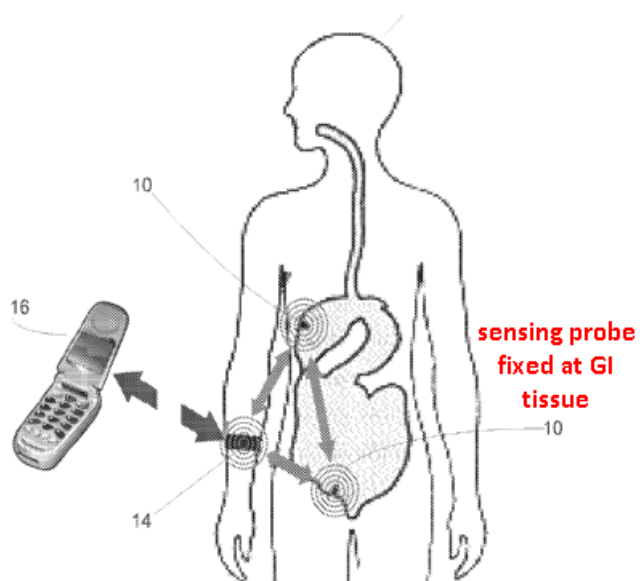
US 6 929 636

**A61B 5/076****{Permanent implantation}****Definition statement**

This place covers:

Implanted diagnostic devices that are attached or anchored to the internal body tissue so that movement of the device from the place of attachment does not occur.

Illustrative example of subject matter classified in this place:



Definition statement

The Figure illustrates the use of clips, sensor (10) may be held at a fixed position in the GI tract. Device (10) uses a wireless communication protocol to transmit data to monitor (14).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Implants for transcutaneous transmission	A61B 5/0031
Evaluation of respiratory rate in general	A61B 5/08
Implantable neurostimulators for stimulating central or peripheral nerve system	A61N 1/3605
Implanted stimulators	A61N 1/362
Arrangements in connection with the implantation of stimulators	A61N 1/372

A61B 5/08

Measuring devices for evaluating the respiratory organs

Definition statement

This place covers:

Evaluation of the respiratory system.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Simultaneously evaluating both cardiovascular conditions and different types of body conditions	A61B 5/0205
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

mechanical impedance of respiratory organs	ratio of the measured air pressure and air flow at the mouth of the patient
electrical impedance of respiratory organs	ratio of voltage applied to respiratory organs and current flow

A61B 5/0803

{Recording apparatus specially adapted therefor}

Definition statement

This place covers:

Apparatus for recording respiratory parameters, e.g. portable devices for ambulatory recording.

A61B 5/0806**{by whole-body plethysmography}****Definition statement***This place covers:*

Evaluating volume changes due to respiration, e.g.:

- by measuring changes of spatial dimensions; or
- by measuring pressure changes in a closed chamber.

Illustrative examples of subject matter classified in this place:

1.

Figure 1 illustrates an example of measuring changes of spatial dimensions.

2.

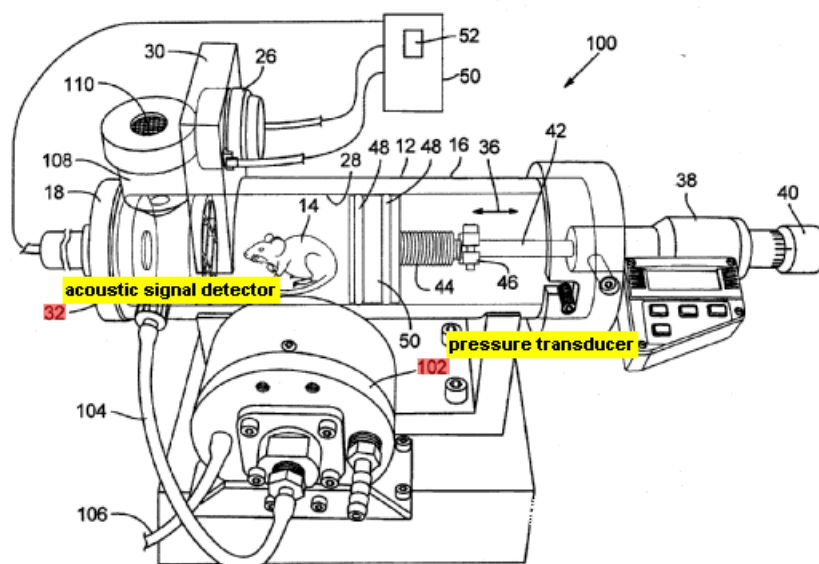


Figure 2 illustrates an example of measuring pressure changes in a closed chamber.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Impedance plethysmography for measuring blood flow	A61B 5/0295
Impedance plethysmography for diagnosis in general	A61B 5/0535
Evaluation of respiratory rate in general	A61B 5/0816
Measuring volume of body or parts thereof	A61B 5/1073
Measuring movement due to respiration	A61B 5/113

A61B 5/0813

{Measurement of pulmonary parameters by tracers, e.g. radioactive tracers}

Definition statement

This place covers:

Measurement of pulmonary parameters by tracers, e.g.:

- Evaluation of tracer quantity absorbed by the lungs; or
- Inhalators for tracers to be detected by imaging devices, e.g. MRI.

Illustrative examples of subject matter classified in this place:

1.

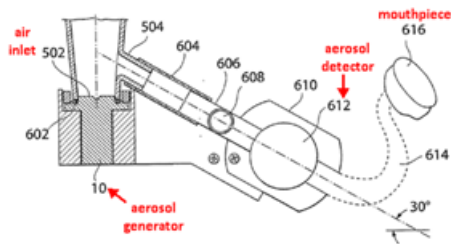


Figure 1 illustrates an example of an evaluation of tracer quantity absorbed by the lungs.

2.

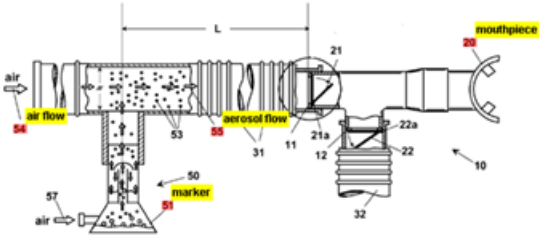


Figure 2 illustrates an example of inhalators for tracers to be detected by imaging devices, e.g. MRI.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Breath analysis, i.e. determining chemical composition of exhaled breath	A61B 5/082
Breath test measuring rate of metabolism	A61B 5/083

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

tracer	composition, e.g. aerosol, which is mixed with inhaled air and detected after exhalation
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A61B 5/0816

{Measuring devices for examining respiratory frequency (measuring frequency of electric signals [G01R 23/00](#))}

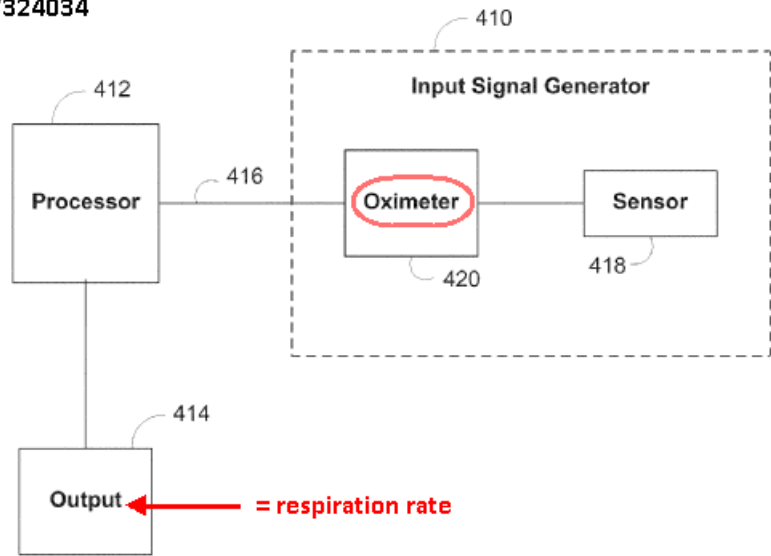
Definition statement

This place covers:

Detection of respiratory signals, e.g.:

using photoplethysmography, i.e. a signal provided by a pulse oximeter on a body part, e.g. finger, ear

US 2009/324034



References

Limiting references

This place does not cover:

Detect changes of body volume due to respiration	A61B 5/0806 , A61B 5/113
Detect respiratory signals using electrical impedance measurements	A61B 5/086 , A61B 5/0535
Detect respiratory sounds	A61B 7/003

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring frequency of electric signals	G01R 23/00
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A61B 5/082

{Evaluation by breath analysis, e.g. determination of the chemical composition of exhaled breath ([A61B 5/083](#), [A61B 5/091](#) take precedence)}

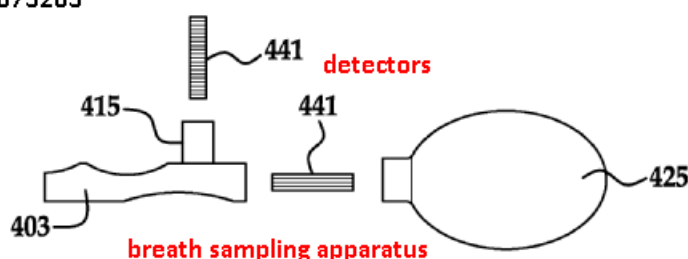
Definition statement

This place covers:

Detection of chemical composition of exhaled breath.

Not relating to lung function.

WO 2010/075265



Detector 441 is optionally operable to detect bacteria, virus, fungus, antibody, protein, or chemical such as carbon dioxide, carbon monoxide, nitric oxide, alcohol and the like

References

Limiting references

This place does not cover:

Evaluation of lung function	A61B 5/083 , A61B 5/085
Determination of instantaneous concentration of a component of inhaled/exhaled air in order to determine breath flow	A61B 5/087

Informative references

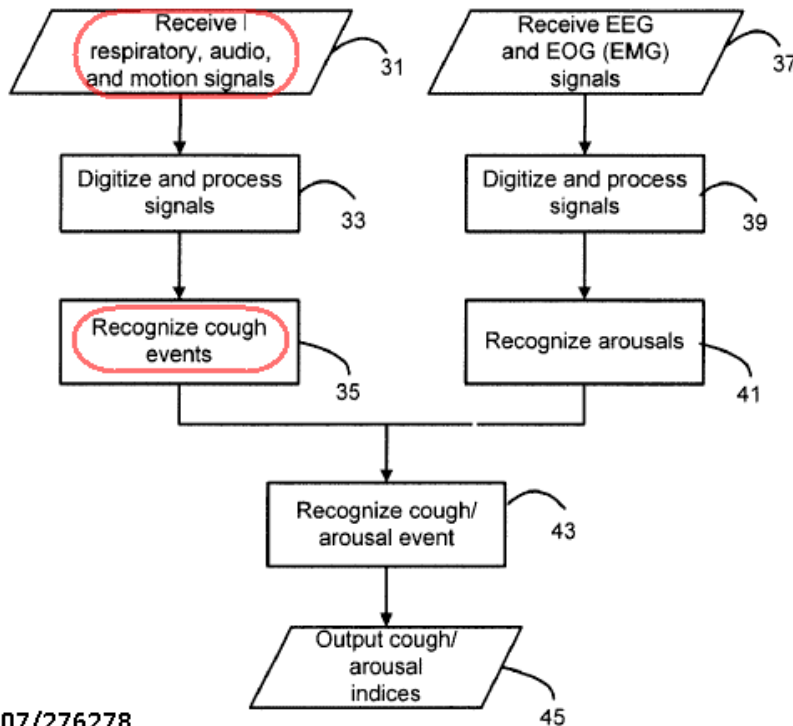
Attention is drawn to the following places, which may be of interest for search:

Gas analysers	G01N 33/0009
Breath analysis in general	G01N 33/497

A61B 5/0823**{Detecting or evaluating cough events}****Definition statement**

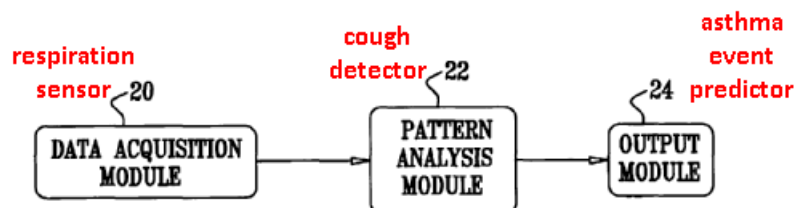
This place covers:

Detect cough events which may be spontaneous coughing events or where the patient is asked to voluntarily cough:



US 2007/276278

Evaluate cough event:



US 2011/015535

A61B 5/0826**{Detecting or evaluating apnoea events (sleep apnoea [A61B 5/4818](#))}****Definition statement**

This place covers:

Detection of all types of apnoea events, e.g. cessation of breathing (apnoea), shallow breathing (hypopnea), fast deep breathing (hyperpnoea), Cheyne-Stokes respiration etc.

References

Limiting references

This place does not cover:

Detection of sleep apnoea	A61B 5/4818
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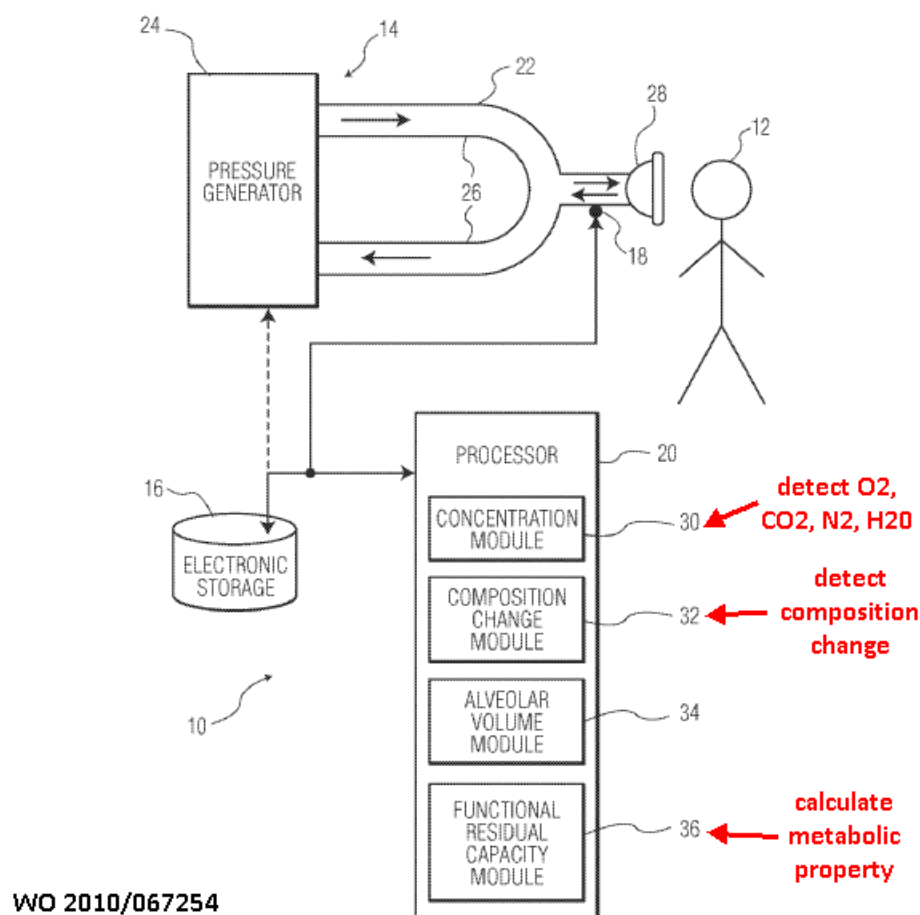
A61B 5/083

Measuring rate of metabolism by using breath test, e.g. measuring rate of oxygen consumption

Definition statement

This place covers:

Breath test specially adapted to detect rate of metabolism. For example, properties of exhaled gas are compared to properties of inhaled air.



References

Limiting references

This place does not cover:

Detect a tracer mixed in inhaled gas	A61B 5/0813
Determination of instantaneous concentration of a component of inhaled/exhaled air in order to determine breath flow	A61B 5/087

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detect chemical composition of exhaled gas by breath test in general	A61B 5/082
Gas analysers	G01N 33/0009
Breath analysis in general	G01N 33/497

A61B 5/0833

{Measuring rate of oxygen consumption}

Definition statement

This place covers:

Evaluation of O₂ uptake from breath analysis.

A61B 5/0836

{Measuring rate of CO₂ production}

Definition statement

This place covers:

Evaluation of CO₂ release.

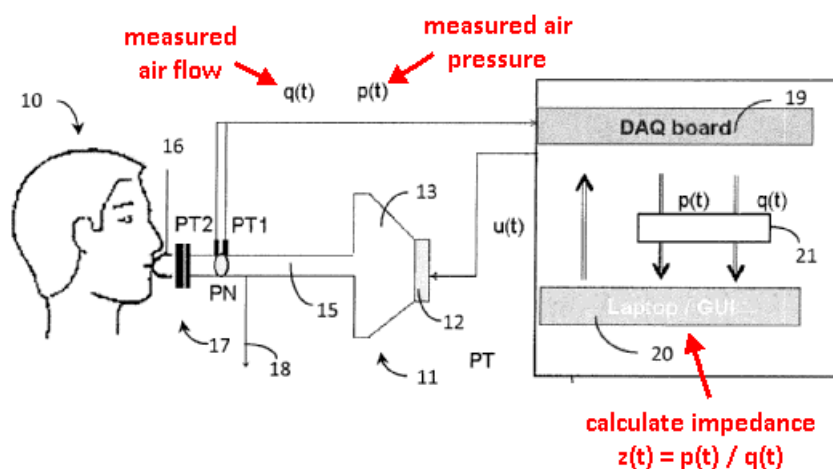
A61B 5/085

Measuring impedance of respiratory organs or lung elasticity

Definition statement

This place covers:

Detection of mechanical impedance of respiratory organs.



EP 2 384 697

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Mechanical impedance of respiratory organs	Ratio of the measured air pressure and air flow at the mouth of the patient
Electrical impedance of respiratory organs	Ratio of voltage applied to respiratory organs and current flow

A61B 5/086

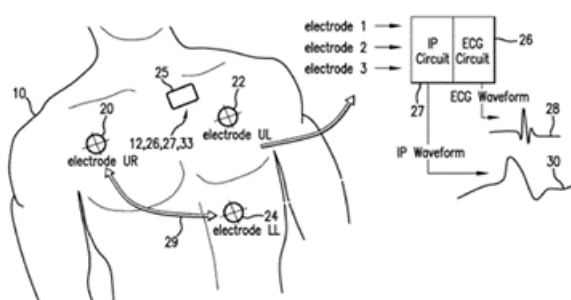
{by impedance pneumography}

Definition statement

This place covers:

Detection of electrical impedance of respiratory organs.

Illustrative example of subject matter classified in this place:



The Figure illustrates an IP [impedance pneumography] circuit (27) (25) which generates a current that is modulated at a high frequency (typically 50-100 kHz). The current passes through electrode LL (24). It then propagates through the patient's chest, as indicated by the arrow (29), where a respiration-induced capacitance change modulates it according to the RR.

Electrode UR (20) detects the resultant analogue signal, which is then processed within the IP circuit to determine an analogue IP waveform (30) featuring a low-frequency series of pulses corresponding to RR.

The analogue filters in the IP circuit (27) are chosen to filter out high-frequency components that contribute to the ECG QRS complex.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

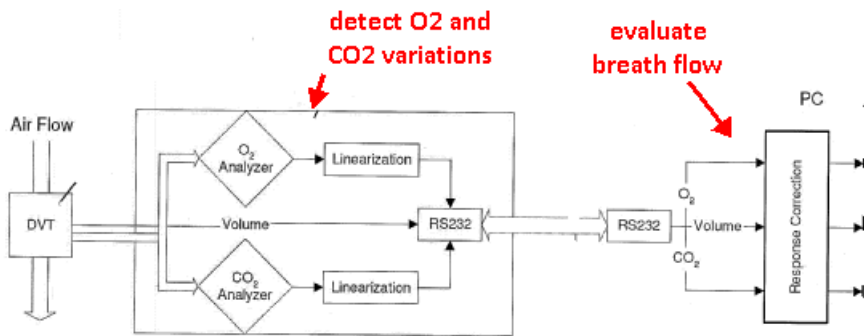
Impedance plethysmography in general	A61B 5/0535
Detecting respiration rate in general	A61B 5/0816

A61B 5/087

Measuring breath flow

Definition statement

This place covers:
Evaluate breath flow



WO 2009/151323

Text1

References

Limiting references

This place does not cover:

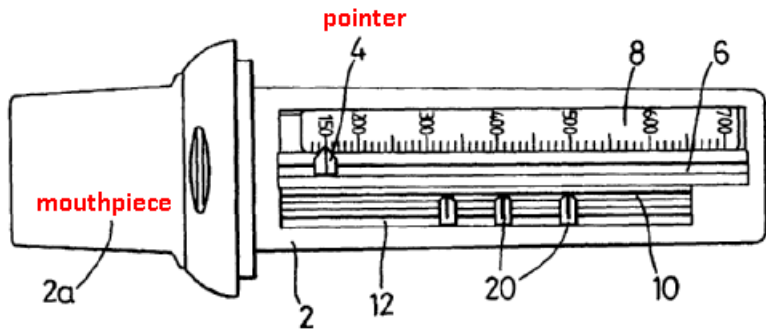
Detect breath flow in order to evaluate lung impedance parameters	A61B 5/085
Ventilators provided with means for detecting breath flow	A61M 16/00

A61B 5/0871

{Peak expiratory flowmeters}

Definition statement

This place covers:
Detectors of maximum air flow



| EP 857 459

Definition statement

The pointer 4 is entrained along its slot 6 by the exhaled air flow. When the exhalation ends friction retains the pointer 4 in its displaced position to indicate a peak flow value against a scale 8 marked along the slot

References

Limiting references

This place does not cover:

Spirometers in general, wherein it is possible to calculate peak flow

A61B 5/087

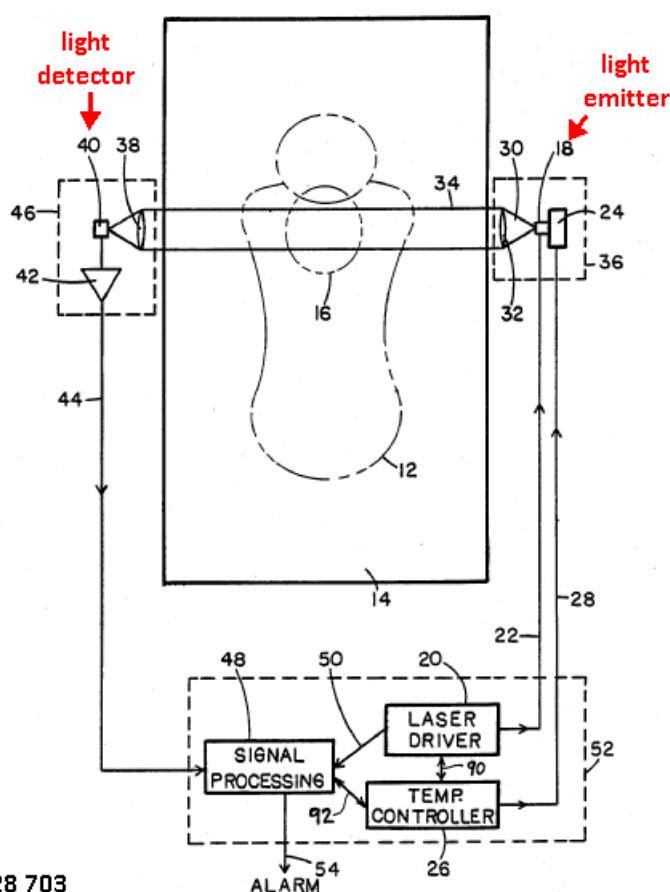
A61B 5/0873

{using optical means}

Definition statement

This place covers:

Detection of breath flow using optical sensors. The optical sensor is placed in or by the flow path.



US 4 928 703

The detector 40 generates an electrical signal that is related to the radiant power falling on it. The detector senses the breath exhaled into the volume 16 close to the patient's mouth and nose.

The signal processing circuit 48 examines the electrical signal 44 to determine whether it varies in a manner that indicates the patient is breathing.

A61B 5/0875

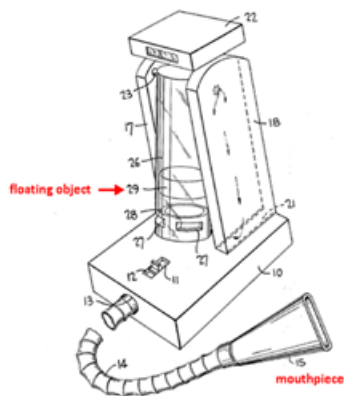
{using means carried by the fluid stream, e.g. free-floating balls}

Definition statement

This place covers:

E.g. for indicating flow level for breath training.

Illustrative example of subject matter classified in this place:



The Figure illustrates how object (29) is raised in tube (26) according to exhalation effort of the patient.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

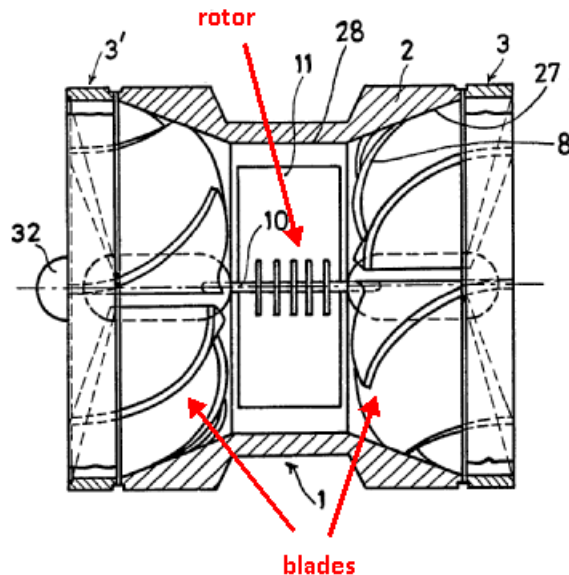
Flow meters adapted to indicate specifically the maximum value	A61B 5/087
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A61B 5/09

using an element rotated by the flow {(toys actuated by air current [A63H 33/40](#))}

Definition statement

This place covers:



EP 369 506

An optical detector detects rotor movement to evaluate air flow

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

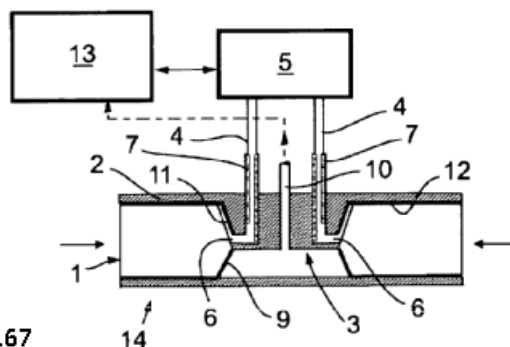
Toys actuated by air current	A63H 33/40
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A61B 5/097

Devices for facilitating collection of breath or for directing breath into or through measuring devices

Definition statement

This place covers:



EP 2 233 167

A61B 5/103

Measuring devices for testing the shape, pattern, {colour,} size or movement of the body or parts thereof, for diagnostic purposes (measuring instruments specially adapted for dentistry [A61C 19/04](#))

Definition statement

This place covers:

Detecting spatial properties of the human or animal body, e.g. lengths, areas, volumes, angles, velocities, accelerations or weights.

References

Limiting references

This place does not cover:

Measuring instruments specially adapted for dentistry	A61C 19/04
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring devices for evaluating the respiratory organs	A61B 5/08
Measuring aids for tailors	A41H 1/00
Analysis of geometric features (lengths, area, volume) from images	G06T 7/60

A61B 5/1032

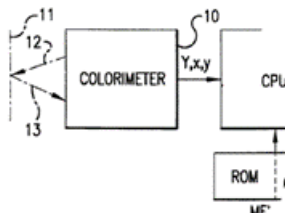
{Determining colour of tissue for diagnostic purposes}

Definition statement

This place covers:

Colorimetry, e.g. to detect face flush, for medical diagnosis.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring colour in general	G01J 3/46
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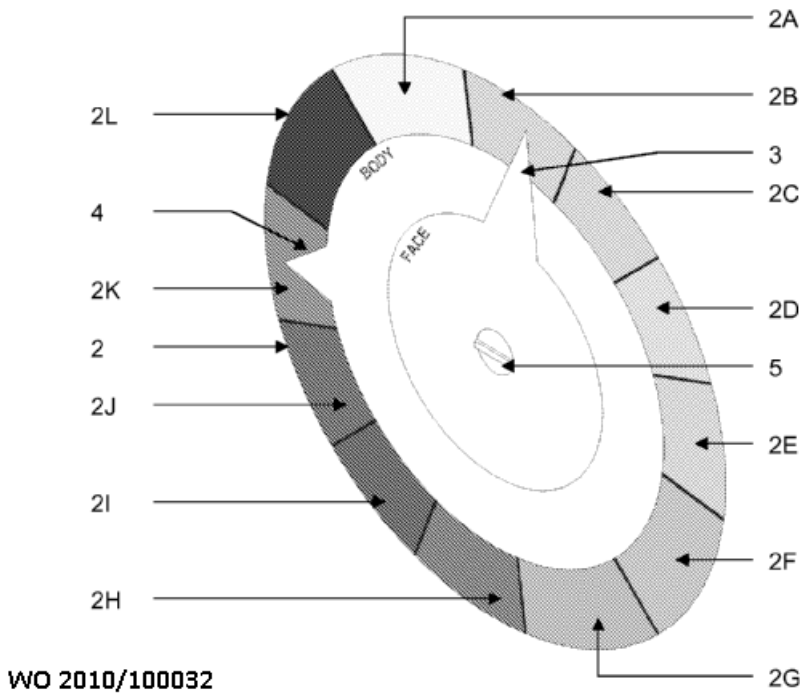
A61B 5/1034

{by means of colour cards}

Definition statement

This place covers:

Assessing body features by comparison with colour patterns or atlases



WO 2010/100032

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Colour charts in general	G01J 3/52
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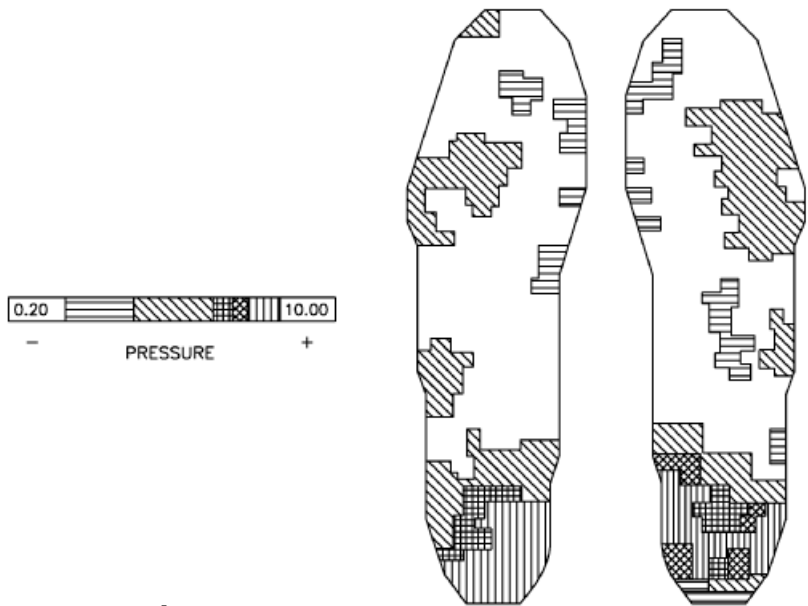
A61B 5/1036

{Measuring load distribution, e.g. podologic studies}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/1036](#)



WO 2009/089406

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Gait analysis	A61B 5/112
Apparatus for weighing persons	G01G 19/44

A61B 5/107

Measuring physical dimensions, e.g. size of the entire body or parts thereof

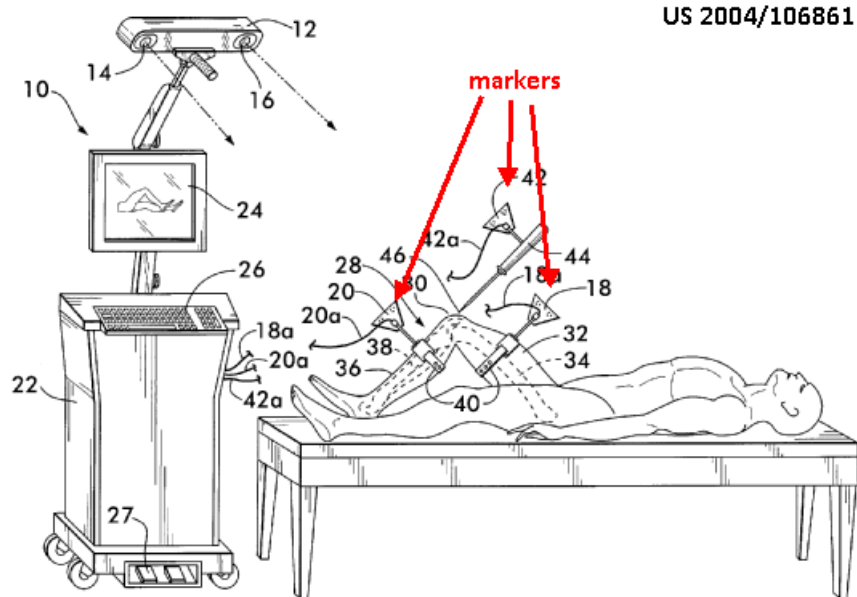
Definition statement

This place covers:

Measuring spatial dimensions: distances (e.g. length, depth, thickness), angles, areas, volumes etc.

Definition statement

By detecting marker positions:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring distance in general	G01B 5/00
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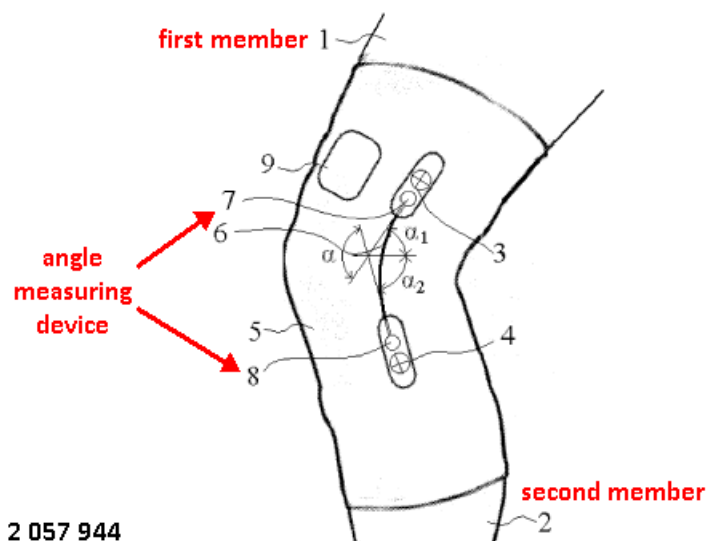
A61B 5/1071

{measuring angles, e.g. using goniometers ([A61B 5/1123](#) takes precedence)}

Definition statement

This place covers:

Measurements of angles



EP 2 057 944

Definition statement

Angle measuring device 6 comprising light source 7 and light detector 8

Processing module is enabled to calculate, from the ratio between the power entered into the light source 7 and the power received by the light detector 8, an angle between the first and second member

References

Limiting references

This place does not cover:

Discriminating types of movement	A61B 5/1123
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Goniometers in general	G01B 3/56 , G01B 7/30
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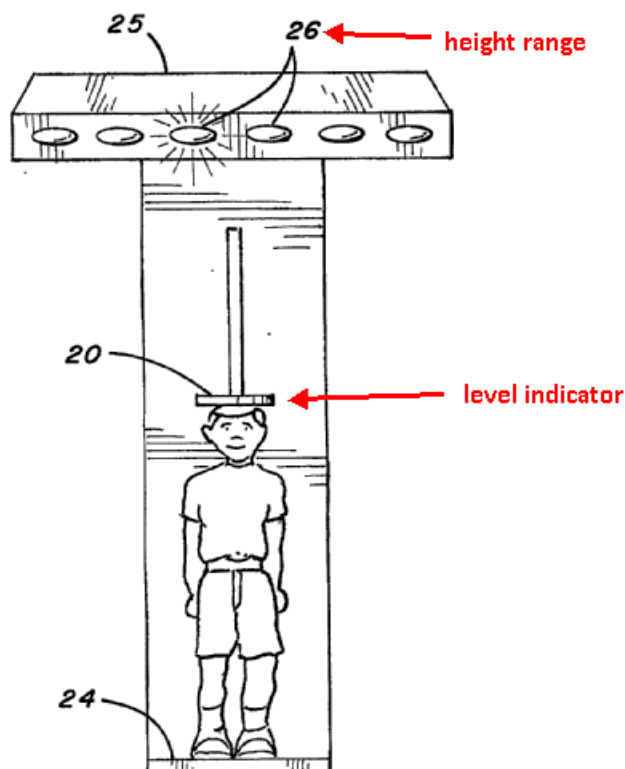
A61B 5/1072

{measuring distances on the body, e.g. measuring length, height or thickness
([A61B 5/1076](#) takes precedence)}

Definition statement

This place covers:

Rulers, tapes, height measuring device for direct measurement on the body



WO 03/048678

References

Limiting references

This place does not cover:

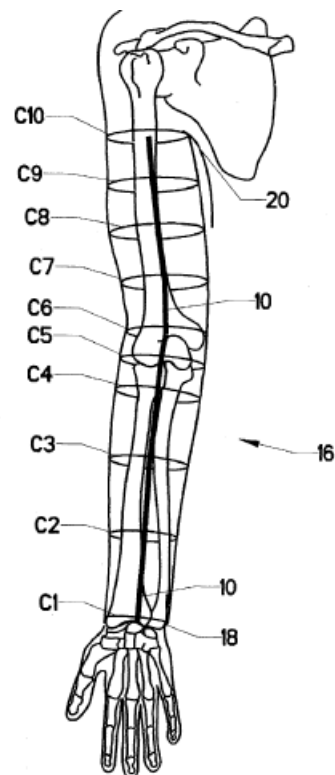
Measuring interpupillary distance	A61B 3/11
Measuring dimensions inside body cavities	A61B 5/1076

A61B 5/1073

{Measuring volume, e.g. of limbs}

Definition statement

This place covers:



US 2004/186395

The arm has been segmented into discrete volumes C1-[C10](#)

Circumference measurement is taken at the intersection of each linear segment of centerline 10.

Evaluate changes in the arm volume over time.

References

Limiting references

This place does not cover:

Plethysmography for blood flow assessment based on vessel volume changes	A61B 5/0295
Impedance plethysmography	A61B 5/0535
Whole-body plethysmography for respiration assessment based on chest volume changes	A61B 5/0806

Impedance pneumography	A61B 5/086
Measuring bladder volume	A61B 5/204

A61B 5/1075

{for measuring dimensions by non-invasive methods, e.g. for determining thickness of tissue layer ([A61B 8/0858](#) takes precedence)}

Definition statement

This place covers:

All types of apparatus for measuring dimensions non-invasively, e.g. calipers, gauges, templates for measuring on patient images. Also, includes imaging apparatus with measuring scales projected on the image or cursors allowing dimensions to be read from an image.

References

Limiting references

This place does not cover:

Endoradiosondes by impedance pneumography	A61B 5/086
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A61B 5/1076

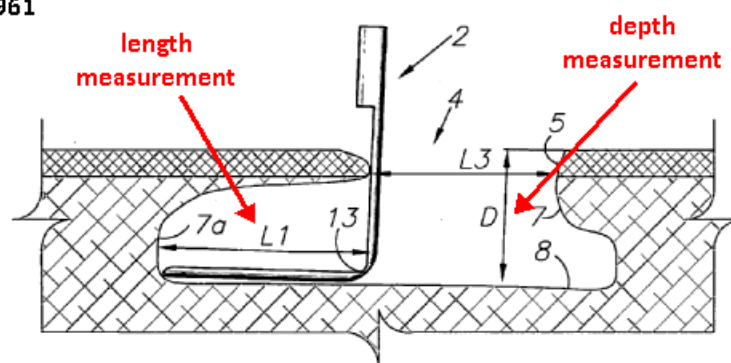
{for measuring dimensions inside body cavities, e.g. using catheters ([A61B 3/1005](#) takes precedence)}

Definition statement

This place covers:

Rulers, height measuring devices for direct measurement inside the body

US 2006/258961



References

Limiting references

This place does not cover:

Measuring distances inside the eye, e.g. thickness of the cornea	A61B 3/1005
Measuring interpupillary distance	A61B 3/11
Measuring dimensions on the body cavities	A61B 5/1072

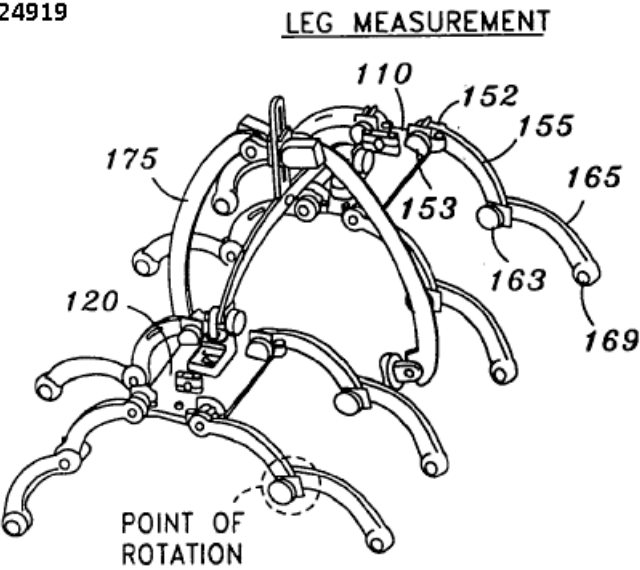
A61B 5/1077

{Measuring of profiles}

Definition statement

This place covers:
Detect 2- or 3-dimensional contour or profile or shape of objects, e.g. using mechanical elements brought into contact with the body surface:

US 2005/124919



References

Limiting references

This place does not cover:

Optical shape detection:	A61B 5/0064
Measuring volumes of body parts	A61B 5/1073

A61B 5/1078

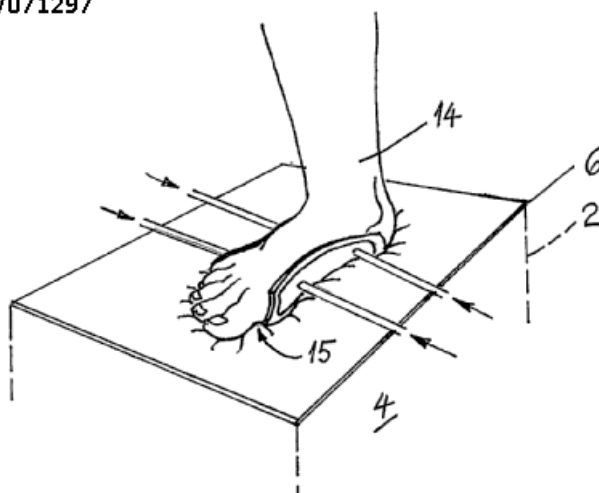
{by moulding}

Definition statement

This place covers:

Detecting impressions of body parts

WO 2004/071297



A61B 5/11

Measuring movement of the entire body or parts thereof, e.g. head or hand tremor or mobility of a limb {([A61B 5/1038](#) takes precedence; motion detection to correct for motion artifacts in physiological signals [A61B 5/721](#))}

Definition statement

This place covers:

Measurement of movement includes the determination of any change in position or orientation. It is not mandatory that a velocity or acceleration is measured.

References

Limiting references

This place does not cover:

Measuring for testing the shape, pattern, size or movement of the body or parts thereof for podologic studies during locomotion	A61B 5/1038
Measuring movement for compensation of motion artefacts	A61B 5/721

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring eye movement, e.g. using eye trackers	A61B 3/113
Evaluating the cardiovascular system, e.g. pulse, heart rate, blood pressure, blood flow	A61B 5/02
Plethysmography	A61B 5/0535

Measuring movement of foreign bodies, e.g. tracking of catheters	A61B 5/06
Detecting, measuring or recording devices for evaluating the respiratory organs by whole-body plethysmography	A61B 5/0806
Detecting, measuring or recording respiratory frequency	A61B 5/0816
Testing reaction times	A61B 5/162
Ergometry or measuring muscular strength	A61B 5/22
Bioelectric electrodes for electrooculography [EOG]: for electroretinography [ERG]	A61B 5/297
Pleximeters	A61B 9/00
Surgical navigation systems; Devices for tracking or guiding surgical instruments, e.g. for frameless stereotaxis	A61B 34/20
Measuring movement in general	G01
Measuring length, thickness or similar linear dimensions; Measuring angles; Measuring areas; Measuring irregularities of surfaces or contours	G01B
Measuring distances, levels or bearings; Surveying; Navigation; Gyroscopic instruments; Photogrammetry or videogrammetry	G01C
Measuring linear or angular speed, acceleration, deceleration, or shock; Indicating presence, absence, or direction, of movement	G01P

Special rules of classification

Group [A61B 5/11](#) covers diagnosis based on body movements and parts thereof, e.g. head or hand tremor or mobility of a limb, including ballistography [BSG], e.g. ballistocardiography [BCG]. For BSG, allocation in group [A61B 5/11](#) should be considered in combination with the body system under test (e.g. cardiovascular system [A61B 5/02](#) or respiratory system [A61B 5/08](#)). Group [A61B 5/11](#) does not cover direct measurement of blood vessel pulsatile movements, of which is considered cardiovascular testing for [A61B 5/02](#) (e.g. photoplethysmography [PPG] of blood vessels).

A61B 5/1104

{induced by stimuli or drugs ([A61B 5/1102](#) takes precedence)}

References

Limiting references

This place does not cover:

Ballistocardiography	A61B 5/1102
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Investigating medicinal preparations	G01N 33/15
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A61B 5/1107**{Measuring contraction of parts of the body, e.g. organ or muscle}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Detecting skeletal, cartilage or muscle noise, e.g. acoustic myograms	A61B 7/006
Apparatus for measuring work or force in general	G01L

A61B 5/1112**{Global tracking of patients, e.g. by using GPS}****Definition statement***This place covers:*

Patient monitors including means for global position determination, localizing a patient world-wide.

A61B 5/1113**{Local tracking of patients, e.g. in a hospital or private home}****Definition statement***This place covers:*

Patient monitors including means for local position determination, e.g. in hospitals, rooms, imaging apparatus.

A61B 5/1116**{Determining posture transitions}****Definition statement***This place covers:*

Includes posture transitions from standing to sitting to lying down, etc.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Controlling electrical heart stimulation by body motion	A61N 1/36542
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A61B 5/1117**{Fall detection}****Definition statement***This place covers:*

Patient position sensing/monitoring with sensors, e.g. carried on the patient, e.g. 3D sensors, mercury switches, for indicating (change to) prone/lying position probably from a fall. May be combined with a timer/physiological sensors/alarm (to remote station). Includes devices for monitoring fall from bed.

A61B 5/1118**{Determining activity level}****Definition statement***This place covers:*

Determining a parameter indicative of the degree of overall activity of a subject, e.g. for use in determining caloric consumption.

Special rules of classification

When metabolism is evaluated, e.g. caloric expenditure determined, [A61B 5/4866](#) should additionally be given.

A61B 5/1121**{Determining geometric values, e.g. centre of rotation or angular range of movement}****References****Limiting references***This place does not cover:*

Gait analysis	A61B 5/112
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A61B 5/1123**{Discriminating type of movement, e.g. walking or running ([A61B 5/1116](#), [A61B 5/112](#) take precedence)}****References****Limiting references***This place does not cover:*

Determining posture transition	A61B 5/1116
Gait analysis	A61B 5/112

A61B 5/1124**{Determining motor skills}****Definition statement***This place covers:*

Evaluating the degree of mastering a particular task in the form of a specific movement or sequence of movements. In particular for rehabilitation or assessing development of infants.

A61B 5/1126**{using a particular sensing technique}****Definition statement***This place covers:*

Details of sensing techniques adapted for measuring movement other than those mentioned in [A61B 5/1127](#) and [A61B 5/1128](#).

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

inertial sensors used for measuring movement	A61B 2562/0219
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A61B 5/1127**{using markers}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Markers for medical use	A61B 90/39
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A61B 5/1128**{using image analysis ([A61B 5/1127](#) takes precedence)}****References****Limiting references***This place does not cover:*

Using markers	A61B 5/1127
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Analysis of motion in images	G06T 7/20
Extraction of features from images	G06V 10/40

A61B 5/117

Identification of persons (methods or arrangements for recognising patterns, e.g. fingerprints, [G06F 18/00](#), [G06V 40/00](#); identification of persons by analysing their voice or speech [G10L 17/00](#))

Definition statement

This place covers:

Means for distinguishing one person from another

References

Limiting references

This place does not cover:

Methods or arrangements for reading or recognising patterns, e.g. fingerprints	G06F 18/00 , G06V 40/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Dental impression cups or articulators	A61C 9/00 , A61C 11/00
Identification tags	G09F 3/00

A61B 5/1172

using fingerprinting

Definition statement

This place covers:

Apparatus and methods for taking fingerprints from a person. Includes developing latent fingerprints for forensic purposes.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Recognition of fingerprints or palmprints	G06V 40/12
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A61B 5/12

Audiometering

Definition statement

This place covers:

Evaluating the hearing system

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Otoscopes	A61B 1/227
Electroencephalography using acoustic or auditory stimuli	A61B 5/38
Evaluating sense of balance	A61B 5/4023
Tinnitus treatment	A61F 11/00 , H04R 25/75
Testing of hearing device using in-hear measurements	H04R 29/00

A61B 5/121

{evaluating hearing capacity}

Definition statement

This place covers:

Evaluate hearing

A61B 5/123

{subjective methods}

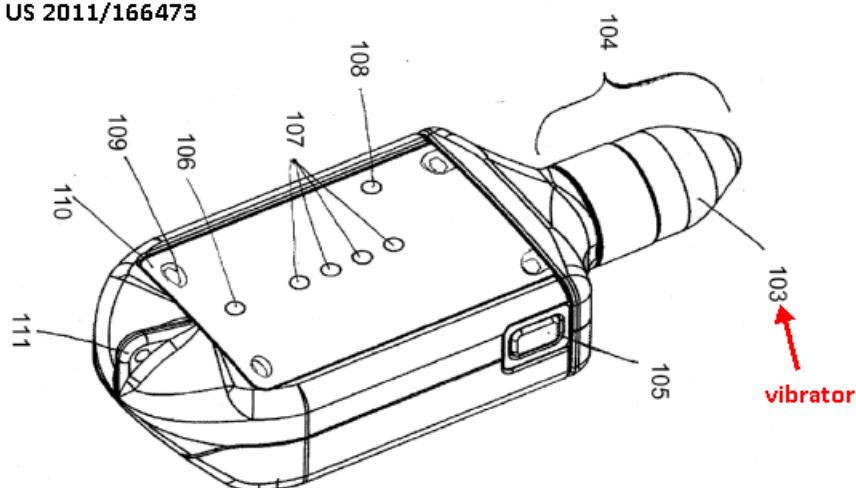
Definition statement

This place covers:

Evaluation of the hearing without technical means for detecting an auditory characteristics, e.g.:

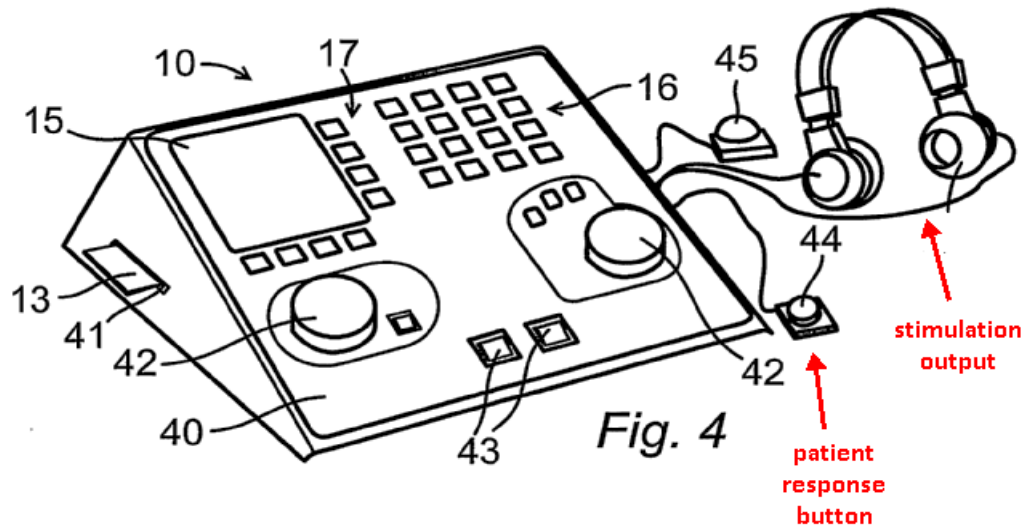
Vibrating unit for stimulating the ear canal. No sensor is provided:

US 2011/166473



Definition statement

Feedback is provided by the patient by, e.g., a response button:



WO 2007/120100

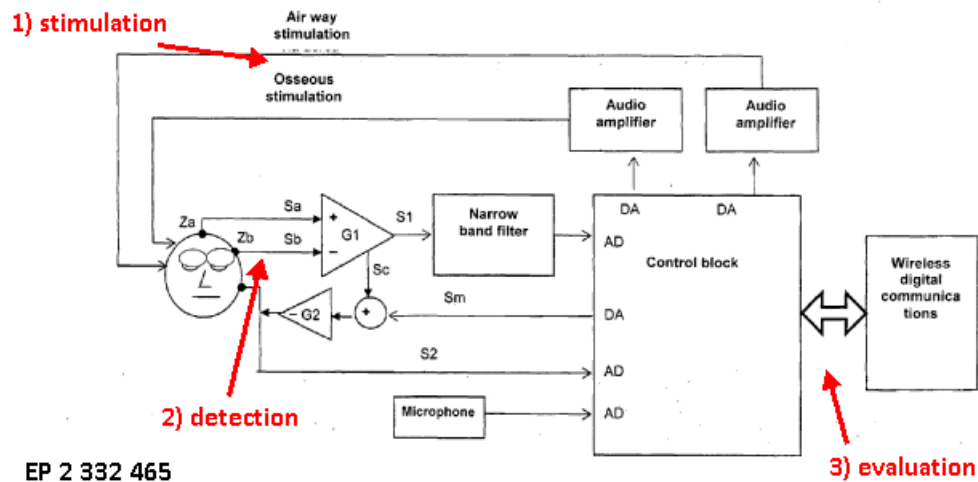
A61B 5/125

{objective methods}

Definition statement

This place covers:

Detecting physiological response, e.g. EEG, to auditory stimuli:



EP 2 332 465

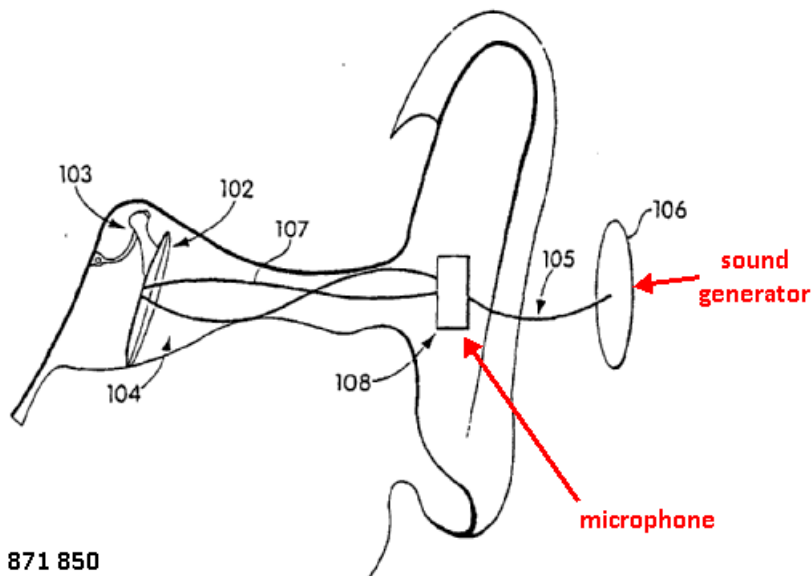
A61B 5/126

{measuring compliance or mechanical impedance of the tympanic membrane}

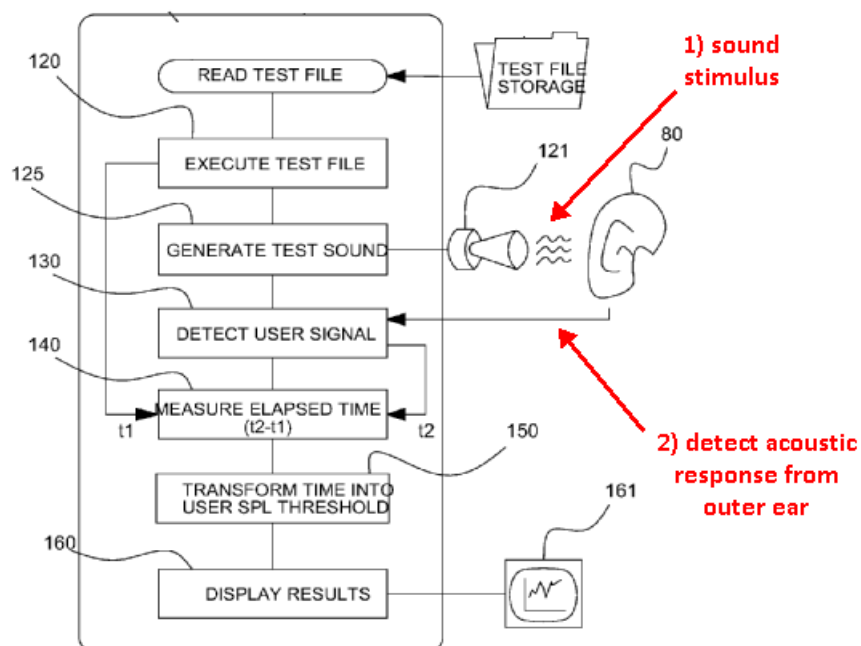
Definition statement

This place covers:

Tympanometer (detects acoustic response to a sound generated into the ear canal)

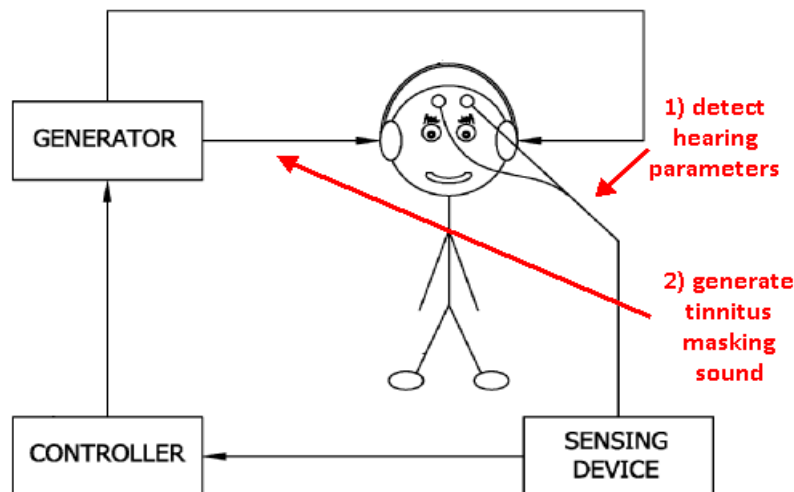


Measuring acoustic impedance (frequency response) of the outer ear in general:

US 2011/100127

A61B 5/128**{evaluating tinnitus}****Definition statement***This place covers:*

Detecting, testing, evaluating or measuring tinnitus to determine frequency, frequency range, bandwidth or other tinnitus features, e.g. by using a generator for generating tinnitus masking sound based on the detected tinnitus features.

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Masking sound in general	G10K 11/175
Deaf-aid sets that provide electric tinnitus maskers	H04R 25/75

A61B 5/145

**Measuring characteristics of blood in vivo, e.g. gas concentration or pH-value
 {; Measuring characteristics of body fluids or tissues, e.g. interstitial fluid or cerebral tissue}
 (non-radiation detecting or locating of foreign bodies in blood
[A61B 5/06](#))**

Definition statement*This place covers:*

Apparatus for detecting, measuring or recording characteristics of blood, body fluids or tissues in vivo. Determining chemical characteristics, e.g. measuring the concentration of an analyte. Determining constituents of blood or body fluids, e.g. haematocrit. The measurement is performed on the body, i.e. in vivo, or immediately after a sample of body fluid has been obtained, e.g. by lancet.

References

Limiting references

This place does not cover:

Non-radiation detecting or locating of foreign bodies in blood	A61B 5/06
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring for diagnostic purposes using light, e.g. detecting cancer, fatty tissue	A61B 5/0059
Cardiovascular evaluation, e.g. blood pressure, blood flow, heart rate	A61B 5/02
Measuring blood composition characteristics of a patient undergoing therapy, e.g. for controlling the administration of therapy	A61M 2230/20
Heart stimulators controlled by a blood chemical signal	A61N 1/36557
Measuring blood composition characteristics of a user of sporting apparatus	A63B 2230/20
Investigating or analysing materials by determining their chemical or physical properties in general	G01N
Investigating or analysing biological material in vitro, physical analysis	G01N 33/483
Chemical analysis of biological material	G01N 33/50

A61B 5/14503

{invasive, e.g. introduced into the body by a catheter or needle or using implanted sensors ([A61B 5/1459](#), [A61B 5/1464](#), [A61B 5/1473](#), [A61B 5/1482](#), [A61B 5/14865](#) take precedence)}

References

Limiting references

This place does not cover:

Using invasive optical sensors	A61B 5/1459
Optical sensors specially adapted for foetal tissue	A61B 5/1464
Using invasive chemical or electrochemical sensors	A61B 5/1473
Chemical or electrochemical sensors specially adapted for foetal tissue	A61B 5/1482
Using invasive enzyme electrodes	A61B 5/14865

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional details of invasive sensing devices	A61B 5/6847
Catheters, e.g. for introducing media or for drainage	A61M 25/00

A61B 5/14532

{for measuring glucose, e.g. by tissue impedance measurement}

Definition statement

This place covers:

Apparatus for detecting, measuring or recording glucose. Apparatus for continual monitoring of glucose with analysis of glucose data to determine trends, e.g. to optimise insulin administration. Apparatus for measuring glucose in combination with an insulin pump. Apparatus for glucose measurement in-vivo or combination with fluid or blood sampling where the measurement is made immediately after sampling the fluid, e.g. by lancet.

Relationships with other classification places

[A61B 5/14532](#) is given for glucose, and the corresponding subgroup for the measurement technique, e.g. [A61B 5/14532](#) and [A61B 5/1486](#). Classification of glucose measurement in combination with blood or fluid sampling is covered by [A61B 5/15-A61B 5/157](#) (apparatus for blood sampling). Test strips with no further disclosure of interaction with the patient is covered by [G01N](#).

References

Limiting references

This place does not cover:

Devices for bringing media into the body in a subcutaneous, intravascular or intramuscular way	A61M 5/00
Measuring or testing processes involving enzymes, enzyme electrodes for glucose	C12Q 1/006
Investigating or analysing biological material in vitro by physical analysis using electrical means for determining glucose content	G01N 27/3271
Details, e.g. test element handling, dispensing or storage not specific to a particular test method	G01N 33/4875

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for taking samples of blood characterised by integrated means for measuring characteristics of blood	A61B 5/157
Other medical applications, combined with drug delivery	A61B 5/4839
Measuring blood glucose of a patient undergoing therapy, e.g. for controlling the administration of therapy	A61M 2230/201
Measuring blood glucose of a user of sports apparatus	A63B 2230/202

A61B 5/14542**{for measuring blood gases ([A61B 5/14551](#) takes precedence)}****References****Limiting references***This place does not cover:*

Measuring blood gases using optical sensors	A61B 5/14551
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Measuring blood gases of a patient undergoing therapy, e.g. for controlling the administration of therapy	A61M 2230/202
Measuring blood gases of a user of sports apparatus	A63B 2230/207

A61B 5/1455**using optical sensors, e.g. spectral photometrical oximeters****Definition statement***This place covers:*

Apparatus for detecting, measuring or recording chemical characteristics of blood, body fluids or tissue using optical sensors, where the measurement is made in vivo or on a blood or fluid sample immediately after sampling, e.g. measurement is made immediately after sampling by lancet.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Detecting, measuring or recording for diagnostic purposes using light, e.g. for detection of tumour	A61B 5/0059
Detecting, measuring or recording heart rate using photoplethysmograph signals	A61B 5/02416
Investigating or analysing materials by the use of optical means	G01N 21/00

A61B 5/14552**{Details of sensors specially adapted therefor}****Definition statement***This place covers:*

Details of optical sensor construction for pulse oximetry. Sensors particularly adapted for attachment to parts of the body, e.g. earlobe clips, finger clips, adhesive patches etc.. Arrangements of optical sensors in housing or probes.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting, measuring or recording heart rate using photoplethysmograph signals, details of sensor	A61B 5/02427
Details of optical sensors	A61B 2562/0233

A61B 5/14553

{specially adapted for cerebral tissue}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluating the central nervous system	A61B 5/4076
Sensors mounted on head worn items, e.g. helmet or cap	A61B 5/6803

A61B 5/14555

{specially adapted for the eye fundus}

Definition statement

This place covers:

Apparatus for making pulse oximetry measurements at the eye fundus, comprising optical sensors for detecting changes in light characteristics reflected from the eye fundus.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for looking at the eye fundus	A61B 3/12
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A61B 5/14556

{by fluorescence ([A61B 5/14555](#) takes precedence)}

Definition statement

This place covers:

Pulse oximetry using measured change in the fluorescence of light. Includes the use of fluorescent agents.

References

Limiting references

This place does not cover:

Measuring blood gases specially adapted for the eye fundus	A61B 5/14555
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Investigating or analysing materials by the use of light, optically excited fluorescence	G01N 21/64
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A61B 5/14557

{specially adapted to extracorporeal circuits}

Definition statement

This place covers:

Apparatus for detecting, measuring or recording chemical characteristics of blood, body fluids or tissue where the measurement is made in an extracorporeal circuit attached to the patient, e.g. a blood dialysis machine attached to a patient by a catheter. Apparatus for measuring in an external fluid line, e.g. measurement cassette connected to the patient's blood circulation by a catheter.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Other treatment of blood in extracorporeal circuits	A61M 1/3621
Measuring blood gas characteristics of a patient undergoing therapy	A63B 2230/205
Investigating or analysing materials by the use of optical means, flow through cuvettes	G01N 21/05

A61B 5/14558

{by polarisation}

Definition statement

This place covers:

Pulse oximetry using the measured change in the polarisation characteristic of light.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Investigation or analysing materials by the use of optical means, using polarisation-affecting properties	G01N 21/21
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A61B 5/1459**invasive, e.g. introduced into the body by a catheter****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Using optical sensors specially adapted for foetal tissue	A61B 5/1464
Constructional details of invasive sensing devices	A61B 5/6847

A61B 5/1464**specially adapted for foetal tissue****Definition statement***This place covers:*

Apparatus for detecting, measuring or recording of characteristics of blood, body fluid or tissue using optical sensors specially adapted for foetal or neonatal monitoring.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Using chemical or electrochemical methods specially adapted for foetal tissue	A61B 5/1482
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A61B 5/1468**using chemical or electrochemical methods, e.g. by polarographic means****Definition statement***This place covers:*

Apparatus for detecting, measuring or recording chemical characteristics of blood, body fluids or tissue using chemical or electrochemical sensors, where the measurement is made in vivo or on a blood or fluid sample immediately after sampling, e.g. sampling by lancet. Includes apparatus for measuring in an external fluid line, e.g. measurement cassette connected to the patient's blood circulation.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Investigating or analysing biological material in vitro by using electrochemistry	G01N 33/48707
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A61B 5/1473**invasive, e.g. introduced into the body by a catheter****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Constructional details of invasive sensing devices	A61B 5/6847
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A61B 5/1482**specially adapted for foetal tissue****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Using optical methods specially adapted for foetal tissue	A61B 5/1464
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A61B 5/1486**using enzyme electrodes, e.g. with immobilised oxidase****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring or testing processing involving enzymes, enzyme electrodes	C12Q 1/001
Investigating or analysing biological material in vitro by using electrochemistry	G01N 27/3271

A61B 5/14865**{invasive, e.g. introduced into the body by a catheter or needle or using implanted sensors}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Constructional details of invasive sensing devices	A61B 5/6847 - A61B 5/6866
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A61B 5/1495

Calibrating or testing of in-vivo probes

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional details of apparatus for calibration, e.g. calibration protocols	A61B 2560/0223
Sensors provided with means for identification combined with means for recording calibration data, e.g. on memory chip	A61B 2562/085
Investigating or analysing materials by the use of optical means, detection standards or calibrating	G01N 21/93

A61B 5/15

Devices for taking samples of blood

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Hypodermic syringes	A61M 5/178
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Piercing element	skin penetrating component, e.g. blade, needle, lancet, laser beam
piercing or lancing device	device ready to be used for lancing
driving device	device for driving a piercing element, e.g. spring

A61B 5/150305

{Packages specially adapted for piercing devices or blood sampling devices}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Kits for diabetes	A61M 5/003
Packaging in general	B65D

A61B 5/150351

{Caps, stoppers or lids for sealing or closing a blood collection vessel or container, e.g. a test-tube or syringe barrel}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Caps for bottles or containers in general	B65D 41/00
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A61B 5/150358

{Strips for collecting blood, e.g. absorbent}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Optical reagent test strips	G01N 21/8483
Chemical reagent test strips	G01N 33/4875
Use of compounds or compositions for colorimetric, spectrophotometric or fluorometric investigation, e.g. use of reagent paper	G01N 33/52

A61B 5/150366

{Blood collection bags, e.g. connected to the patient by a catheter comprising means for removing a small sample of collected blood from the bag}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Collection bags	A61J 1/05
Multiple bag systems for separating or storing blood components	A61M 1/0209

A61B 5/150374

{Details of piercing elements or protective means for preventing accidental injuries by such piercing elements}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hollow piercing elements, e.g. canulas, needles, for piercing the skin	A61B 5/150389
Double-ended needles, e.g. used with pre-evacuated sampling tubes	A61B 5/150473
Single-ended needles	A61B 5/150503

A61B 5/150473

{Double-ended needles, e.g. used with pre-evacuated sampling tubes (hollow piercing element tip design [A61B 5/150396](#))}

References**Limiting references**

This place does not cover:

Specific tip design, e.g. for improved penetration characteristics	A61B 5/150396
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Needles for bringing media into the body	A61M 5/32
Needle sets for catheters in general	A61M 25/06

A61B 5/150503

{Single-ended needles (hollow piercing element tip design [A61B 5/150396](#))}

References**Limiting references**

This place does not cover:

Specific tip design, e.g. for improved penetration characteristics	A61B 5/150396
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Needles for bringing media into the body	A61M 5/32
Needle sets for catheters in general	A61M 25/06

A61B 5/150763

{with identification means}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Identification means for surgical instruments	A61B 90/90
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A61B 5/150992

{Blood sampling from a fluid line external to a patient, such as a catheter line, combined with an infusion line; Blood sampling from indwelling needle sets, e.g. sealable ports, luer couplings or valves}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Tubing connectors and couplings for catheters in general	A61M 39/00
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A61B 5/16

Devices for psychotechnics (using teaching or educational appliances [G09B 1/00](#) - [G09B 7/00](#)); Testing reaction times {; Devices for evaluating the psychological state}

Definition statement

This place covers:

Apparatus for detecting, measuring or recording the psychological state of a subject from physiological measurements. Any type of measurement may be applied, e.g. skin resistance, motion activity.

References**Limiting references**

This place does not cover:

Testing capability using educational aids or toys	G09B 1/00 - G09B 7/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting using light	A61B 5/0059
Detecting using MRI	A61B 5/055
Measuring movement of the body or parts thereof for determining motor skills	A61B 5/1124
Detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B 5/24
Devices or methods to cause a change in the state of consciousness	A61M 21/00

Special rules of classification

Classification is made in [A61B 5/16](#) and in the particular physiological measurement, e.g. [A61B 5/16](#) and [A61B 5/0531](#), when appropriate.

A61B 5/161**{Flicker fusion testing (eye testing [A61B 3/00](#))}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Eye testing	A61B 3/00
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A61B 5/162**{Testing reaction times}****References****Application-oriented references***Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Reaction-time training with a substantial physical effort	A63B 69/0053
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Determining motor skills	A61B 5/1124
Reaction-time games	A63F 9/0096

A61B 5/163**{by tracking eye movement, gaze, or pupil change}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Devices for examining the eye	A61B 3/00
Processing of images of the eye	G06T 2207/30041
Acquiring or recognizing eyes, e.g. iris verification	G06V 40/18

A61B 5/18**for vehicle drivers {or machine operators}****Definition statement***This place covers:*

Apparatus for detecting, measuring or recording the state of alertness or consciousness of drivers or machine operators from physiological measurements. Any type of measurement may be applied, e.g. tracking eye motion, measuring heart rate.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Safety devices for propulsion-unit control responsive to incapacity of driver	B60K 28/06
Road vehicle drive control related to drivers or passengers, e.g. incapacitation, sleep	B60W 40/08
Alarms responsive to an undesired or abnormal condition indicating sleep, e.g. anti-dozing alarms	G08B 21/06

A61B 5/20

for measuring urological functions {restricted to the evaluation of the urinary system ([A61B 5/4375](#) takes precedence)}

Definition statement

This place covers:

Evaluation of the urinary system.

Urine collection bags comprising urine sensors

References

Limiting references

This place does not cover:

Evaluating the male reproductive system	A61B 5/4375
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring contraction of body parts	A61B 5/1107
Measuring constituents of body fluids other than blood	A61B 5/14507
Devices for taking urine samples	A61B 10/007

A61B 5/201

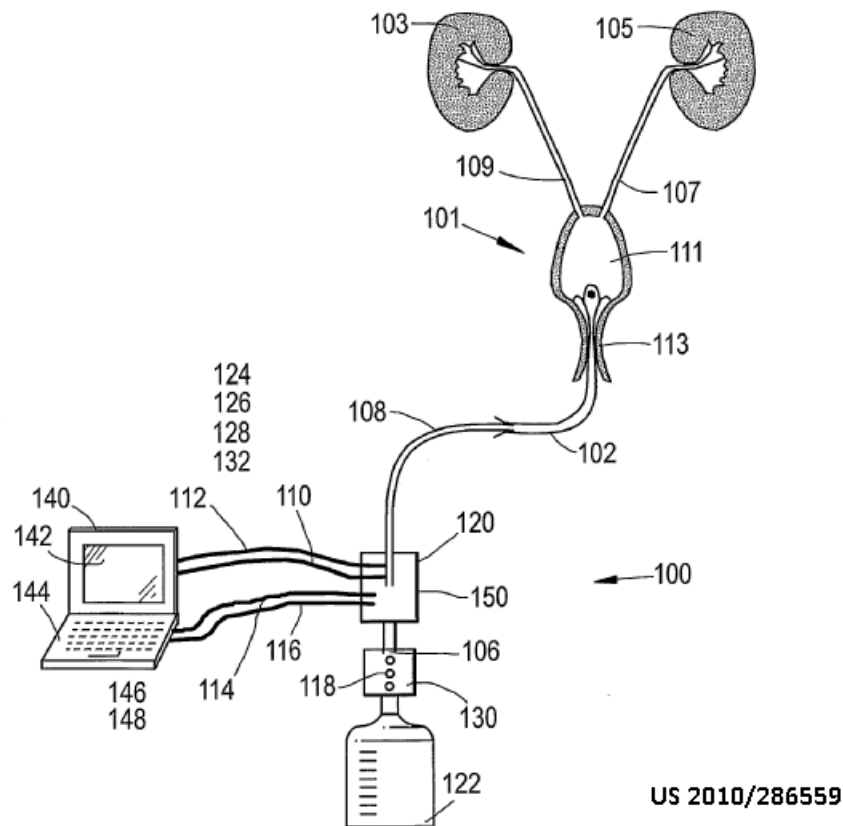
{Assessing renal or kidney functions}

Definition statement

This place covers:

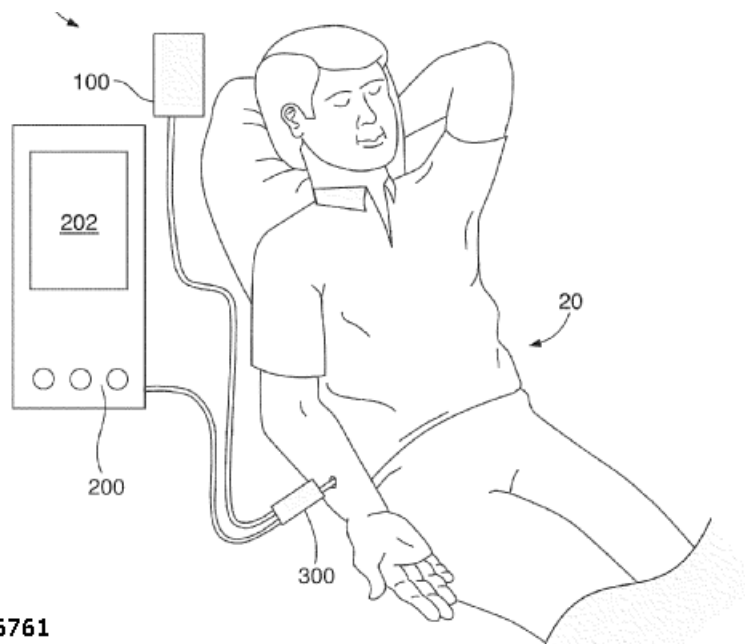
Evaluate renal function, e.g. detect renal failure

1) By urine analysis:



detecting a change in a urinary parameter indicative of a kidney malfunction, e.g. pH, a sodium level, an oxygen level, a potassium level.

2) By blood analysis:



US 2009/285761

Fluorescent molecules are introduced into the blood stream.

Definition statement

Over a period of time, a measurement of the intensities of the reporter and marker fluorescent molecules is taken.

A ratio is calculated to determine a glomerular filtration rate and therefore the health of the subject's kidney.

References

Limiting references

This place does not cover:

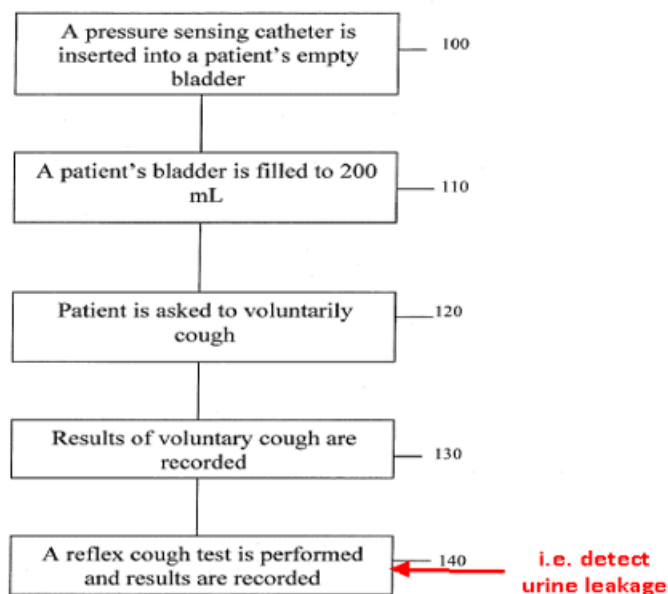
Dialysis systems	A61M 1/14
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A61B 5/202

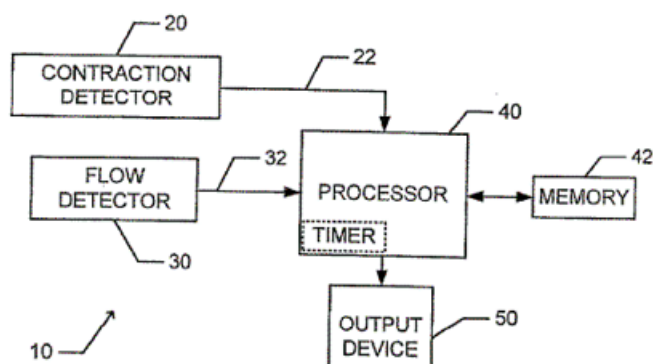
{Assessing bladder functions, e.g. incontinence assessment}

Definition statement

This place covers:



Detection of urine flow:



Flow detector 30 is configured to detect the onset of urination. For example, flow detector 30 generates a flow signal 32 upon detecting a flow of urine.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

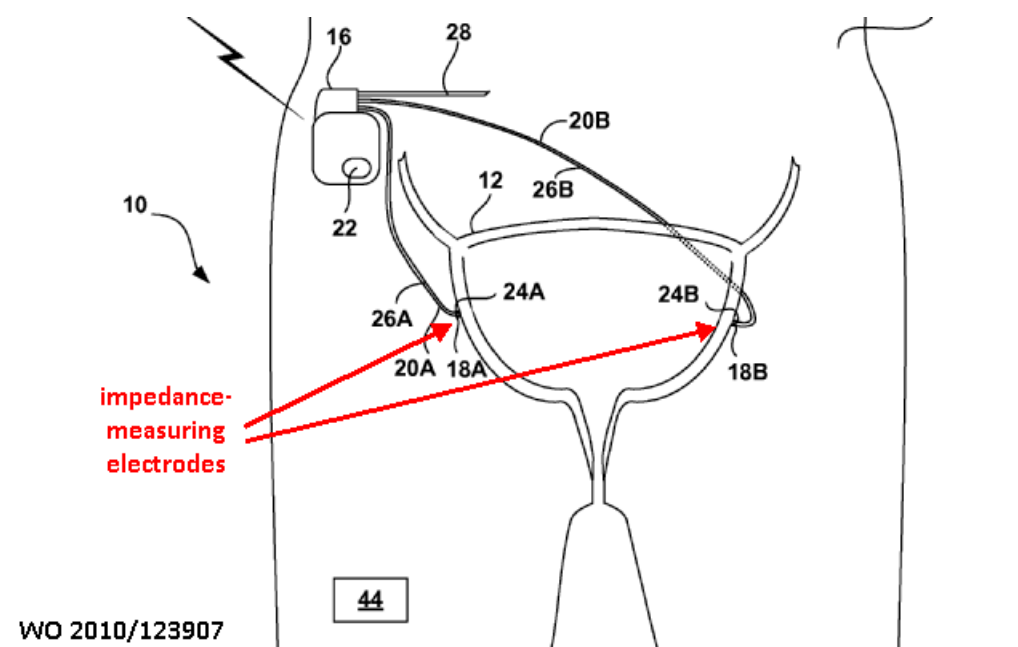
Assessing bladder internal pressure	A61B 5/205
Electromyography of genito-urinary organ	A61B 5/391
Electrical stimulation of urinary organs to alleviate incontinence	A61N 1/36007

A61B 5/204

{Determining bladder volume}

Definition statement

This place covers:



System 10 determines the filling status of a urinary bladder 12 of a patient 14 based on electrical impedance of the bladder

References

Limiting references

This place does not cover:

Measuring bladder volume using ultrasound imaging	A61B 8/08 , G06T 7/62
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring contraction of body parts	A61B 5/1107
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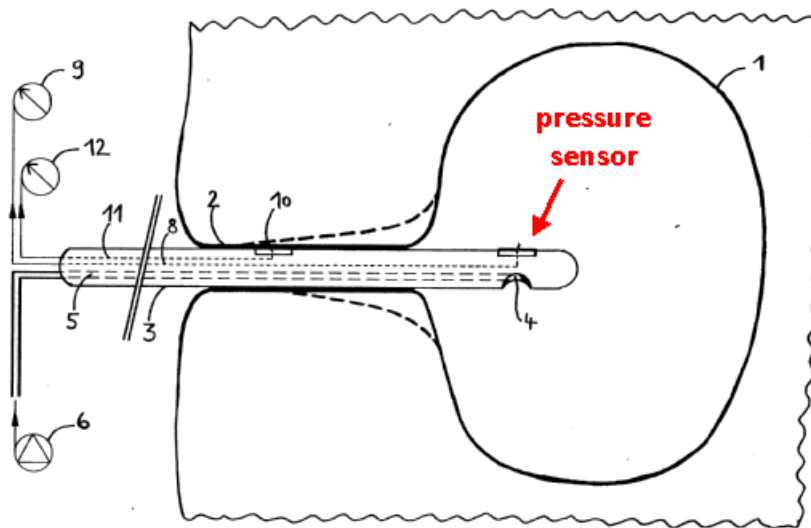
A61B 5/205

{Determining bladder or urethral pressure}

Definition statement

This place covers:

EP 258 690

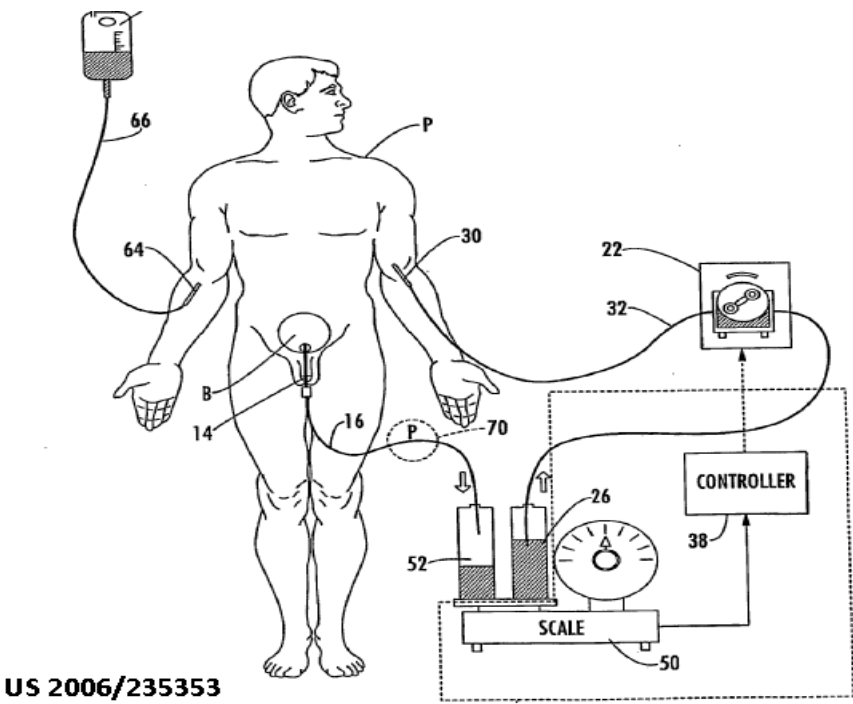


A61B 5/208

{adapted to determine urine quantity, e.g. flow, volume}

Definition statement

This place covers:
Measuring quantity of urine



A61B 5/22

Ergometry; Measuring muscular strength or the force of a muscular blow

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring contraction of parts of the body, e.g. organ, muscle	A61B 5/1107
Exercising apparatus	A63B 21/00
Measuring of work or force in general	G01L

A61B 5/228

{of masticatory organs, e.g. detecting dental force}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring instruments for dentigraphy	A61C 19/04
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A61B 5/24

Detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof

Definition statement

This place covers:

Apparatus for measuring, detecting or recording bioelectric or biomagnetic signals generated by the body or parts thereof. The measurement does not require application of an electric current or voltage nor application of an electromagnetic or magnetic field. Apparatus for ambulatory or long-term monitoring of bioelectric signals. Apparatus for measuring combined with analysis of bioelectric signals for diagnosis.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of electrodes specially adapted for in-vivo measurements, e.g. for impedance measurements	A61B 2562/0209
Medicinal preparations involving or responsive to electricity, magnetism or acoustic waves	A61K 9/0009
Electrodes for electrotherapy implanted or inserted into the body; for stimulating the brain; spinal or peripheral nerve electrodes; nerve electrodes not otherwise provided for	A61N 1/0529 -A61N 1/0539 , A61N 1/0551
Controlling electrotherapy using a physiological parameter, e.g. heart potential	A61N 1/365
Electrotherapy combined with monitoring a physiological parameter	A61N 1/3702
Electrically-conducting adhesives	C09J 9/02
Indicating or recording in connection with measuring in general	G01D
Measuring or recording or electrical currents or voltages in general	G01R 13/00
Recording with possibility of play-back	G11B
ICT specially adapted for the operation of medical equipment or devices	G16H 40/60
ICT specially adapted for mining of medical data, e.g. analysing previous cases of other patients	G16H 50/70
Emergency protective circuit arrangements	H02H
Amplifiers	H03F
Interference or noise suppression in transmissions systems	H04B 15/00

Special rules of classification

Apparatus for detecting, measuring or recording neuroelectric signals combined with stimulation of neural tissue is classified in [A61B 5/24](#) and the respective [A61N](#) subgroup.

A61B 5/242

Detecting biomagnetic fields, e.g. magnetic fields produced by bioelectric currents

Definition statement

This place covers:

Apparatus and methods for detecting electromagnetic fields generated by the body or biomagnetic signals.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring magnetic variables in general	G01R 33/00
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A61B 5/25

Bioelectric electrodes therefor

Definition statement

This place covers:

Constructional details of electrodes

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Electrodes for bioimpedance measurements	A61B 5/053 -A61B 5/0537 , A61B 2562/0209
Probe or electrodes for electrosurgery	A61B 18/14
Manufacturing methods specially adapted for producing electrodes	A61B 2562/125
Electrodes for stimulation in electrotherapy	A61N 1/04 - A61N 1/0597

Special rules of classification

Where the electrode(s) is(are) adapted for both measuring and applying therapy classification in this group and the corresponding therapy or electrosurgical group takes place.

A61B 5/252

by suction

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Means for maintaining contact with the body by using a vacuum	A61B 5/683
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A61B 5/259**using conductive adhesive means, e.g. gels****Definition statement***This place covers:*

Conductive adhesive or gels for improving the electrical contact between the electrode and the skin or body surface

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Adhesives characterised by being electroconductive	C09J 9/02
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A61B 5/276**Protection against electrode failure****Definition statement***This place covers:*

Apparatus for detecting electrode failure or electrode disconnection from patient. Also called lead failure.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Monitoring or maintaining sensor contact pressure	A61B 5/6843
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A61B 5/282**Holders for multiple electrodes (for introduction into the body [A61B 5/287](#))****Definition statement***This place covers:*

Arrangements of multiple ECG electrodes mounted on a single substrate, e.g. a flexible strap.
Arrangements of multiple electrodes joined by a cable. Arrangements of multiple ECG electrodes mounted or fixed on an item of clothing, e.g. vest.

References**Limiting references***This place does not cover:*

For introduction into the body	A61B 5/287
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Patient cord assembly, e.g. cable harness	A61B 5/303
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A61B 5/283**Invasive****Definition statement**

This place covers:

Details of ECG electrodes specially adapted to be introduced into the body. All types of apparatus, e.g. catheters, guidewires, probes or implanted devices for introducing ECG electrodes into the body. Electrodes for epicardial or endocardial measurements of ECG or electrograms.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Constructional details of invasive sensing devices	A61B 5/6847 - A61B 5/6866
Electrodes for electrotherapy for implantation or insertion into the body, epicardial or endocardial electrodes	A61N 1/0587 - A61N 1/0597

A61B 5/287**Holders for multiple electrodes, e.g. electrode catheters for electrophysiological study [EPS]****Definition statement**

This place covers:

Multiple electrodes on a single holder, e.g. multiple electrodes on a catheter.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Sensors mounted on catheters	A61B 5/6852
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A61B 5/288**for foetal cardiography, e.g. scalp electrodes****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Sensors for measuring characteristics of blood specially adapted for foetal tissue	A61B 5/1464 , A61B 5/1482
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Anchoring means for maintaining sensor contact with the body, e.g. barbs	A61B 5/6839
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A61B 5/30

Input circuits therefor

Definition statement

This place covers:

Input circuits specially adapted for EEG, ECG or EMG signals, e.g. for filtering, amplification, switching.

A61B 5/301

providing electrical separation, e.g. by using isolating transformers or optocouplers

Definition statement

This place covers:

Means for the electrical isolation of the patient side electrodes from the mains power supply, e.g. using an isolation transformer or optocoupler.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Coupling light guides with opto-electronic elements	G02B 6/42
Adaptations of transformers for specific applications of functions	H01F 38/00
Amplifiers using electroluminescent element or photocell	H03F 17/00

A61B 5/303

{Patient cord assembly, e.g. cable harness}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements of sensors with cables or leads, e.g. cable harnesses	A61B 2562/221
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A61B 5/304

Switching circuits

Definition statement

This place covers:

Apparatus for switching the connection of ECG leads to the monitor or analysis unit, e.g. using a multiplexer.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Modular apparatus with a separable interface unit, e.g. for transmission or switching signals	A61B 2560/045
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A61B 5/316

Modalities, i.e. specific diagnostic methods

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluating the central nervous system for particular diseases	A61B 5/40
Evaluating the musculoskeletal system	A61B 5/45
Arrangements for analysing frequency spectra in general	G01R 23/00

A61B 5/318

Heart-related electrical modalities, e.g. electrocardiography [ECG]

Definition statement

This place covers:

Apparatus for detecting, measuring or recording ECG signals on the surface of the body. Apparatus for detecting, measuring or recording electrograms from the heart surface or from within the heart. Apparatus for long-term or ambulatory monitoring of ECG. Apparatus for measuring ECG combined with analysis of the ECG to obtain a diagnosis.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Remote monitoring of patient with the measured ECG signals being transmitted from the patient to a remote monitor or site	A61B 5/0006
Controlling electrotherapy using a physiological parameter, e.g. heart potential	A61N 1/365

A61B 5/322

Physical templates or devices for measuring ECG waveforms, e.g. electrocardiograph rulers or calipers

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Physical templates or devices for measuring ECG waveforms, e.g. electrocardiograph rulers or calipers, by template matching	A61B 5/35
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A61B 5/332

Portable devices specially adapted therefor

Definition statement

This place covers:

Hand-held or portable apparatus for detecting, measuring or recording.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hand-held or portable apparatus for detecting, measuring or recording	A61B 2560/0468
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A61B 5/333

Recording apparatus specially adapted therefor

Definition statement

This place covers:

Recording apparatus specially adapted for long-term or ambulatory recording of ECG, e.g. 24 hour recording, Holter monitors.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Recording measured values	G01D 9/00
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A61B 5/335**using integrated circuit memory devices****Definition statement**

This place covers:

Integrated circuit memory devices may be built into the device or may comprise removable memory chips, e.g. flash memory stick.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Solid state data loggers	G01D 9/005
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A61B 5/339**Displays specially adapted therefor****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Arrangements for displaying electric variables or waveforms, e.g. cathode-ray oscilloscopes	G01R 13/00
Output arrangements for digital computers, output to a display device	G06F 3/14

A61B 5/349**Detecting specific parameters of the electrocardiograph cycle****Definition statement**

This place covers:

Apparatus for detecting, measuring or recording ECG in combination with analysis of specific parameters of the electrocardiograph cycle in order to determine a diagnosis, e.g. analysis of ST segment elevation for determining ischaemia. Includes analysis of epicardial or endocardial electrograms for diagnosis.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Controlling electrotherapy by using a physiological parameter, e.g. heart potential	A61N 1/365
Pattern recognition in time domain, e.g. time-series data	G06F 2123/02

A61B 5/352

Detecting R peaks, e.g. for synchronising diagnostic apparatus; Estimating R-R interval

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Physiological signal analysis for synchronising or triggering a measurement or image acquisition	A61B 5/7285
Circuit arrangements for obtaining a series of X-ray photographs	H05G 1/60

A61B 5/363

Detecting tachycardia or bradycardia

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Devices provided with high/low alarm device	A61B 5/02455
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A61B 5/369

Electroencephalography [EEG]

Definition statement

This place covers:

Apparatus for detecting, measuring or recording electroencephalographic signals (EEG) for diagnosis.
Apparatus for measuring combined with analysis of signals for determining a diagnosis, e.g. for determining a seizure.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Devices for psychotechnics, e.g. for determining the psychological state	A61B 5/16
Evaluating the central nervous system for diagnosis	A61B 5/4076
Devices or methods to cause a change in the state of consciousness	A61M 21/00
Evaluating the central nervous system	A61M 2230/10
Measuring EEG of a user of sporting apparatus	A63B 2230/10
Input arrangements for computers based on nervous system activity, e.g. brain machine interfaces using EEG	G06F 3/015
Pattern recognition in time domain, e.g. time-series data	G06F 2123/02

A61B 5/374

Detecting the frequency distribution of signals, e.g. detecting delta, theta, alpha, beta or gamma waves

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Analysing frequency spectra in general	G01R 23/00
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A61B 5/375

using biofeedback

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Biofeedback per se	A61B 5/486
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A61B 5/377

using evoked responses

Definition statement

This place covers:

Apparatus for detecting, measuring or recording EEG that has been evoked in response to the application of a stimulus.

A61B 5/38

Acoustic or auditory stimuli

Definition statement

This place covers:

Using a sound, acoustic or audible stimulus to evoke an EEG response.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Audiometering with electric or electronic apparatus, e.g. using evoked EEG response	A61B 5/12
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A61B 5/389**Electromyography [EMG]****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Electrical operating or control means of prostheses implantable into the body	A61F 2/482
Electrical operating or control means of prostheses not implantable in the body, e.g. myoelectric	A61F 2/72

A61B 5/398**Electrooculography [EOG], e.g. detecting nystagmus; Electroretinography [ERG]****Definition statement**

This place covers:

Apparatus for detecting, measuring or recording electro-oculographic signals or electroretinographic signals.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring or inducing nystagmus	A61B 5/4863
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A61B 5/40

{Detecting, measuring or recording for evaluating the nervous system (for sleep [A61B 5/4806](#); for anaesthesia [A61B 5/4821](#); for pain [A61B 5/4824](#))}

References**Limiting references**

This place does not cover:

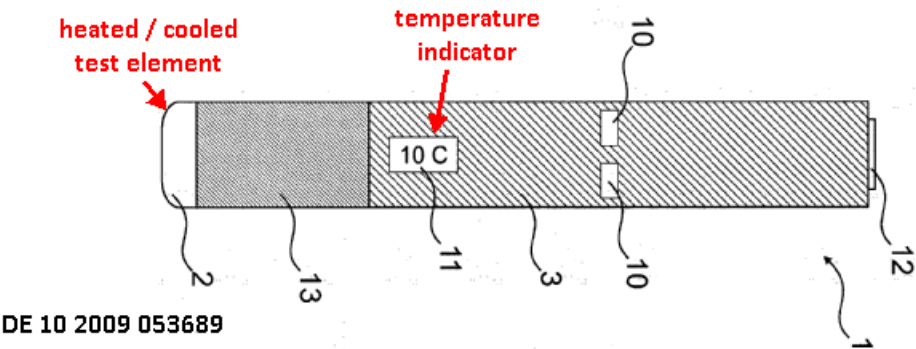
Evaluation of sleep	A61B 5/4806
Evaluation of level or depth of anaesthesia	A61B 5/4821
Evaluation of touch or pain perception	A61B 5/4824

A61B 5/4005

{for evaluating the sensory system ([A61B 5/12](#), [A61B 5/4058](#) take precedence)}

Definition statement

This place covers:
Evaluate sensations, e.g.:
Temperature sensitivity:



References

Limiting references

This place does not cover:

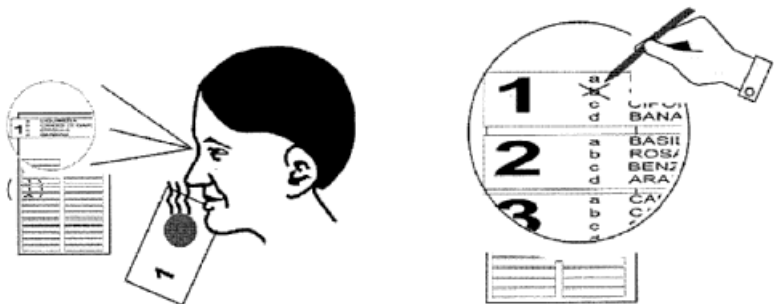
Diagnostic temperature sensing	A61B 5/01
Audiometry	A61B 5/12
Evaluating the central nervous system	A61B 5/4058

A61B 5/4011

{Evaluating olfaction, i.e. sense of smell}

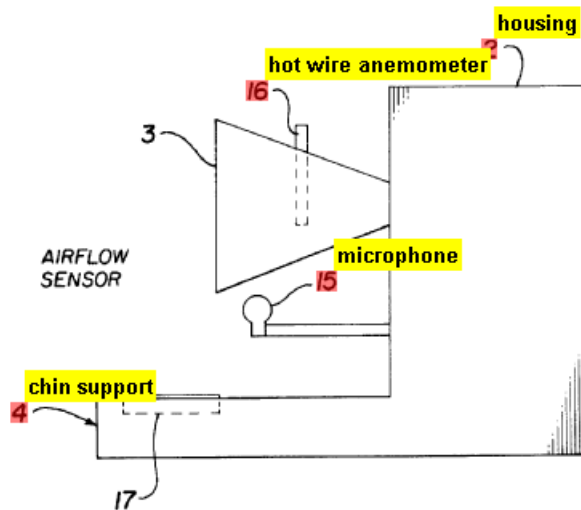
Definition statement

This place covers:
1) Manual odour test using odour samples



EP 2 174 585

2) Automatic test device



US 6 638 715

- Dispensing a controlled amount of volatile fluid
- Determining if the patient has sensed the volatile fluid
- Dispensing an increased quantity of volatile fluid if the patient has not sensed the volatile fluid or a reduced quantity of volatile fluid if the patient has sensed the volatile fluid.

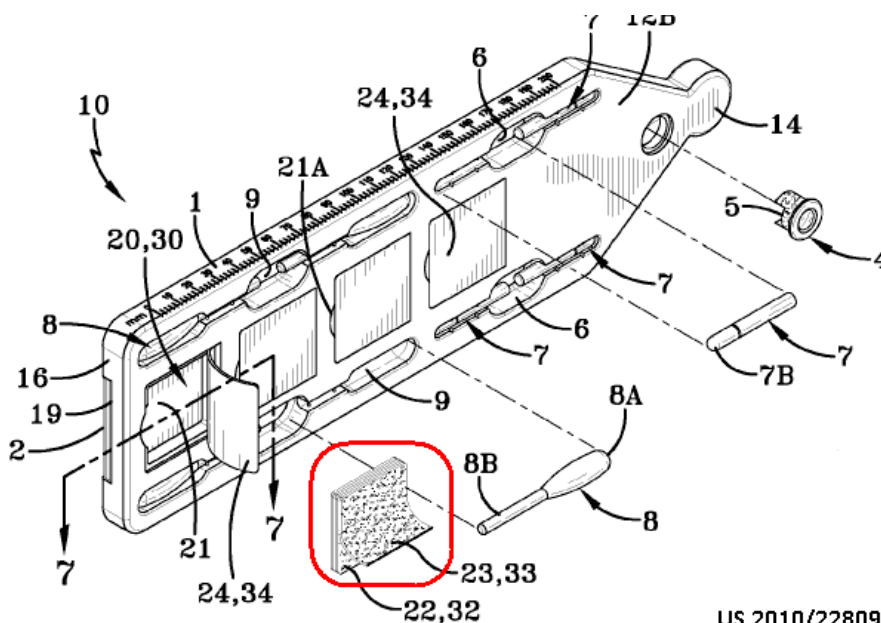
A61B 5/4017

{Evaluating sense of taste}

Definition statement

This place covers:

- 1) Manual test using taste samples;

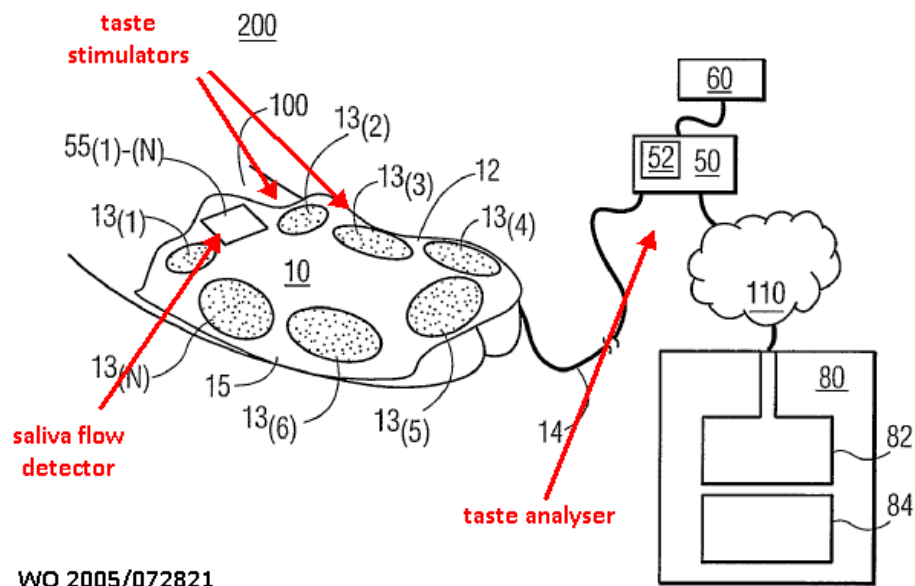


US 2010/228098

Each strip 22, 32 is comprised of a thin layer 23, 33 of material with a specific taste.

Definition statement

2) Automatic taste sensor



WO 2005/072821

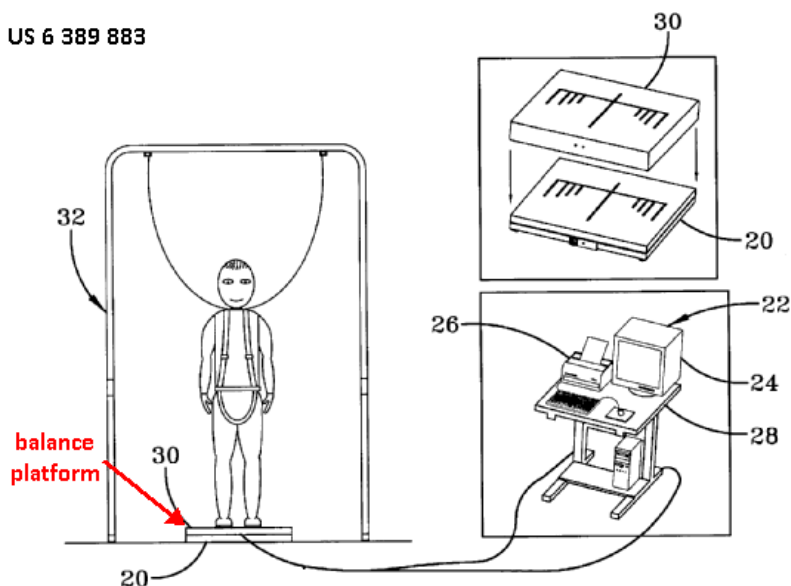
A61B 5/4023

{Evaluating sense of balance}

Definition statement*This place covers:*

Evaluate forces applied by the patient to maintain balance, possibly while perturbing her balance

US 6 389 883



A61B 5/4029

{for evaluating the peripheral nervous systems (using bioelectric or biomagnetic signals [A61B 5/24](#))}

References**Limiting references**

This place does not cover:

Detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B 5/24
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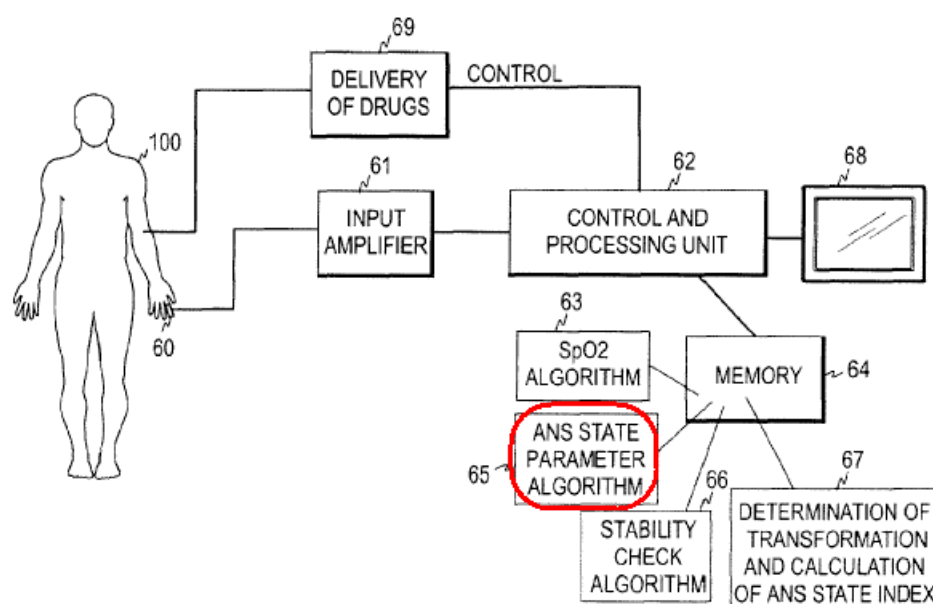
A61B 5/4035

{Evaluating the autonomic nervous system}

Definition statement

This place covers:

Evaluate sympathetic/parasympathetic activity



EP 2 233 075

A61B 5/4058

{for evaluating the central nervous system}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring blood flow with MRI	A61B 5/0263
Electroencephalography [EEG]	A61B 5/369
Functional imaging of brain activation	G01R 33/4806

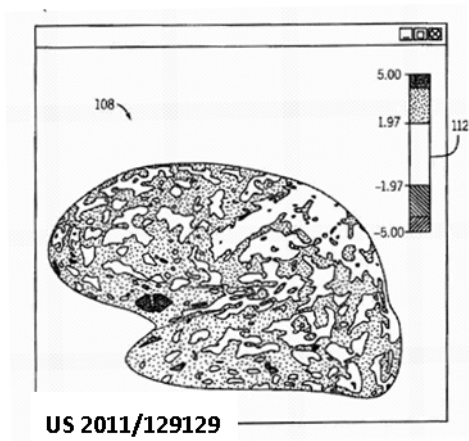
A61B 5/4064

{Evaluating the brain (for intracranial pressure [A61B 5/031](#); for cerebral blood gases [A61B 5/14553](#); using EEG [A61B 5/369](#))}

Definition statement

This place covers:

Various regions of the brain 108 may be colour coded according to a scale 112 to represent the cortical thickness, or deviation from normal thickness



References

Limiting references

This place does not cover:

Intracranial pressure measurements	A61B 5/031
Using optical sensors, specially adapted for cerebral tissue	A61B 5/14553
Electroencephalography [EEG]	A61B 5/369

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for psychotechnics	A61B 5/16
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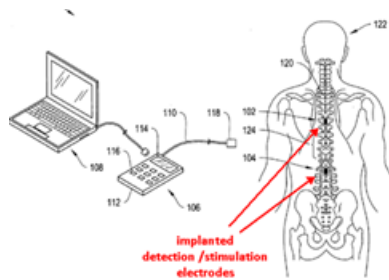
A61B 5/407

{Evaluating the spinal cord (for locating the epidural space [A61B 5/4896](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in this place:

**References****Limiting references**

This place does not cover:

Epidural space location	A61B 5/4896
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A61B 5/4076

{Diagnosing or monitoring particular conditions of the nervous system}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

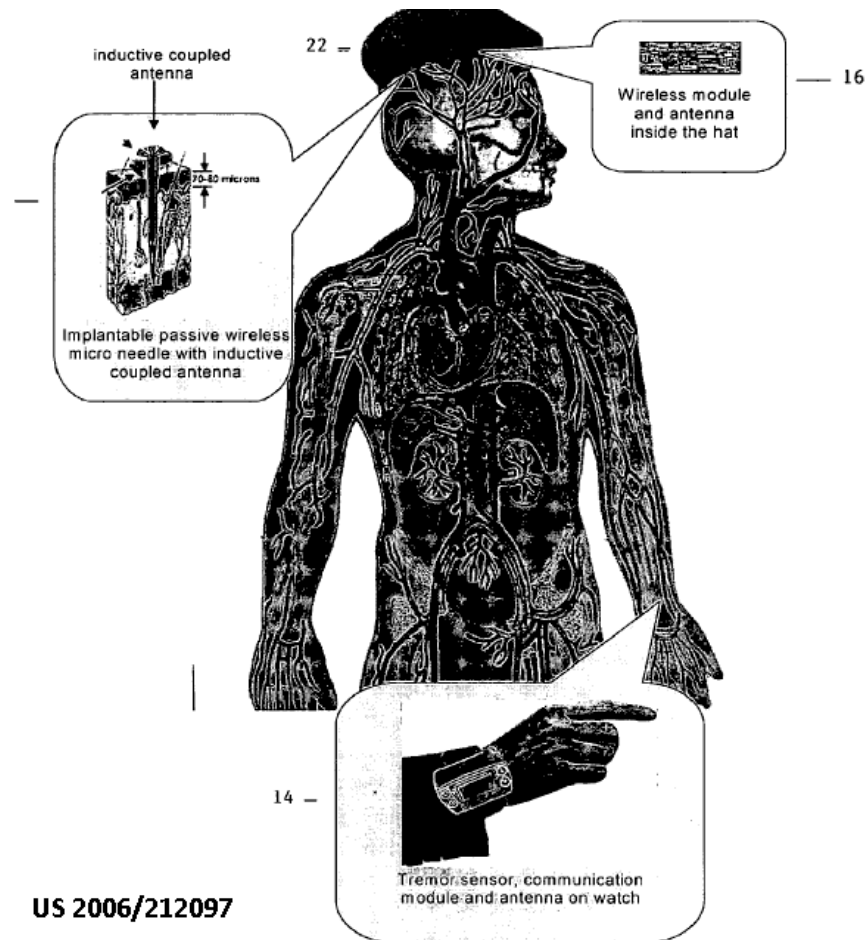
Determining level of anaesthesia	A61B 5/4821
Determining pain perception	A61B 5/4824

A61B 5/4082

{Diagnosing or monitoring movement diseases, e.g. Parkinson, Huntington or Tourette}

Definition statement

This place covers:



US 2006/212097

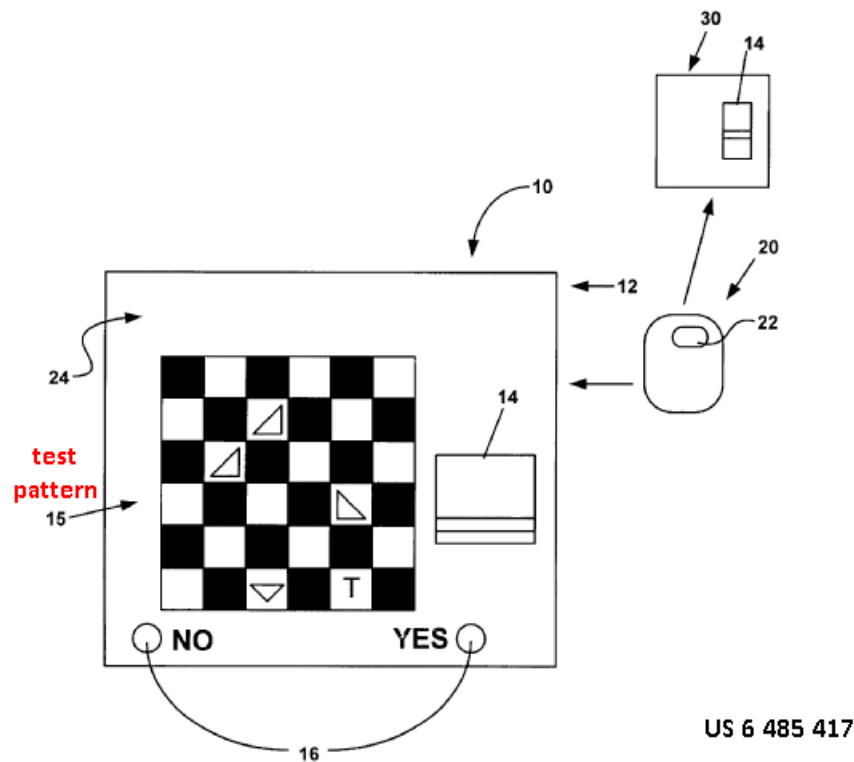
A61B 5/4088

{Diagnosing or monitoring cognitive diseases, e.g. Alzheimer, prion diseases or dementia}

Definition statement

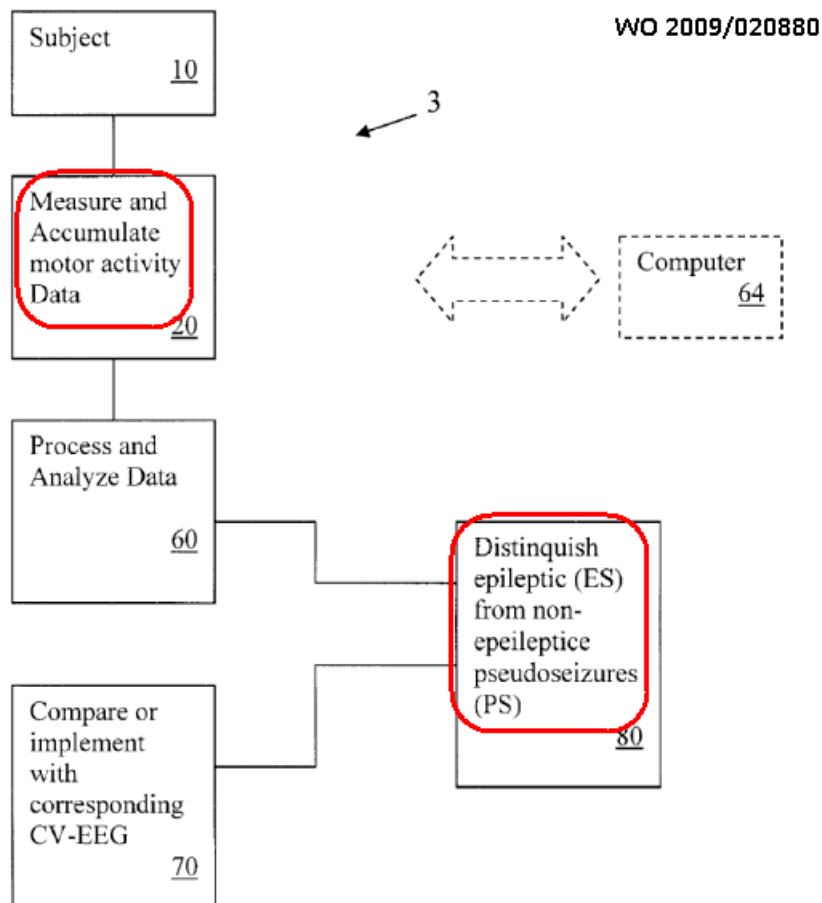
This place covers:

All types of diagnostic apparatus and methods for diagnosing or monitoring cognitive diseases. Includes objective type measurement apparatus, e.g. measuring a physical characteristic of the brain tissue and subjective type apparatus, e.g. for applying cognitive tests to the patient.



A61B 5/4094**{Diagnosing or monitoring seizure diseases, e.g. epilepsy}****Definition statement***This place covers:*

Assess seizures based on detected movement patterns, heart rate variability, EEG etc.



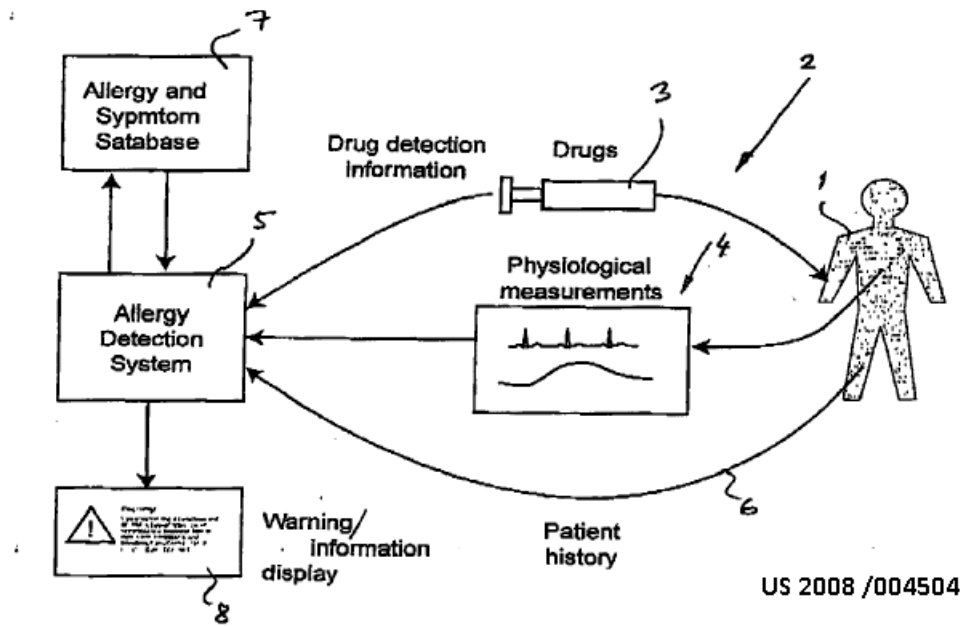
A61B 5/411

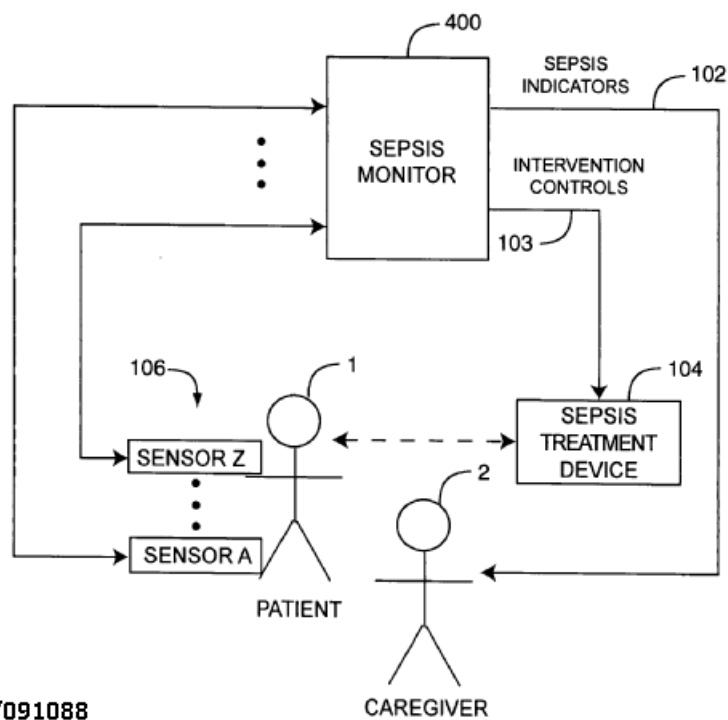
{Detecting or monitoring allergy or intolerance reactions to an allergenic agent or substance}

Definition statement

This place covers:

Evaluation of allergies or intolerances, with or without sensors of physiological quantities:



A61B 5/412**{Detecting or monitoring sepsis}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 5/412](#)

US 2008/091088

A61B 5/413

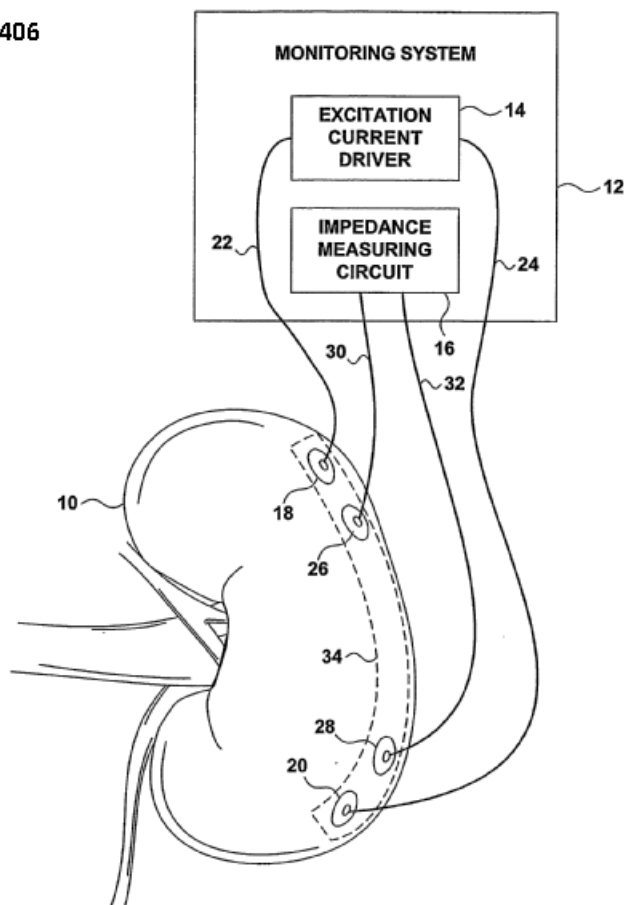
{Monitoring transplanted tissue or organ, e.g. for possible rejection reactions after a transplant}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/413](#)

WO 2004/045406

**References****Limiting references**

This place does not cover:

Preservation of excised living parts of the human or animal body	A01N 1/10
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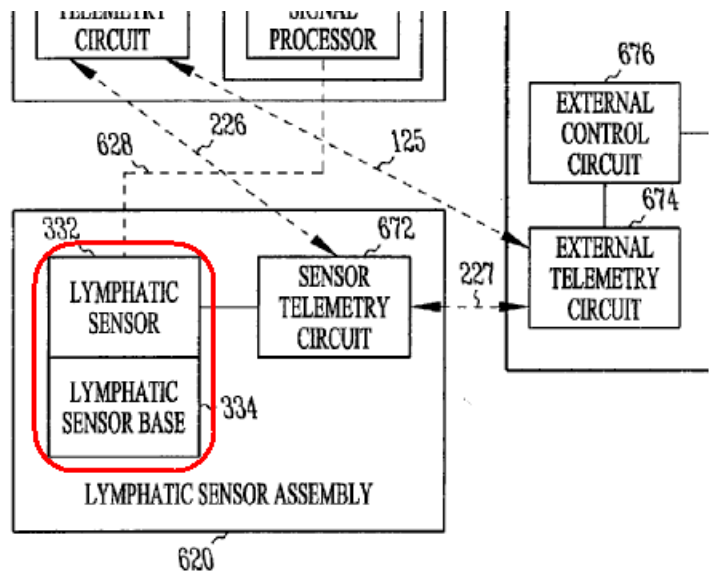
A61B 5/414

{Evaluating particular organs or parts of the immune or lymphatic systems}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/414](#)



US 2008/234556

A61B 5/42

{Detecting, measuring or recording for evaluating the gastrointestinal, the endocrine or the exocrine systems ([A61B 1/00](#), [A61B 5/4857](#), [A61B 5/486](#), [A61B 5/4866](#), [A61B 5/4869](#) take precedence)}

References

Limiting references

This place does not cover:

Gastrointestinal endoscopy	A61B 1/00
Biorhythm	A61B 5/4857
Measuring sweat production	A61B 5/486
Evaluating metabolism	A61B 5/4866
Determining constituents of the body	A61B 5/4869

Informative references

Attention is drawn to the following places, which may be of interest for search:

Catheters for measuring non-vascular pressure	A61B 5/036
Detecting gastrointestinal contractions	A61B 5/392

Diagnosis using ultrasonic, sonic or infrasonic waves in body cavities or body tracts, e.g. by using catheters

[A61B 8/12](#)

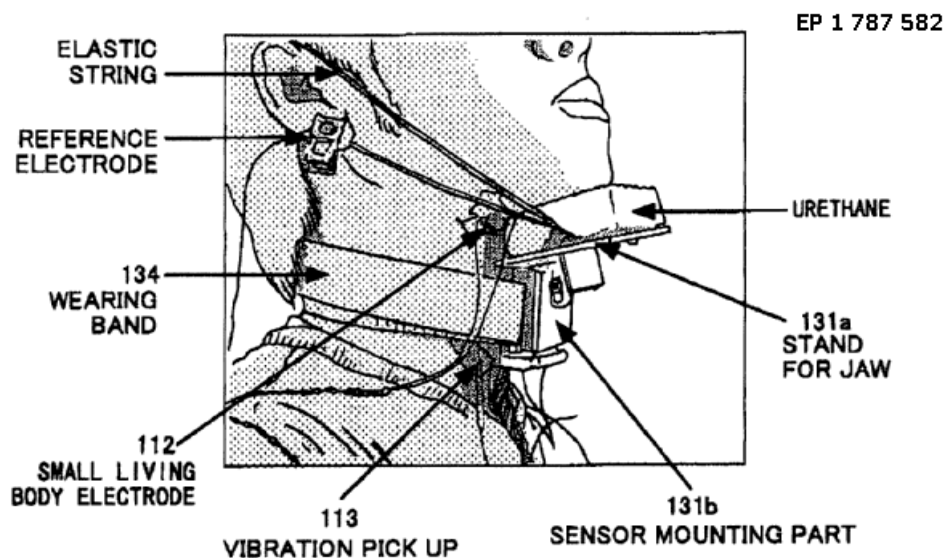
A61B 5/4205

{Evaluating swallowing}

Definition statement

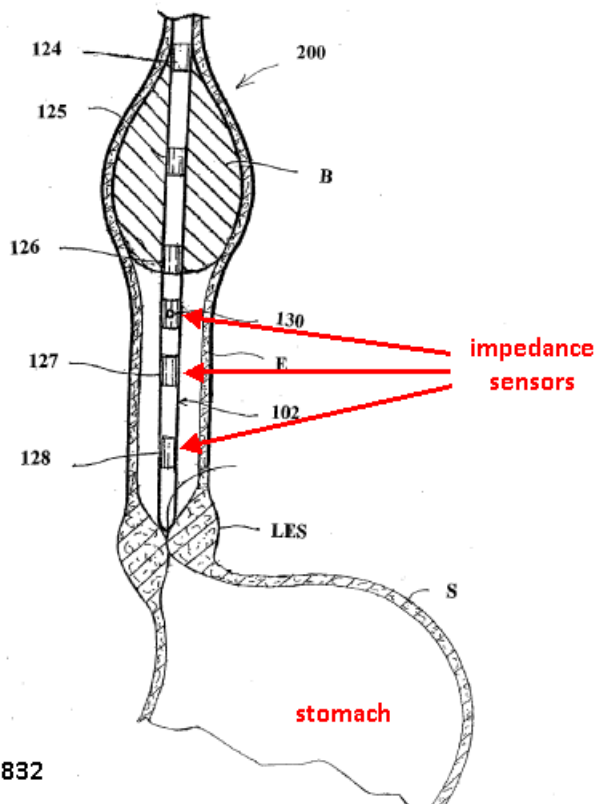
This place covers:

Evaluating swallow actions



A61B 5/4211**{Diagnosing or evaluating reflux}****Definition statement***This place covers:*

Backflow detection from stomach to oesophagus, e.g. by impedance measurement with a balloon catheter:



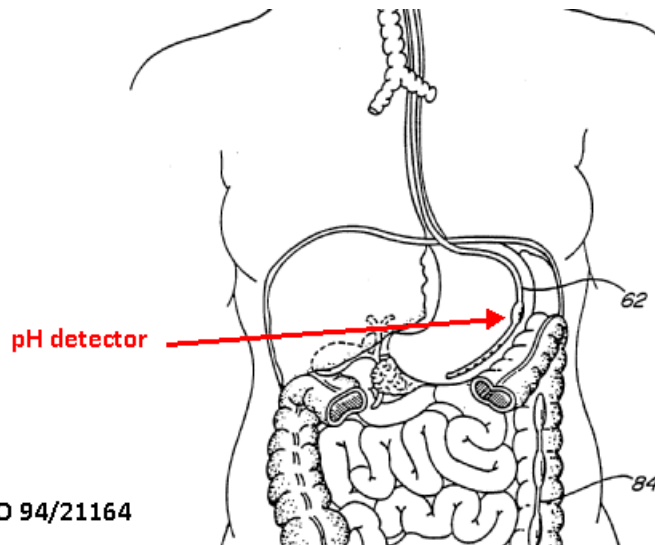
US 2005/080832

A61B 5/4216**{Diagnosing or evaluating gastrointestinal ulcers}****Definition statement***This place covers:*

Illustrative example of subject matter classified in [A61B 5/4216](#):

Definition statement

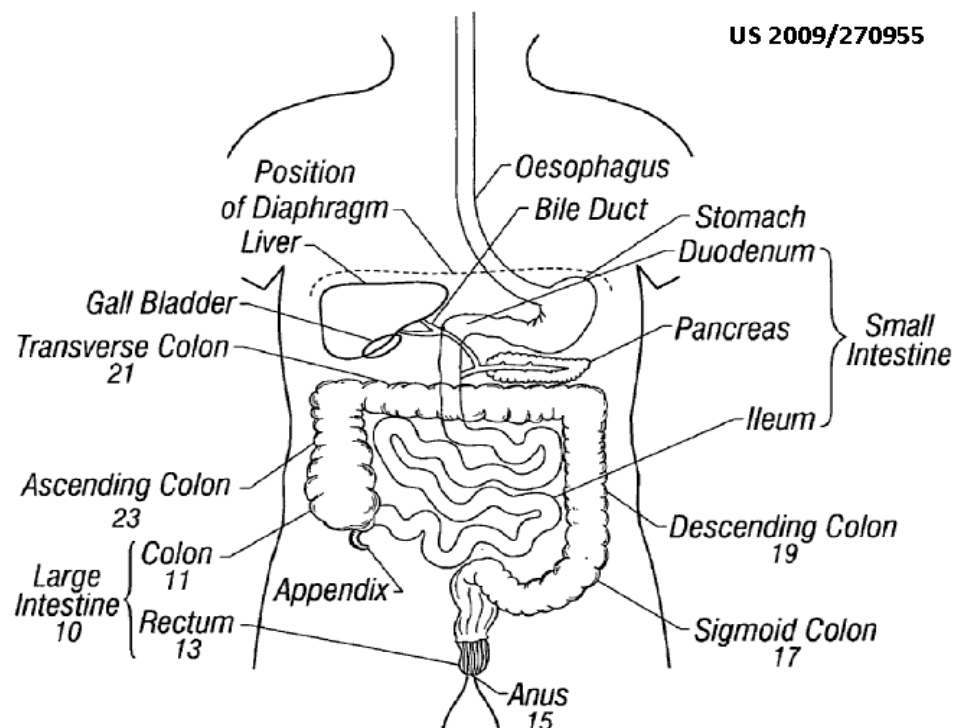
by pH measurement in the gastrointestinal system

**A61B 5/4222**

{Evaluating particular parts, e.g. particular organs}

Definition statement*This place covers:*

Evaluating oesophagus, stomach, liver, pancreas, intestines, endocrine glands



A61B 5/4227

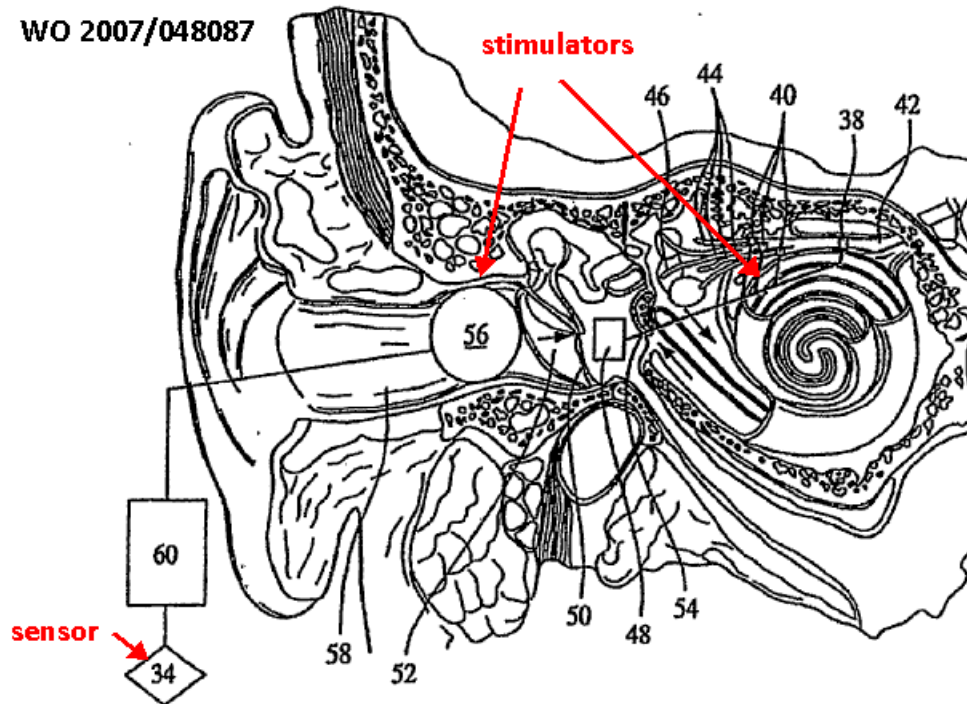
{endocrine glands, i.e. thyroid, adrenals, hypothalamic, pituitary}

Definition statement

This place covers:

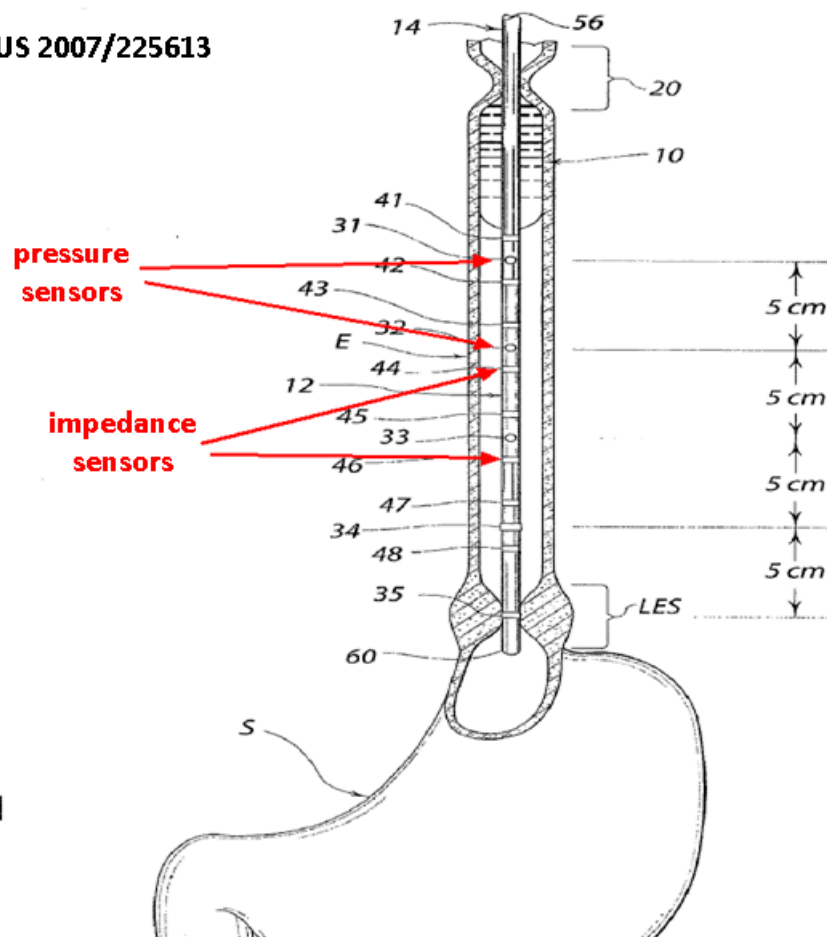
Determining the activity of endocrine glands, e.g. determining the response of the hypothalamus to stimulation.

WO 2007/048087



A61B 5/4233

{oesophagus}

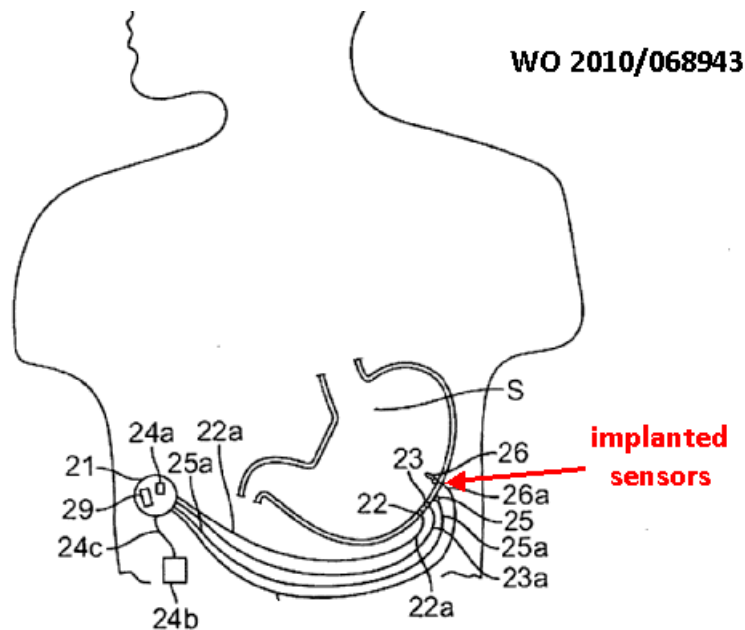
Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 5/4233](#)**US 2007/225613**

A61B 5/4238

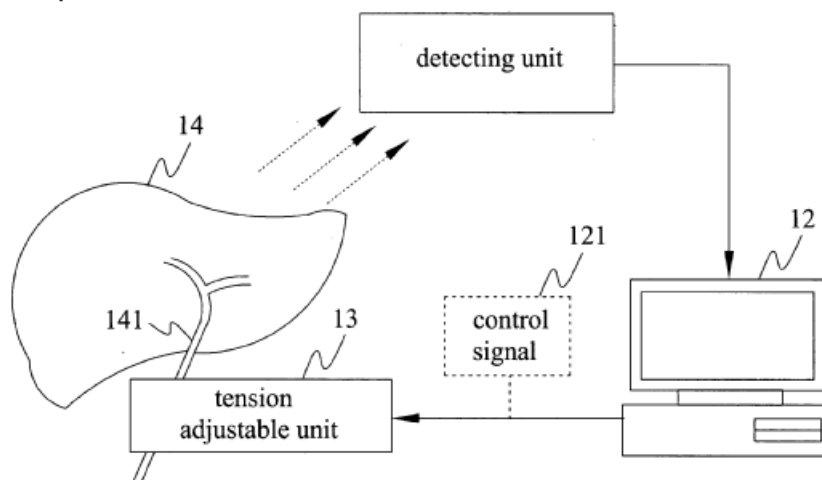
{stomach}

Definition statement*This place covers:*

Evaluating the function or state of the stomach, e.g. determining the amount of food or drink ingested.

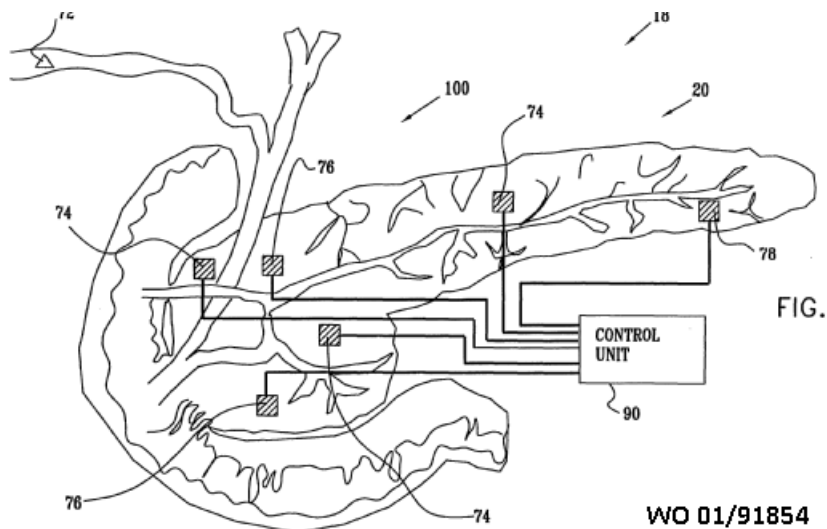
**A61B 5/4244**

{liver}

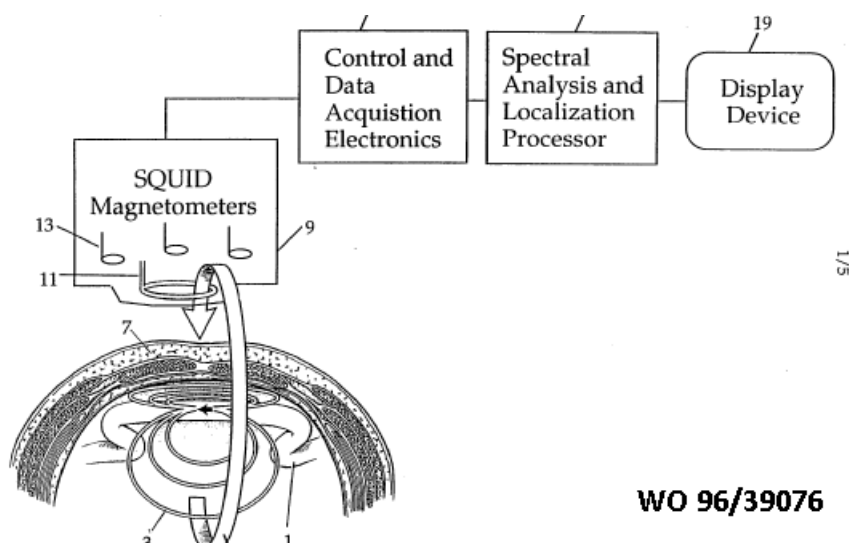
Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 5/4244](#)**US 2009/043251**

A61B 5/425**{pancreas}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 5/425](#)

For example, electropancreatography:

**A61B 5/4255****{Intestines, colon or appendix}****Definition statement***This place covers:*

Evaluating the function or state of the intestines, colon or appendix, for example, identification of intestinal ischemia



A61B 5/4261

{Evaluating exocrine secretion production ([A61B 3/101](#) takes precedence)}

Definition statement

This place covers:

Sweat, sebum, saliva, gastrointestinal secretions, mammary secretions, vaginal secretions

References

Limiting references

This place does not cover:

Tear secretion	A61B 3/101
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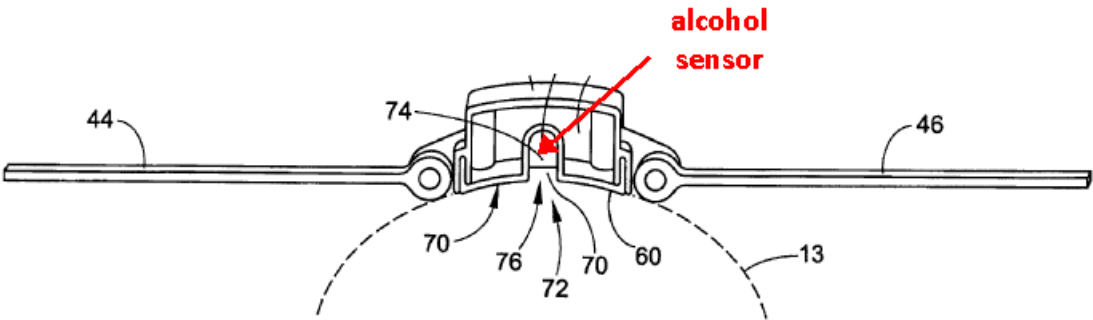
A61B 5/4266

{sweat secretion}

Definition statement

This place covers:

Detect, e.g., alcohol content in perspiration fluid



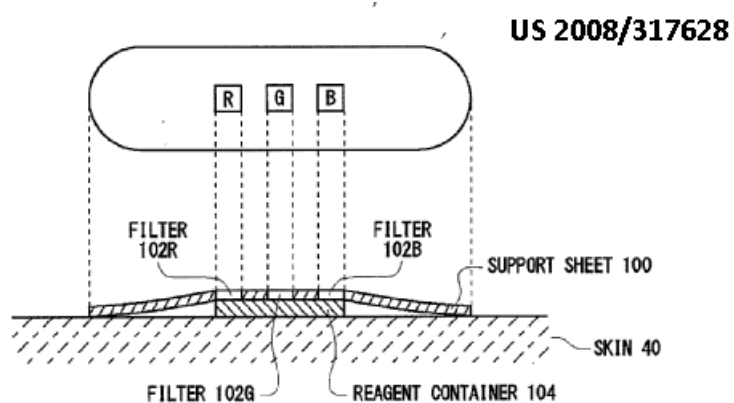
US 2009/212957

A61B 5/4272

{sebum secretion}

Definition statement*This place covers:*

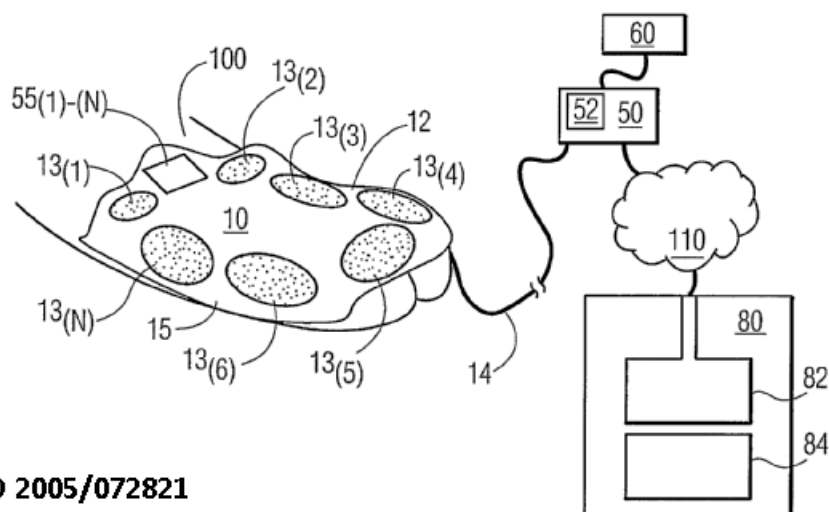
Reagent changing colour according to sebum concentration

**A61B 5/4277**

{saliva secretion}

Definition statement*This place covers:*

Evaluation of saliva flow rate



A61B 5/4294

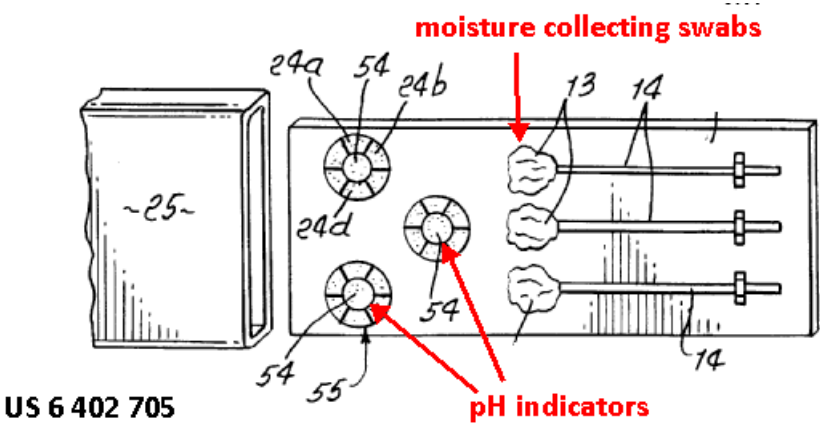
{vaginal secretions}

Definition statement

This place covers:

All types of evaluations of vaginal secretion including rate of production, viscosity etc.

For example, evaluating pH of vaginal secretions



A61B 5/4312

{Breast evaluation or disorder diagnosis (optical mammography [A61B 5/0091](#))}

Definition statement

This place covers:

All types of apparatus and methods for evaluating the breasts, including measurement of breast size and diagnosis of breast disorders, e.g. by detecting properties of the breasts.

Illustrative example of subject matter classified in this place:



References

Limiting references

This place does not cover:

Optical mammography	A61B 5/0091
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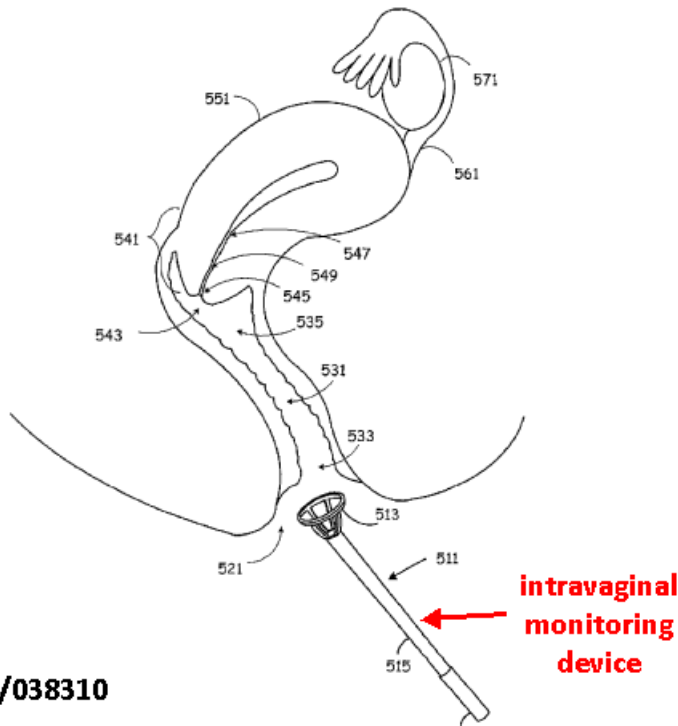
A61B 5/4318

{Evaluation of the lower reproductive system ([A61B 5/4343](#) takes precedence)}

Definition statement

This place covers:

Evaluations of the uterus, fallopian tubes, ovaries, cervix, vagina



WO 2011/038310

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pregnancy and labour monitoring	A61B 5/4343
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A61B 5/4331

{of the cervix ([A61B 5/435](#) takes precedence)}

References

Limiting references

This place does not cover:

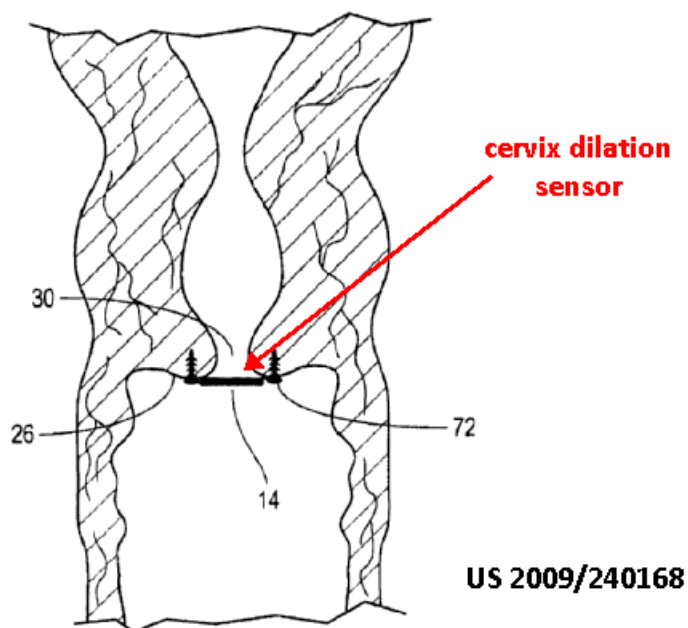
Assessing cervix alteration	A61B 5/435
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A61B 5/4343**{Pregnancy and labour monitoring, e.g. for labour onset detection}****Definition statement***This place covers:*

Monitoring pregnancy and labour

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Detecting uterine fluid pressure	A61B 5/033
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A61B 5/435**{Assessing cervix alteration or dilation}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 5/435](#)

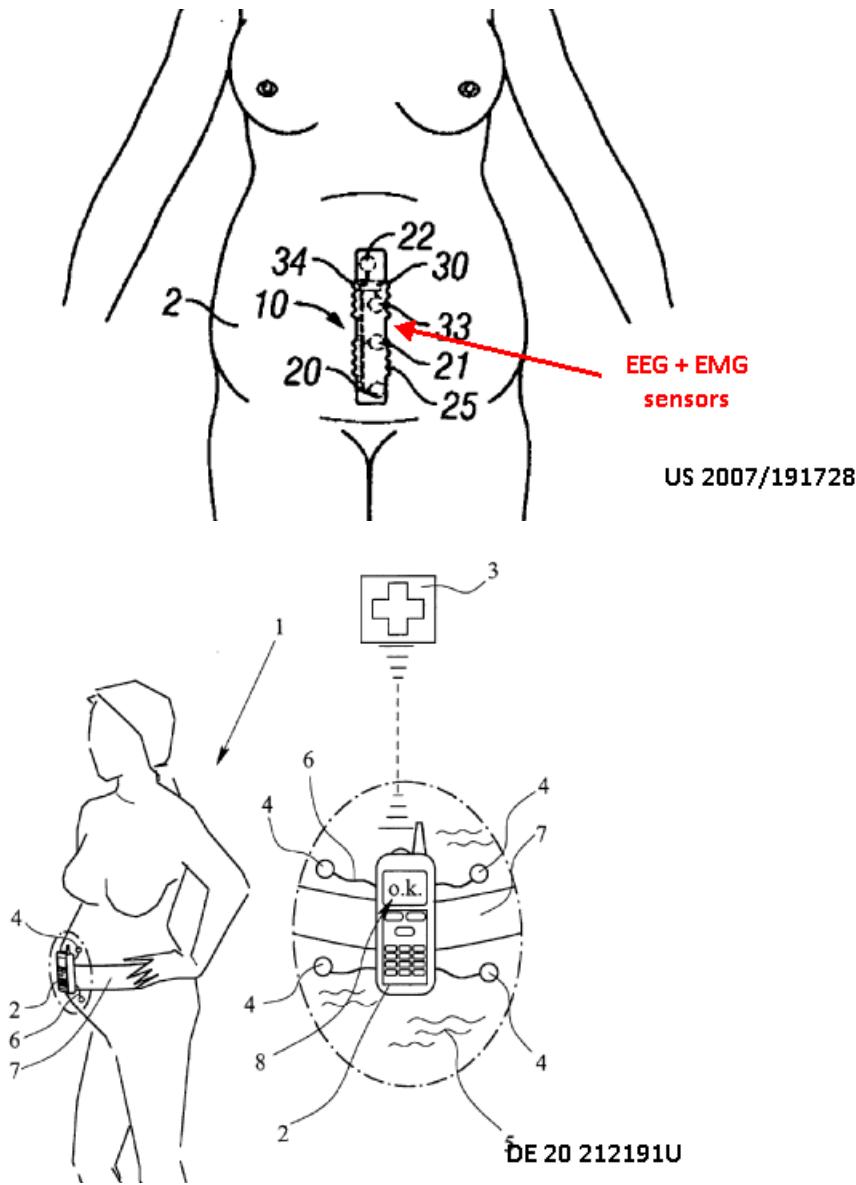
A61B 5/4356

{Assessing uterine contractions ([A61B 5/033](#) takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/4356](#)



References

Limiting references

This place does not cover:

Measuring pressure of intrauterine fluid	A61B 5/033
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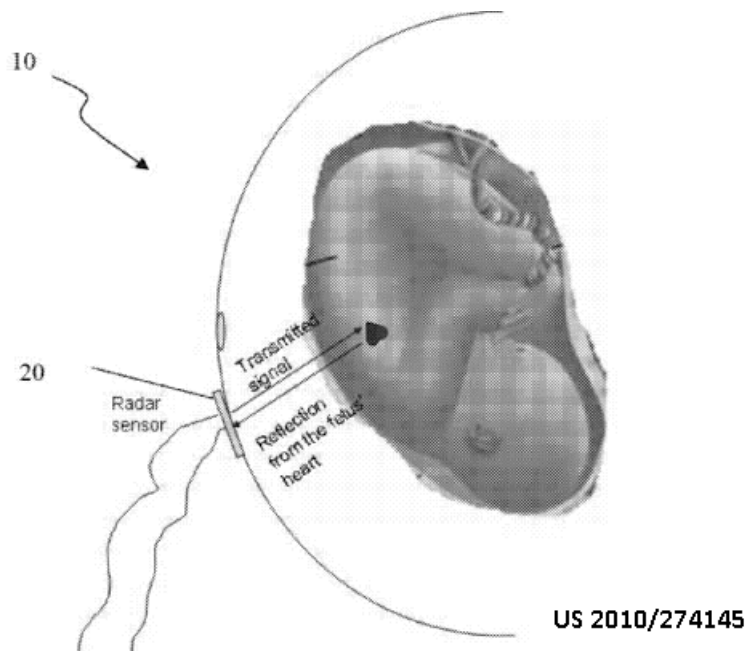
A61B 5/4362

{Assessing foetal parameters}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/4362](#)



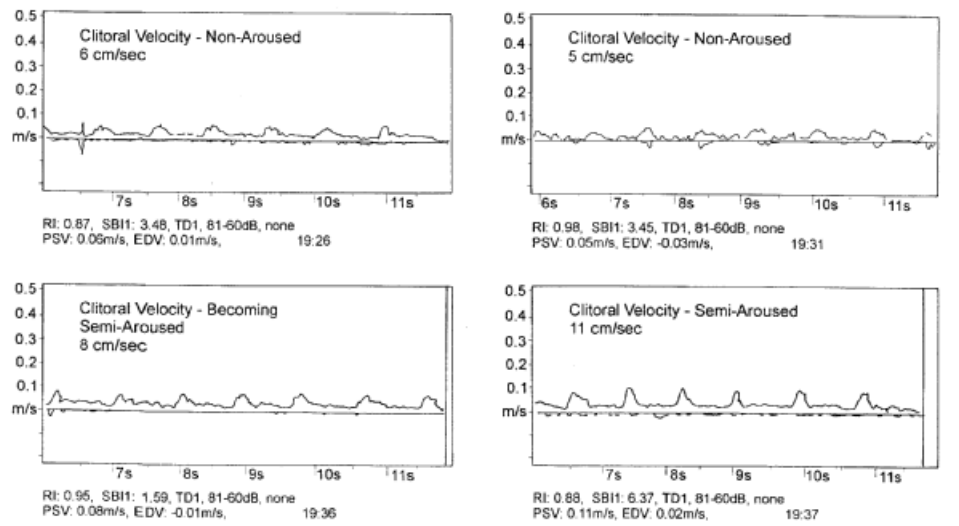
A61B 5/4368

{Sexual arousal evaluation}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/4368](#)



US 6 169 914

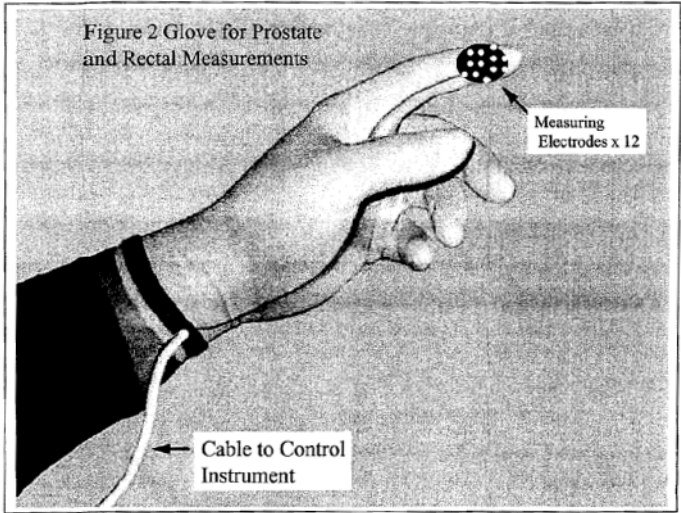
A61B 5/4381

{Prostate evaluation or disorder diagnosis}

Definition statement

This place covers:

Illustrative example of a device for examining the prostate



US 2005/203436

References

Limiting references

This place does not cover:

Colonoscopes	A61B 1/00
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A61B 5/4387

{Testicles, seminal vesicles or sperm ducts evaluation}

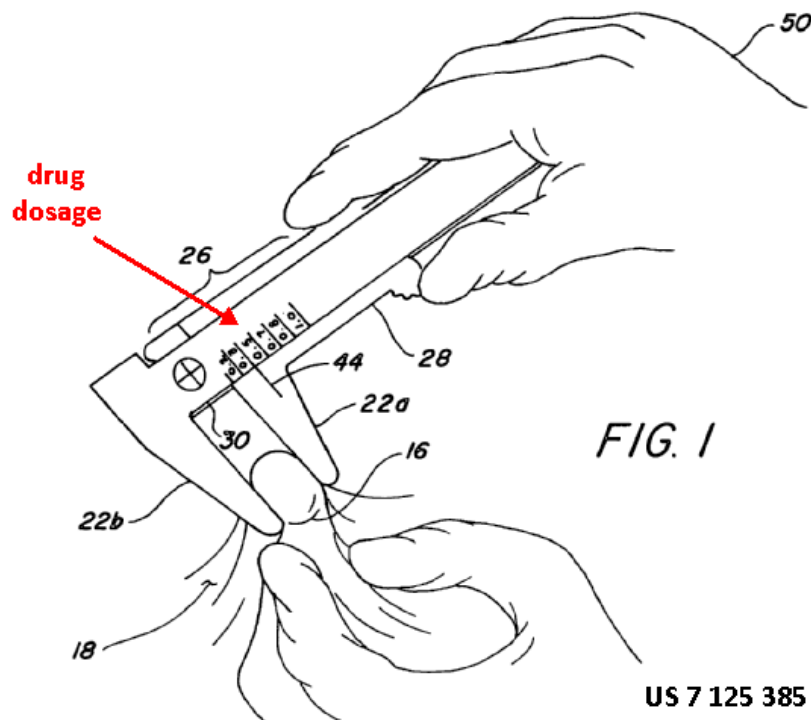
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 5/4387](#)

Definition statement

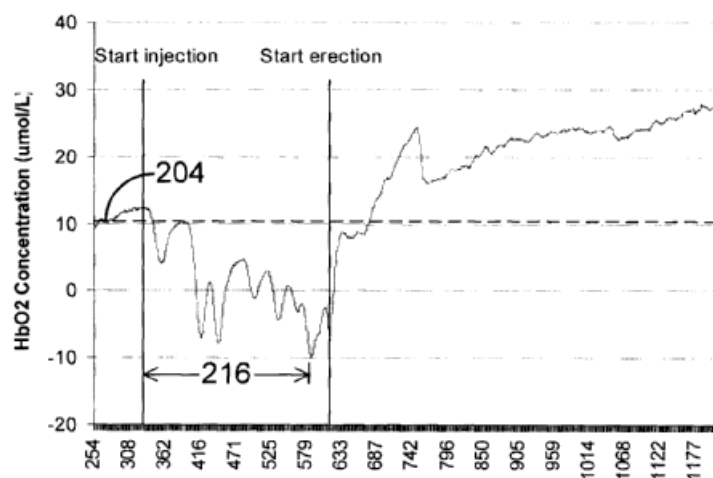
E.g. estimate drug dosage as a function of testicle size

**A61B 5/4393**

{Sexual arousal or erectile dysfunction evaluation, e.g. tumescence evaluation}

Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 5/4393](#)

WO 2008/092264

NIRS HbO₂ Changes in Erection Test

A61B 5/44

{Detecting, measuring or recording for evaluating the integumentary system, e.g. skin, hair or nails ([A61B 5/117](#) takes precedence)}

References**Limiting references**

This place does not cover:

Identification of persons	A61B 5/117
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A61B 5/441

{Skin evaluation, e.g. for skin disorder diagnosis}

References**Limiting references**

This place does not cover:

Evaluation of skin sensitivity	A61B 5/4827
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Determining colour for diagnostic purposes	A61B 5/1032
Colour measurement in general	G01J 3/46

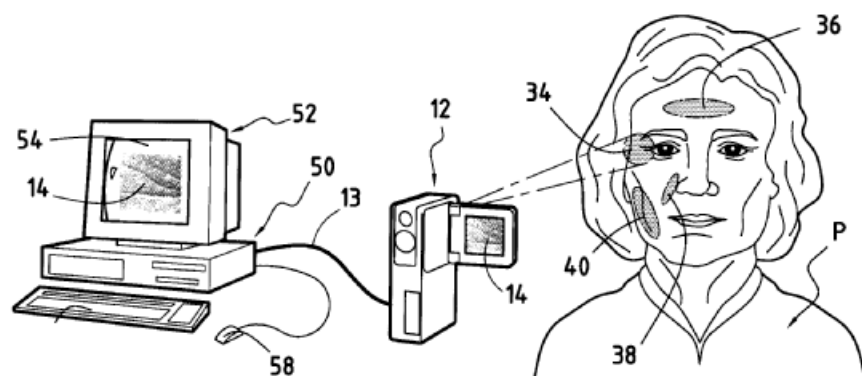
A61B 5/442

{Evaluating skin mechanical properties, e.g. elasticity, hardness, texture, wrinkle assessment}

Definition statement

This place covers:

Determining skin hardness, elasticity, tenderness, stiffness, pliability, laxity, mobility



FR 2 891 641

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring roughness of surfaces in general	G01B 11/30
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A61B 5/443

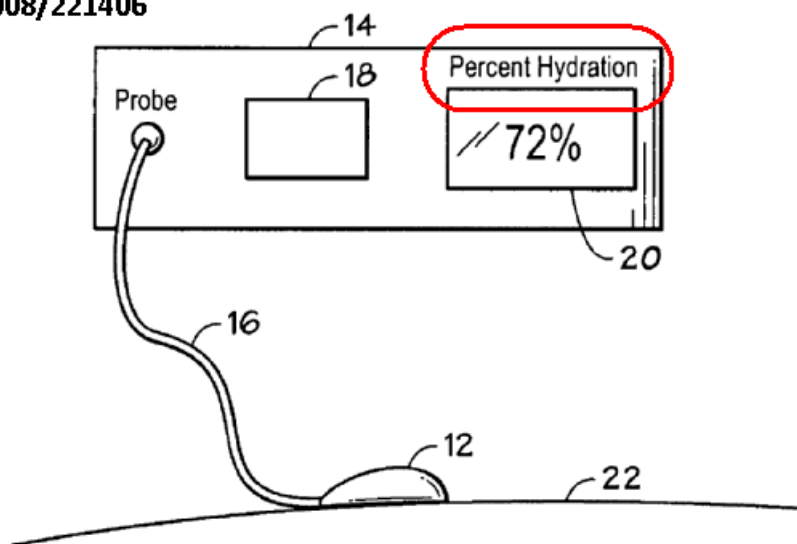
{Evaluating skin constituents, e.g. elastin, melanin, water}

Definition statement

This place covers:

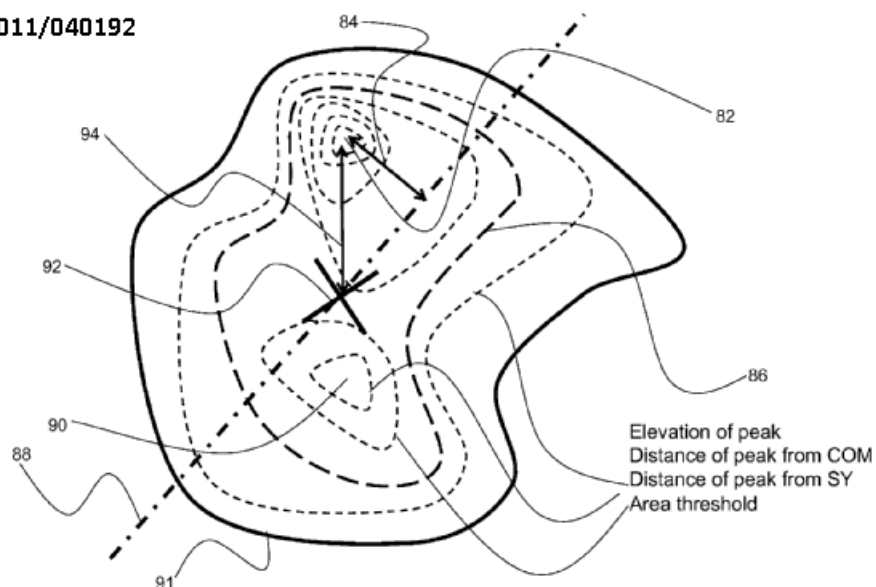
Illustrative example of subject matter classified in [A61B 5/443](#)

US 2008/221406

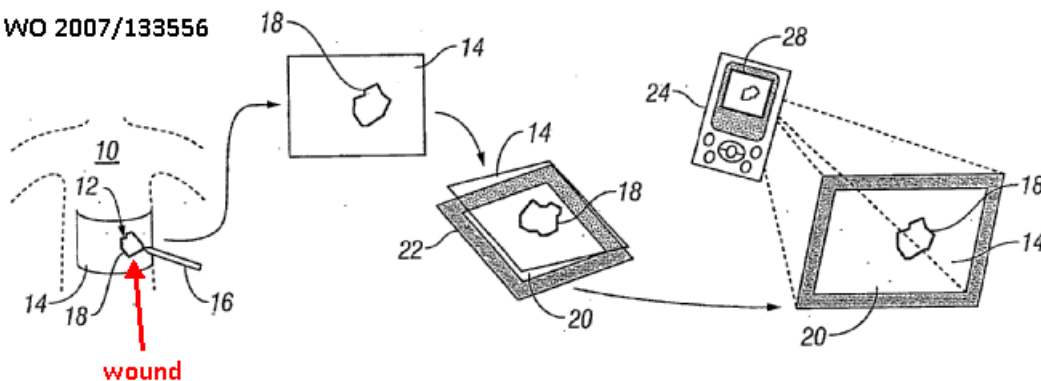


A61B 5/444**{Evaluating skin marks, e.g. mole, nevi, tumour, scar}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 5/444](#)

US 2011/040192

**A61B 5/445****{Evaluating skin irritation or skin trauma, e.g. rash, eczema, wound, bed sore}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 5/445](#)

WO 2007/133556

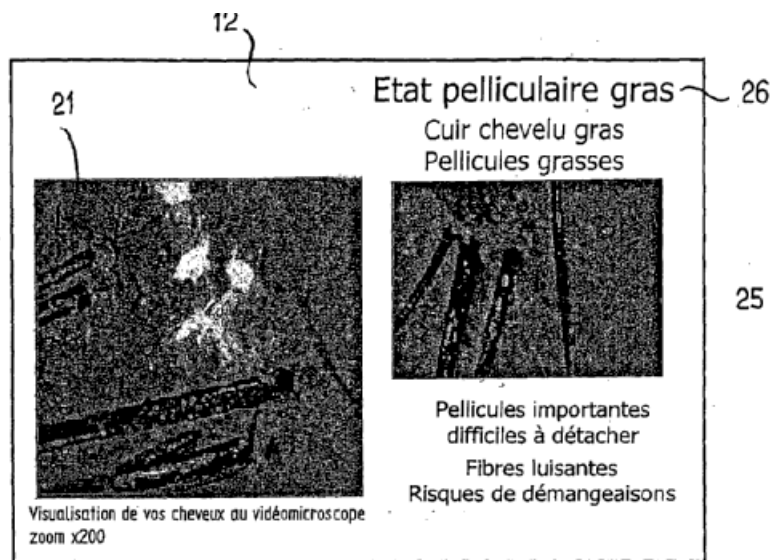
**References****Limiting references***This place does not cover:*

Measuring contraction of wounds

[A61B 5/1109](#)

A61B 5/446**{Scalp evaluation or scalp disorder diagnosis, e.g. dandruff}****Definition statement***This place covers:*

Evaluate scalp conditions:

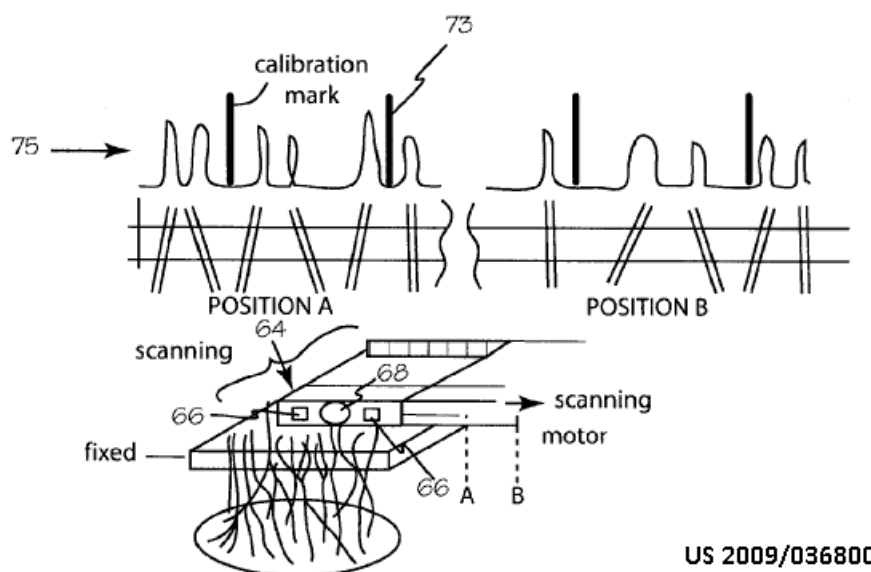


FR 2 842 322

A61B 5/448**{Hair evaluation, e.g. for hair disorder diagnosis}****Definition statement***This place covers:*

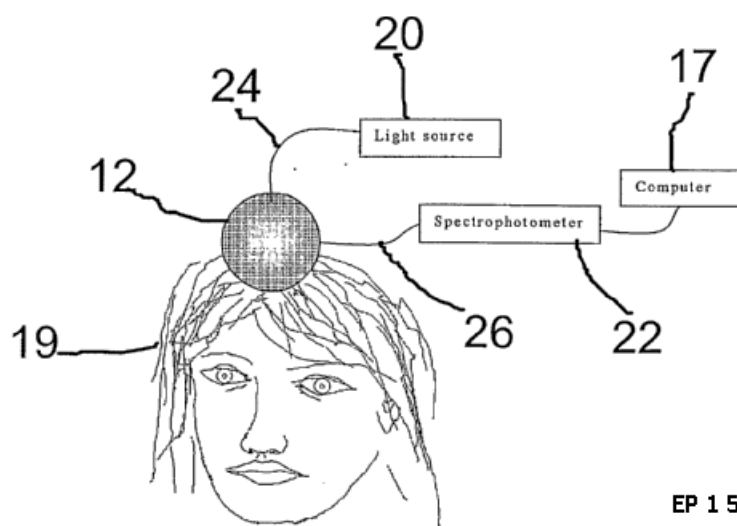
All types of apparatus or methods for evaluating the hair and disorders of the hair or hair growth in-vivo.

For example, evaluating hair density:



US 2009/036800

Illustrative example, evaluating hair colour:



EP 1 531 720

References

Limiting references

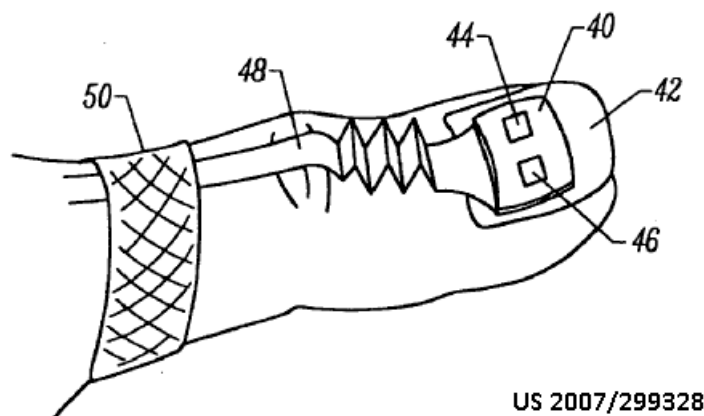
This place does not cover:

Detecting, measuring or recording using colour cards	A61B 5/1034
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Colour evaluation in general	A61B 5/1032
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A61B 5/449**{Nail evaluation, e.g. for nail disorder diagnosis}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 5/449](#)**References****Limiting references***This place does not cover:*

Detecting, measuring or recording using colour cards	A61B 5/1034
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Colour evaluation in general	A61B 5/1032
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A61B 5/45**{For evaluating or diagnosing the musculoskeletal system or teeth
([A61B 5/1036](#), [A61B 5/1074](#), [A61B 7/006](#) take precedence)}****References****Limiting references***This place does not cover:*

Measuring for testing the shape, pattern, size or movement of the body or parts thereof for podologic studies	A61B 5/1036
Foot measuring devices	A61B 5/1074
Detecting skeletal, cartilage or muscle noise	A61B 7/006

Informative references

Attention is drawn to the following places, which may be of interest for search:

Particular body parts of the musculoskeletal system	A61B 5/4538
Positioning the sensor in relation to a particular body part of the musculoskeletal system	A61B 5/68

A61B 5/4504

{Bones ([A61B 5/4547](#) takes precedence)}

References**Limiting references**

This place does not cover:

Evaluating teeth	A61B 5/4547
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Examining bone tissue using radiation diagnosis	A61B 6/505
Examination of bone material using ultrasonic, sonic or infrasonic waves	A61B 8/0875

A61B 5/4519

{Muscles (measuring muscular strength [A61B 5/224](#); using electromyography [EMG] [A61B 5/389](#))}

References**Limiting references**

This place does not cover:

Measuring muscular strength	A61B 5/224
Electromyography [EMG]	A61B 5/389

A61B 5/4528

{Joints ([A61B 5/4533](#), [A61B 5/4538](#) take precedence)}

Definition statement

This place covers:

Testing joints for stability or strength, e.g. knee laxity.

References**Limiting references**

This place does not cover:

Evaluating or diagnosing ligaments	A61B 5/4533
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Goniometers	A61B 5/1071
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A61B 5/4547

{Evaluating teeth}

References**Limiting references**

This place does not cover:

Measuring using light, adapted to oral or dental tissue	A61B 5/0088
Testing vitality of teeth by means of electric currents or magnetic fields	A61B 5/0534
Detecting tooth mobility	A61B 5/1111

A61B 5/4561

{Evaluating static posture, e.g. undesirable back curvature ([A61B 5/1116](#) takes precedence)}

Definition statement

This place covers:

Determining a static posture of the body, e.g. whether a person is standing, sitting or lying. Includes also determination of spinal posture due to curvature or inclination

References**Limiting references**

This place does not cover:

Measuring movement of the entire body or parts thereof for determining posture transitions	A61B 5/1116
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A61B 5/48

{Other medical applications}

Definition statement

This place covers:

Apparatus and methods for measuring, detecting, recording or evaluating medical applications conditions not otherwise provided for.

Relationships with other classification places

This group is the residual group of [A61B 5/00](#).

A61B 5/4803**{Speech analysis specially adapted for diagnostic purposes}****Definition statement***This place covers:*

Speech analysis for diagnostic purposes, e.g. evaluating speech disorders, evaluating speech for determining a subject's psychological state.

References**Limiting references***This place does not cover:*

Speech analysis for identification of individuals	A61B 5/117 and G07C 9/37
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Speech analysis per se	G10L
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A61B 5/4806**{Sleep evaluation ([A61B 5/4821](#) takes precedence; devices for inducing sleep [A61M 21/02](#))}****Definition statement***This place covers:*

Apparatus or methods for monitoring or analysis of sleep.

References**Limiting references***This place does not cover:*

Determining level or depth of anaesthesia	A61B 5/4821
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Devices for inducing sleep	A61M 21/02
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A61B 5/4815**{Sleep quality}****Special rules of classification**

Determining sleep quality may comprise sleep detection as in [A61B 5/4809](#) or detecting sleep stages as in [A61B 5/4812](#). In this case also [A61B 5/4809](#) and/or [A61B 5/4812](#) should be given.

A61B 5/4818**{Sleep apnoea}****Definition statement***This place covers:*

Monitoring or investigating sleep apnoe, e.g. multiparameter monitoring or polysomnography. Also for SIDS.

Glossary of terms*In this place, the following terms or expressions are used with the meaning indicated:*

SIDS	sudden infant death syndrome.
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A61B 5/4821**{Determining level or depth of anaesthesia (based on movements
[A61B 5/1106](#))}****Definition statement***This place covers:*

Determining, detecting or monitoring the level of anaesthesia by measuring a physiological parameter, e.g. EEG, EMG, etc.

References**Limiting references***This place does not cover:*

Measuring movement of the entire body or parts thereof to assess neuromuscular blockade	A61B 5/1106
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Electric apparatus for detecting reflex action	A61B 9/005
Introducing anaesthetics	A61M

A61B 5/4824**{Touch or pain perception evaluation ([A61B 5/4821](#) takes precedence)}****Definition statement***This place covers:*

Testing/indicating/recording/assessing level of pain for all parts of the body. Includes all types of apparatus, e.g. charts, expert systems, questionnaires etc.

References

Limiting references

This place does not cover:

Determining level or depth of anaesthesia	A61B 5/4821
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluating the nervous system	A61B 5/40
Testing skin sensitivity	A61B 5/4827

A61B 5/4833

{Assessment of subject's compliance to treatment}

Definition statement

This place covers:

Measurement of any physiological parameter indicating subject's compliance with drug therapy or treatment regime. Includes detection of drug or marker in breath, blood, urine etc. by non-invasive measurements and fluid samples, but not for laboratory analysis.

A61B 5/4836

**{Diagnosis combined with treatment in closed-loop systems or methods
([A61B 5/0036](#) takes precedence)}**

Definition statement

This place covers:

Closed-loop control of therapeutic treatment based on measuring a physiological parameter.

References

Limiting references

This place does not cover:

Features of imaging apparatus including treatment	A61B 5/0036
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Sensing and controlling the application of energy in surgical instruments.	A61B 2018/00636
Heart stimulators controlled by a physiological signal	A61N 1/365

A61B 5/4839**{combined with drug delivery}****Definition statement***This place covers:*

Measuring a physiological parameter combined with therapeutic drug/medication delivery. Imaging of drug/medication for targeted delivery. Not for delivery of contrast agents/dyes.

References**Limiting references***This place does not cover:*

Delivery of contrast agents or dyes	A61B 5/0275 , A61B 5/0813 , A61B 6/504 , A61B 6/481 , A61B 8/481 .
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Details of apparatus for drug delivery/infusion	A61N 1/30 , A61M 1/00 , A61M 5/172 , A61M 25/00 , A61M 31/00 , etc.
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A61B 5/4842**{Monitoring progression or stage of a disease}****Definition statement***This place covers:*

Measuring a physiological parameter to evaluate the progression or development of a disease over time.

References**Limiting references***This place does not cover:*

Monitoring the effects of medication	A61B 5/4848
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A61B 5/4848**{Monitoring or testing the effects of treatment, e.g. of medication}****Definition statement***This place covers:*

Testing the efficacy or side effects of therapeutic medication.

References

Limiting references

This place does not cover:

Monitoring or testing the effects of anaesthetics	A61B 5/4821
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A61B 5/4851

{Prosthesis assessment or monitoring}

Definition statement

This place covers:

Assessment or monitoring based on detecting, measuring or recording of or related to the prosthesis, e.g. measuring motion or position of prosthesis or measurement of physiological parameters or signals, such as myoelectric signals. The detecting, measuring or recording means may or may not be located on or in the prosthesis. The measurement, detection or recording may for example be used as an input signal useful for the control of prosthesis.

Relationships with other classification places

The prosthesis assessment or monitoring may produce an input signal useful for the control of prosthetics found in [A61F 2/482](#), [A61F 2/70](#) or [A61F 2/72](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B 5/24
Arrangements of measuring, detecting or recording means, e.g. sensors, on external prosthesis	A61B 5/6811
Arrangements of measuring, detecting or recording means, e.g. sensors, specially adapted to be brought in contact with an internal body part, i.e. invasive	A61B 5/6846
Prostheses as such	A61F 2/00
Electrical control of prostheses not implantable in the body	A61F 2/70
Bioelectrical control of prostheses not implantable in the body, i.e., relying on physiological signals, such as myoelectric	A61F 2/72

A61B 5/4854

{Diagnosis based on concepts of alternative medicine, e.g. homeopathy or non-orthodox}

Definition statement

This place covers:

Includes, e.g. measurement or analysis of physiological parameter, e.g. pulse, according to alternative theories of medicine that include non-orthodox, homeopathy and pseudoscience theories.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring skin impedance specially adapted for acupuncture	A61B 5/0532
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A61B 5/4857

{Indicating the phase of biorhythm}

Definition statement

This place covers:

Examples of biorhythm include sleep patterns or menstrual cycle.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Clocks or watches with indicators for biological cycles	G04B 19/264
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

biorhythm	cyclically recurring pattern of physiological states
diurnal	night and day
circadian	24 hours
ultradian	less than 24 hours
infradian/circalunar	1 month
circannual	1 year

A61B 5/486

{Biofeedback (using electroencephalography [EEG] [A61B 5/375](#))}

Definition statement

This place covers:

Providing a feedback signal to the subject of a physiological parameter measured from the subject for the purpose of informing the subject to maintain or modify his/her behaviour such that the measured parameter stays within a certain range, e.g. the subject maintains a certain breathing rate.

References

Limiting references

This place does not cover:

Electroencephalography using biofeedback	A61B 5/375
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A61B 5/4866**{Evaluating metabolism (using breath test [A61B 5/083](#))}****Definition statement***This place covers:*

Apparatus and methods for evaluating the metabolism of the body not involving breath test. Includes measuring basal metabolic rate, determining calorific or energy expenditure from physiological parameters, e.g. heart rate or activity, determining level of radioisotope excretion. Also includes evaluating metabolic syndrome.

References**Limiting references***This place does not cover:*

Measuring rate of metabolism by using breath test	A61B 5/083
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Special rules of classification

When evaluation is based on measuring movement, [A61B 5/1118](#) should additionally be given.

A61B 5/4869**{Determining body composition}****Relationships with other classification places**

Analysis of constituents, e.g. analytes, or particular tissue type is not considered as types of body compositions for this subgroup.

Evaluating a particular tissue type, e.g. for detection of cancer, is classified in subgroups [A61B 5/0088](#), [A61B 5/0091](#), [A61B 5/02007](#), [A61B 5/40](#) - [A61B 5/45](#). For example, the evaluation of bone is classified in group [A61B 5/4504](#); the evaluation of skin is classified in group [A61B 5/441](#).

Determination of blood, body fluid or tissue analytes, or blood constituents, e.g. red blood cells, is classified in group [A61B 5/145](#).

References**Limiting references***This place does not cover:*

Measuring body composition by impedance	A61B 5/0537
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Other methods or instruments for diagnosis, e.g. instruments for taking a cell sample	A61B 10/00
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

body composition	amount of muscle, water, bones, fat, and other tissue type within a body, typically given as a percentage (e.g. percentage of total body fat).
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A61B 5/4872

{Body fat}

Definition statement

This place covers:

Apparatus and methods for determining the proportion of fat in the body. Includes determining the ratio of fat to fat-free mass, e.g. using optical measurements, callipers, flotation tanks.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Skin gauging	A61B 5/0053
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A61B 5/4875

{Hydration status, fluid retention of the body}

Definition statement

This place covers:

Apparatus and methods for determining the proportion of fluid in the body or hydration status, Includes water compartments, extracellular water, intercellular water.

A61B 5/4884

{inducing physiological or psychological stress, e.g. applications for stress testing}

Definition statement

This place covers:

Patient is subjected to stress situation, e.g. exercise, change of posture, drugs or valsalva manoeuvre during measurement of physiological parameters. e.g. to determine rate of recovery/investigate regulatory mechanism (homeostasis).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring heart rate variability	A61B 5/02405.
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A61B 5/489**{Blood vessels}****Definition statement**

This place covers:

Locating blood vessels, e.g. for blood sampling. Applies also to ultrasound location.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Blood vessel location for injecting media	A61M 5/427 .
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A61B 5/4893**{Nerves}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Examining nerves	A61B 5/24 , A61B 5/40
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A61B 5/4896**{Epidural space}****Definition statement**

This place covers:

Detect epidural space, e.g. by means of a pressure drop that occurs while introducing the needle of a syringe into the patient's body. When the needle reaches the epidural space the lower pressure in the space causes the pressure in the needle to drop, which is indicated by movement of the syringe plunger.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring spinal fluid pressure	A61B 5/032
Puncturing needles for the peridural or subarachnoid space or the plexus, e.g. for anaesthesia	A61B 17/3401

A61B 5/68

{Arrangements of detecting, measuring or recording means, e.g. sensors, in relation to patient}

Definition statement

This place covers:

Arrangements for ensuring the correct position for a sensor to detect a physiological quantity on a patient.

It relates to the position of the sensor, independently of the part of the body which is object of the diagnosis. For example, if impedance electrodes are placed on hands and feet to detect an impedance value of the whole body, the corresponding document must be classified in this group even if no diagnosis of hands and feet is carried out.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Sensors provided on surgical tools for measuring tool-related quantities, e.g. contact between tool and tissue, tool penetration length	A61B 90/06
Foot-measuring devices	A43D 1/02
Measuring instruments for implanting a prosthesis	A61F 2/4657
Attachments on the body, e.g. for measuring	A63B 69/3608
Car sensors for detecting driver's condition	B60K 28/00
Computers with physiological sensor to allow interaction with the user	G06F 3/011
Pointing devices displaced or positioned by the use	G06F 3/033
Interaction techniques based on graphical user interfaces [GUI]	G06F 3/048

A61B 5/6801

{specially adapted to be attached to or worn on the body surface}

Definition statement

This place covers:

Means for attaching a sensor to a patient's body or for positioning a sensor in contact with a patient's body

A61B 5/6802

{Sensor mounted on worn items}

Definition statement

This place covers:

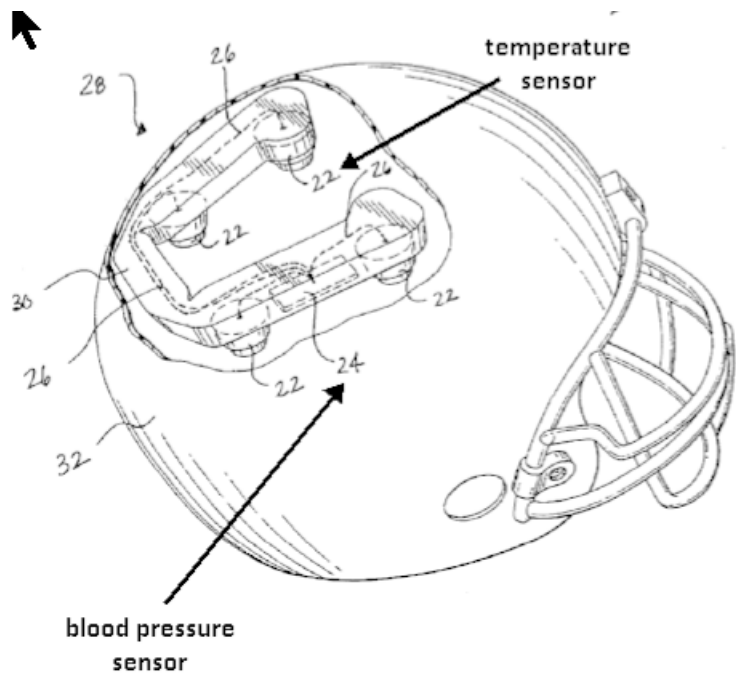
Any kind of clothing which is specially adapted to position a sensor in contact with the body

A61B 5/6803

{Head-worn items, e.g. helmets, masks, headphones or goggles}

Definition statement

This place covers:
Sensors for measurement on the head. Includes headbands, head straps, masks, spectacles, helmets and caps.



References

Limiting references

This place does not cover:

Measurement on the eye	A61B 3/00
Sensors to be placed on foetus's head	A61B 5/288

A61B 5/6804

{Garments; Clothes}

Definition statement

This place covers:
Sensor is mounted in a garment i.e. resembles clothing, not just straps.
Also for sensors in textiles and fabrics.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Garments adapted to accommodate electronic equipment	A41D 1/002
Patients' vests with incorporated sensors	A41D 13/1281
Wearable computers, e.g. on a belt	G06F 1/163

A61B 5/6805

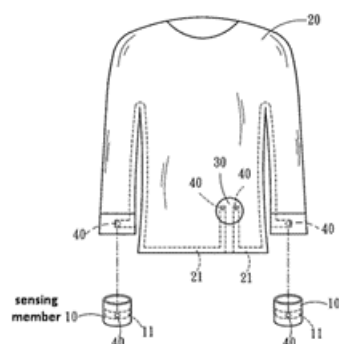
{Vests, e.g. shirts or gowns}

Definition statement

This place covers:

Sensor is mounted in a garment resembling a vest, e.g. shirt or gown.

Illustrative example of subject matter classified in this place:



A61B 5/6806

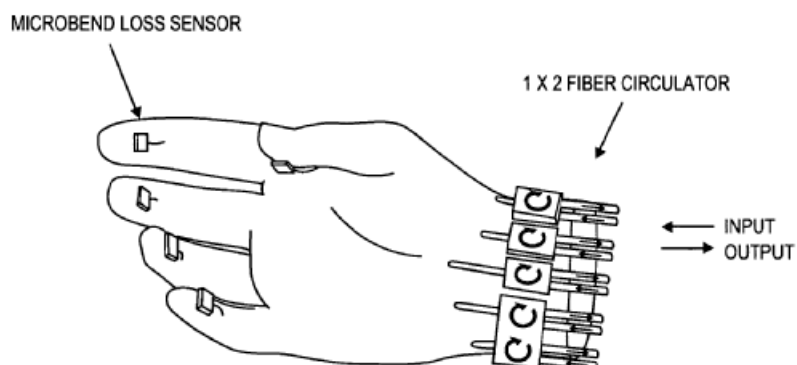
{Gloves}

Definition statement

This place covers:

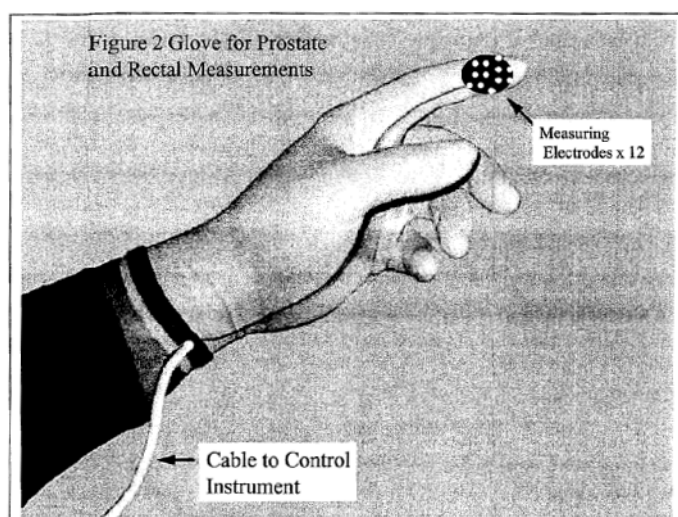
Sensors mounted in a glove/mitten (not all fingers have to be covered)

- for measurement on the hand itself wearing the glove;



WO 2009/146142

- for measurement on the other hand, another body part or another person or animal:



US 2005/203436

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Hand-worn input devices	G06F 3/014
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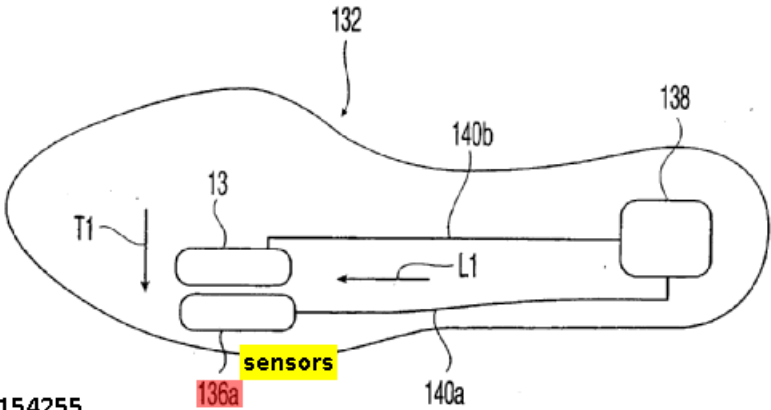
A61B 5/6807

{Footwear}

Definition statement

This place covers:

Sensor mounted in footwear, e.g. shoes, socks.



US 2010/154255

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

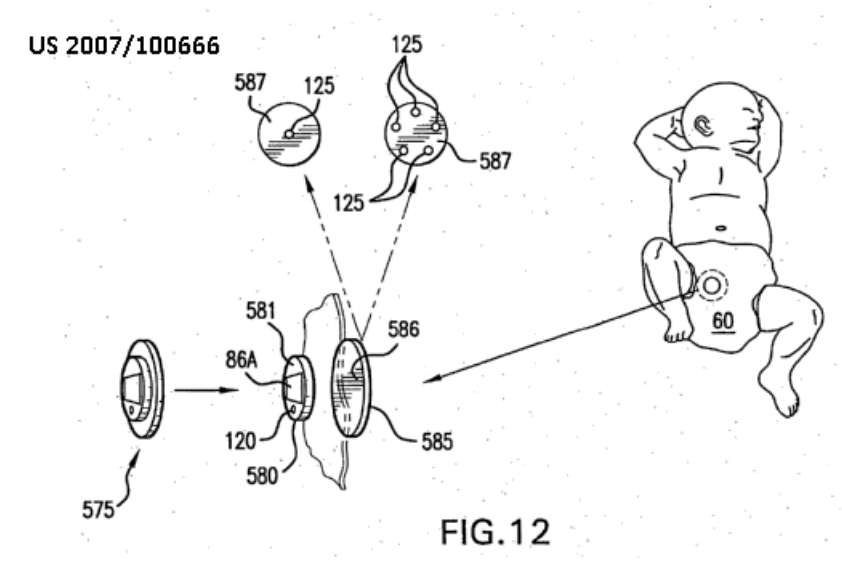
Detecting podologic data, e.g. load distribution on feet	A61B 5/1036
Gait analysis	A61B 5/112
Footwear with electrical or electronic arrangements	A43B 3/34
Pedometers	G01C 22/006

A61B 5/6808

{Diapers}

Definition statement

This place covers:
Sensors mounted on or in diapers



References

Limiting references

This place does not cover:

Dressings provided with sensor	A61B 5/6833
Absorbent pads, e.g. diapers, with wetness indicators	A61F 13/42

A61B 5/681

{Wristwatch-type devices}

Definition statement

This place covers:
Sensor is mounted in wristwatch type housing.

May not have time keeping function.

Also includes portable devices for receiving data from a sensor separated from the wristwatch housing, e.g. on finger, for data storage/display/further transmission.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Portable devices for measuring heart rate	A61B 5/02438
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A61B 5/6811

{External prosthesis}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electromyography	A61B 5/389
Control means for non-implantable prostheses	A61F 2/68
Measuring parameters relating to control or test of non-implantable prostheses	A61F 2002/7615
Input arrangements based on EEG, EMG, ECG, GSR	G06F 3/015

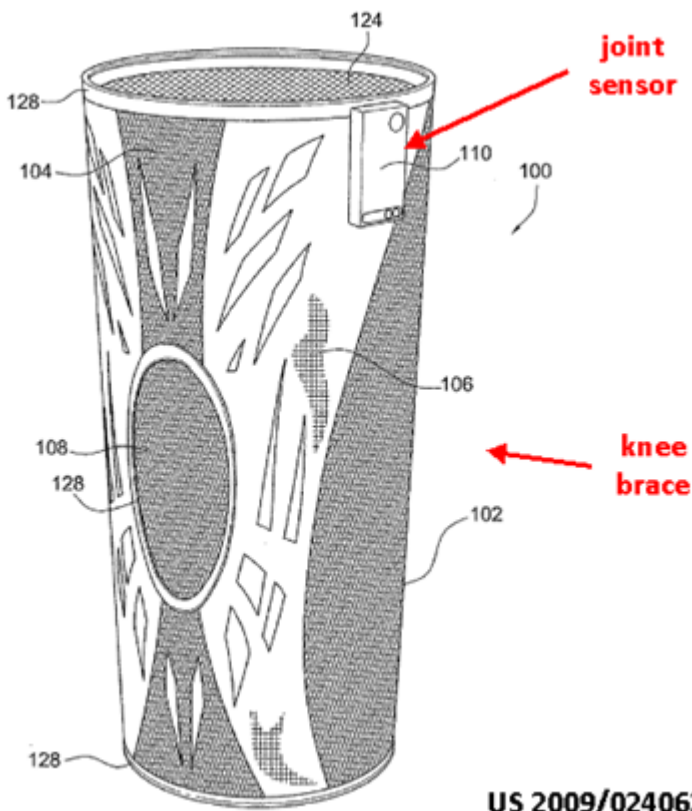
A61B 5/6812

{Orthopaedic devices}

Definition statement

This place covers:

Sensor is mounted on external orthopaedic device



A61B 5/6813

{Specially adapted to be attached to a specific body part ([A61B 5/6802](#) takes precedence)}

Definition statement

This place covers:

The sensor is suitable for contact with a specific body part, but no particular arrangement is foreseen to provide contact. For example, electrodes to be attached to hands and feet in order to measure whole-body impedance, but no specific attaching means are provided.

References

Limiting references

This place does not cover:

Arrangements to provide contact with a specific body part	A61B 5/6802
---	-----------------------------

A61B 5/6814

{Head}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sensor attached to the head of a foetus	A61B 5/288
Sensors mounted on head-worn items, e.g. helmets, headphones or goggles.	A61B 5/6803

A61B 5/6815

{Ear}

Definition statement

This place covers:

Sensor attached to ear, e.g. as ear clip hooked over the pinna, attached to part of the pinna, not the ear lobe

References

Limiting references

This place does not cover:

Sensor attached to ear canal or ear lobe	A61B 5/6816 , A61B 5/6817
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Clips	A61B 5/6838
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A61B 5/6816**{Ear lobe}****Definition statement***This place covers:*

Sensor attached to ear lobe.

A61B 5/6817**{Ear canal}****Definition statement***This place covers:*

Sensor is used for measurement in or close to the ear canal. Shape is adapted to fit in the ear canal. Includes measurement on the ear drum. Includes construction of ear canal probes for audiometry.

References**Limiting references***This place does not cover:*

Instruments for viewing inside the ear canal	A61B 1/227
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A61B 5/6819**{Nose}****Definition statement***This place covers:*

Sensor is attached to the nose.

References**Limiting references***This place does not cover:*

Instruments for viewing inside the nose	A61B 1/233
---	----------------------------

A61B 5/682**{Mouth, e.g., oral cavity; tongue; Lips; Teeth}****Definition statement***This place covers:*

Sensor is held/mounted/fixed for measurement on and in the mouth, e.g. on the lips, tongue, gums and teeth, including snorkel-like mouthpieces.

References

Limiting references

This place does not cover:

Instruments for viewing inside the mouth	A61B 1/24
Devices using light, specially adapted to mouth and teeth	A61B 5/0088
Impedance measurements for testing vitality of teeth	A61B 5/0534
Devices for collecting breath	A61B 5/097
Identification by dental data	A61B 5/1178
Measuring strength of masticatory organs	A61B 5/228
X-ray for dentistry	A61B 6/51
Depth control for dentistry instruments	A61C 5/44
Mouthpieces in ventilators	A61M 16/0488

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring instruments adapted for dentistry	A61C 19/04
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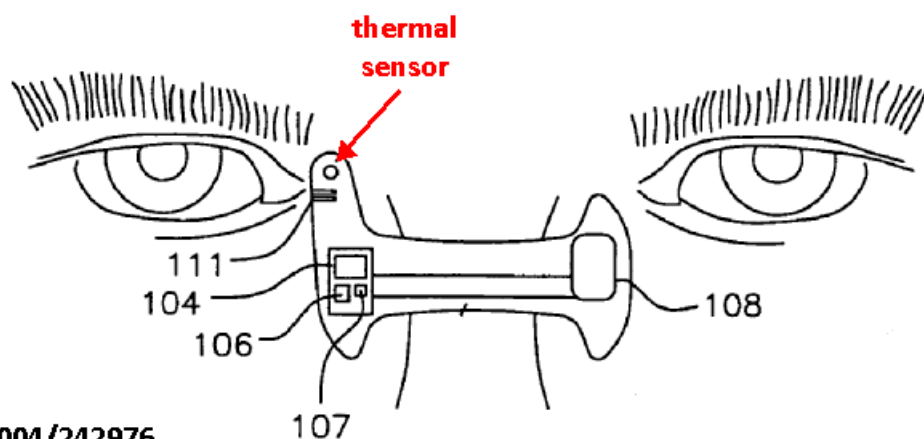
A61B 5/6821

{Eye}

Definition statement

This place covers:

Sensor is attached to or in the vicinity of the eye.



US 2004/242976

References

Limiting references

This place does not cover:

Apparatus for testing the sight	A61B 3/00
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A61B 5/6822

{Neck}

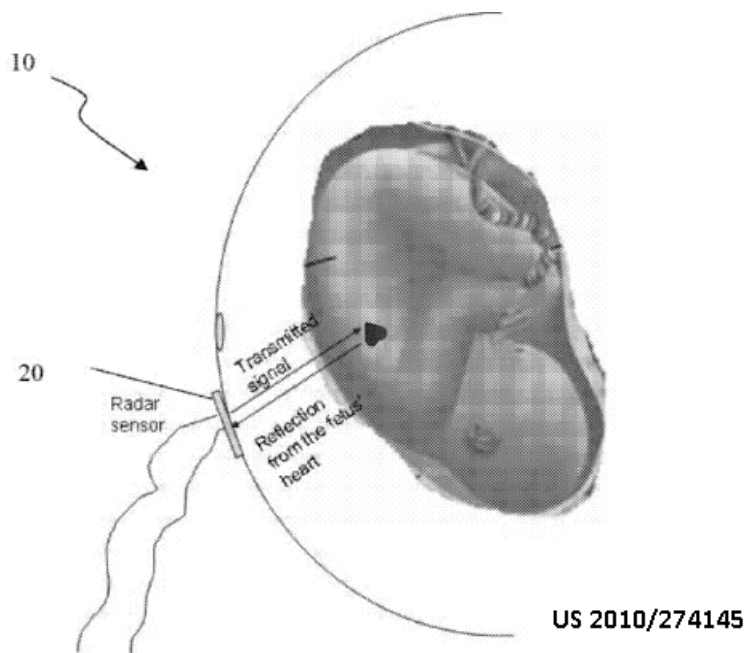
Definition statement

This place covers:
Includes necklaces for holding sensors

A61B 5/6823

{Trunk, e.g., chest, back, abdomen, hip}

Special rules of classification



A61B 5/6824

{Arm or wrist}

References

Limiting references

This place does not cover:

Blood pressure cuffs	A61B 5/022
Wristwatch-type devices with sensors	A61B 5/681

Informative references

Attention is drawn to the following places, which may be of interest for search:

Portable devices for measuring heart rate	A61B 5/02438
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A61B 5/6825**{Hand}****Definition statement**

This place covers:

Sensor is attached/positioned for measurement on the hand. Includes resting hand on shaped surface.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Detecting hand motion	A61B 5/1125
Detecting hand force	A61B 5/225
Portable ECG devices	A61B 5/332
Gloves with sensors	A61B 5/6806

A61B 5/6826**{Finger}****Definition statement**

This place covers:

Sensor is used for measurement on the fingers. Includes clamps, wraps, finger receiving cavities, rings. Also for sensors worn by the physician on the fingertips.

References**Limiting references**

This place does not cover:

Blood pressure cuffs adapted for fingers	A61B 5/02241
Identification by finger prints	A61B 5/1172
Measuring finger strength	A61B 5/225
Gloves with sensors	A61B 5/6806

A61B 5/6828**{Leg}****Definition statement**

This place covers:

Sensor is attached to the leg.

A61B 5/6829**{Foot or ankle}****Definition statement***This place covers:*

Sensor is used for measurement on the foot.

References**Limiting references***This place does not cover:*

Measuring load distribution on feet	A61B 5/1036
Measuring dimensions of foot	A61B 5/1074
Identification by foot-printing	A61B 5/1174
Footwear with sensors	A61B 5/6807

Informative references*Attention is drawn to the following places, which may be of interest for search:*

Foot-measuring devices	A43D 1/02
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A61B 5/683**{Means for maintaining contact with the body ([A61B 5/6802](#) takes precedence)}****Definition statement***This place covers:*

Means specially adapted for maintaining contact between different surfaces, specially adapted to maintain contact between a sensor and the human or animal body.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Sensors mounted on worn items	A61B 5/6802
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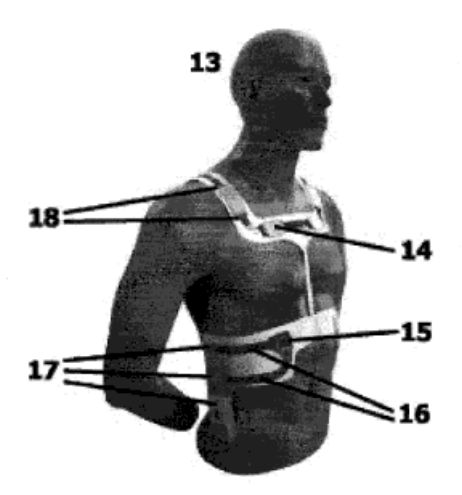
A61B 5/6831

{Straps, bands or harnesses}

Definition statement

This place covers:

Sensor is attached to the body, e.g. chest, shoulders, by straps, bands, harnesses



A61B 5/6832

{using adhesives (conductive adhesive for bioelectric electrodes [A61B 5/259](#))}

Definition statement

This place covers:

Sensors provided with an adhesive layer for attachment to the skin or body surface that is not a separable or detachable element from the sensor. Includes adhesive applied directly to the skin surface.

References

Limiting references

This place does not cover:

Bioelectric electrodes using conductive adhesive means, e.g. gels	A61B 5/259
---	----------------------------

A61B 5/6833

{Adhesive patches}

Definition statement

This place covers:

Separate adhesive patch or wrap for attaching the sensor to the patient's skin.

A61B 5/6834**{using vacuum}****Definition statement***This place covers:*

Attaching sensor/probe to the skin surface by vacuum.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measurement carried out while applying suction	A61B 5/0055
ECG electrodes, including foetal ECG electrodes, attached by suction	A61B 5/252

A61B 5/6835**{Supports or holders, e.g., articulated arms}****Definition statement***This place covers:*

Positioning or holding sensor relative to the body by mechanical arms, e.g. articulated, sliding, swivelling.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Holding arrangements for endoscopes	A61B 1/00147
Holding arrangements for ultrasound probes	A61B 8/00

A61B 5/6837**{Sutures}****Definition statement***This place covers:*

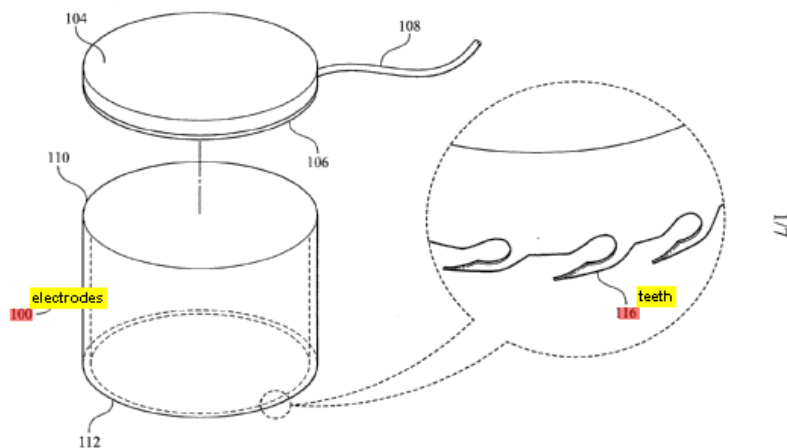
Sensors attached to the surface of the body by means of sutures

A61B 5/6838**{Clamps or clips}****Definition statement***This place covers:*

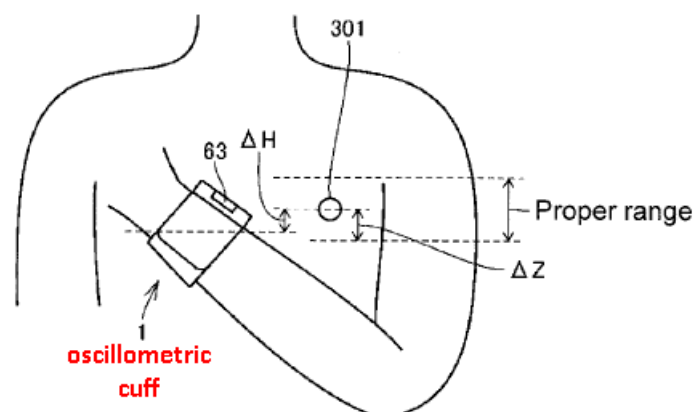
Sensors affixed to the body by means of clamp, e.g. by elastic force

A61B 5/6839**{Anchoring means, e.g. barbs}****Definition statement***This place covers:*

Means for anchoring the sensor to the body, i.e..with tissue penetration/piercing. Includes prongs, coils, barbs.

WO 2008/097518**A61B 5/684****{Indicating the position of the sensor on the body}****Definition statement***This place covers:*

Means for indicating the correct position of a sensor on the body surface

US 2011/237963

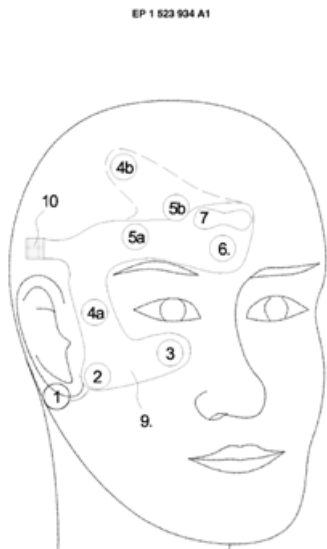
A61B 5/6841

{by using templates}

Definition statement

This place covers:

Template/gauge to assist positioning of sensor on the measurement site.



References

Limiting references

This place does not cover:

Sensors mounted on harnesses	A61B 5/6831
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A61B 5/6842

{by marking the skin}

Definition statement

This place covers:

Site of sensor attachment is marked/referenced (e.g., by marker) so that the sensor may repositioned on the same site. Includes taking an anatomical reference, e.g. palm-print, photograph.

A61B 5/6843

{Monitoring or controlling sensor contact pressure}

Definition statement

This place covers:

Determining degree of contact between sensor and body surface by any means, e.g. spring bias, inflatable balloons, measuring impedance, measuring applied pressure etc.

A61B 5/6844**{Monitoring or controlling distance between sensor and tissue}****Definition statement***This place covers:*

Determining, monitoring or controlling the distance between sensor and body surface in order to ensure consistency of measurements taken by the sensor.

A61B 5/6846**{specially adapted to be brought in contact with an internal body part, i.e. invasive}****Definition statement***This place covers:*

Means for attaching or positioning a sensor in contact with an internal part of the patient's body

A61B 5/6847**{mounted on an invasive device}****Definition statement***This place covers:*

Sensor is part of an implant (including short-term implants such as needles).

References**Limiting references***This place does not cover:*

Endoscopes	A61B 1/00
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A61B 5/6848**{Needles}****Definition statement**

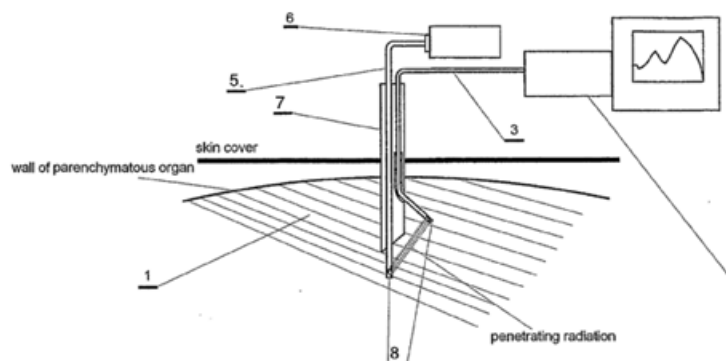
This place covers:

The sensor is part of a piercing element introduced into the body, e.g. needle, cannula. The sensor is within the body or in the immediate vicinity of its surface.

WO 2010/028612

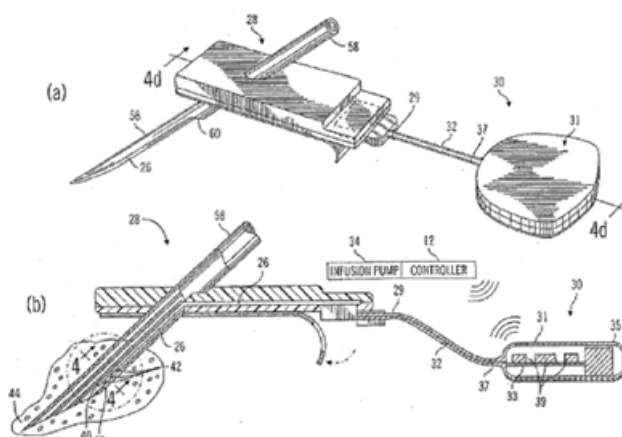
PCT/CZ2009/000110

1/2

Fig. 1**A61B 5/6849****{in combination with a needle set}****Definition statement**

This place covers:

The needle/canula is attached to the skin surface by a base plate.

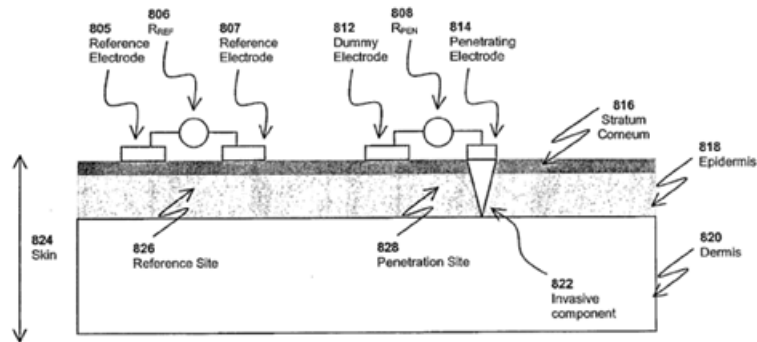


US 2010/168538

A61B 5/685**{Microneedles}****Definition statement**

This place covers:

Details of microneedle sensor construction. Includes multiple microneedles, e.g. arrays as electrodes/ analyte sensors.

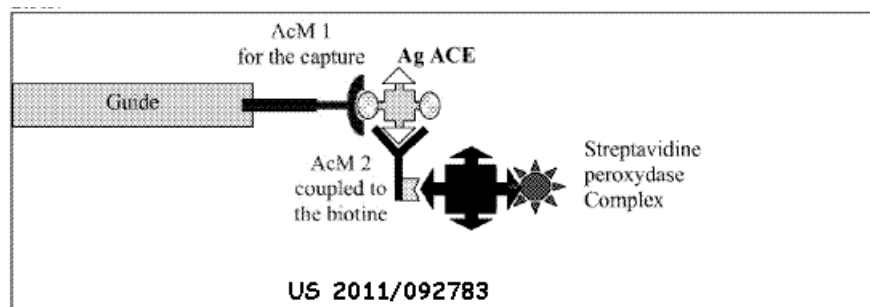


WO 2009/029044

A61B 5/6851**{Guide wires}****Definition statement**

This place covers:

Sensor mounted directly in a guidewire. Guidewire is usually introduced with a catheter.



US 2011/092783

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

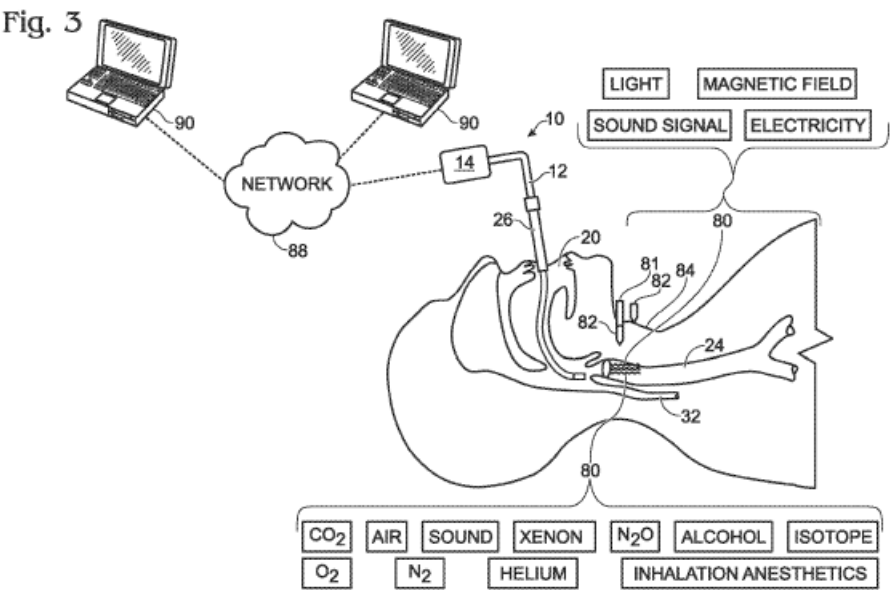
Catheters with pressure sensors	A61M 2025/0001
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A61B 5/6852

{Catheters}

Definition statement

This place covers:
Sensor is mounted on a catheter



WO 2009/023779

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring blood pressure by means inserted into the body	A61B 5/0215
Invasive optical probe	A61B 5/1459
Catheters with pressure sensors	A61M 2025/0001

A61B 5/6853

{with a balloon}

Definition statement

This place covers:
The sensor is mounted on a balloon catheter

A61B 5/6855**{with a distal curved tip}****Definition statement***This place covers:*

Sensor mounted on a catheter with a curved tip

A61B 5/6856**{with a distal loop}****Definition statement***This place covers:*

Sensor is mounted on a catheter with a looped tip

A61B 5/6857**{with a distal pigtail shape}****Definition statement***This place covers:*

Sensor is mounted on a catheter tip with one or more loops, the plane of the loop being perpendicular to the longitudinal axis of the catheter

A61B 5/6858**{with a distal basket, e.g. expandable basket}****Definition statement***This place covers:*

Sensor is mounted on a catheter with an expandable basket or cage

A61B 5/6859**{with multiple distal splines}****Definition statement***This place covers:*

Sensor is mounted on a catheter with multiple splines/prongs/tines/spines/arms not joined at their distal tips. Splines are usually expandable from a retracted position.

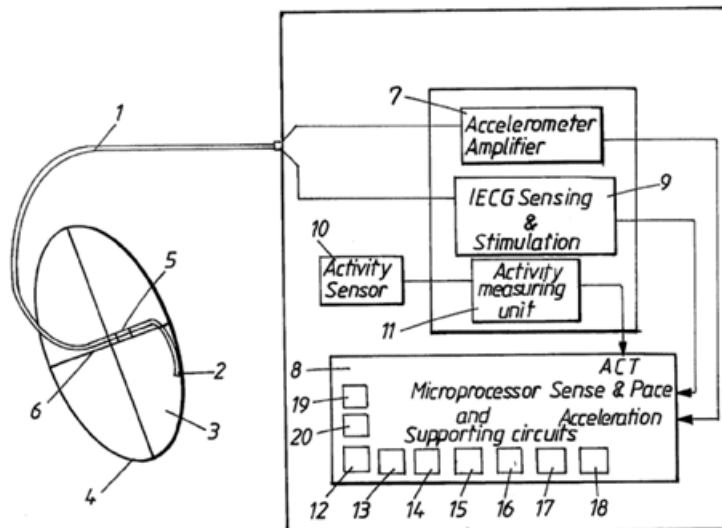
A61B 5/686

{Permanently implanted devices, e.g. pacemakers, other stimulators, biochips
([A61B 5/6861](#) takes precedence)}

Definition statement

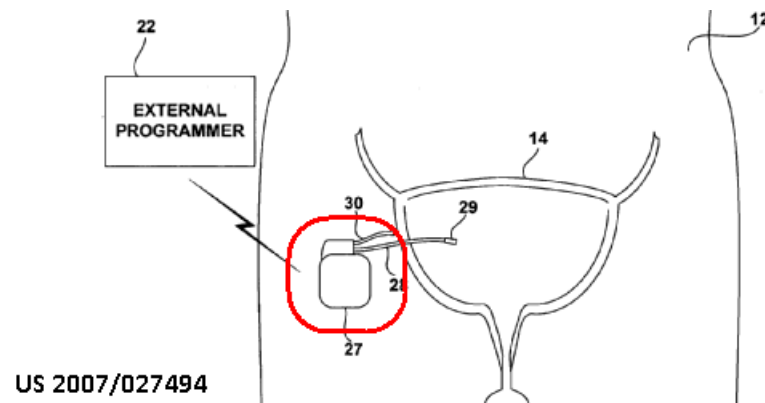
This place covers:

Specific details of sensors mounted on pacemakers...



WO 2006/025770

... or on implanted devices comprising a housing like that of a pacemaker



US 2007/027494

A61B 5/6861

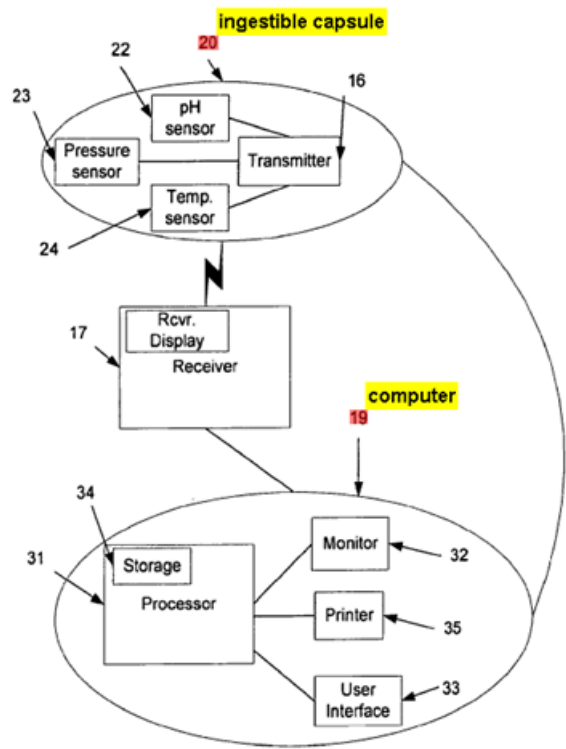
{Capsules, e.g. for swallowing or implanting}

Definition statement

This place covers:

Sensor is mounted on ingestible or implantable capsule, excluding pacemakers.

US 2009/318783



References

Limiting references

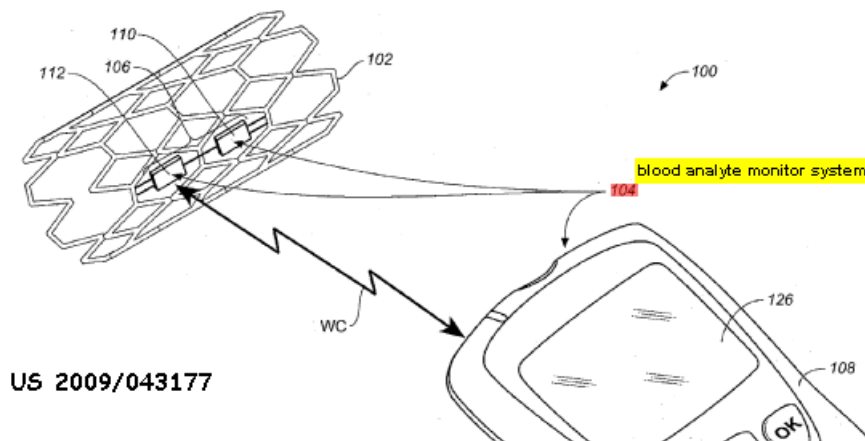
This place does not cover:

Ingestible capsules with imaging means	A61B 1/041
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A61B 5/6862**{Stents}****Definition statement**

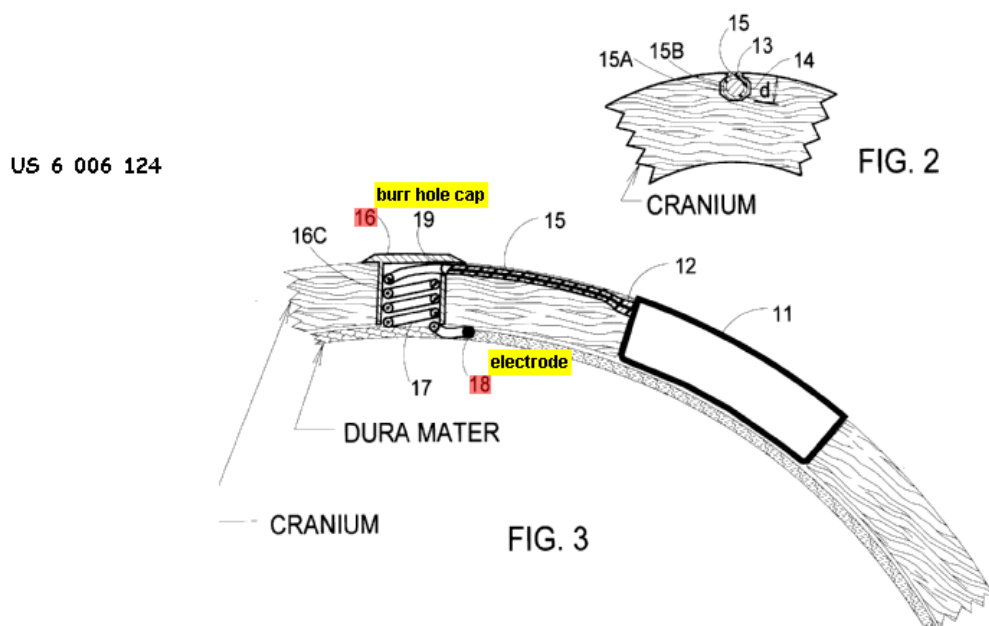
This place covers:

Sensor is mounted on a device contacting internal blood vessel walls, e.g. stent.

**A61B 5/6864****{Burr holes}****Definition statement**

This place covers:

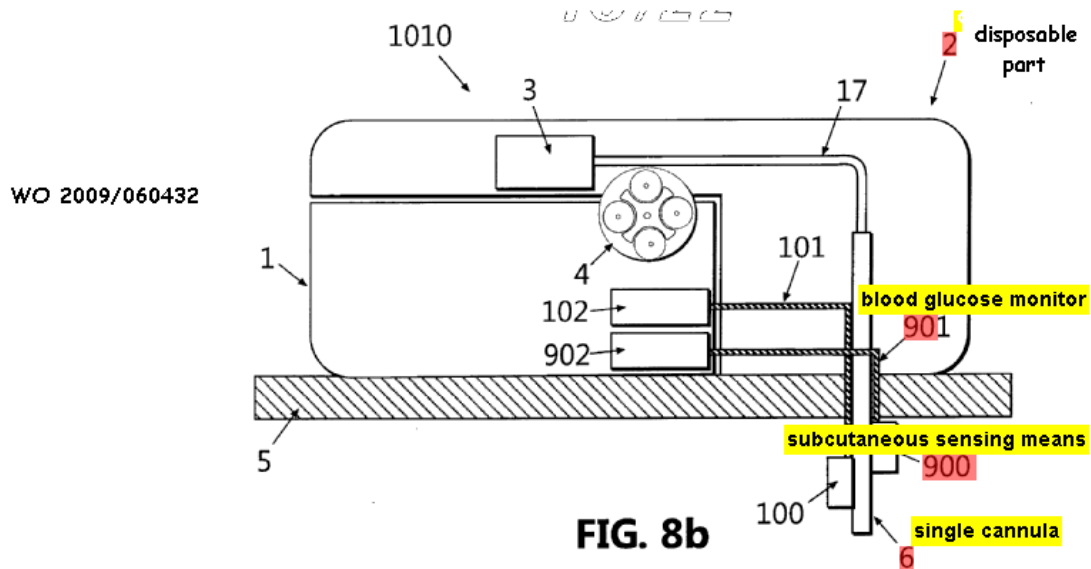
Sensor is mounted in a burr hole, e.g. by cranial bolt.



A61B 5/6865**{Access ports}****Definition statement**

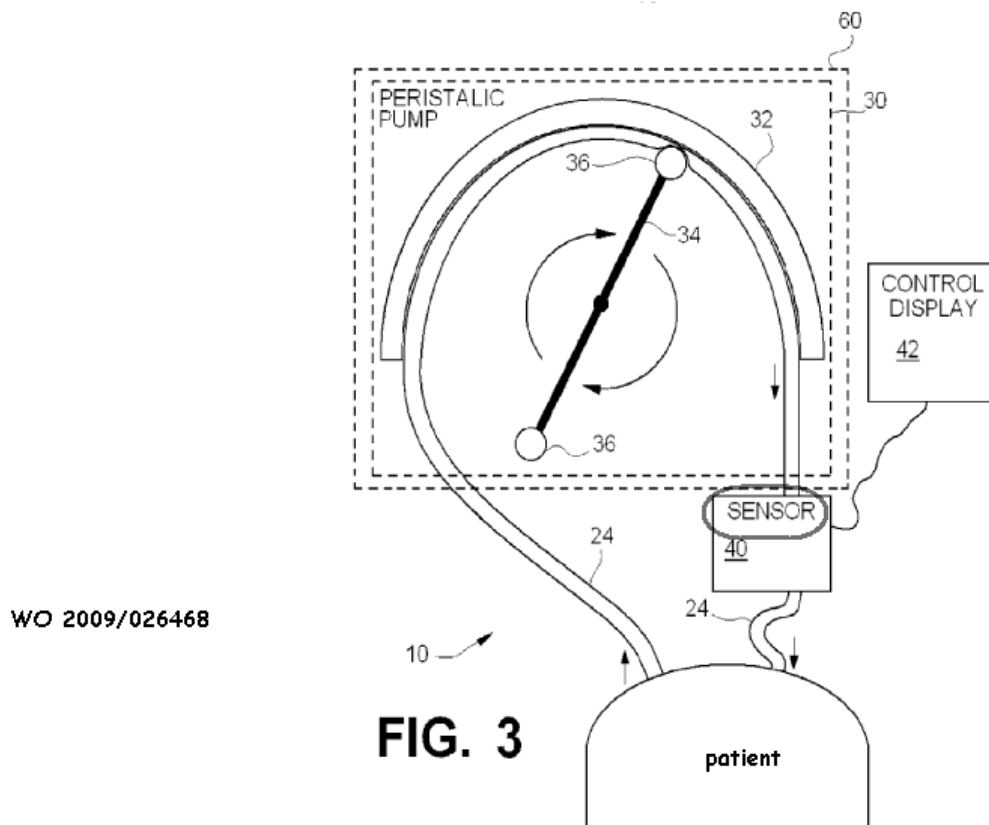
This place covers:

Implants for measuring a physiological parameter with an access port for any application. Includes ports for signal transmission, refilling/replenishing measuring fluid (e.g. enzyme), refilling medication



A61B 5/6866**{Extracorporeal blood circuits, e.g. dialysis circuits}****Definition statement***This place covers:*

Sensor is mounted on body fluid circuit external to the body. Measurement is carried out during fluid exchange with the body

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Means for controlling media flow into the body	A61M 5/168
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A61B 5/6867

**{specially adapted to be attached or implanted in a specific body part
([A61B 5/6847](#) takes precedence)}**

Definition statement*This place covers:*

Sensors suitable for contact with a specific internal body part, but no particular attachment means is foreseen.

References

Limiting references

This place does not cover:

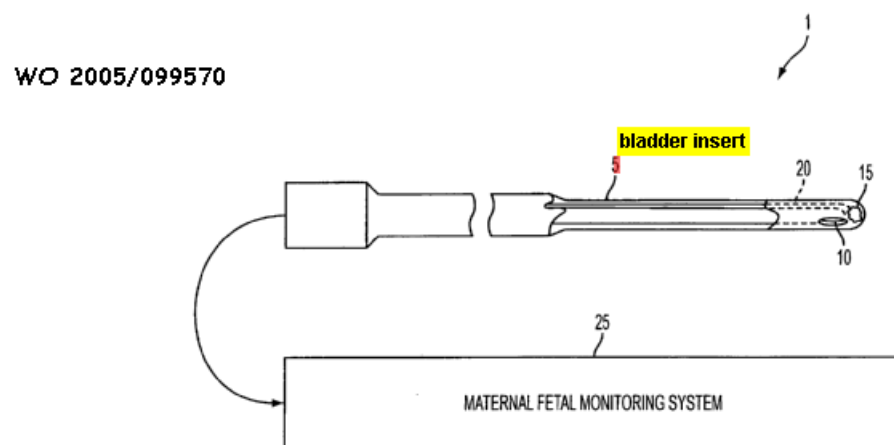
Mounted on an invasive device	A61B 5/6847
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A61B 5/6874

{Bladder}

Definition statement

This place covers:



References

Limiting references

This place does not cover:

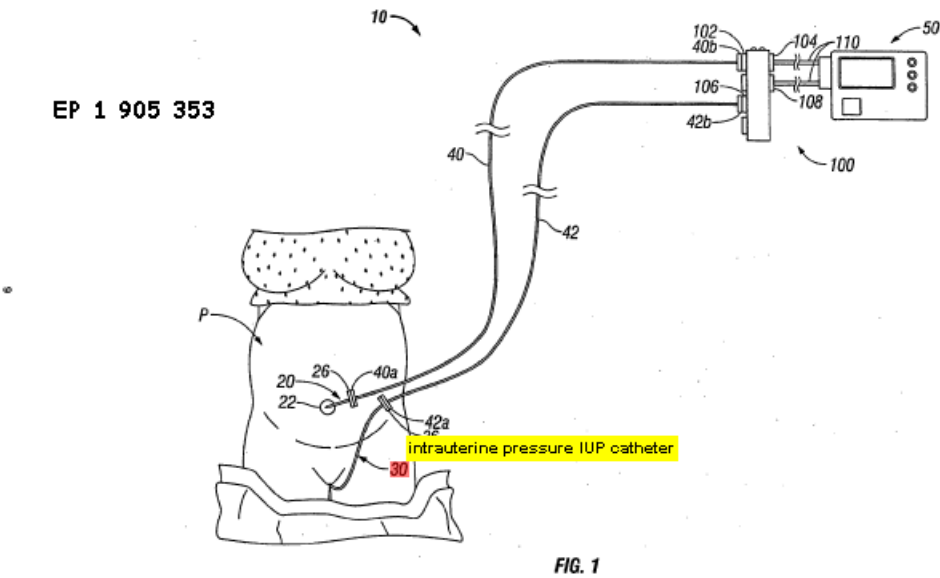
Assessing bladder function	A61B 5/202
Measuring pressure within urogenital tract	A61B 5/205

A61B 5/6875

{Uterus}

Definition statement

This place covers:



References

Limiting references

This place does not cover:

Intra-uterine pressure sensors	A61B 5/035
Pregnancy and labour monitoring	A61B 5/4343

A61B 5/6879

{Means for maintaining contact with the body ([A61B 5/6847](#) takes precedence)}

Definition statement

This place covers:

Means specially adapted for maintaining contact between different surfaces, specially adapted to maintain contact between a sensor and internal parts of human or animal body.

References

Limiting references

This place does not cover:

Mounted on an invasive device	A61B 5/6847
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Informative references

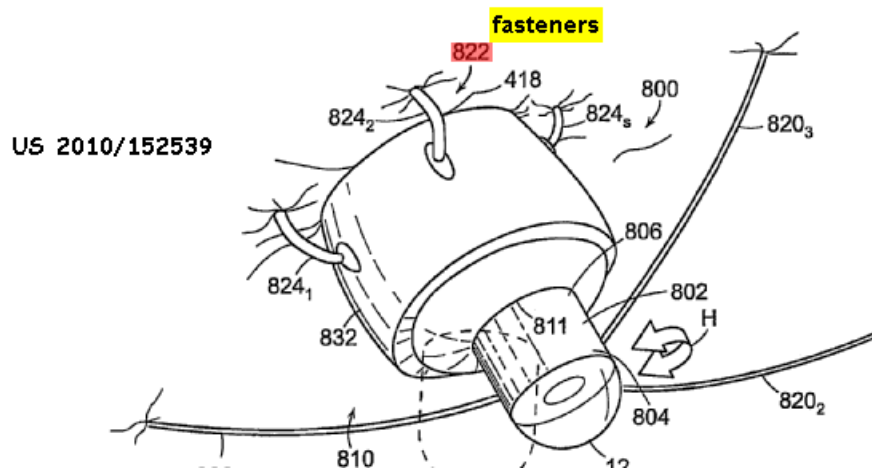
Attention is drawn to the following places, which may be of interest for search:

Sensors mounted on worn items	A61B 5/6802
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A61B 5/6882**{Anchoring means}****Definition statement**

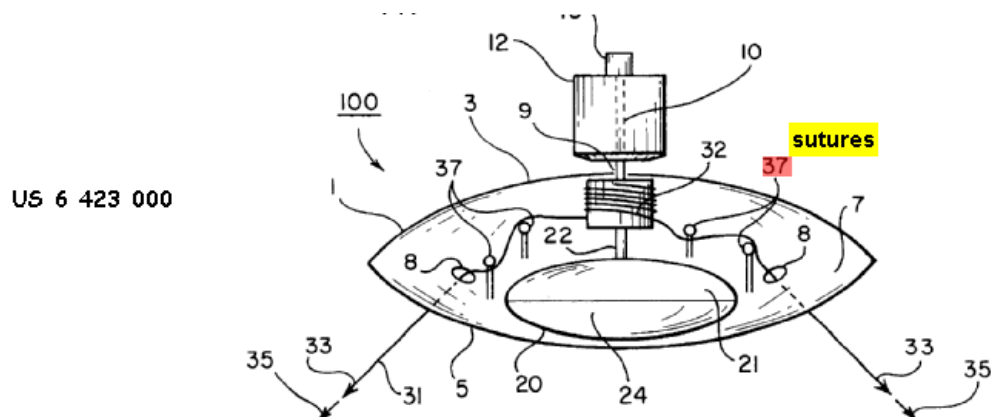
This place covers:

Means for anchoring the sensor to body tissue i.e. with tissue penetration/piercing. Includes prongs, coils, barbs

**A61B 5/6883****{Sutures}****Definition statement**

This place covers:

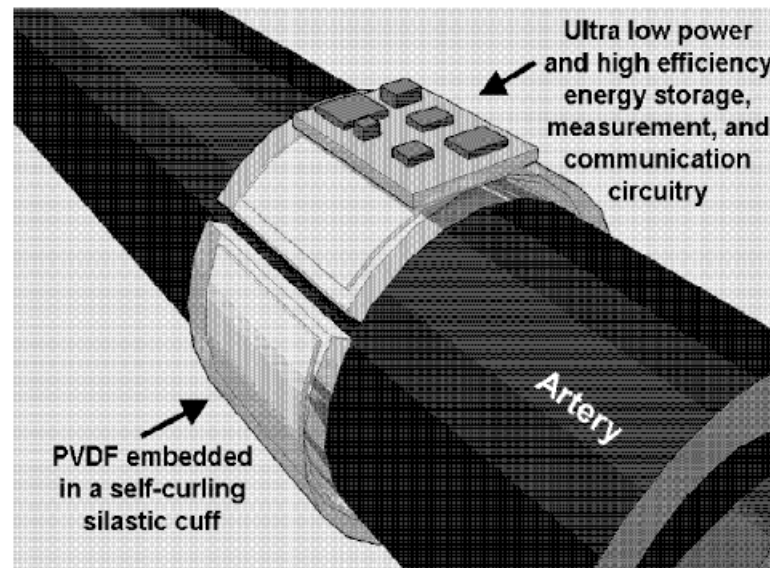
Sensors attached to internal body tissue by sutures



A61B 5/6884**{Clamps or clips}****Definition statement***This place covers:*

Sensor is used for measurement on the blood vessel. Adapted to be clamped/fitted to the blood vessel.

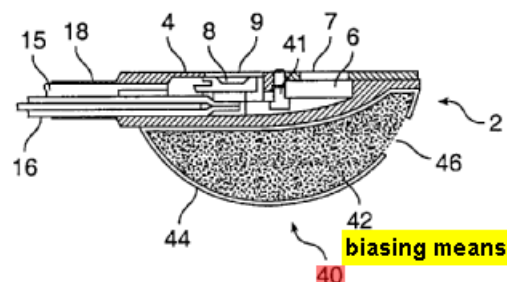
US 2010/298720

**A61B 5/6885****{Monitoring or controlling sensor contact pressure}****Definition statement***This place covers:*

Monitoring contact between sensor and internal tissue by any means, e.g. spring bias, inflatable balloons, expanding baskets/arms, measuring impedance, measuring applied pressure etc. For all body cavities.

the biasing means can automatically expand to provide the pressure needed to hold the sensor against the fetus.

US 6 195 575



References

Limiting references

This place does not cover:

Apply compression while taking measurements	A61B 5/0053
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A61B 5/6886

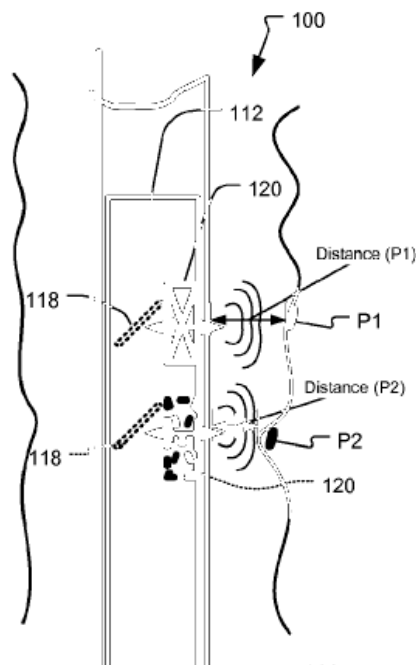
{Monitoring or controlling distance between sensor and tissue}

Definition statement

This place covers:

Monitoring the spacing between a sensor/probe and internal tissue by any means, e.g. spacer, inflatable balloons.

US 2009/253989



here.

A61B 5/6887

{mounted on external non-worn devices, e.g. non-medical devices}

Definition statement

This place covers:

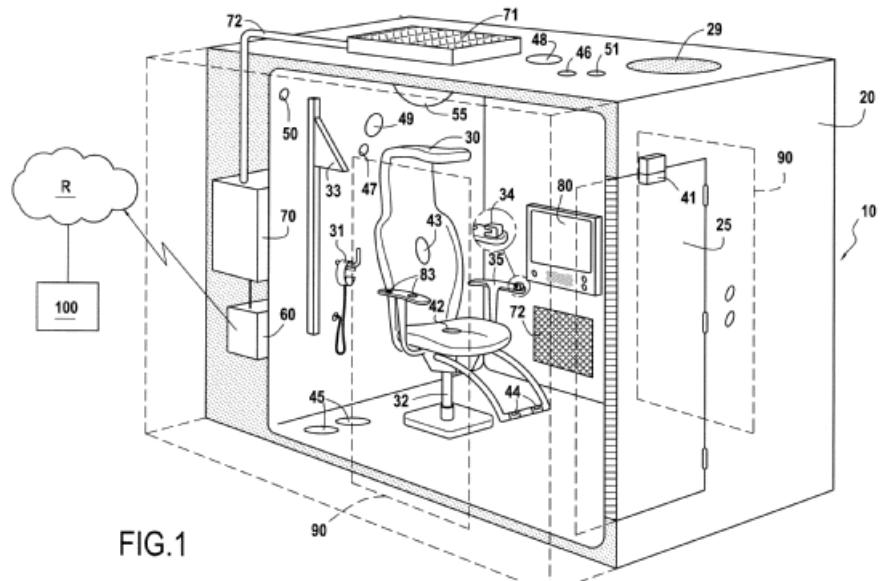
Sensors which are mounted in or on external devices or apparatus. The sensor is not held continuously in contact with the body, e.g. the body or body part is applied to the sensor for taking a measurement, the sensor is adapted to make a non-contact measurement.

A61B 5/6888**{Cabins}****Definition statement**

This place covers:

Sensor mounted in a cabin or booth to provide isolated measurement environment or privacy

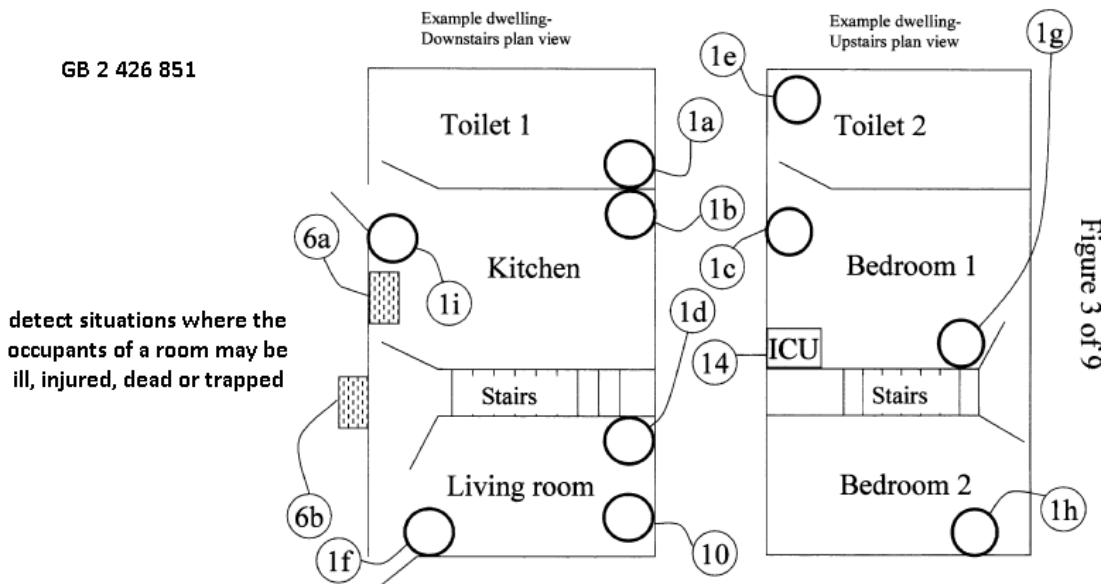
WO 2009/034238



A61B 5/6889**{Rooms}****Definition statement**

This place covers:

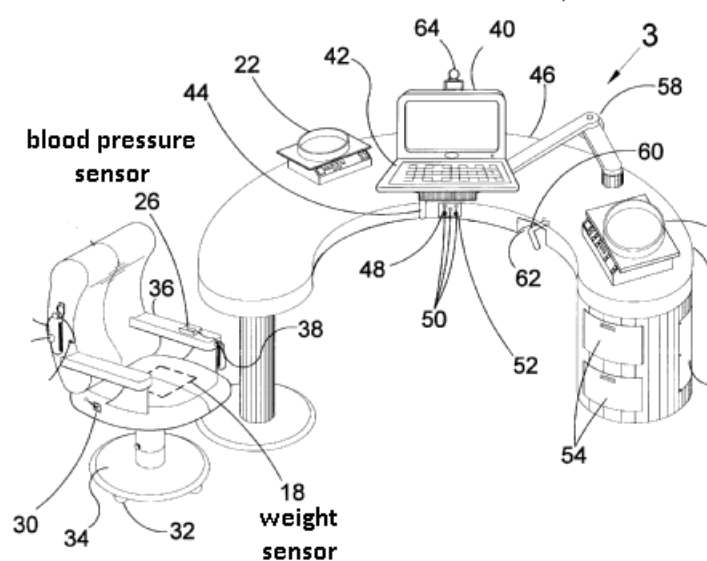
Sensors arranged in a room

**A61B 5/6891****{Furniture}****Definition statement**

This place covers:

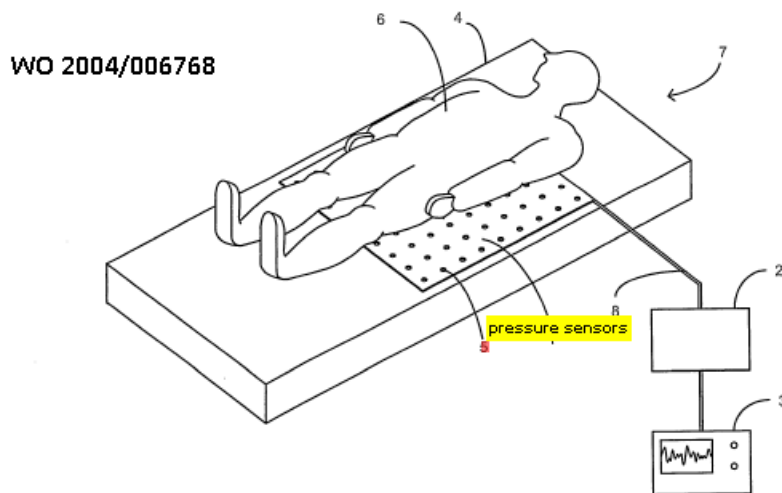
Sensors arranged on furniture, e.g. includes domestic and hospital furniture.

US 6 425 862

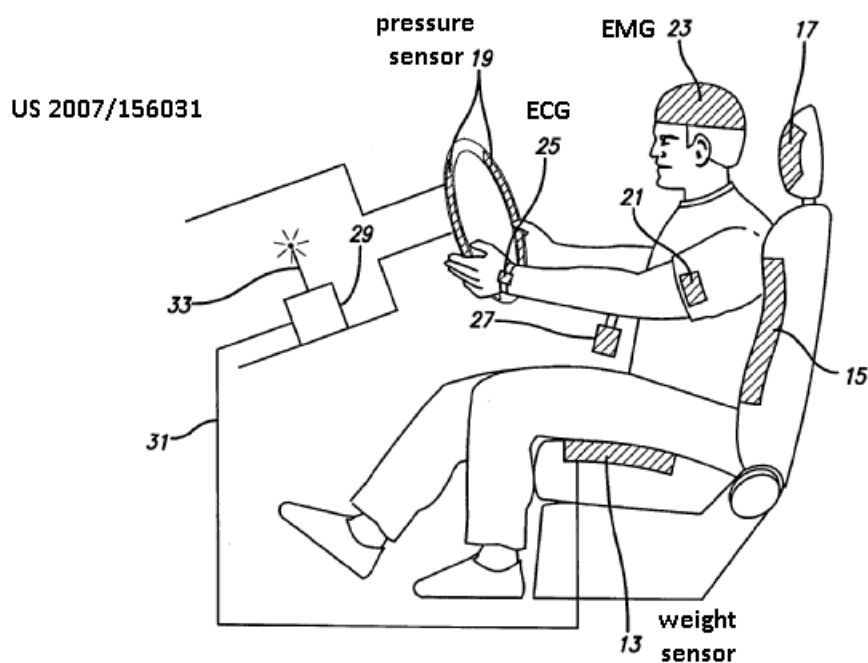


A61B 5/6892**{Mats}****Definition statement***This place covers:*

Mat/pad/mattress/cushion with built in sensor for measuring pressure applied by a body part, e.g. used in bed/chair/prosthesis.

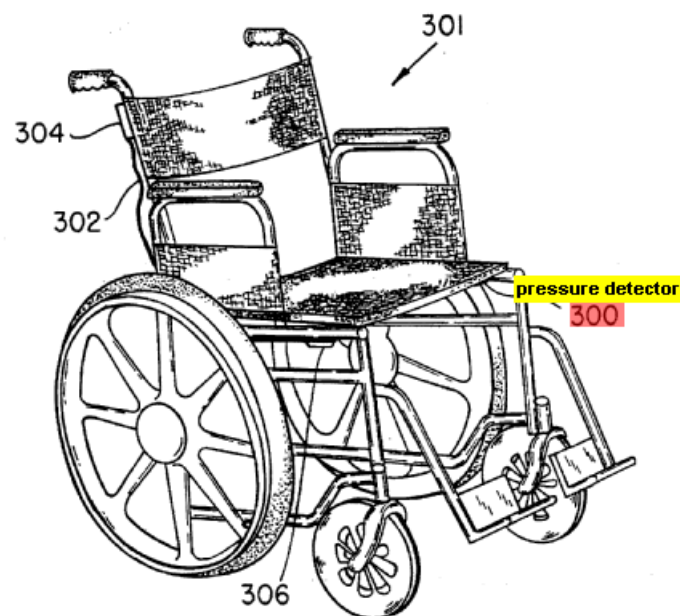
**A61B 5/6893****{Cars}****Definition statement***This place covers:*

Sensors arranged in car to monitor the driver



A61B 5/6894**{Wheel chairs}****Definition statement***This place covers:*

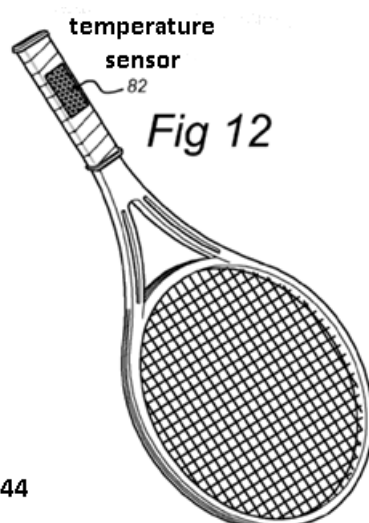
Sensors arranged on a wheel chair



US 5 662 123

A61B 5/6895**{Sport equipment}****Definition statement***This place covers:*

Sensors arranged in sports equipment



WO 2008/085044

References

Limiting references

This place does not cover:

Determining movement (e.g. motion capture)	A61B 5/1123
Sensors arranged on footwear, garments	A61B 5/6804

Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluation of athletes	A61B 2503/10
Exercising apparatus with means for tracking a movement path	A63B 69/0017
Exercising apparatus sensing physical parameters related to user's performance	A63B 2220/00
Exercising apparatus sensing physiological parameters of the user	A63B 2230/00

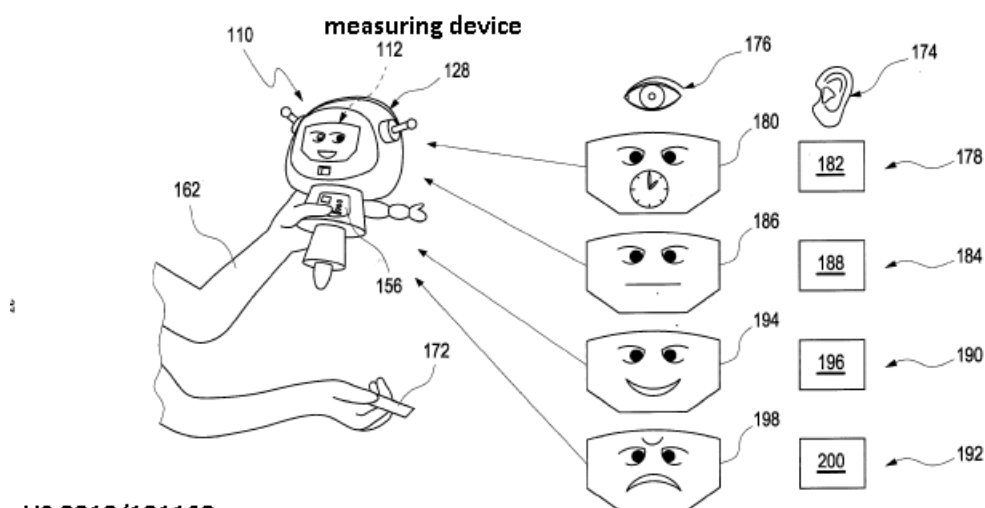
A61B 5/6896

{Toys}

Definition statement

This place covers:

Sensors arranged in a toy



US 2010/121162

A61B 5/6897

{Computer input devices, e.g. mice or keyboards}

Definition statement

This place covers:

Sensors arranged on computer input devices

Combined computer mouse and blood pressure sphygmomanometer

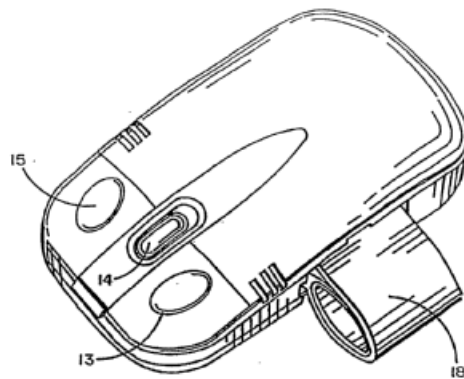


FIG. 5

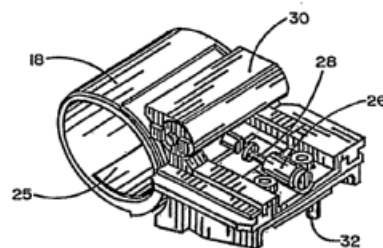


FIG. 7

WO 2007/130591

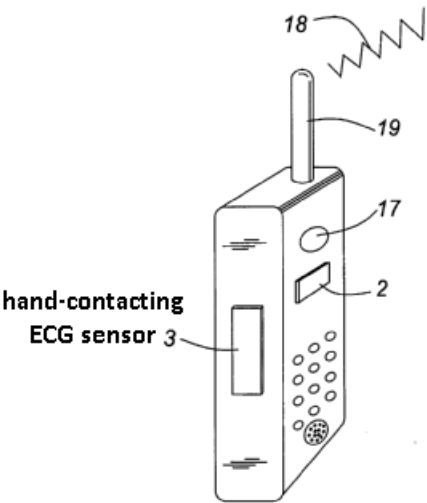
A61B 5/6898

{Portable consumer electronic devices, e.g. music players, telephones, tablet computers}

Definition statement

This place covers:

Sensors arranged on a portable electronic device, e.g. a telephone adapted to sense a physiological parameter.



WO 03/094720

References

Limiting references

This place does not cover:

Monitoring a patient using a global network for transmitting the physiological signals, e.g. telephone network	A61B 5/0022
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A61B 5/70

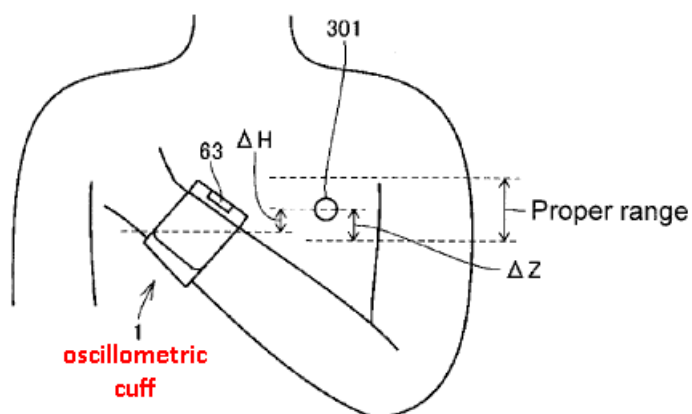
{Means for positioning the patient in relation to the detecting, measuring or recording means}

Definition statement

This place covers:

Means for ensuring that the patient, or of a part of her body, assumes the correct position during the measurement

US 2011/237963

**References****Limiting references**

This place does not cover:

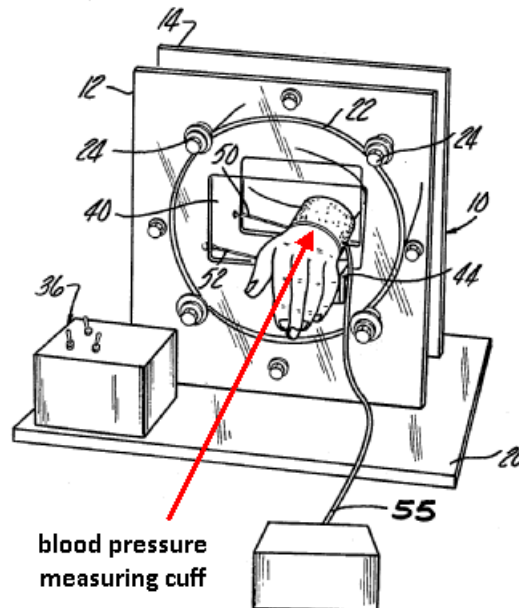
Tables for x-ray examinations	A61B 6/04
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A61B 5/702**{Posture restraints}****Definition statement**

This place covers:

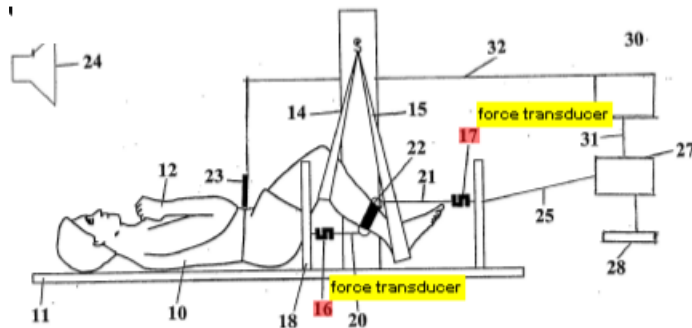
Means to restrain movement of the patient during the measurement, e.g. platforms, chairs, supports for limbs.

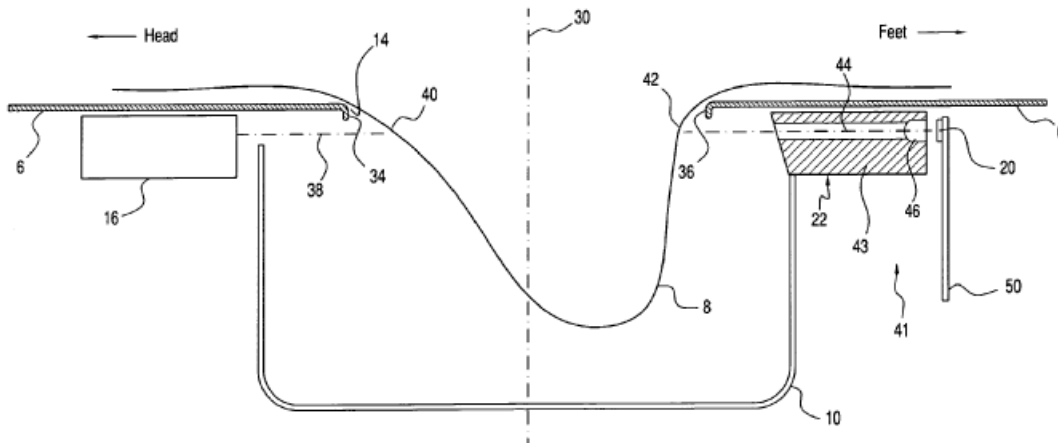
US 4 109 646

**A61B 5/704****{Tables}****Definition statement**

This place covers:

Measuring device comprising tables to aid patient positioning during examination. Special adaptations including windows, cut-outs, connections



A61B 5/708**{Breast positioning means}****Definition statement***This place covers:***US 7 254 851****References****Limiting references***This place does not cover:*

Breast positioning means for x-ray or ultrasound examination	A61B 6/502 , A61B 6/0414 , A61B 8/0825
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A61B 5/72**{Signal processing specially adapted for physiological signals or for diagnostic purposes}****Definition statement***This place covers:*

Non-trivial details of the following aspects:

- Signal processing, typically pre-processing, classified in subgroups [A61B 5/7203](#) - [A61B 5/7232](#), e.g. noise reduction, assessment of signal quality or analogue processing.
- Signal analysis, classified in subgroups [A61B 5/7235](#) - [A61B 5/7267](#), e.g. differentiation, integration, correlation, adaptive filtering, Fourier or wavelet transformations or classification.
- Medical applications of signal processing, classified in subgroups [A61B 5/7271](#) - [A61B 5/7296](#), e.g. risk or trend analysis, predictions, event detection or synchronising imaging with a physiological signal.

The processing or analysis of signals may be online or as post processing/analysis.

The signal is obtained or derived according to a diagnostic technique falling under group [A61B 5/00](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telemetry of measured physiological signal	A61B 5/0002
Input circuits specially adapted for detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B 5/30
Medical imaging apparatus involving image processing or analysis	A61B 2576/00
Signal processing systems in MRI	G01R 33/54
Pattern recognition	G06F 18/00
Image enhancement or restoration	G06T 5/00
Biomedical image inspection	G06T 7/0012
Recognition of biometric, human-related or animal-related patterns in image or video data	G06V 40/00
Healthcare informatics, i.e. information and communication technology [ICT] specially adapted for the handling or processing of medical data	G16H

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

signal	a function that conveys time-varying information about a phenomenon and is provided by a sensor or derived from a sensor output
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A61B 5/7203

{for noise prevention, reduction or removal}

Definition statement

This place covers:

Details of reducing the level of noise or artefacts in a signal using signal processing, e.g. by filtering.

Preventing noise or artefacts using signal processing techniques.

The noise may originate from any source, internally or externally to the patient or sensor, e.g. mains noise or common mode noise.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Determining signal validity, reliability or quality	A61B 5/7221
Synchronising or triggering a physiological measurement or image acquisition with a physiological event or waveform, e.g. an ECG signal	A61B 5/7285
Shielding or protection of sensors from environmental influences, e.g. protection from mechanical damage	A61B 2562/18
Arrangements of medical sensors with cables or leads	A61B 2562/22

Pattern recognition	G06F 18/00
Image denoising; Image smoothing	G06T 5/70

Special rules of classification

For measuring environmental noise, group [A61B 2560/0242](#) should also be considered.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

noise or artefacts	any part of a signal other than the useful signal, e.g. drift
--------------------	---

A61B 5/7207

{of noise induced by motion artifacts}

Definition statement

This place covers:

Details of reducing the level of noise or artefacts in a signal, e.g. by filtering, wherein the noise or artefacts are induced by motion, e.g. motion of the patient with the sensor or relative motion of sensor and patient.

Preventing such noise or artefacts using signal processing techniques, e.g. selecting an appropriate time for a measurement.

A61B 5/721

{using a separate sensor to detect motion or using motion information derived from signals other than the physiological signal to be measured}

Definition statement

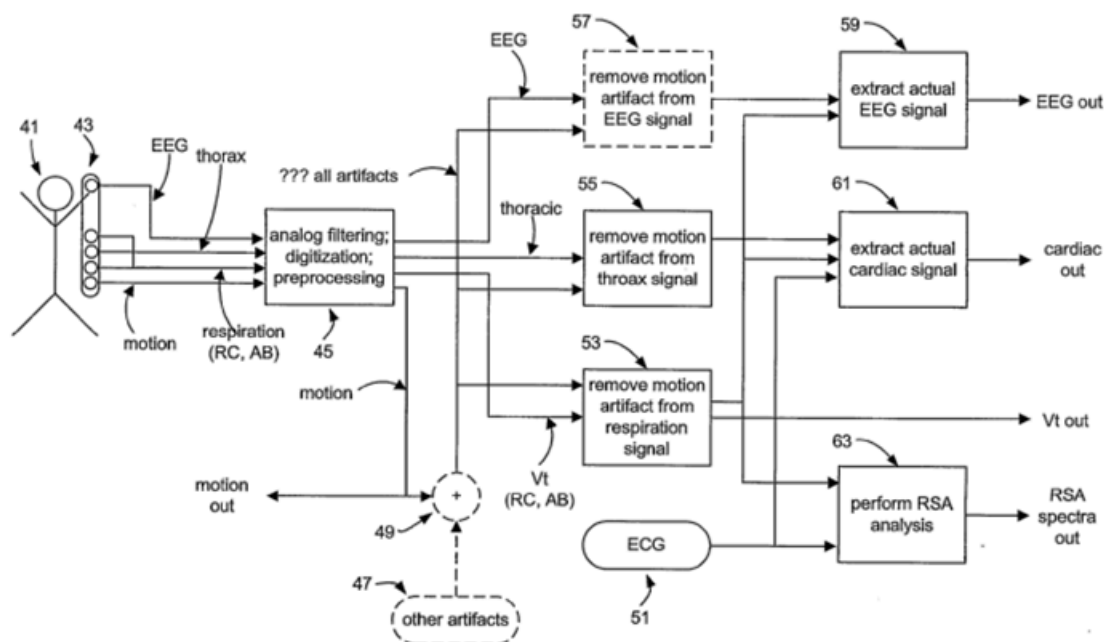
This place covers:

Reducing the level of noise or artefacts in a signal using a separate sensor to detect motion or using motion information derived from signals other than the physiological signal to be measured.

The motion sensor may be an inertial sensor, e.g. an accelerometer or gyroscope, an impedance sensor or a contactless sensor, e.g. using microwaves.

The motion information may be derived from other physiological signals, e.g. using breath flow measurements to detect respiration or ECG to detect heartbeats.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring movement of the entire body or parts thereof	A61B 5/11
Details of inertial sensors, e.g. accelerometers, gyroscopes, tilt switches	A61B 2562/0219
Measuring speed, acceleration; Indicating presence or direction of movement	G01P
Analysis of motion by image analysis	G06T 7/20

A61B 5/7214

{using signal cancellation, e.g. based on input of two identical physiological sensors spaced apart, or based on two signals derived from the same sensor, for different optical wavelengths}

Definition statement

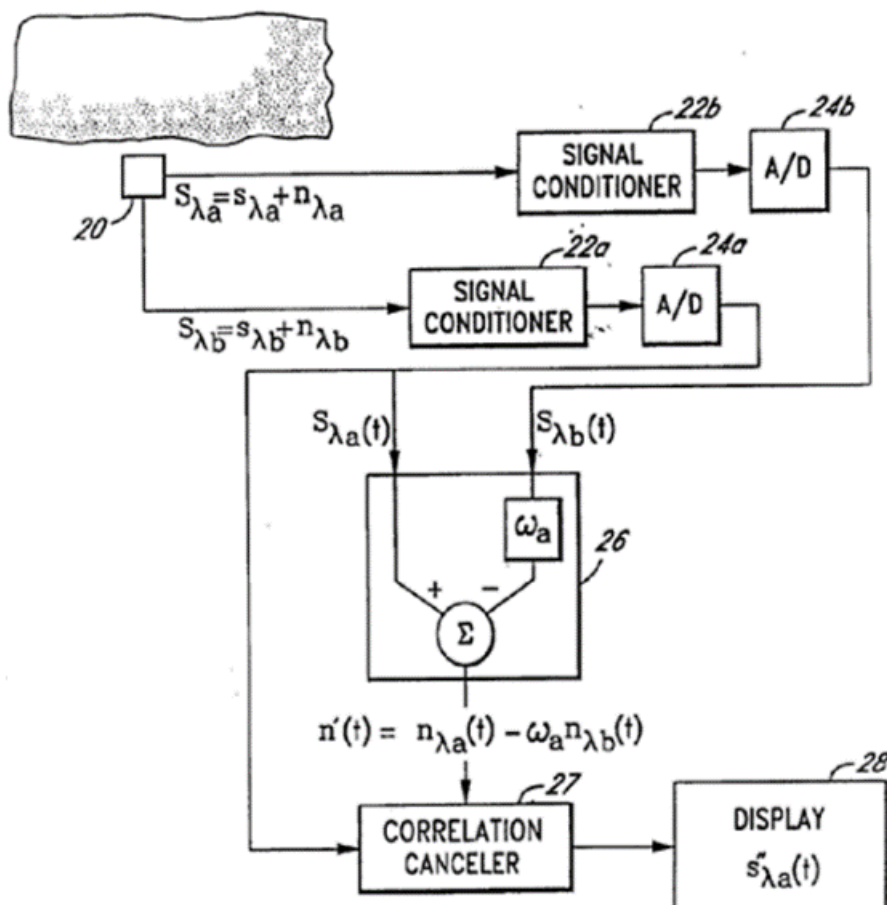
This place covers:

Reducing the level of motion-induced noise or artefacts in a signal using two identical spaced apart sensors sensing the signal. Motion artefacts are extracted or cancelled by comparing the signals of both sensors.

Reducing the level of motion-induced noise or artefacts in a signal by analysing two signals from the same sensor, e.g. for different wavelengths. Often used for analysing photoplethysmographic signals.

Definition statement

Illustrative example of subject matter classified in this place:



Relationships with other classification places

Subject matter relating to cancellation of other sources of noise, for example due to environmental factors, is classified in group [A61B 5/7203](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements of multiple sensors of the same type	A61B 2562/04
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A61B 5/7217

{of noise originating from a therapeutic or surgical apparatus, e.g. from a pacemaker}

Definition statement

This place covers:

Reducing the level of noise or artefacts originating from a therapeutic or surgical apparatus using signal processing. The therapeutic or surgical apparatus may be internal or external to the patient.

Examples of therapeutic apparatus are pacemakers, defibrillators, neurostimulators, e.g. cochlear implant or spinal cord stimulator.

Definition statement

Examples of surgical apparatus are ablation or electrocautery devices.

Examples of types of noise are common mode noise or mains noise.

Relationships with other classification places

Subject matter describing reduction of noise originating from sensing or imaging devices, e.g. MRI, or from other non-medical appliances, is classified in group [A61B 5/7203](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Common mode rejection in input circuits for bioelectric or biomagnetic signals	A61B 5/305
Electrical control of surgical instruments based on electric or electromagnetic phenomena other than conductivity sensed at the treatment site	A61B 2017/00039
Surgical instruments for transferring non-mechanical forms of energy to the body	A61B 18/00
Surgical instruments for transferring non-mechanical forms of energy to the body, wherein the application of energy is controlled based on sensed bioelectric parameters, e.g. ECG, EEG	A61B 2018/00839
Shielding or protection of sensors from environmental influences, e.g. protection from mechanical damage	A61B 2562/18
Electrotherapy circuits for monitoring, protecting, controlling or indicating	A61N 1/08

A61B 5/7221

{Determining signal validity, reliability or quality (preventing, reducing or removing noise induced by motion artefacts [A61B 5/7207](#); noise originating from a therapeutic or surgical apparatus [A61B 5/7217](#))}

Definition statement

This place covers:

Details of determining signal quality, e.g. signal-to-noise ratio [SNR], interferences or confidence score.

The signal may optionally be processed to reduce noise.

Discarding parts of the signal due to insufficient quality.

Details of determining signal reliability or validity, e.g. whether the signal is in a plausible range, whether (part of) a signal was lost because a sensor has lost contact.

References

Limiting references

This place does not cover:

Prevention, reduction or removal of noise induced by motion artefacts	A61B 5/7207
Prevention, reduction or removal of noise originating from a therapeutic or surgical apparatus, e.g. from a pacemaker	A61B 5/7217

Informative references

Attention is drawn to the following places, which may be of interest for search:

Protection against failure of bioelectric electrodes	A61B 5/276
Monitoring apparatus function	A61B 2560/0266

A61B 5/7225

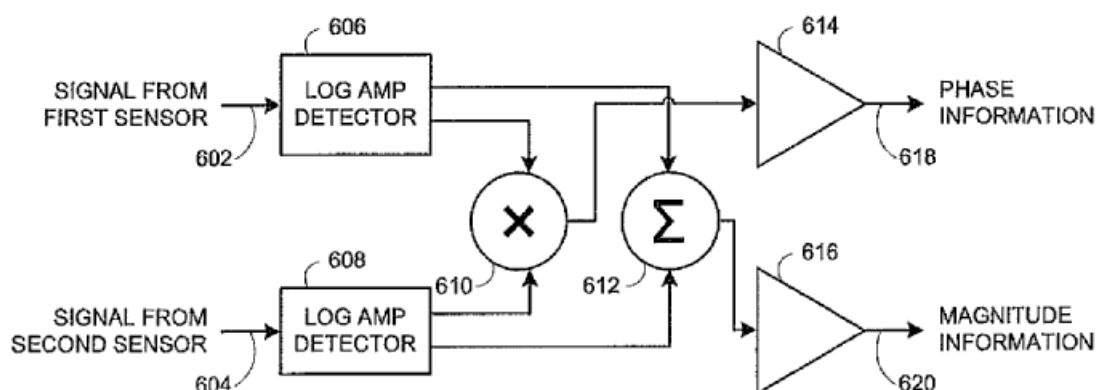
{Details of analogue processing, e.g. isolation amplifier, gain or sensitivity adjustment, filtering, baseline or drift compensation (input circuits for detecting, measuring, or recording bioelectric or biomagnetic signals [A61B 5/30](#); specific diagnostic methods using bioelectric or biomagnetic signals [A61B 5/316](#))}

Definition statement

This place covers:

Details of analogue processing, e.g. analogue filtering, amplification using operational amplifiers or removal of DC baselines using a capacitor.

Illustrative example of subject matter classified in this place:



References

Limiting references

This place does not cover:

Input circuits specially adapted for detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B 5/30
Specific diagnostics methods using bioelectric or biomagnetic signals	A61B 5/316

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sensors mounted on specially adapted printed circuit boards	A61B 2562/166
Arrangements of medical sensors with cables or leads; Connectors and couplings	A61B 2562/22
Transformers for specific applications	H01F 38/00
Amplifiers in general	H03F

A61B 5/7228

**{Signal modulation applied to the input signal sent to patient or subject;
Demodulation to recover the physiological signal}**

Definition statement

This place covers:

Modulation includes taking a physiological input signal, e.g. optical signal or electric current for impedance measurement, and encoding it, e.g. with a characteristic pattern or frequency.

Demodulation includes taking a sensed signal and using a characteristic pattern or frequency to recover the physiological signal.

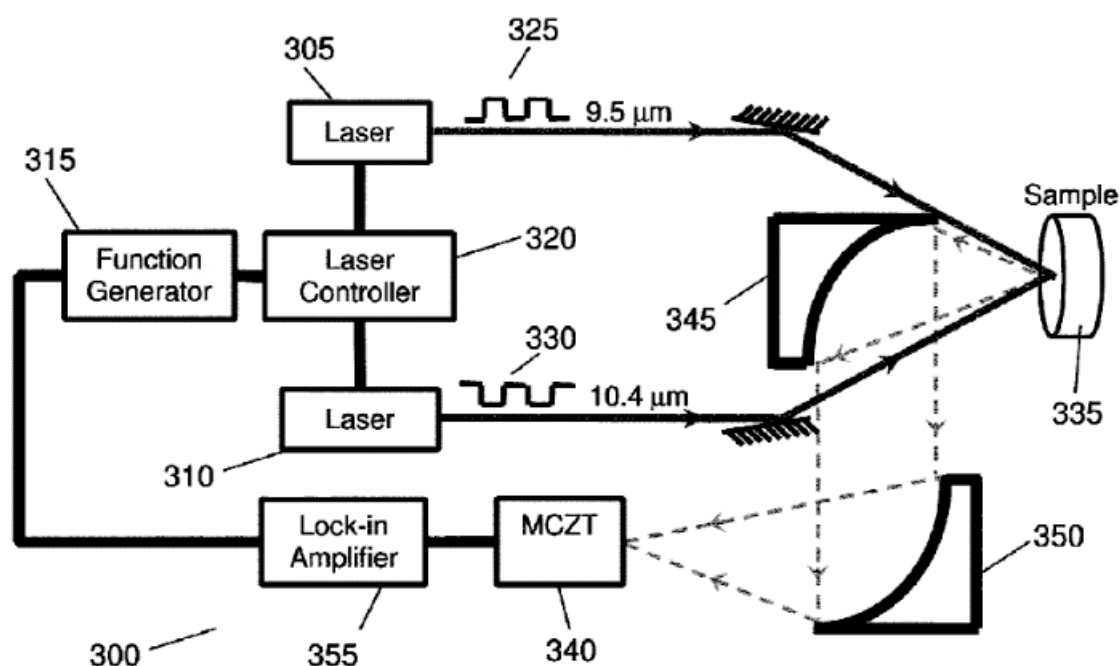
The modulating may involve the use of a lock-in amplifier or applying a watermark to an input signal.

The purpose may be to reduce noise, crosstalk or aliasing or to be able to correctly assign the measured signal to a particular input signal.

Examples of modulation include amplitude, phase or frequency modulation.

Documents in which the input signal is not modulated within or on the patient's/subject's body.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telemetry, including modulation therefor	A61B 5/0002
Acoustooptic measurements	A61B 5/0097
EEG using evoked response	A61B 5/377
Modulation in general	H03C
Demodulation in general	H03D

Modulating or demodulating	H04L 27/00
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A61B 5/7232

{involving compression of the physiological signal, e.g. to extend the signal recording period}

Definition statement

This place covers:

Details of compression of the measured physiological signal, e.g. to extend the recording period or to facilitate transmission.

The degree of compression may be variable based on signal quality or according to medical criteria, e.g. detected conditions.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telemetry of measured physiological signal	A61B 5/0002
Recording apparatus specially adapted for ECG	A61B 5/333
Constructional features of memory means	A61B 2560/0475
Compression of digital data in general	H03M 7/30

A61B 5/7235

{Details of waveform analysis (detecting specific parameters of the electrocardiograph cycle [A61B 5/349](#))}

Definition statement

This place covers:

Non-trivial details of analysis of waveforms, specially adapted for physiological signals or for diagnostic purposes.

References

Limiting references

This place does not cover:

Detecting specific parameters of the electrocardiograph cycle	A61B 5/349
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Noise prevention, reduction or removal	A61B 5/7203
Methods or arrangements for processing data by operating upon the order or content of the data handled	G06F 7/00
Complex mathematical operations	G06F 17/10

Pattern recognition	G06F 18/00
Biomedical image inspection using an image reference approach involving temporal comparison	G06T 7/0016
Analysis of motion by image analysis	G06T 7/20

A61B 5/7239

{using differentiation including higher order derivatives}

Definition statement

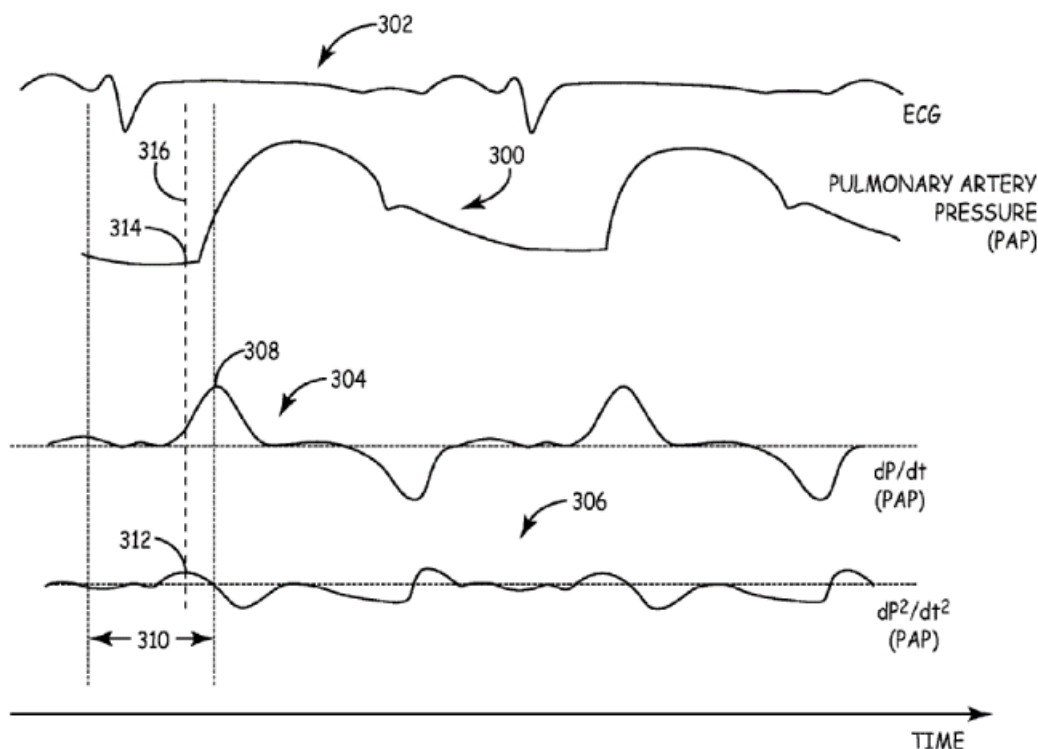
This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by calculating first or higher order derivatives thereof, e.g. time derivatives to determine a rate of change.

The details of analysis may concern the calculation of the derivatives as such or the analysis of the derivatives, e.g. to obtain a particular diagnosis.

The calculation may be analogue or digital.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Classification of physiological signals or data	A61B 5/7264
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

differentiation	mathematical term for the process of finding the derivative, or rate of change, of a function
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A61B 5/7242

{using integration}

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by calculating integrals thereof, e.g. integrals over time.

The calculation may be analogue or digital.

The details of analysis may concern the calculation of the integrals as such or the analysis of the integrals, e.g. to obtain a particular diagnosis.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

integration	mathematical term for finding the area to the x-axis from the signal function, i.e. the area under the curve; the reverse of differentiation
-------------	--

A61B 5/7246

{using correlation, e.g. template matching or determination of similarity}

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by calculating correlations, e.g. autocorrelation or cross-correlation.

The correlation may be between measured signals or between a signal and a reference template.

The calculation may be analogue or digital.

The details of analysis may concern the calculation of the correlation as such or the analysis thereof, e.g. to obtain a particular diagnosis.

Documents which use non-physical templates.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

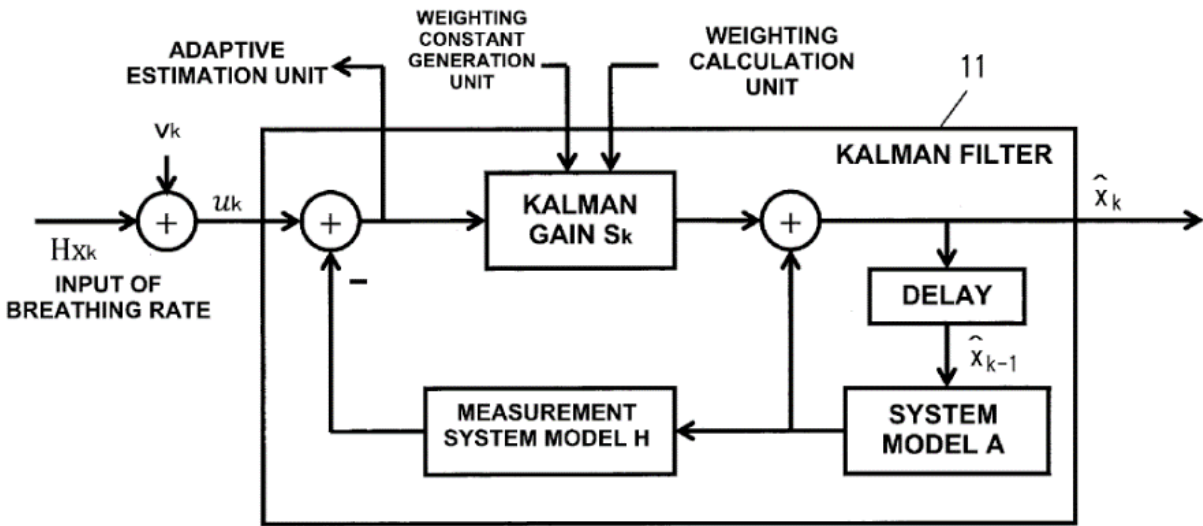
Physical templates for measuring ECG waveforms	A61B 5/322
Correlation function computation in general	G06F 17/15

A61B 5/725

{using specific filters therefor, e.g. Kalman or adaptive filters (specific diagnostics methods using using bioelectric or biomagnetic signals [A61B 5/316](#))}

Definition statement

This place covers:
Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by using specific filters, e.g. finite or infinite response filters [FIR, IIR] or Kalman or other adaptive filters.
The filtering may be analogue or digital.
The details of analysis may concern the filtering as such or the analysis of the filtered signal, e.g. to obtain a particular diagnosis.
Illustrative example of subject matter classified in this place:



References

Limiting references

This place does not cover:

Specific diagnostics methods using bioelectric or biomagnetic signals	A61B 5/316
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Noise prevention, reduction or removal	A61B 5/7203
--	-----------------------------

A61B 5/7253

{characterised by using transforms}

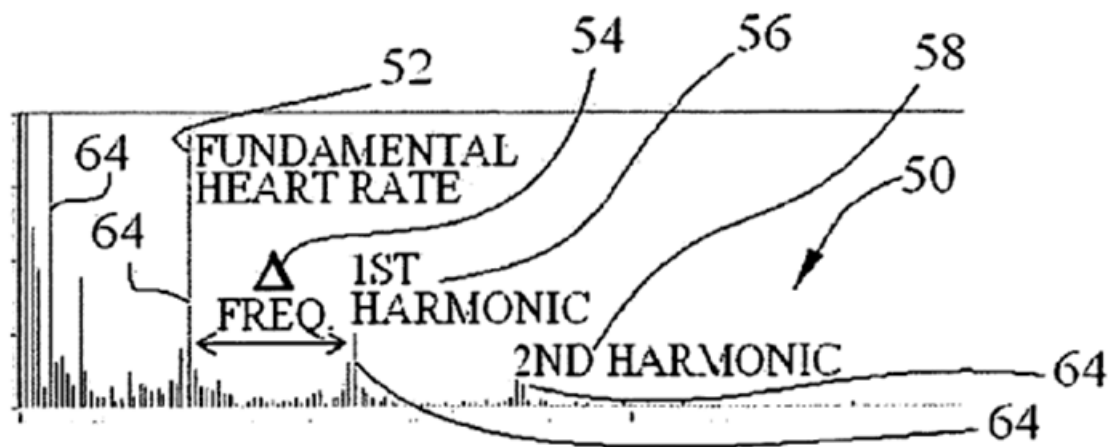
Definition statement

This place covers:
Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by using transforms, e.g. Hilbert or Laplace transforms.

The transformation may be analogue or digital.

The details of analysis may concern the transformation as such or the analysis of the transformed signal, e.g. to obtain a particular diagnosis.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fourier, Walsh or analogous domain transformations in general	G06F 17/14
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

transforms	signal processing term for models of a signal as a collection of waveforms of a particular form, e.g. sinusoids, wavelets, basis functions
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A61B 5/7264

{Classification of physiological signals or data, e.g. using neural networks, statistical classifiers, expert systems or fuzzy systems}

Definition statement

This place covers:

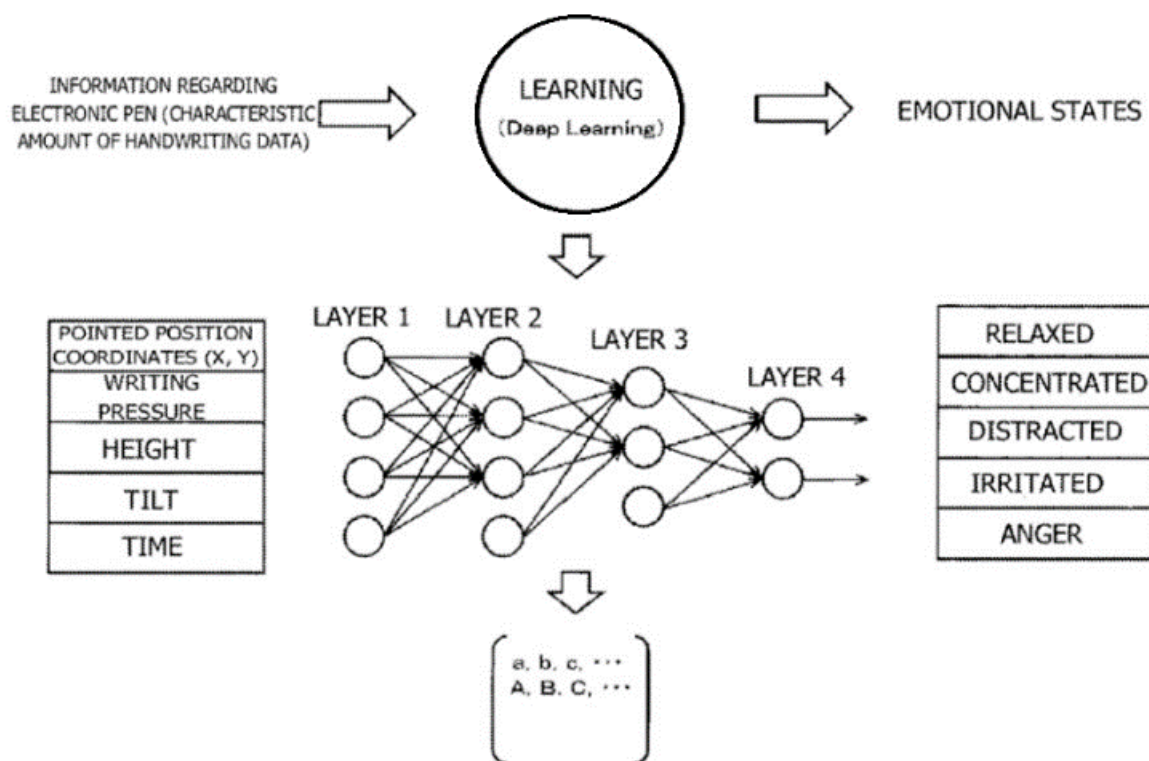
Details of classification of physiological signals or data, e.g. artificial neural networks, statistical classifiers such as Bayes classifiers or Hidden Markov Models, rule-based systems, expert systems or fuzzy systems.

The details of classification may also concern feature extraction or selection, e.g. how features/parameters are derived from the signal or data or which are selected for a particular classification.

The classifiers may be analogue or digital.

The classification may be according to type of disease, type of motion, state of mind, sleep state, etc., but also according to signal or data quality or reliability.

Illustrative example of subject matter classified in this place:



Relationships with other classification places

In line with the notes under [G16H](#), classification may additionally be considered in group [G16H 50/00](#) for healthcare informatics relating to medical diagnosis.

Signal classification based on simple comparison to thresholds is covered in the respective modality group within group [A61B 5/00](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Discriminating type of movement, e.g. walking or running	A61B 5/1123
Evaluating the state of mind, e.g. depression, anxiety	A61B 5/165
Determining sleep stages or cycles	A61B 5/4812
Determining trends in physiological measurement data; Predicting development of a medical condition based on physiological measurements, e.g. determining a risk factor	A61B 5/7275
Event detection	A61B 5/7282
Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms	A61B 5/746
Clustering techniques for pattern recognition in general	G06F 18/23
Classification techniques for pattern recognition in general	G06F 18/24
Computing arrangements based on biological models	G06N 3/00
Computing arrangements using knowledge-based models	G06N 5/00
Computing arrangements based on specific mathematical models	G06N 7/00
Biomedical image inspection	G06T 7/0012
Special algorithmic details of training or learning in image analysis	G06T 2207/20081
Special algorithmic details of Artificial neural networks [ANN] in image analysis	G06T 2207/20084
Arrangements for image recognition using machine learning	G06V 10/70
Recognition of biometric patterns based on physiological signals, e.g. heartbeat, blood flow, in image or video data, in general	G06V 40/15
Recognition of walking or running movements, e.g. gait recognition, in image or video data, in general	G06V 40/25
Recognition of multimodal biometrics, e.g. combining information from different biometric modalities	G06V 40/70
ICT specially adapted for computer-aided diagnosis, e.g. based on medical expert systems	G16H 50/20
ICT specially adapted for calculating health indices	G16H 50/30

A61B 5/7267

{involving training the classification device}

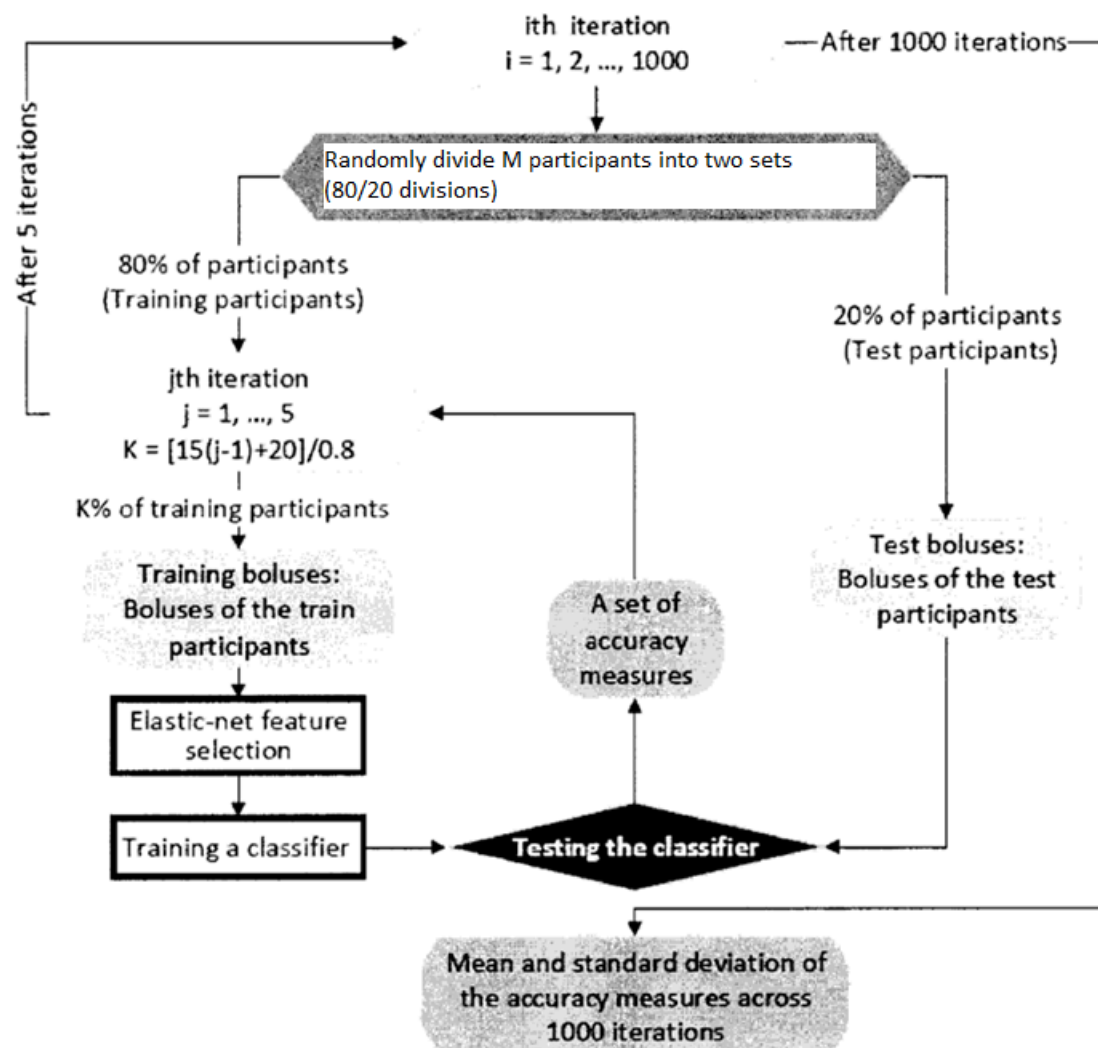
Definition statement

This place covers:

Details of training of machine learning, support vector machines, artificial neural networks, e.g. back propagation algorithms, evolutionary programming, continuous or incremental learning, supervised or unsupervised learning, specially adapted for physiological signals or for diagnostic purposes.

The details of training may concern the use of the physiological signals or diagnostic data as the training data, e.g. how such data is selected.

Illustrative example of subject matter classified in this place:



Relationships with other classification places

In line with the notes under [G16H](#), classification may additionally be considered in groups [G16H 50/20](#) or [G16H 50/70](#) for healthcare informatics relating to medical diagnosis.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Clustering techniques for pattern recognition, in general	G06F 18/23
Classification techniques for pattern recognition, in general	G06F 18/24
Learning methods for neural networks	G06N 3/08
Machine learning	G06N 20/00
Special algorithmic details of training or learning in image analysis	G06T 2207/20081
Special algorithmic details of artificial neural networks [ANN] in image analysis	G06T 2207/20084
Arrangements for image recognition using machine learning	G06V 10/70
Teaching or training of natural persons	G09B

ICT specially adapted for medical diagnosis, medical simulation or medical data mining	G16H 50/00
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A61B 5/7271

{Specific aspects of physiological measurement analysis (specific diagnostics methods using bioelectric or biomagnetic signals [A61B 5/316](#))}

Definition statement

This place covers:

Details of particular medical applications of signal analysis, e.g. calculation of particular health indices by combining particular parameters.

Relationships with other classification places

Subject matter relating to triggering an alarm related to a physiological condition, e.g. calculating a threshold therefor, is classified in group [A61B 5/746](#).

References

Limiting references

This place does not cover:

Specific diagnostic methods using bioelectric or biomagnetic signals	A61B 5/316
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A61B 5/7275

{Determining trends in physiological measurement data; Predicting development of a medical condition based on physiological measurements, e.g. determining a risk factor}

Definition statement

This place covers:

Risk assessment of whether a medical condition is going to happen in the future, e.g. sudden cardiac death, hypo- or hyperglycaemia, or seizures.

Prognosis of a medical condition, e.g. whether a medical condition is going to get better or worse in the future.

Details on determining a future trend of a particular medical condition or physiological parameter, e.g. to optimise treatment or prevent medical conditions from occurring, such as predicting development of blood glucose or to prevent hypo- or hyperglycaemia.

Relationships with other classification places

In line with the notes under [G16H](#), classification may additionally be considered in group [G16H 50/30](#) for healthcare informatics related to medical diagnosis.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring glucose in vivo	A61B 5/14532
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Diagnosing or monitoring seizure diseases, e.g. epilepsy	A61B 5/4094
Event detection, e.g. detecting unique waveforms indicative of a medical condition	A61B 5/7282
ICT specially adapted for calculating health indices; For individual health risk assessment	G16H 50/30

A61B 5/7278

{Artificial waveform generation or derivation, e.g. synthesizing signals from measured signals}

Definition statement

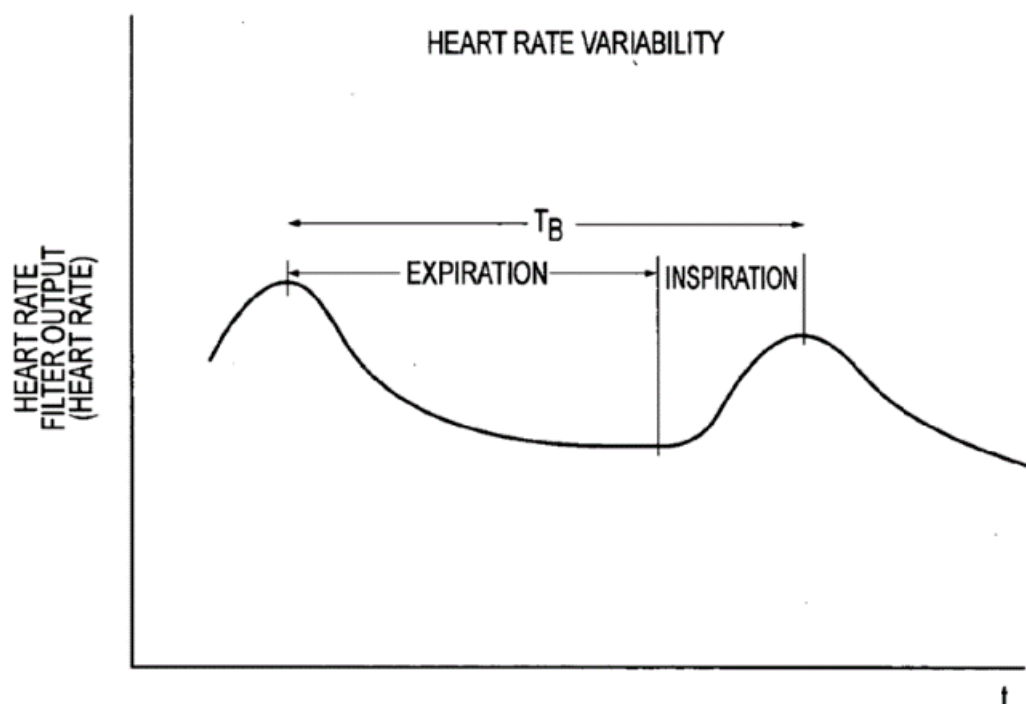
This place covers:

Generating a waveform representing a particular physiological parameter obtained from a measured signal relating to another physiological parameter, e.g. respiration waveforms based on oxygen saturation or photoplethysmographic signals or glucose concentration waveforms obtained from oxygen saturation.

Generating a waveform representing a physiological parameter measured at a particular location on or in the body, obtained from a signal relating to the same physiological parameter, but measured at a different location on or in the body, e.g. to compensate for a missing signal from a sensor in an array of sensors or to provide the user with an easier way to interpret a signal.

It is not required that the generated waveform is actually displayed.

Illustrative example of subject matter classified in this place:



Relationships with other classification places

Subject matter relating to artificial physiological waveform generation or derivation by merely changing the domain, e.g. time to frequency domain, to waveforms obtained from a measured waveform merely by standard means of signal processing, e.g. filtering, curve-fitting, up- or down-sampling, is classified

Relationships with other classification places

in the respective modality group within [A61B 5/00](#), e.g. converting PPG signal to heartrate frequency, group [A61B 5/02416](#).

Subject matter relating to the generation of artificial ECG signals based on measured signals is classified in group [A61B 5/327](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Simultaneously evaluating both cardiovascular conditions and different types of body conditions	A61B 5/0205
Displaying an image simultaneously with additional graphical information, e.g. symbols, charts, function plots	A61B 5/743
Artificial life, i.e. computing arrangements simulating life	G06N 3/004
Simulators for teaching or training purposes	G09B 9/00

A61B 5/7282

{Event detection, e.g. detecting unique waveforms indicative of a medical condition (cough events [A61B 5/0823](#); seizures [A61B 5/4094](#); sleep apnoea [A61B 5/4818](#))}

Definition statement

This place covers:

Details of detecting medical events, e.g. respiratory events such as asthma attacks, hypo- or hyper-glycaemic events.

An event is a sudden change, e.g. in a physiological parameter, a suddenly occurring medical condition or movement of the body or part thereof, e.g. contraction, acute condition, newly occurring condition. An event includes periodically occurring events, e.g. respiration events, but is not a detection of a condition that already exists, e.g. chronic condition.

Relationships with other classification places

Detection of responses to intentional stimuli, e.g. evoked potentials in EEG or responses to drugs, e.g. anaesthetics, given to the patient/subject are not considered to be "events" included here but are covered in group [A61B 5/377](#) or group [A61B 5/1106](#) respectfully.

Subject matter relating to apparatus for detecting, measuring or recording ECG in combination with analysis of specific parameters of the electrocardiograph cycle in order to determine a diagnosis is classified in group [A61B 5/349](#).

References

Limiting references

This place does not cover:

Detecting or evaluating cough events	A61B 5/0823
Diagnosing or monitoring seizure diseases, e.g. epilepsy	A61B 5/4094
Detecting sleep apnoea	A61B 5/4818

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting response to application of mechanical forces or stimuli	A61B 5/0048
Detecting or evaluating apnoea events	A61B 5/0826
Detecting tremor	A61B 5/1101
Detecting muscular movement of the eye, e.g. eyelid movement	A61B 5/1103
Measuring movement of the entire body or parts thereof induced by stimuli or drugs	A61B 5/1104
Measuring contraction of parts of the body, e.g. organ, muscle	A61B 5/1107
Monitoring leaving of a patient support, e.g. a bed or a wheelchair	A61B 5/1115
Determining posture transitions	A61B 5/1116
Fall detection	A61B 5/1117
Audiometering, e.g. hearing capacity in response to acoustic stimuli	A61B 5/12
Testing reaction times	A61B 5/162
Magnetoencephalography [MEG] using evoked response	A61B 5/246
Evaluating swallowing	A61B 5/4205
Diagnosing or evaluating reflux	A61B 5/4211
Assessing uterine contractions	A61B 5/4356
Evaluating bruxism	A61B 5/4557
Detecting sleep stages or cycles	A61B 5/4812
Assessing touch sensitivity by thermal stimulation	A61B 5/483
Measuring or inducing nystagmus	A61B 5/4863
Inducing physiological or psychological stress, e.g. applications for stress testing	A61B 5/4884
Determining trends in physiological measurement data; Predicting development of a medical condition based on physiological measurements, e.g. determining a risk factor	A61B 5/7275
Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms	A61B 5/746
Biomedical image inspection using an image reference approach involving temporal comparison	G06T 7/0016

A61B 5/7285

{for synchronizing or triggering a physiological measurement or image acquisition with a physiological event or waveform, e.g. an ECG signal}

Definition statement

This place covers:

Synchronising, triggering or gating a physiological measurement or image acquisition with a concurrently acquired physiological event or waveform recorded using a different sensor than the triggered one.

Definition statement

The concurrently acquired physiological event or waveform may be acquired, e.g. using ECG to determine the phase in the cardiac cycle or using a video camera to track motion of parts of the body, e.g. occurring during breathing to determine the phase of respiration.

The synchronising or gating may be simultaneous, i.e. the physiological measurement or image acquisition is initiated at the moment a particular event is detected.

At least one of the synchronised, triggered or gated physiological measurement or image acquisition and the measurement of the triggering physiological event or waveform are performed using a sensing or imaging technique falling under the scope of group [A61B 5/00](#).

Relationships with other classification places

Subject matter relating to detection of R peaks, e.g. for synchronising diagnostic apparatus, is classified in group [A61B 5/352](#).

Subject matter relating to apparatus for radiation diagnosis involving processing of raw data to produce diagnostic data is classified in group [A61B 6/5205](#). Subject matter relating to apparatus for radiation diagnosis involving acquisition triggered by a physiological signal is classified in group [A61B 6/541](#).

Subject matter relating to diagnosis using ultrasonic, sonic or infrasonic waves involving processing of raw data to produce diagnostic data, e.g. for generating an image is classified in group [A61B 8/5207](#). Subject matter relating to diagnosis using ultrasonic, sonic, or infrasonic waves involving acquisition triggered by a physiological signal is classified in group [A61B 8/543](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tracking parts of the body	A61B 5/1114
Measuring movement of the entire body or parts thereof occurring during breathing	A61B 5/113
For noise prevention, reduction or removal	A61B 5/7203
NMR imaging systems gated by physiological signals	G01R 33/567

A61B 5/7289

{Retrospective gating, i.e. associating measured signals or images with a physiological event after the actual measurement or image acquisition, e.g. by simultaneously recording an additional physiological signal during the measurement or image acquisition}

Definition statement

This place covers:

Retrospective synchronising or gating, i.e. measured signals or images are associated with a physiological event after a particular measurement has been made or a particular image has been acquired, e.g. by simultaneously recording an additional physiological signal during the measurement or image acquisition.

A61B 5/7292

{Prospective gating, i.e. predicting the occurrence of a physiological event for use as a synchronisation signal}

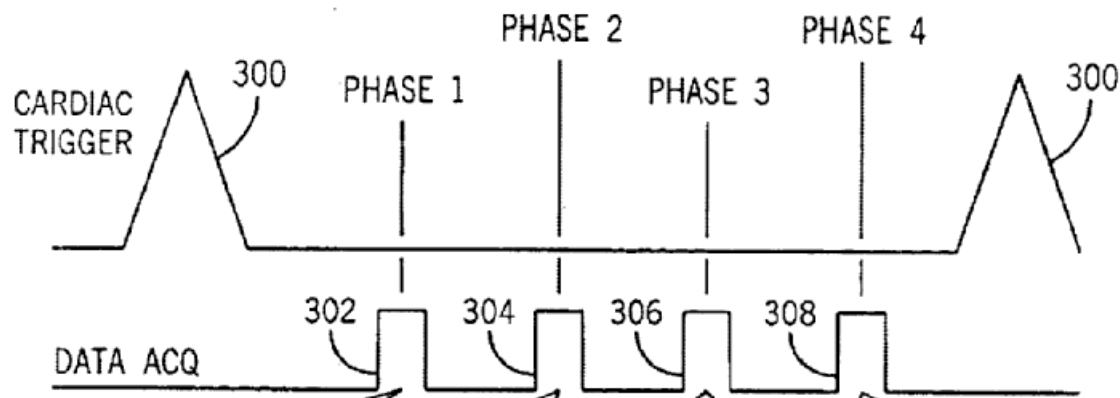
Definition statement

This place covers:

Synchronising, triggering or gating a physiological measurement or image acquisition with a concurrently acquired physiological event or waveform, recorded using a different sensor than the triggered one. The synchronising or gating is prospective, i.e. based on an analysis of the concurrently acquired physiological event or waveform, a future optimum time for physiological measurement or image acquisition is determined.

For example, based on R-peak detection using ECG, an optimum future time for imaging is determined to acquire an image at a particular later phase of the cardiac cycle.

Illustrative example of subject matter classified in this place:



A61B 5/7296

{for compensation of signal variation due to stress unintentionally induced in the patient, e.g. due to the stress of the medical environment or examination}

Definition statement

This place covers:

Compensating a physiological measurement, e.g. a raised heart rate or blood pressure caused by the white coat effect, i.e. abnormal values of physiological parameters when measured in a clinical setting, but not in other environments.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Determining activity level of the entire body or parts thereof	A61B 5/1118
Evaluating the state of mind, e.g. depression, anxiety	A61B 5/165
Evaluating the autonomic nervous system	A61B 5/4035
Evaluating sweat secretion	A61B 5/4266
Inducing physiological or psychological stress, e.g. applications for stress testing	A61B 5/4884

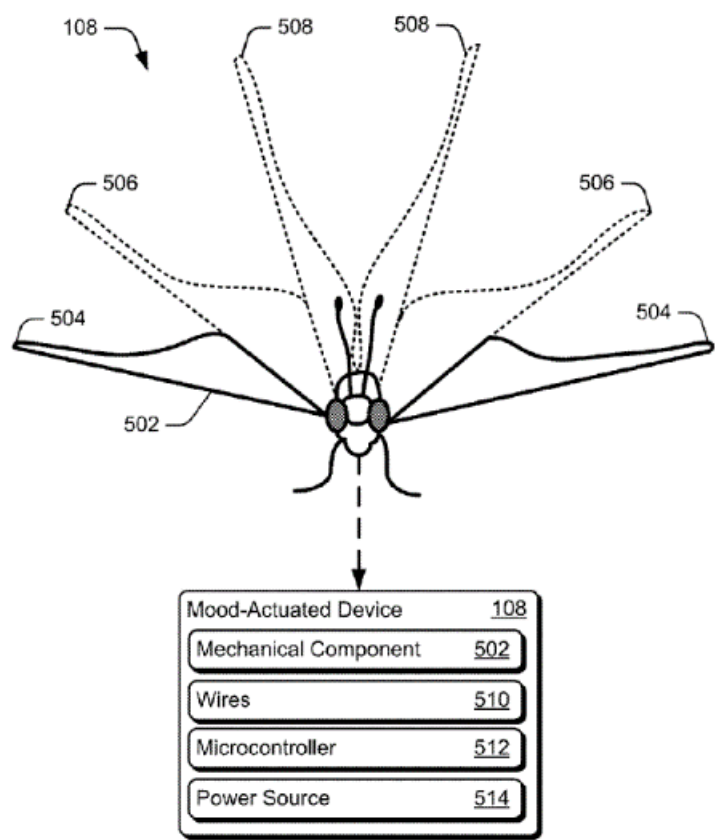
A61B 5/74

{Details of notification to user or communication with user or patient; User input means}

Definition statement

This place covers:
Details of constructional or operational adaptations of input/output means to a diagnostic procedure. The input may originate from a patient, medical practitioner or others. Likewise, the output may be directed to a patient, medical practitioner or others.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes provided with data input arrangements for the user	A61B 1/00039
Endoscopes provided with signal output arrangements	A61B 1/00043
Generation of stimuli to evoke EEG response	A61B 5/377
Bio-feedback	A61B 5/486
Electrical control of surgical instruments with audible or visual output	A61B 2017/00115
User interfaces for electrotherapy devices	A61N 1/37247

Indicating measured values in general	G01D 7/00
Input or output arrangements for computers in general	G06F 3/00
ICT specially adapted for the operation of medical devices	G16H 40/60

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

user	physician, nurse or any other person, not limited to medical practitioners, including the person to be examined, not limited to (potentially) sick persons
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A61B 5/7405

{using sound}

Definition statement

This place covers:

Constructional details of sound output units, e.g. integration into a monitoring apparatus.

Operational details of sound output units, e.g. use of sound output in a medical procedure to alert a user of an abnormal physiological value, to assist a user during use of a particular monitoring device or to take a predetermined position during measurement.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluating hearing capacity	A61B 5/121
Devices for producing or ending sleep by stimulating the hearing sense	A61M 2021/0027
Alerts to patients for an electrotherapy device	A61N 1/37258
Audible indication of measured values in general	G01D 7/12

A61B 5/741

{using synthesised speech}

Definition statement

This place covers:

Notifications provided in a spoken form, e.g. by transforming a measured parameter into words or by issuing stored verbal messages.

The synthesized speech may be pre-recorded or artificially generated.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Speech synthesis per se	G10L 13/00
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A61B 5/7415

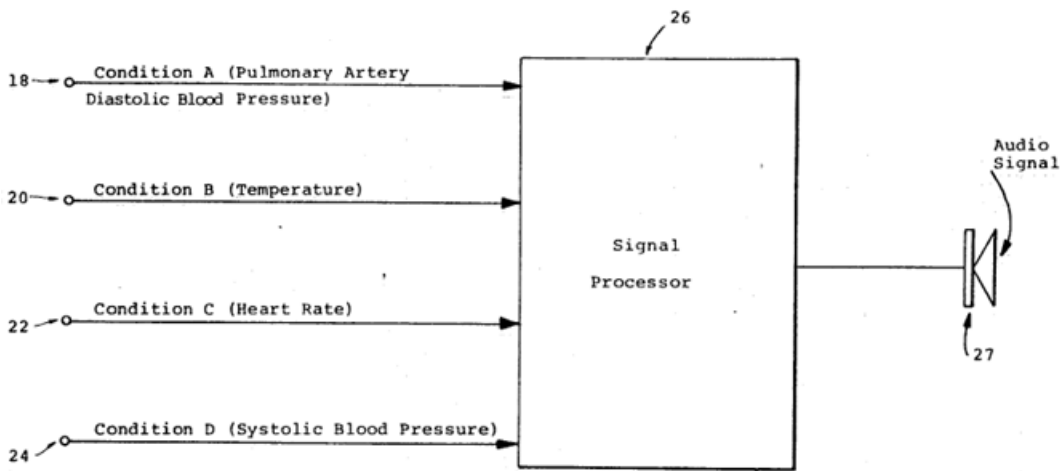
{Sound rendering of measured values, e.g. by pitch or volume variation
(A61B 5/741 takes precedence)}

Definition statement

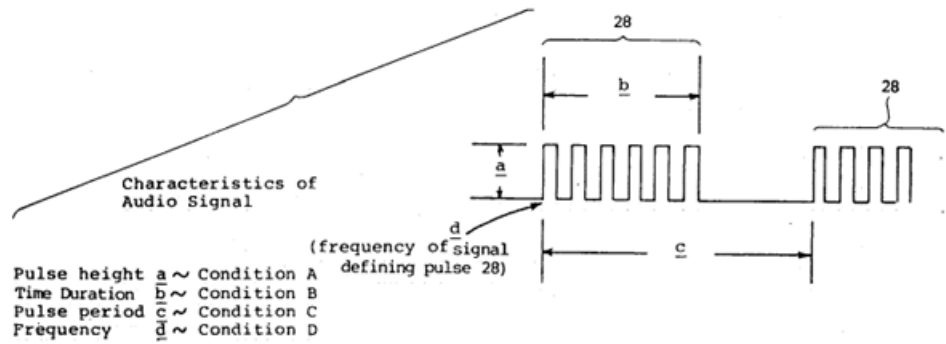
This place covers:
Sonification of measured physiological parameters, e.g. generation of audio tone in synchronism with heartbeat or with its pitch depending on a measured parameter.

Illustrative examples of subject matter classified in this place:

1a.



1b.



References

Limiting references

This place does not cover:

Details of notification to user or communication with user or patient using synthesised speech	A61B 5/741
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A61B 5/742

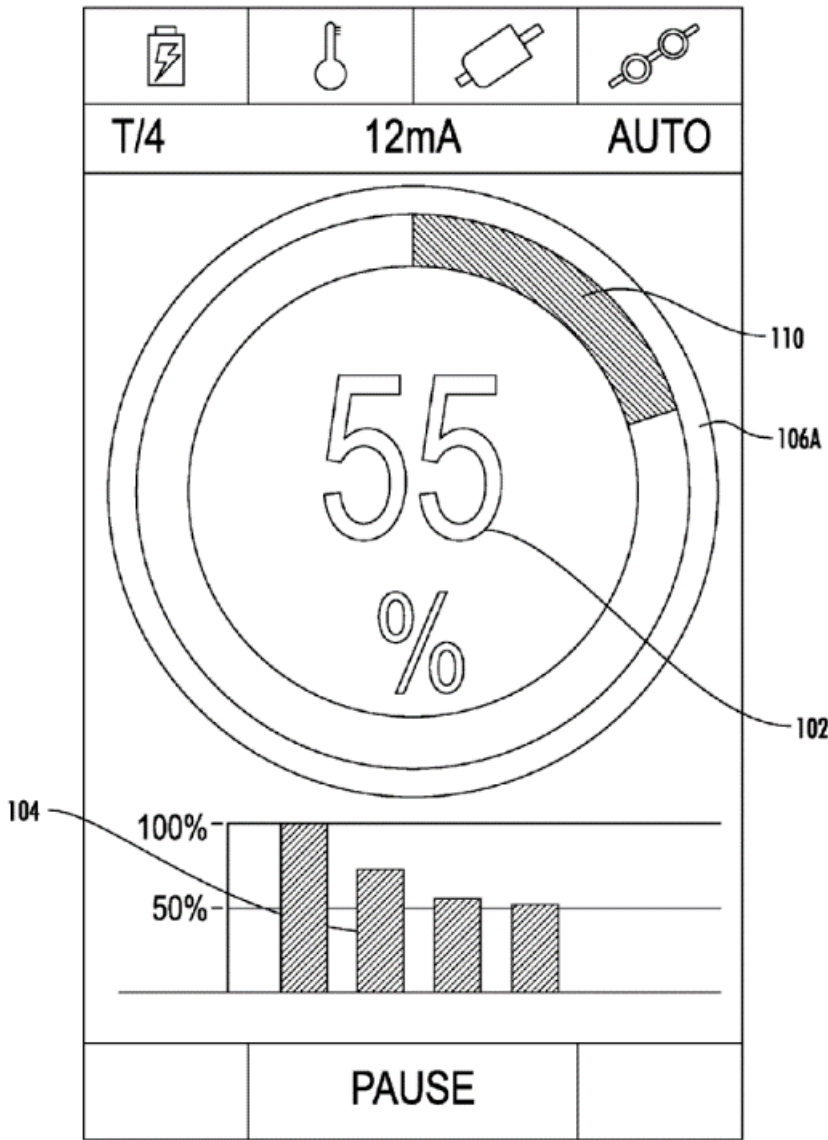
{using visual displays (displays for heart-related electrical signals, e.g. ECG, [A61B 5/339](#))}

Definition statement

This place covers:

Constructional or operational details of visual indication, e.g. using screens, monitors or displays, for controlling a diagnostic procedure or monitoring results of physiological parameters measurements, e.g. multi-parameter hemodynamic monitors.

Illustrative example of subject matter classified in this place:



References

Limiting references

This place does not cover:

Displays for heart-related electrical signals, e.g. ECG	A61B 5/339
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Display arrangements in apparatus for testing the eyes	A61B 3/0041
Devices for presenting test symbols or characters in apparatus for testing the eyes	A61B 3/032
Multi-parameter vital signs monitoring	A61B 5/0205
Flicker fusion testing	A61B 5/161
Surgical systems with images on a monitor during operation	A61B 90/37
Drawing of charts or graphs	G06T 11/26
Medical applications in image generation or computer graphics	G06T 2210/41

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

images	anatomical images, i.e. two- or three-dimensional images recorded by imaging modalities such as magnetic resonance imaging [MRI] or optical coherence tomography [OCT], including functional imaging or images of the body surface. Includes also images representing local distribution of physiological parameters not recorded by imaging modalities, such as body composition measured by impedance. Includes images changing over time, e.g. videos. Graphs, e.g. three-dimensional graphs, are not considered images, even if such a three-dimensional graph represents the value of a physiological parameter along two orthogonal axes in space.
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A61B 5/7425

{Displaying combinations of multiple images regardless of image source, e.g. displaying a reference anatomical image with a live image}

Definition statement

This place covers:

Simultaneous display of a plurality of images of a patient or a patient body part, e.g. side-by-side, superimposed or tiled.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes comprising display arrangements combining images, e.g. side-by-side, superimposed or tiles	A61B 1/0005
Geometric transforms for image registration	G06T 3/14
Image enhancement or restoration using two or more images, e.g. image averaging, image fusion, image merging, image subtraction	G06T 5/50
Image analysis algorithms for registration of images	G06T 7/30
Manipulating 3D models or images for computer graphics	G06T 19/00

Manipulating 3D models or images for computer graphics with mixed reality	G06T 19/006
Manipulating 3D models or images for computer graphics with multiple view windows	G06T 2219/028
Control of mixing or overlay of colours for visual indicators	G09G 5/026

A61B 5/743

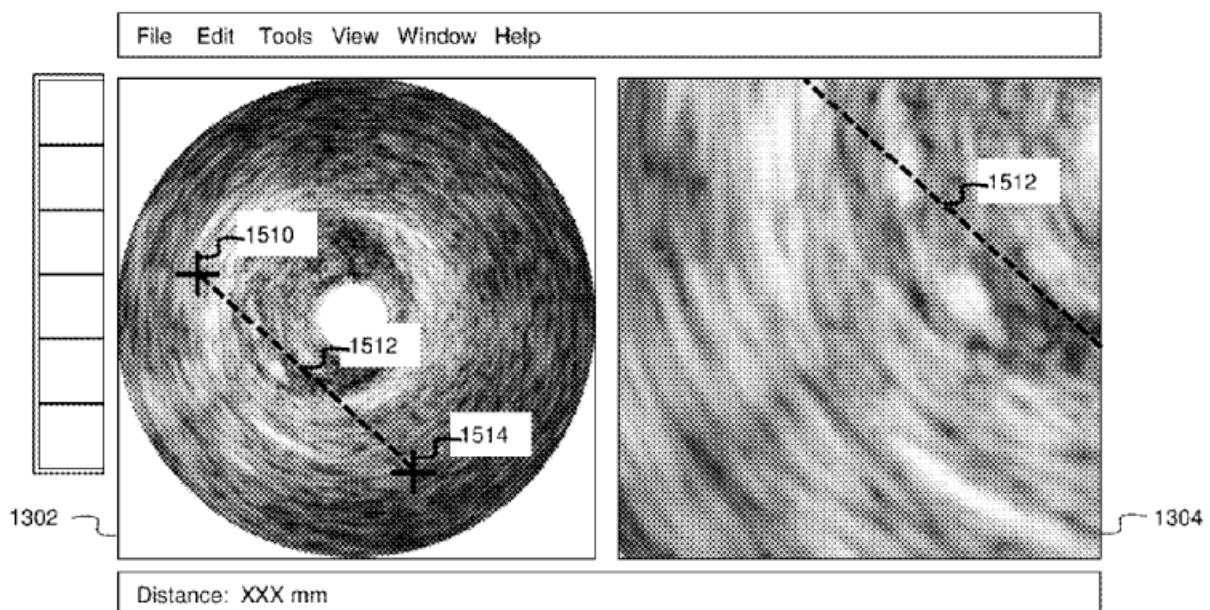
{Displaying an image simultaneously with additional graphical information, e.g. symbols, charts, function plots}

Definition statement

This place covers:

Display of combination of image(s) and other representation(s) of physiological data, e.g. symbols, graphs, curves, waveforms or risk scores. The combined display may be side-by-side, superimposed or tiled.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Superposing sensor position on an image of the patient	A61B 5/066
Sonar systems comprising composite cathode ray tube displays, e.g. split-screen displays; Combination of multiple images or of images and alphanumeric tabular information	G01S 7/52074
Manipulating 3D models or images for computer graphics with mixed reality	G06T 19/006
Manipulating 3D models or images for computer graphics with annotating, labelling	G06T 2219/004

Display of multiple viewports

[G09G 5/14](#)

A61B 5/7435

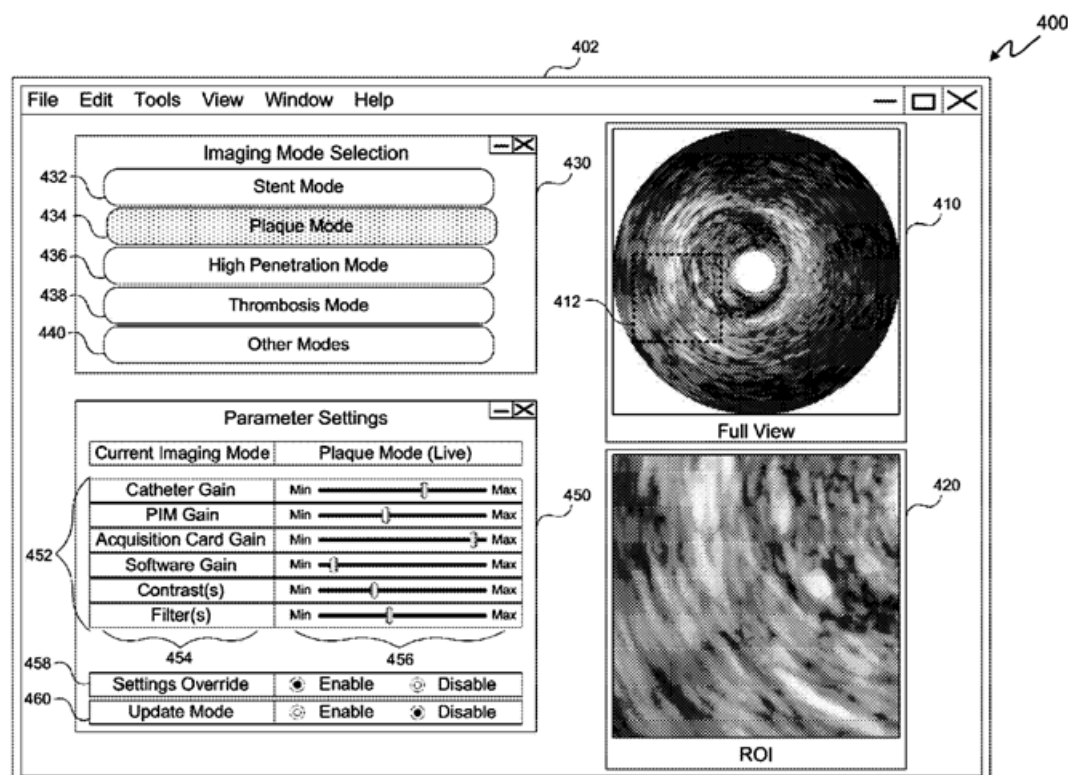
{Displaying user selection data, e.g. icons in a graphical user interface}

Definition statement

This place covers:

Details of GUI design, including buttons or icons for selecting, e.g. imaging parameters.

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

User interfaces for surgical systems	A61B 34/25
Interfaces between NMR imaging systems and the user	G01R 33/546
Constructional features related to user interfaces of sonar systems particularly adapted to short-range imaging	G01S 7/52084
Graphical user interfaces in general	G06F 3/048
Electronic questionnaires	G16H 10/20
ICT specially adapted for the operation of medical devices	G16H 40/60

A61B 5/744

{Displaying an avatar, e.g. an animated cartoon character}

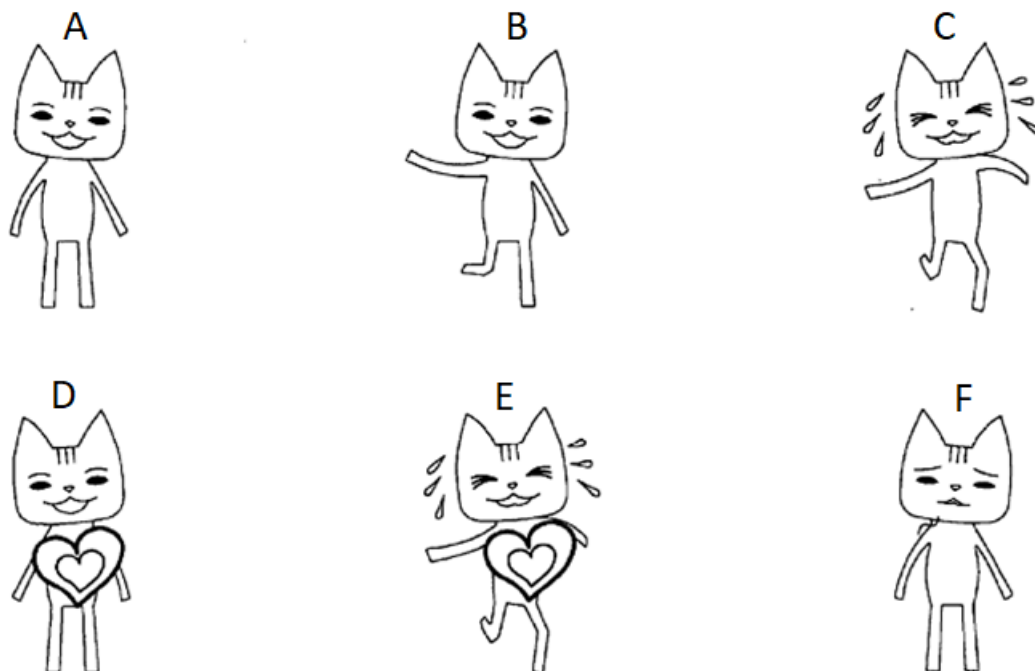
Definition statement

This place covers:

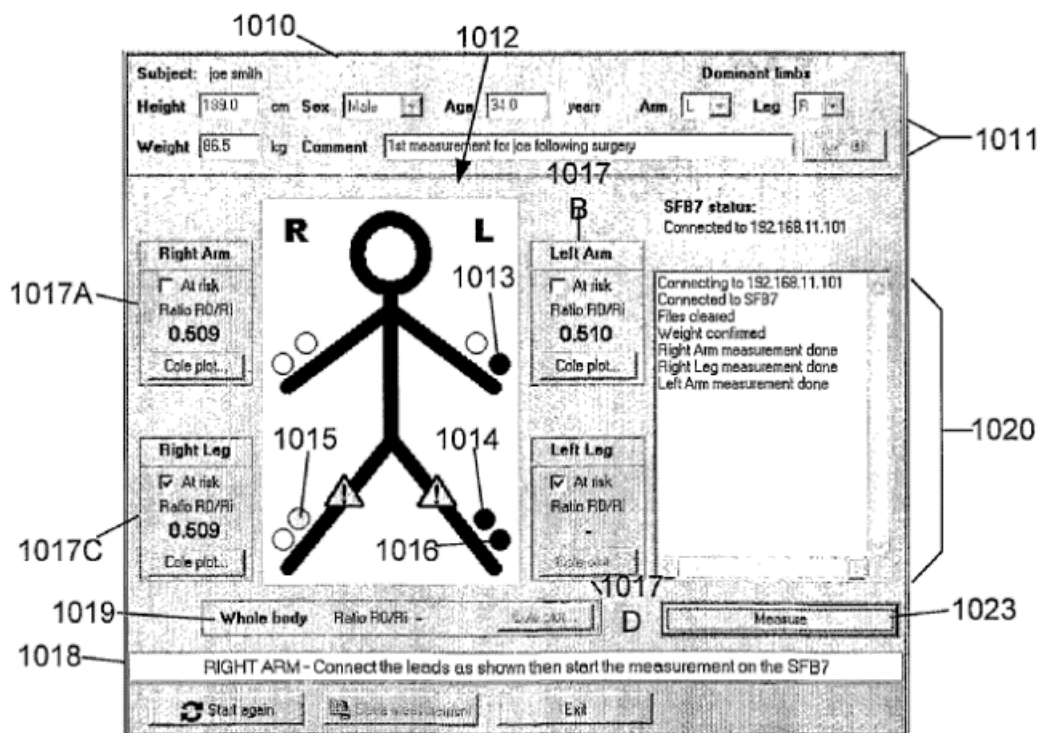
Displaying a character varying in appearance according to measured physiological information or displaying a character on which physiological information is shown.

Illustrative examples of subject matter classified in this place:

1.



2.



A61B 5/7445

{Display arrangements, e.g. multiple display units}

Definition statement

This place covers:

Details of display construction, e.g. wearable displays, head-up displays, support for displays or details of arrangements of display units in a device or in a room, e.g. use of multiple display units.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wristwatch-type diagnostic devices	A61B 5/681
Portable consumer electronic devices with sensors, e.g. telephones, tablet computers	A61B 5/6898
Details of monitor hardware of surgical systems	A61B 2090/372
Constructional details of apparatus	A61B 2560/04
Display arrangements for sonar systems particularly adapted to short-range imaging	G01S 7/52053
Head-up displays	G02B 27/01
Digital output to display device; Cooperation and interconnection of the display device with other functional units	G06F 3/14
3D animation of characters	G06T 13/40

A61B 5/745**{using a holographic display}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Image-producing devices specially adapted for surgery or diagnosis comprising augmented reality, i.e. correlating a live optical image with another image	A61B 2090/365
Optical systems or apparatus for producing three-dimensional effects	G02B 30/00
Holographic processes in general	G03H 1/00

A61B 5/7455**{characterised by tactile indication, e.g. vibration or electrical stimulation}****Definition statement***This place covers:*

Haptic or electrical non-therapeutic stimulation of patient or user without testing the response to the stimulus.

Delivering tactile feedback on, e.g. probe position or abnormal physiological parameters.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Diagnosis by applying mechanical forces or stimuli	A61B 5/0048
Measuring blood pressure by inducing vibration	A61B 5/02133
Testing reaction times	A61B 5/162
Biofeedback	A61B 5/486
Surgical manipulators having means for providing feel, e.g. force or tactile feedback	A61B 34/76
Ergonomically shaped housings of apparatus	A61B 2560/0425
Devices for producing or ending sleep using tactile means	A61M 2021/0022
Devices for producing or ending sleep using electric currents	A61M 2021/0072
Input arrangements with force or tactile feedback as computer generated output to the user, in general	G06F 3/016

A61B 5/746

{Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms}

Definition statement

This place covers:

Details of alarm parameter settings, e.g. adaptive or multiple thresholds.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Endoscopes provided with visual or acoustic output arrangements for alerting the user	A61B 1/00055
Determining quality of measured signal	A61B 5/7221
Event detection	A61B 5/7282
Alarms in surgical instruments created in response to an abnormal condition	A61B 2017/00119
Alarms for surgical instruments for transferring non-mechanical forms of energy to the body, e.g. electrosurgery or laser surgery	A61B 2018/00898
Monitoring or limiting apparatus function	A61B 2560/0266
Input or output devices integrated in time-pieces for measuring external physiological data	G04G 21/025
Safety alarms	G08B 21/02
User interface in a mobile telephone with alarms based on specific conditions	H04M 1/72448

A61B 5/7465

{Arrangements for interactive communication between patient and care services, e.g. by using a telephone network (telemetry of measured physiological signal [A61B 5/0002](#))}

Definition statement

This place covers:

Interactive communication between patient and medical practitioner or computerized expert system, e.g. by two-way audio-visual or voice link, for remote administration of tests. Includes communication via websites.

Relationships with other classification places

In line with the notes under [G16H](#), classification may additionally be considered in [G16H 80/00](#) for healthcare informatics related to telehealth.

References

Limiting references

This place does not cover:

Telemetry of measured physiological signal	A61B 5/0002
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Recording user messages or annotations	A61B 2560/0295
Intercom or optical viewing arrangements, structurally associated with NMR apparatus	G01R 33/283
Information and communication technology specially adapted for facilitating communication between medical practitioners or patients	G16H 80/00
Video conferencing	H04N 7/14
Closed-circuit television systems	H04N 7/18

A61B 5/747

{in case of emergency, i.e. alerting emergency services}

Definition statement

This place covers:

Interactive communication with emergency site, e.g. to deliver rescue instructions.

A61B 5/7475

{User input or interface means, e.g. keyboard, pointing device, joystick}

Definition statement

This place covers:

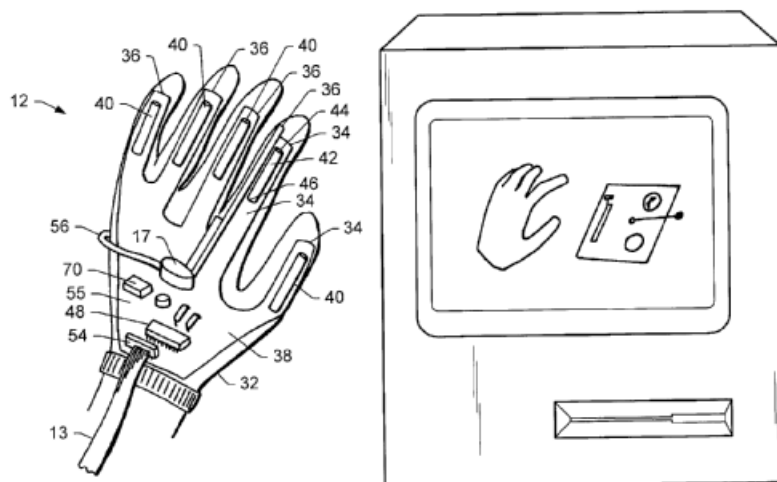
Constructional details of input arrangements, e.g. joysticks, foot-activated controllers, cameras for gesture-based interaction or spatial configuration of input buttons or switches.

Details of use of input means during a diagnostic procedure, e.g. for switching between different diagnostic modes.

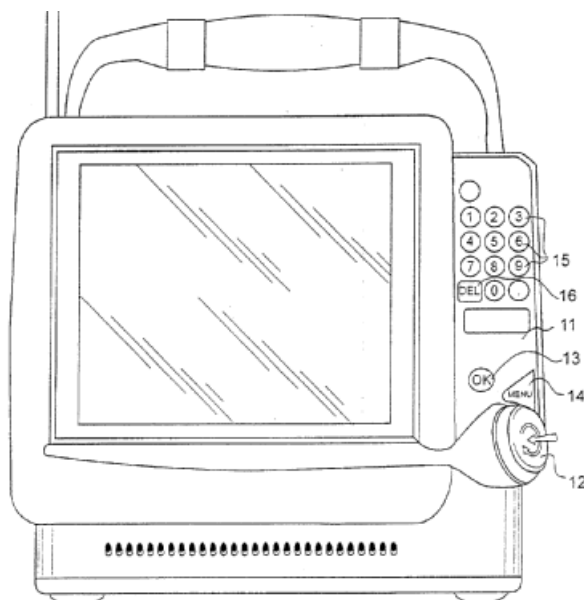
Documents which more than merely mention standard user input or interface means or standard uses thereof, e.g. zooming or manual input of patient parameters are standard uses.

Illustrative examples of subject matter classified in this place:

1.



2.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional features of the display of endoscopes	A61B 1/00048
User input arrangements of instruments for examining the eyes	A61B 3/0033
Computer input devices comprising sensors	A61B 5/6897
Portable consumer electronic devices, e.g. music players, telephones, tablet computers	A61B 5/6898
Displaying user selection data, e.g. icons in a GUI	A61B 5/7435
Electric control of surgical instruments, e.g. gesture control	A61B 2017/00017
User interfaces for surgical systems	A61B 34/25
Manipulators specially adapted for use in surgery	A61B 34/70

Recording user messages or annotations	A61B 2560/0295
Constructional details of user interfaces	A61B 2560/0487
Input arrangements for interaction between user and computer in general	G06F 3/01

A61B 5/748

{Selection of a region of interest, e.g. using a graphics tablet}

Definition statement

This place covers:

Details of user input for selection of a region/volume/area of interest [ROI]. The selection is usually performed directly on an image.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Interactive definition of region of interest	G06T 2207/20104
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A61B 5/7485

{Automatic selection of region of interest}

Definition statement

This place covers:

Details of at least partly automatic selection of a region/volume/area of interest [ROI], e.g. the region is determined by a processor based on one or more seeding points defined by a user.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Medical imaging apparatus involving image processing or analysis	A61B 2576/00
Image segmentation	G06T 7/10
Region-based image segmentation	G06T 7/11
Image segmentation involving region growing; Involving region merging; Involving connected component labelling	G06T 7/187
Image segmentation involving foreground-background segmentation	G06T 7/194

A61B 5/749

{Voice-controlled interfaces}

Definition statement

This place covers:

Details of use of speech or voice to input control commands.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Speech control of surgical instruments	A61B 2017/00203
Constructional details of voice-controlled user interfaces	A61B 2560/0493
Sound input arrangements for interfacing with computers	G06F 3/16
Speech recognition	G10L 15/00
Speech or voice analysis techniques	G10L 25/00

A61B 5/7495

{using a reader or scanner device, e.g. barcode scanner}

Definition statement

This place covers:

Details of use of barcodes or other smart codes, e.g. RFID codes, for inputting patient or diagnostic device parameters.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes provided with identification means	A61B 1/00059
Instruments for examining the eyes with identification means	A61B 3/0066
Identification means for patients or instruments, e.g. tags	A61B 90/90
Sensors provided with identification means	A61B 2562/08
Methods or arrangements for sensing record carriers	G06K 7/00
Identification bracelets	G09F 3/005

A61B 6/00

Apparatus or devices for radiation diagnosis; Apparatus or devices for radiation diagnosis combined with radiation therapy equipment (instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting, [G01T 1/161](#))

Definition statement

This place covers:

Diagnostic equipment or methods involving the use of ionising radiation, e.g. X-ray or gamma ray. Devices for radiation diagnosis generally consist of complex electro-mechanical arrangements of radiation source and detection units, controlled following a particular acquisition technique to obtain medical diagnostic data relating to a patient's body part. A complete characterization of these devices therefore requires the identification of both constructional and operational aspects according to the following rules.

Relationships with other classification places

Several subclasses, groups and subgroups provide for the different components or functional aspects constituting the devices for radiation diagnosis. It should be emphasized that documents describing these components should be classified in [A61B 6/00](#) only if they disclose a radiation diagnostic device and the link between said components or functional aspects and the radiation diagnostic device or clinical application is not trivial.

As an example, a document describing constructional details of a PET scanner should be classified in subgroup [A61B 6/037](#) and the corresponding group for said constructional details (a subgroup of [A61B 6/44](#)). A document describing particular details of a radiation detector should be classified in the corresponding group of [G01T 1/00](#), even if a clinical application of said detector is mentioned. However, if e.g. details of the arrangement of said detector in a scanner for said particular clinical application are disclosed, then it should also be classified in [A61B 6/037](#) and in the corresponding subgroup of [A61B 6/50](#). Other structural details of radiation devices can be found in groups [H01J 35/00](#) (X-ray tubes), [G21K 1/02](#) (collimators), [A61K 49/04](#) (X-ray contrast preparations) or [A61B 90/39](#) (radio-opaque markers).

The same principle applies to other neighbouring fields such as image processing [G06T](#). A document disclosing an algorithm for image enhancement should be classified under the corresponding subclass of [G06T](#), even if the document mentions that the images are X-ray images.

However, if the algorithm requires particular constructional or functional details of the radiation diagnostic device or if there is a non-obvious link to the particular clinical application, then the document should also be classified in the corresponding subgroup of [A61B 6/00](#).

On the other hand, classification in group [A61B 6/00](#) should only be given if there is only a mention of use of an algorithm for image enhancement, but the disclosure deals mainly with details of the radiation diagnostic device.

Devices for radiation diagnosis combined with radiation therapy equipment should be additionally classified in [A61N 5/00](#).

Devices for non-ionising diagnosis are covered in groups [A61B 5/00](#) (e.g. magnetic or light-based) and [A61B 8/00](#) (ultrasound) and corresponding structural and non-diagnostic features are covered in groups [G01R 33/48](#) (nuclear magnetic radiation imaging systems), [G01S 7/52017](#) - [G01S 7/52098](#) (short-range acoustic imaging systems) or [G01S 15/8906](#) - [G01S 15/8997](#) (short-range acoustic imaging systems and techniques).

Surgical navigation, including image-based, can be found in [A61B 34/20](#).

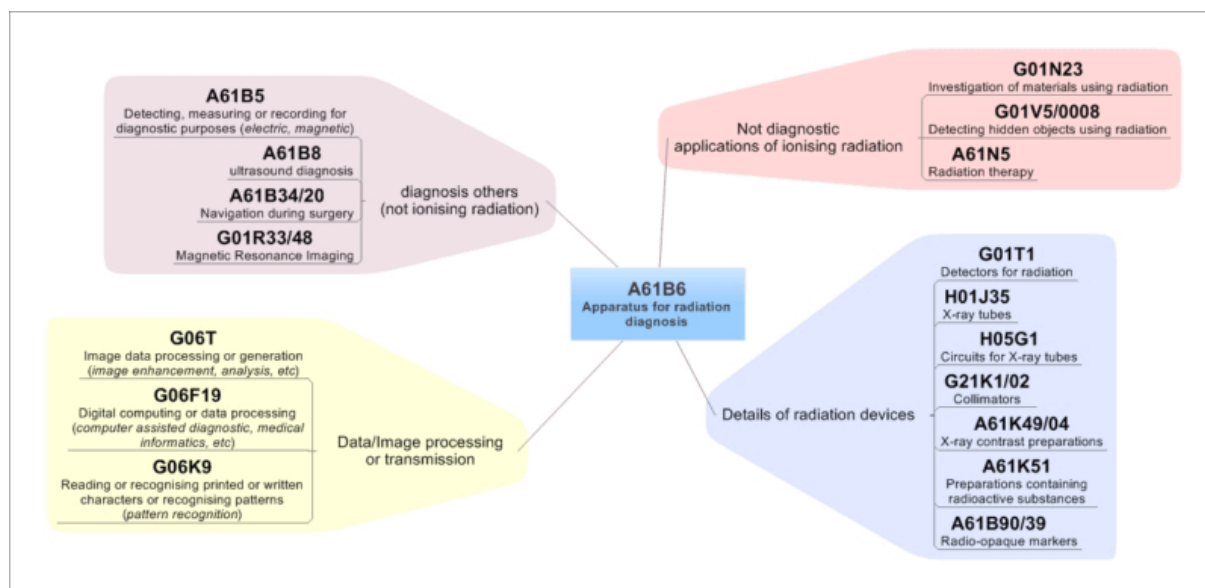
Details of data processing and transmission can be found in subclass [G06T](#) (image processing, generation or enhancement) or groups [G16H 30/00](#), [G16H 50/00](#) (information and communication technology for imaging and diagnostic data), [G06V 40/00](#) (pattern recognition).

Non-medical applications of ionising radiation are covered in groups [G01N 23/00](#) (investigation of materials using radiation) and [G01V 5/00](#) (detecting hidden objects using radiation).

Diagnostic equipment or methods involving the use of ionising radiation are covered in [A61B 6/00](#). Other devices for radiation diagnosis using non-ionising radiation are covered in:

Electric currents or magnetic fields	A61B 5/05
Magnetic resonance	A61B 5/055
Optical imaging	A61B 5/0059
Opto-acoustic imaging	A61B 5/0093

Relationships with other classification places



References

Limiting references

This place does not cover:

Instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting	G01T 1/161
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Diagnosis using light	A61B 5/0059
Diagnosis using the opto-acoustic effect	A61B 5/0093
Detecting, measuring or recording for diagnosis by means of electric currents or magnetic fields	A61B 5/05
Diagnosis using magnetic resonance imaging	A61B 5/055
Diagnosis using sonic, infrasonic or ultrasonic waves	A61B 8/00
Navigation during surgery	A61B 34/20
Radio-opaque markers	A61B 90/39
X-ray contrast preparations	A61K 49/04
Preparations containing radioactive substances	A61K 51/00
Radiation therapy	A61N 5/00
Investigation of materials using radiation	G01N 23/00
Nuclear Magnetic Resonance imaging systems	G01R 33/48
Short-range acoustic imaging systems	G01S 7/52017
Short-range acoustic imaging systems and techniques	G01S 15/8906
Detectors for X-ray, gamma, etc radiation	G01T 1/00
Detecting prohibited goods, e.g. weapons, explosives, hazardous substances, contraband or smuggled objects	G01V 5/20
Apparatus for taking X-ray photographs	G03B 42/02

X-ray photographic processes	G03C 5/16
Image data processing	G06T
Recognition of biometric, human-related or animal-related patterns in image or video data	G06V 40/00
Medical informatics	G16H
Techniques for handling particles or ionising radiation; Irradiation devices	G21K
X-ray tubes	H01J 35/00
X-ray apparatus or circuits therefor	H05G 1/00

Special rules of classification

Some of the sub-groups are related to more constructional aspects and some to more functional aspects. This classification is however not strict, its purpose is only indicative, to simplify the overview of the scheme.

Construction-oriented aspects:

related to the generation of radiation	A61B 6/40 , A61B 6/06
related to the detection of radiation	A61B 6/42 , A61B 6/06 , A61B 6/08
related to the device in general	A61B 6/02 , A61B 6/10 , A61B 6/46 , A61B 6/51 , A61B 6/56
related to the patient support	A61B 6/04

Operation-oriented aspects:

Groups [A61B 6/40](#) - [A61B 6/58](#) do not correspond to former or current IPC groups.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

(radiation) source	artificial or natural ionizing radiation emitting element per se, e.g. X-ray tube anode, tracer
(radiation) source unit	constructional arrangement comprising a radiation source and housing, capable of emitting an oriented radiation beam, e.g. X-ray tube
diagnostic data	data readable or interpretable by medical personnel, obtained after pre-processing of raw data
raw data	data output from the sensor/detector requiring pre-processing to be used for diagnostic purposes
image data	medical diagnostic data in the form of two- or three-dimensional data sets

A61B 6/02

Arrangements for diagnosis sequentially in different planes; Stereoscopic radiation diagnosis

Definition statement

This place covers:

Devices and imaging techniques for obtaining images of different planes, i.e. slices of the patient's body, in a sequential way.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring radiation per se	G01T 1/00
Stereoscopic photography	G03B 35/00

Special rules of classification

The term "sequential" is used here for historical reasons, meaning that the device can be configured to obtain an image of a plane and subsequently, only by changing the device configuration and without moving the patient, to obtain a different plane. This aspect is not relevant anymore in the current definition, since a cone-beam CT would obtain images of different planes simultaneously but would still be classified under [A61B 6/032](#) (a subgroup of [A61B 6/02](#)).

Acquisition of projections for reconstructing an image is not considered to be a temporal series of images ([A61B 6/486](#)), since the reconstructed image will be associated to a single time.

A61B 6/022

{Stereoscopic imaging}

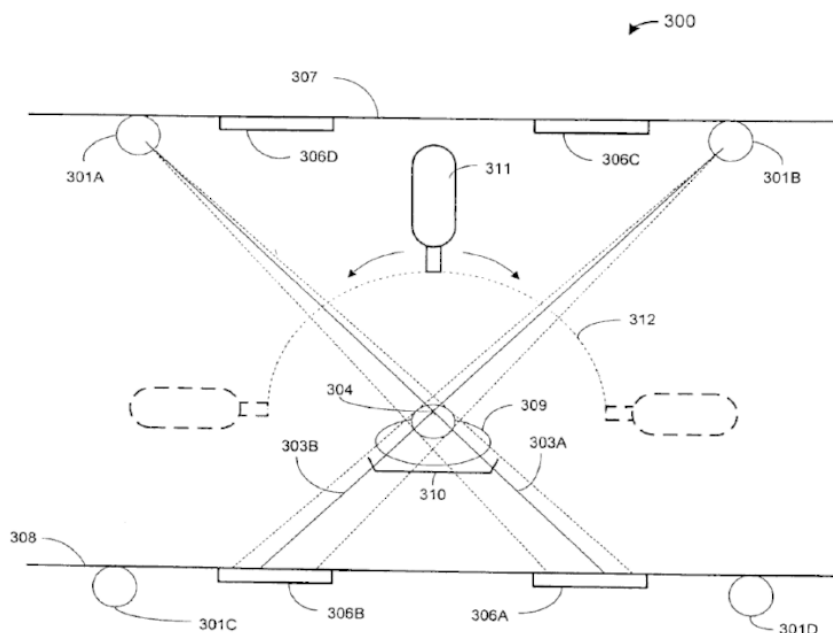
Definition statement

This place covers:

Acquisition and/or display of two offset images.

Definition statement

This group covers both functional (e.g. stereoscopic imaging technique) and constructional aspects (stereoscopic imaging scanners) of radiation-based stereoscopic imaging.



A61B 6/025

{Tomosynthesis}

Definition statement

This place covers:

Classical geometric tomography is a method of producing an image of a three-dimensional object (human body) by moving an x-ray source in an opposing motion (x-ray tube and film housing) during exposure to sharpen the structure images in the focal plane and produce a single film integrated x-ray. The objects in the planes above and below the fulcrum are blurred in proportion to their distance from the plane of focus due to parallax.

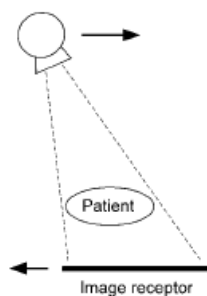
Modern tomosynthesis is a technique of using a series of source positions from varying orientations to produce a group of images and with a computer program reconstruct the arbitrary planes into the final clear image.

This group covers both functional (e.g. tomosynthesis imaging technique) and constructional aspects (tomosynthesis scanners) of radiation-based tomosynthesis imaging.

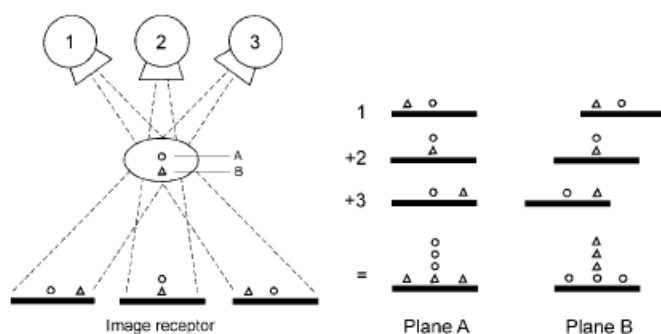
Illustrative examples of the subject matter classified in this place:

Definition statement

1. Classical geometric tomography



2. Modern tomosynthesis



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Transmission computed tomography	A61B 6/032
Application mammography	A61B 6/502
Reconstruction from projections	G06T 12/00

Special rules of classification

In modern tomosynthesis the sequence of orientations defines an acquisition trajectory which, if relevant, should be classified under [A61B 6/027](#).

In case of a circular trajectory of the source and the detector, said rotation is shorter than $180^\circ + \text{fan angle of the beam}$ (acquisition of an incomplete dataset). If the rotation is longer, then a complete dataset is acquired and the technique is computed tomography (see [A61B 6/032](#)).

This technique is often used for breast imaging; in such a case it should be classified also in [A61B 6/502](#).

A61B 6/027

{characterised by the use of a particular data acquisition trajectory, e.g. helical or spiral}

Definition statement

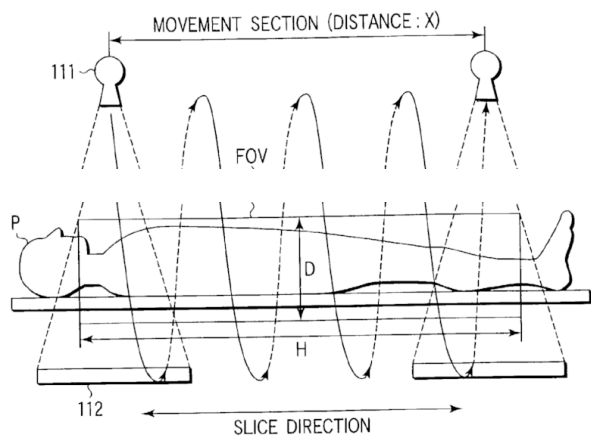
This place covers:

Relevant details concerning the sequence of positions of source and detector defining a trajectory along which X-ray images (projections of views) for a subsequent reconstruction are acquired. Diagnostic techniques requiring data acquisition along a particular trajectory are typically:

Computed tomography [A61B 6/032](#)

Tomosynthesis [A61B 6/025](#)

Helical acquisition trajectory for computed tomography ([A61B 6/032](#)):



Partial isocentric motion with stationary detector in tomosynthesis, [A61B 6/025](#), in which the detector stays in one place or is stationary while the x-ray tube rotates around a point of rotation.

References

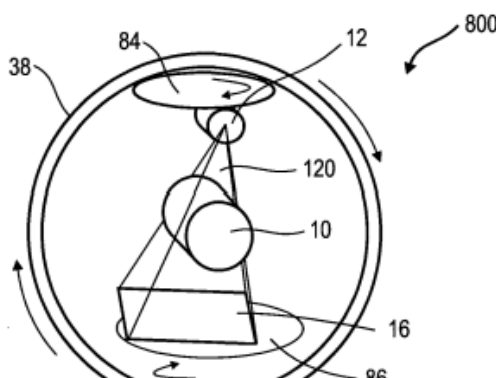
Informative references

Attention is drawn to the following places, which may be of interest for search:

Tomosynthesis	A61B 6/025
Computed Tomography	A61B 6/032
Trajectory planning for programme-controlled manipulators (e.g. robotic arms)	B25J 9/1664

Special rules of classification

This class also covers devices where a movement of the source unit is superimposed to e.g. a circular trajectory.



A61B 6/03

Computed tomography [CT]

Definition statement

This place covers:

Measuring radiation from different angles and reconstructing (computing) a 2D image (slice) or a 3D image (set of slices).

This group includes tomography (system or function) which does not fall into the subgroups of transmission tomography ([A61B 6/032](#)) or emission tomography ([A61B 6/037](#)), or wherein the kind of tomography is not specified.

This group covers both functional (e.g. tomography) and constructional aspects (tomographs) of both transmission and emission tomography imaging.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical tomography	A61B 5/0073
Diagnosis using magnetic resonance tomography	A61B 5/055
Tomosynthesis	A61B 6/025
Echo-tomography	A61B 8/14
Reconstruction from projections	G06T 12/00
Healthcare informatics for handling or processing of medical images, e.g. DICOM, PACS	G16H

Special rules of classification

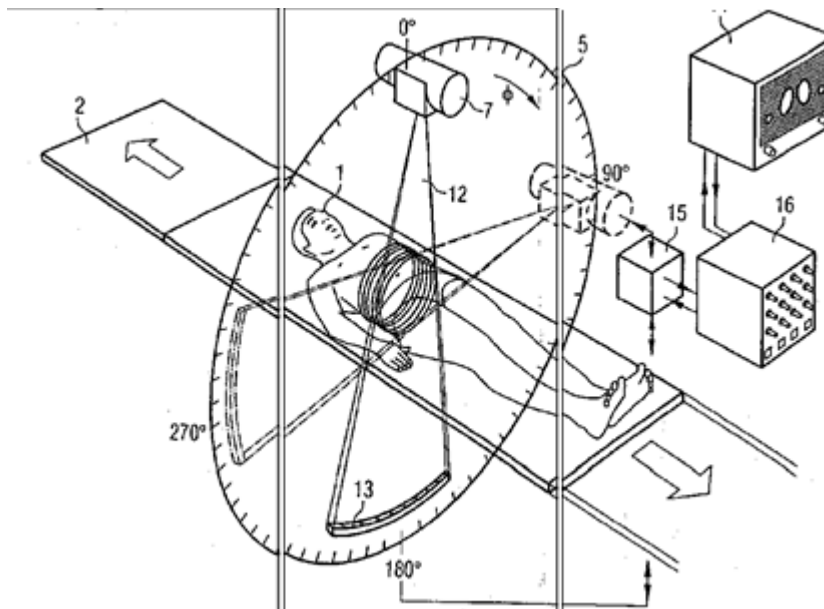
Computed tomography in radiation diagnosis is basically either transmission tomography ([A61B 6/032](#)) or emission tomography ([A61B 6/037](#)). The subgroups of [A61B 6/03](#) cover therefore all possible options so that [A61B 6/03](#) is mainly to provide structure in the scheme. Documents disclosing transmission tomography (e.g. CT) or emission tomography (e.g. PET) should be classified in [A61B 6/032](#) or [A61B 6/037](#), respectively, but not in [A61B 6/03](#).

A61B 6/032**{Transmission computed tomography [CT]}****Definition statement**

This place covers:

The source emits a radiation beam from outside the body and the attenuation of the beam is measured by a detector after the beam has traversed the patient's body. This measurement is carried out from different angles and an image (representing the values of the attenuation coefficient of the radiation at every position in space) is reconstructed (computed) from the measurements.

A typical configuration consists of an X-ray source unit emitting a 2D dimensional beam in the form of a fan (fan-beam) and a curved detector (1 line) which rotate around the patient along a circular trajectory to reconstruct (compute) a 2D image (slice) of the patient on the plane of said circular trajectory.



To obtain a 3D image (set of slices) the patient table can be moved steadily during acquisition so that the acquisition trajectory of source and detector with respect to the patient becomes a spiral or helix (see [A61B 6/027](#))

The group covers both functional (e.g. computerized tomography) and constructional aspects (computerized tomographs) of transmission tomography imaging.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Optical tomography	A61B 5/0073
Diagnosis using magnetic resonance tomography	A61B 5/055
Tomosynthesis	A61B 6/025
Transmission ultrasound tomography	A61B 8/15
Reconstruction from projections	G06T 12/00

Special rules of classification

Transmission tomography as a technique that can be carried out with any device capable of acquiring views (projections) from different angles and can rotate at least 180° + fan angle around the patient. Devices with a more constrained rotational trajectory are not capable of performing tomographic imaging and are restricted to perform tomosynthesis ([A61B 6/025](#)).

If the device is a CT scanner, it should be classified here ([A61B 6/032](#)), otherwise said devices are classified according to their constructional features [A61B 6/44](#), e.g. C-arm ([A61B 6/4441](#)), robotic arms ([A61B 6/4458](#)).

To obtain a 3D image (set of slices) the patient table is moved during acquisition so that the acquisition trajectory of source and detector with respect to the patient becomes a spiral or helix (see [A61B 6/027](#)).

Alternatively, a device with a source emitting a cone-beam ([A61B 6/4085](#)) combined with a two-dimensional detector ([A61B 6/4233](#)) is used. Or both, a particular acquisition trajectory ([A61B 6/027](#)) and a cone-beam with a 2D detector ([A61B 6/4085](#) and [A61B 6/4233](#), respectively) are combined.

A61B 6/037

{Emission tomography}

Definition statement

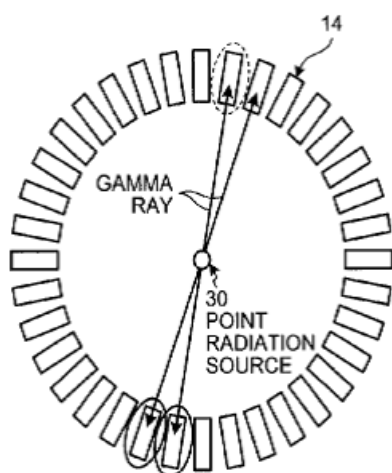
This place covers:

The source (typically a radioactive tracer) emits radiation from inside the body which is measured outside the body with one or more detectors from different orientations and an image (representing the distribution of the tracer inside the body) is reconstructed (computed) from the measurements.

PET or SPECT scanners are classified under [A61B 6/037](#).

Illustrative example of subject matter classified in this place:

1.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical tomography	A61B 5/0073
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Diagnosis using magnetic resonance tomography	A61B 5/055
Echo-tomography	A61B 8/14
Measuring radiation	G01T 1/00
Radiation detection aspects of SPECT imaging	G01T 1/1642
Radiation detection aspects of PET imaging	G01T 1/2985

Special rules of classification

This group covers devices for emission tomography, reconstruction of 2D images (slices) or 3D images (sets of slices). Other devices such as intraoperative gamma cameras should be classified under [A61B 6/4258](#).

Documents concerning details of the detector should be classified under [G01T 1/00](#), and only be classified under [A61B 6/037](#) in the case where relevant details of the emission tomography scanner or the clinical application are disclosed.

A61B 6/04

Positioning of patients; Tiltable beds or the like

Definition statement

This place covers:

Any means, e.g. tables, beds, chairs, suitable for positioning the patient in the diagnostic device.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

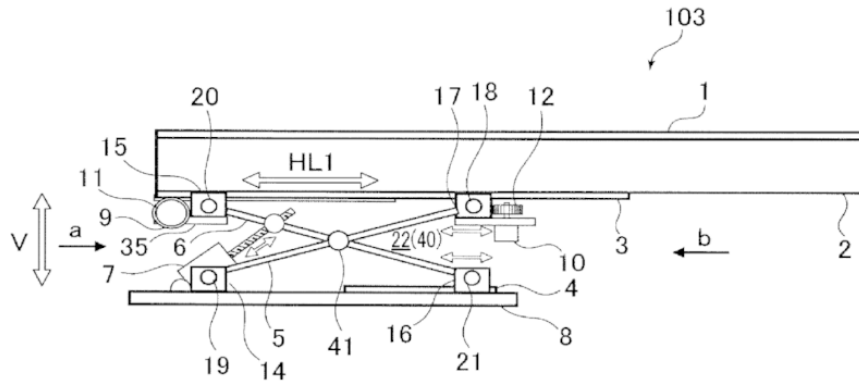
Involving electronic [EMR] or nuclear [NMR] magnetic resonance, e.g. magnetic resonance imaging	A61B 5/055
Positioning of patients in ultrasound diagnostic devices	A61B 8/40
Chairs, beds, mattresses	A47C
Operating tables	A61G 13/00
Operating chairs	A61G 15/00
Radiation therapy	A61N 5/10

A61B 6/0407

{Supports, e.g. tables or beds, for the body or parts of the body}

Definition statement

This place covers:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Involving electronic [EMR] or nuclear [NMR] magnetic resonance, e.g. magnetic resonance imaging	A61B 5/055
Positioning of patients in ultrasound diagnostic devices	A61B 8/40
Hospital beds	A61G 7/00
Operating tables	A61G 13/00

A61B 6/0414

{with compression means}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Involving electronic [EMR] or nuclear [NMR] magnetic resonance, e.g. magnetic resonance imaging	A61B 5/055
Application mammography	A61B 6/502
Hospital beds	A61G 7/00

A61B 6/0435

{with means for imaging suspended breasts}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Application mammography	A61B 6/502
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A61B 6/045

{with heating or cooling means}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

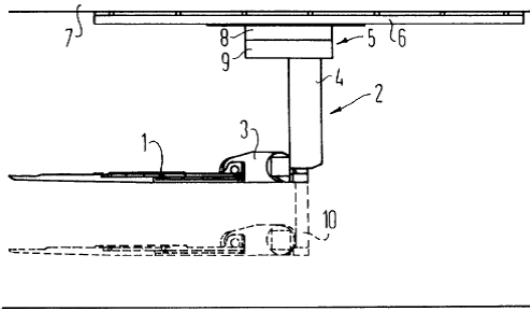
Means for cooling other parts of the device for radiation diagnosis	A61B 6/4488
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A61B 6/0464

{mounted to ceiling}

Definition statement

This place covers:



[EP0490107]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

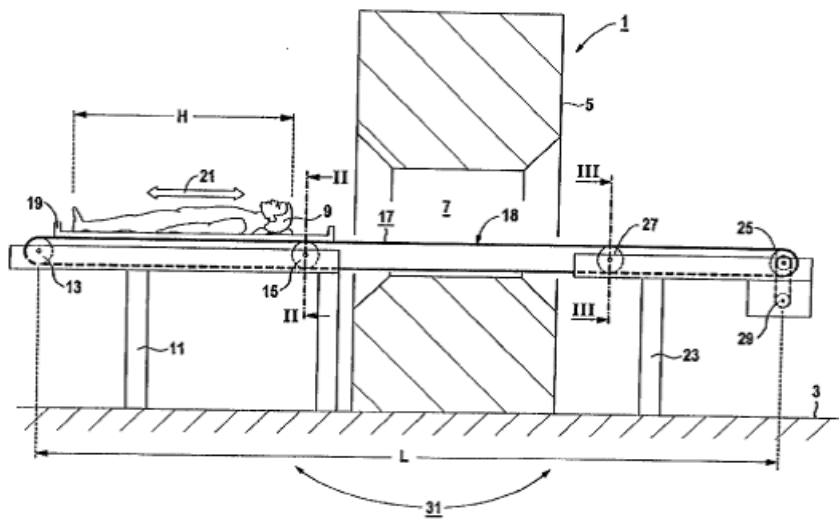
Source unit or detector unit mounted to ceiling	A61B 6/4464
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A61B 6/0471

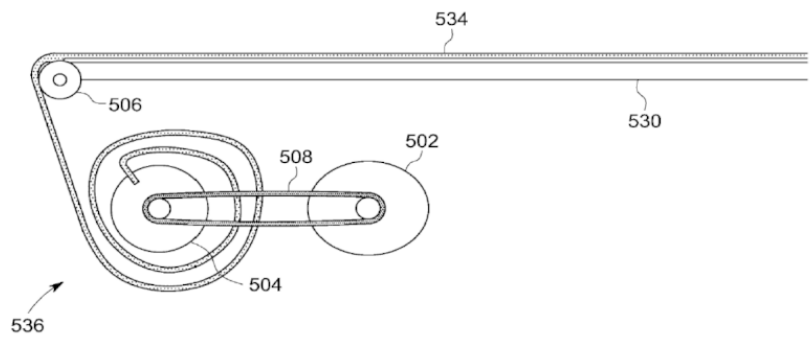
{based on an endless-band}

Definition statement

This place covers:
Conveyor bands or belts for transporting the patient.



[US2002112288]



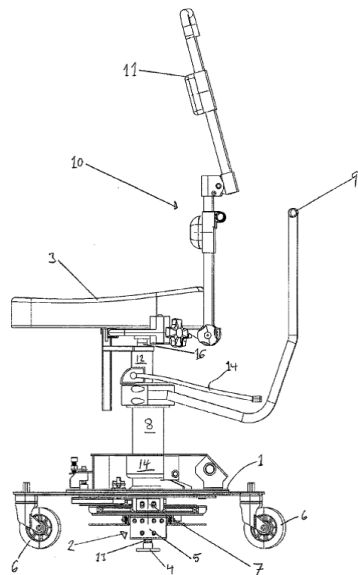
[US20110092792]

A61B 6/0478

{Chairs}

Definition statement

This place covers:
Patient positioning chairs



[EP2289370]

References

Informative references

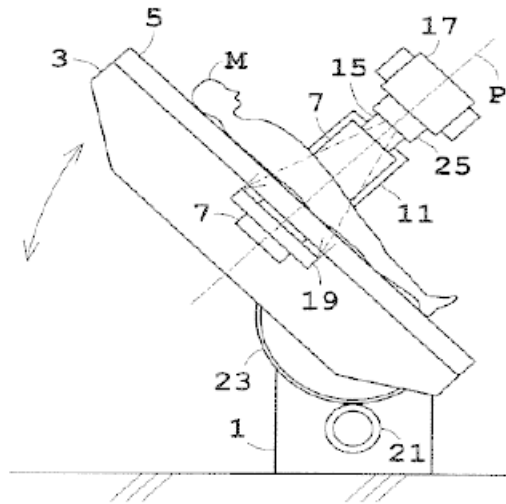
Attention is drawn to the following places, which may be of interest for search:

Operating chairs	A61G 15/00
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A61B 6/0487**{Motor-assisted positioning}****Definition statement**

This place covers:

Motor controlled patient positioning

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Tracking apparatus position	A61B 6/547
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A61B 6/06**Diaphragms****Definition statement**

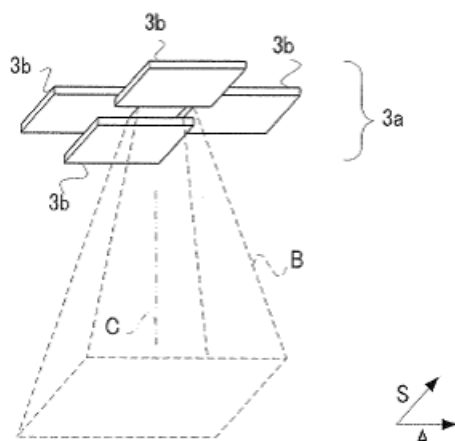
This place covers:

Diaphragms specially adapted for particular diagnostic applications, e.g. tomography.

Devices adapted to modify the spatial confinement of the cross-section of the radiation beam, e.g. collimators, situated between the source unit and the patient.

Definition statement

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Source combined with filter or grating	A61B 6/4035
Detector combined with grid or grating	A61B 6/4291
Multi-leaf collimators for intensity modulated radiation therapy	A61N 5/1045
Use of diaphragms and collimators for handling particles or ionising radiation	G21K 1/02

Special rules of classification

Rules for classifying other devices situated on the beam path, used to modify properties of the beam:

- Filters ([A61B 6/4035](#)): modify a property of the beam but not its spatial confinement, e.g. the spectrum, or the intensity distribution.
- Gratings: cause diffraction and are used mainly for phase measurements.
- Grids: arrangements of blades situated along the detector pixels and used to block scattered radiation.

Grids and gratings are classified depending on their position:

- [A61B 6/4035](#) when situated between source unit and patient,
- [A61B 6/4291](#) when situated between patient and detector.

A61B 6/08

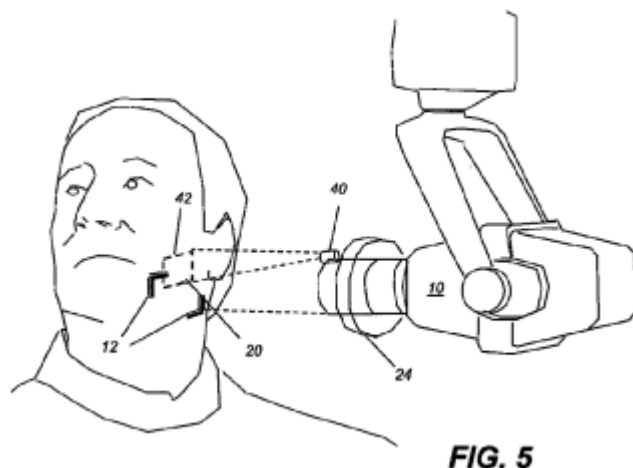
Auxiliary means for directing the radiation beam to a particular spot, e.g. using light beams

Definition statement

This place covers:

Radiation diagnosis devices comprising means for assessing direction and / or extent of the radiation beam before acquisition. The auxiliary means typically consist in a light source (e.g. laser) projecting light from a point near the radiation source towards an imaging region. The projected beam can be point-like or reflect the spatial extent of the radiation beam and is typically used for monitoring / setting

the alignment of the source unit with the detector unit ([A61B 6/587](#)) and/or the distance between the source unit and the patient ([A61B 6/589](#)) and / or detector unit ([A61B 6/588](#)).



[WO2011141763]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Radiation diagnosis devices with source and detector units movable relative to each other	A61B 6/4452
Alignment of source unit to detector unit	A61B 6/587
Setting distance between source unit and detector unit	A61B 6/588
Setting distance between source unit and patient	A61B 6/589

A61B 6/10

Safety means specially adapted therefor

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

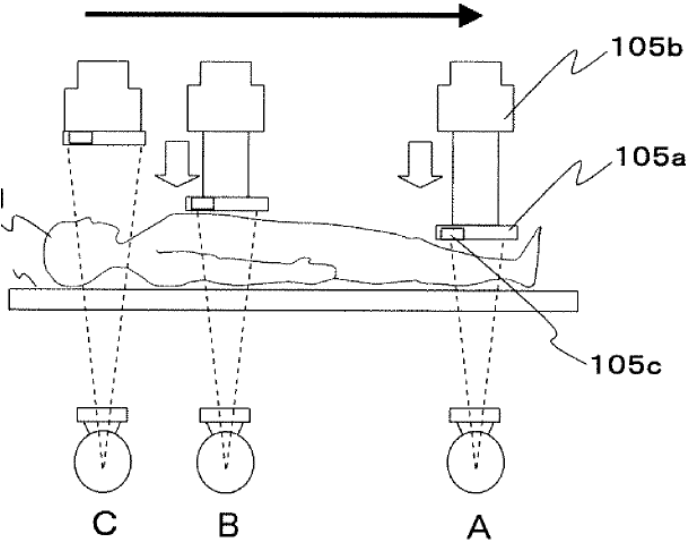
Protection against dangerous radiation	G21F
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A61B 6/102

{Protection against mechanical damage, e.g. anti-collision devices}

Definition statement

This place covers:
Any means for preventing collision between component parts of the device, or between the device and external objects, e.g. patient, other room equipments.



[WO2012050148]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

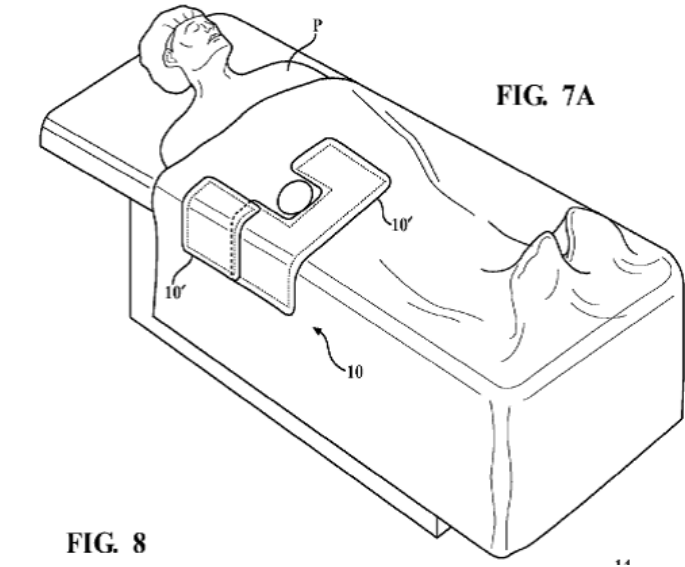
Mobile apparatus	A61B 6/4405
Tracking apparatus position	A61B 6/547

A61B 6/107

{Protection against radiation, e.g. shielding}

Definition statement

This place covers:



[US2012132217]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Protection against effects of non-mechanical surgery	A61B 90/04
Radiation shielding per se	G21F 1/00- G21F 7/00
Techniques for handling radiation	G21K

A61B 6/12

Arrangements for detecting or locating foreign bodies

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Other imaging methods for locating foreign bodies	A61B 5/06
Devices for diagnosis sequentially in different planes; Stereoscopic radiation diagnosis	A61B 6/02
Generating a temporal series of data	A61B 6/486
Extracting a diagnostic parameter from medical diagnostic data	A61B 6/5217
Locating foreign bodies using ultrasound	A61B 8/0833
Surgical navigation systems	A61B 34/20

Radio-opaque markers	A61B 90/39
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Special rules of classification

This group covers the use of radiation diagnostic devices to determine the position of a surgical instrument during an operation, e.g. using a C-arm classified in [A61B 6/4441](#) for performing fluoroscopy classified in [A61B 6/487](#). However, it does not cover path calculations and guiding of said instruments classified in [A61B 34/20](#).

A61B 6/40

Arrangements for generating radiation specially adapted for radiation diagnosis

Definition statement

This place covers:

Radiation diagnostic devices comprising a radiation source for generating radiation and arrangements for manipulating said radiation by shaping the radiation beam, displacing it or modifying its characteristics.

Radiation sources cover both radiation source units to generate a radiation beam outside the patient oriented towards the patient (e.g. X-ray tubes) and radioactive tracers emitting radiation from inside the body due to radioactive decay [A61B 6/4057](#).

NOTE: radioactive tracers are not considered to be contrast agents but sources of radiation in the sense of [A61B 6/40](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements for focusing or moderating radiation	G21K 1/00
Irradiation devices	G21K 5/00
Details of X-ray tubes	H01J 35/00
Circuits for X-ray tubes	H05G 1/00

Special rules of classification

Typically involves the generation of a radiation beam having a particular spatial configuration [A61B 6/4007](#), [A61B 6/4035](#), [A61B 6/4064](#), movement [A61B 6/4021](#), [A61B 6/4057](#), intensity [A61B 6/405](#) or spectrum [A61B 6/4035](#).

Documents should be classified in these subgroups only if:

- they explicitly relate to radiation diagnosis devices AND
- they comprise constructional details of the source unit(s).

Devices for modifying the spatial confinement of the beam (collimators) should be classified under [A61B 6/06](#).

A61B 6/4007

{characterised by using a plurality of source units}

Definition statement

This place covers:
A combination of a cathode and a dedicated anode is considered to be a single source unit. In cathode-anode based source units, multiple source units have therefore multiple cathode-anode pairs.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

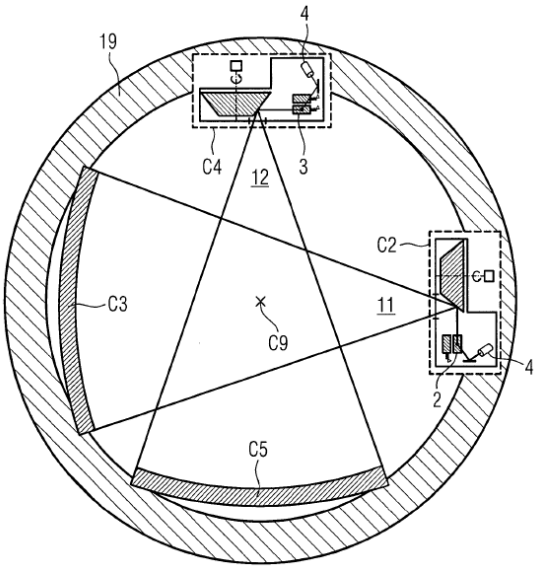
Circuit arrangements driving apparatuses comprising more than one X-ray tube	H05G 1/70
--	---------------------------

A61B 6/4014

{arranged in multiple source-detector units}

Definition statement

This place covers:
Radiation diagnosis devices comprising a plurality of source unit and a plurality of detector units, each source unit being functionally associated with a detector unit.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for radiation diagnosis using a plurality of detector units	A61B 6/4266
Multiple energy imaging	A61B 6/482
Circuit arrangements driving apparatuses comprising more than one X-ray tube	H05G 1/70

Special rules of classification

Devices where each source unit emits a ray with a different energy should be also classified under [A61B 6/482](#).

Although these devices also have a plurality of detectors they should not be classified under [A61B 6/4266](#) since it is implicit that if the sources are arranged in source-detector units, the devices also have a plurality of detectors (i.e. [A61B 6/4014](#) takes precedence).

A61B 6/4021

{involving movement of the focal spot}

Definition statement

This place covers:

Modification of focal spot position on the anode or between multiple anodes be it in static imaging or in imaging modalities where source unit and detector unit perform data acquisition while following a certain trajectory (swing focus, spring focus, alternating focus, flying focus).

This subgroup covers not only active control of the movement of the focal spot, but also analysis and correction of fluctuations of the position of the focal spot on the anode.

References

Informative references

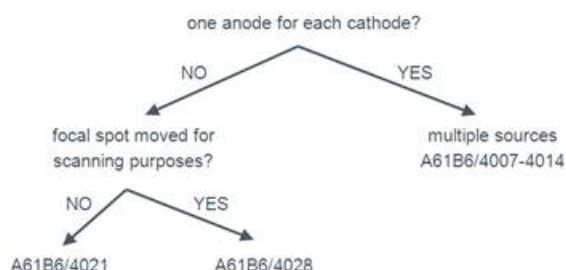
Attention is drawn to the following places, which may be of interest for search:

Radiation devices characterised by the use of a certain acquisition trajectory	A61B 6/027
Multiple energy imaging	A61B 6/482
Tubes wherein the point of impact of the cathode ray on the anode or anti-cathode is movable relative to the surface thereof	H01J 35/24

Special rules of classification

If modifying the position of the focal spot implies generating a beam of different energy, the device should be classified also under [A61B 6/482](#).

See [A61B 6/4007](#) for the definition of single/multiple sources.

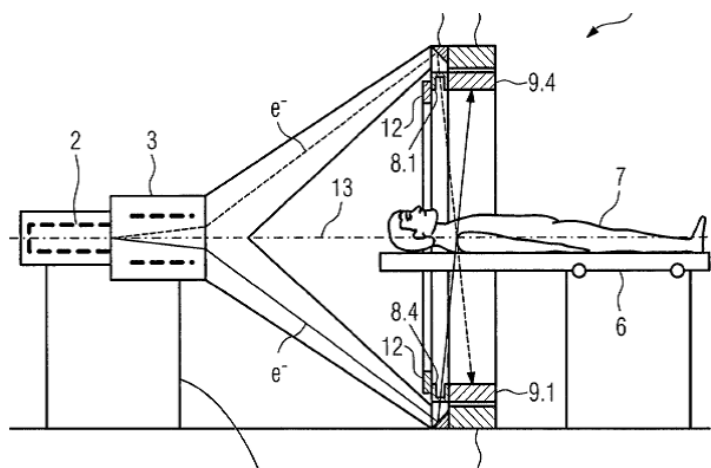


A61B 6/4028

{resulting in acquisition of views from substantially different positions, e.g. EBCT}

Definition statement

This place covers:
Devices where the displacement of the radiation beam during the data acquisition process (scan) to obtain images or projection data from different angles is carried out by translation of the focal spot, as is typically done in electron beam computed tomography (EBCT).



[DE102007036038]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tubes wherein the point of impact of the cathode ray on the anode or anti-cathode is movable relative to the surface thereof	H01J 35/24
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A61B 6/4035

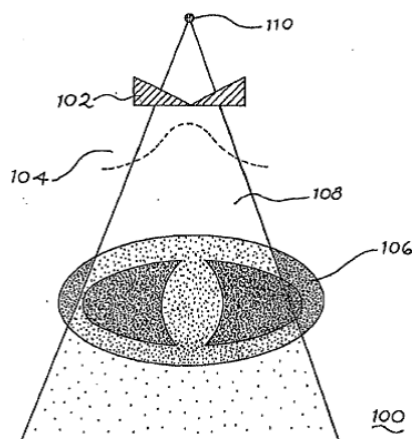
{the source being combined with a filter or grating}

Definition statement

This place covers:
Radiation diagnosis devices wherein the source unit is combined with a filtering means adapted to modify the spatial distribution of the intensity or the spectral characteristics of the radiation beam, e.g. bowtie filters.

Definition statement

Filters to modify a property of the beam but not its spatial confinement, e.g. the spectrum, or the intensity distribution, e.g. bowtie filters.



This class also includes gratings to cause diffraction and are used mainly for phase measurements, and grids, i.e. arrangements of blades situated along the detector pixels and used to block scattered radiation, when they are situated between source unit and patient.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Collimators for radiation diagnosis devices	A61B 6/06
Detector combined with grid or grating	A61B 6/4291
Multiple energy imaging	A61B 6/482
X-ray phase contrast imaging	A61B 6/484
X-ray filters per se	G21K 1/10

Special rules of classification

Rules for classifying other devices situated on the beam path, used to modify properties of the beam:

- collimators to modify the spatial confinement of the radiation beam should be classified under [A61B 6/06](#),
- gratings or grids situated between the patient and the detector should be classified under [A61B 6/4291](#).

Radiation devices using filters to modify the spectral characteristics of the beam (i.e. modify the energy of the radiation beam) should be also classified under [A61B 6/482](#).

Grids for X-ray phase contrast imaging ([A61B 6/484](#)) should also be classified here, if they are positioned between the source and the patient.

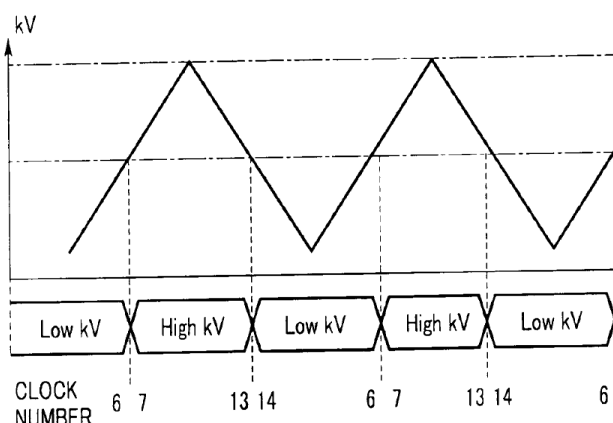
A61B 6/405

{Source units specially adapted to modify characteristics of the beam during the data acquisition process ([A61B 6/4021](#), [A61B 6/4035](#) take precedence)}

Definition statement

This place covers:

Radiation diagnosis devices involving arrangements to modify characteristics such as voltage or tube current during the data acquisition process.



[US2012230466]

References

Limiting references

This place does not cover:

Movement of the focal spot	A61B 6/4021
Source unit combined with a filter	A61B 6/4035

Informative references

Attention is drawn to the following places, which may be of interest for search:

Multiple energy imaging	A61B 6/482
Control of exposure	A61B 6/542
Arrangements changing the time structure of an already generated radiation beam	G21K 1/043
Controlling X-ray tubes	H05G 1/30

Special rules of classification

Modifying the characteristics of the beam by moving the focal spot or using filter should be classified under [A61B 6/4021](#) and [A61B 6/4035](#), respectively.

Typically changing the voltage during image acquisition is used to modify the energy spectrum of the beam, which is related to multiple energy imaging ([A61B 6/4021](#)).

Modifying the tube current during data acquisition is typically used to control exposure to radiation (dose), hence [A61B 6/542](#) might be relevant too.

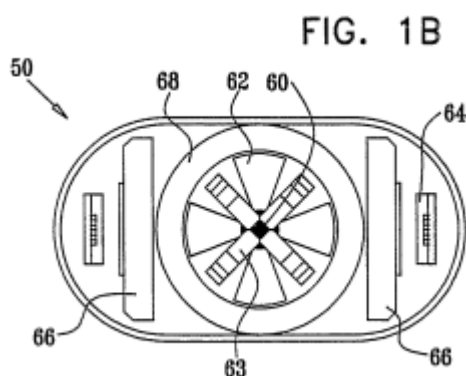
A61B 6/4057

{by using radiation sources located in the interior of the body ([A61B 6/037](#) takes precedence)}

Definition statement

This place covers:

Radiation diagnostic devices where the radiation source is introduced into the body, as part of a probe or capsule, or as a radioactive tracer.



References

Limiting references

This place does not cover:

Emission tomography (PET/SPECT)	A61B 6/037
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Capsule endoscopes	A61B 1/041
Diagnosis using light using a probe introduced into the body	A61B 5/0084
Radiation diagnosis with detectors for detecting non X-ray radiation	A61B 6/4258
Ultrasound diagnosis in body cavities	A61B 8/12
Detection of radiation	G01T 1/00
X-ray tubes with small cross-section	H01J 35/32

Special rules of classification

A document disclosing a diagnostic application of PET or SPECT scanner [A61B 6/037](#) does not need to be classified also under [A61B 6/4057](#) to cover the radioactive tracer aspect since this is implicit in the [A61B 6/037](#) code. Only in the case that the document discloses particular technical properties of said tracer that solve a technical problem (e.g. specific tracer injection protocol, combination of tracers, tracer carried to a specific organ by a capsule before release) should the document be classified here.

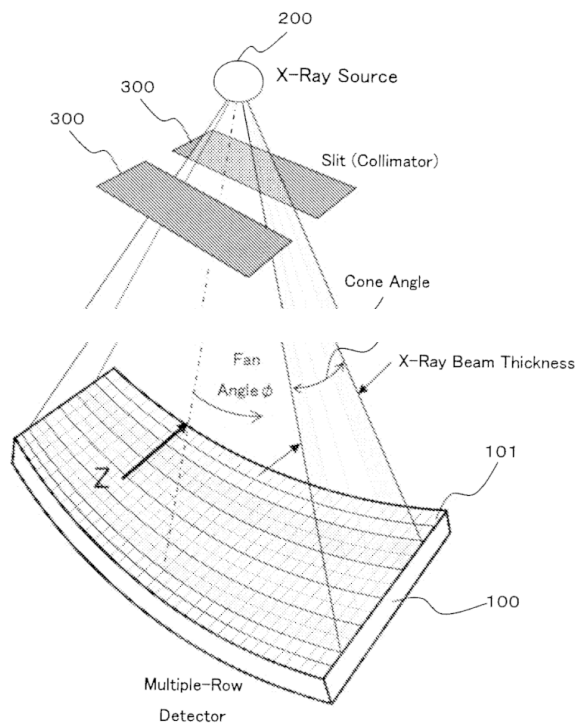
Applications of intraoperative gamma cameras to detect rests of tumours labelled with a radioactive tracer should get the codes [A61B 6/4057](#) and [A61B 6/4258](#).

A61B 6/4064

{specially adapted for producing a particular type of beam}

Definition statement

This place covers:
Particular technical features of the radiation beam, e.g. geometrical properties or type of radiation.



[EP2036498]

Special rules of classification

This class also covers the use for radiation diagnosis of a source generating any radiation which is not X-ray or synchrotron ([A61B 6/4092](#)) radiation, e.g. a radioisotope source.

A61B 6/42

Arrangements for detecting radiation specially adapted for radiation diagnosis

Definition statement

This place covers:
Radiation diagnosis devices comprising a detection unit arrangement specially adapted for a particular acquisition technique or diagnostic application, and arrangements for modifying the beam prior to detection, e.g. anti-scatter grids.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring radiation per se	G01T 1/00
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X-ray films	G03B 42/00
Packages for X-ray films	G03C 3/003
Image intensifiers	G03C 3/003

Special rules of classification

Documents should be classified in these subgroups only if:

- they explicitly relate to radiation diagnosis devices AND
- they comprise constructional details of the detector unit(s).

A document describing particular details of a radiation detector should be classified in the corresponding subclass of [G01T 1/00](#), even if a clinical application of said detector is mentioned. However, if e.g. details of the arrangement of said detector in a PET scanner for said particular clinical application are disclosed, then it should also be classified in [A61B 6/037](#) and in the corresponding subclass of [A61B 6/50](#).

A61B 6/4208

{characterised by using a particular type of detector}

Definition statement

This place covers:

Radiation devices comprising a detector with special features not covered by any of the subgroups below.

A61B 6/4216

{using storage phosphor screens}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of stimuable phosphor sheets	G01T 1/2012
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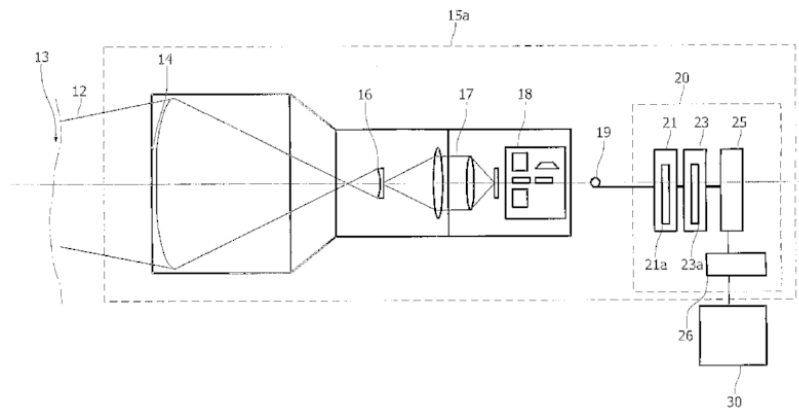
A61B 6/4225

{using image intensifiers}

Definition statement

This place covers:

Radiation devices using an image intensifier for radiation detection.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Matrix detectors	A61B 6/4233
Fluoroscopy	A61B 6/487
Image intensifiers per se	H04N 5/32

Special rules of classification

Image intensifiers in radiation diagnostics are typically used for real-time intra-operative imaging using fluoroscopy ([A61B 6/487](#)). Currently (2012) they have been substituted by flat panel detectors which should be classified under [A61B 6/4233](#).

A61B 6/4233

{using matrix detectors}

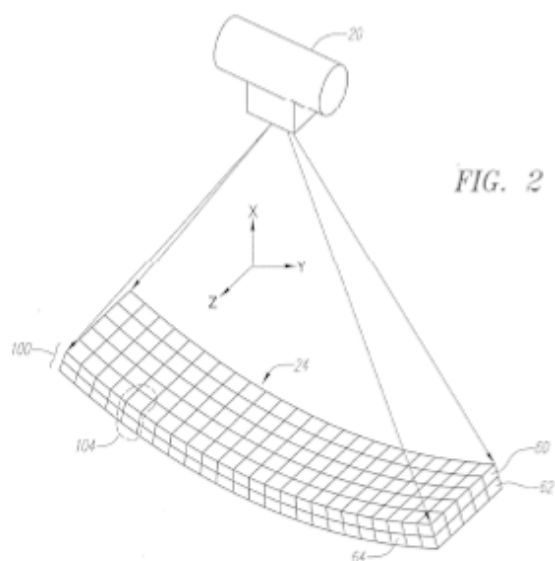
Definition statement

This place covers:

Radiation devices using an array of pixel detectors which generates an output in digital format. The array might have different geometries, 1 dimensional like in a CT scanner with a line detector, 2

Definition statement

dimensional and flat like a flat panel detector for radiography, 2 dimensional and cylindrical like in some multi-slice CT scanners, etc.



[WO2005037075]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Semiconductor radiation detectors	G01T 1/24 , G01T 1/2928
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A61B 6/4241

{using energy resolving detectors, e.g. photon counting}

Definition statement

This place covers:

Radiation devices using detectors capable of discerning several levels of energy of the detected beam.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Contrast agents in radiation diagnosis	A61B 6/481
Multiple energy imaging as an imaging technique	A61B 6/482
Radiation angiography	A61B 6/504
Radiation diagnosis of bone	A61B 6/505
Detectors for nuclear medicine	G01T 1/16 , G01T 1/29

Special rules of classification

Typically combined with the combination of radiation data acquired at different energies to extract a particular diagnostic information [A61B 6/482](#).

Multiple energy in radiation diagnostics is typically used to produce enhanced angiographic images [A61B 6/504](#) combined with a contrast agent [A61B 6/481](#) or for the diagnosis of bone [A61B 6/505](#).

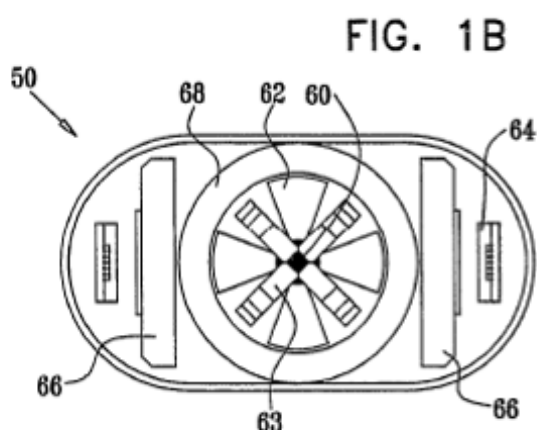
A61B 6/425

{using detectors specially adapted to be used in the interior of the body}

Definition statement

This place covers:

Radiation diagnostic devices where the radiation detector is introduced into the body, as part of a probe or capsule.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Capsule endoscopes	A61B 1/041
Diagnosis using light using a probe introduced into the body	A61B 5/0084
Radiation diagnosis with detectors for detecting non X-ray radiation	A61B 6/4258
Ultrasound diagnosis in body cavities	A61B 8/12
Detector details for in vivo counting	G01T 1/161

Special rules of classification

Applications of intraoperative gamma cameras to be introduced in to the body to detect rests of tumours labelled with a radioactive tracer should get the codes [A61B 6/4057](#) (for the tracer), [A61B 6/425](#) and [A61B 6/4258](#).

A61B 6/4258

{for detecting non x-ray radiation, e.g. gamma radiation ([A61B 6/037](#) takes precedence)}

Definition statement

This place covers:

Radiation diagnostic devices comprising a detector to detect radiation other than X-ray radiation, e.g. gamma or beta radiation.

References**Limiting references**

This place does not cover:

Emission tomography	A61B 6/037
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Radiation source for the interior of the body	A61B 6/4057
Detecting radiation	G01T 1/00

Special rules of classification

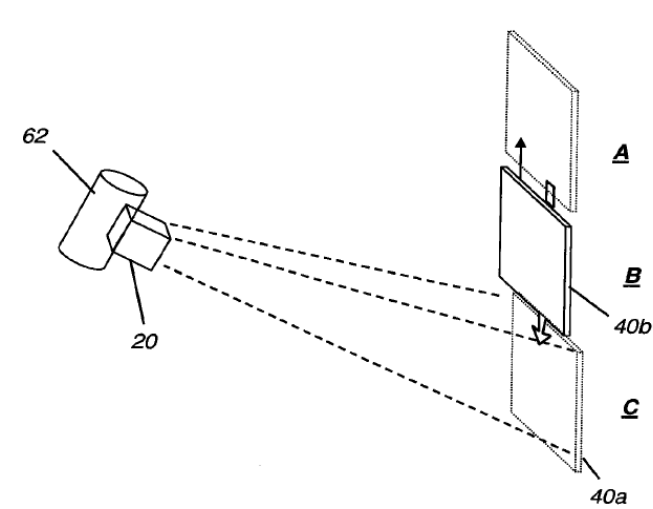
Applications of PET or SPECT [A61B 6/037](#) do not require this class, since these techniques already imply the detection of non X-ray radiation. If the radiation is emitted by a radioactive tracer or in general a source inside the body (e.g. in a capsule) the class [A61B 6/4057](#) should be given.

A61B 6/4266

{characterised by using a plurality of detector units ([A61B 6/4014](#) takes precedence)}

Definition statement

This place covers:



[US2011064193]

References

Limiting references

This place does not cover:

Devices for radiation diagnosis using a plurality of source - detector units	A61B 6/4014
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Special rules of classification

An array of pixels is considered to be a single detector unit. If the device has more than one array, they are considered to be a single detector unit if there is no independent control of each of the arrays. Otherwise, if each array is controlled independently, each array is considered to be a single detector unit. Devices with multiple source-detector units should only be classified under [A61B 6/4007](#).

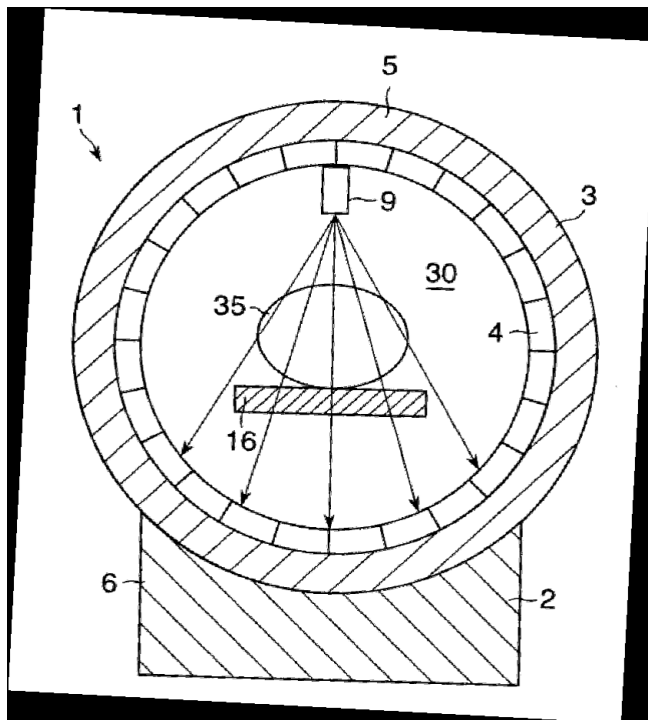
A61B 6/4275

{using a detector unit almost surrounding the patient, e.g. more than 180°}

Definition statement

This place covers:

Radiation diagnosis devices comprising a detector unit forming a closed or almost closed structure around the patient, e.g. 4th generation CT scanners.



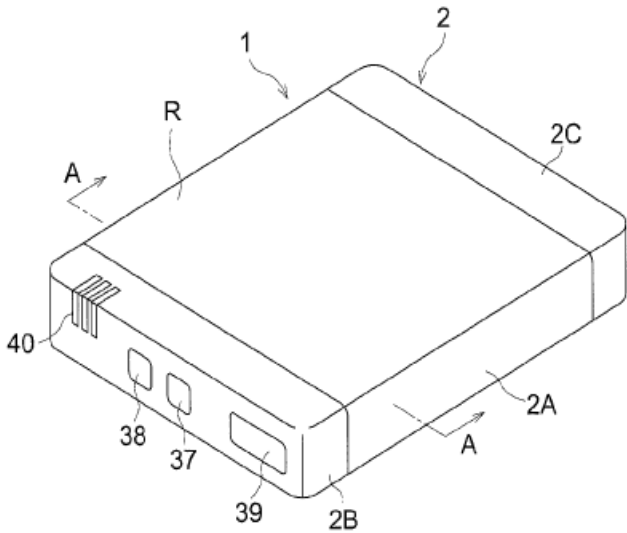
[US2004081277]

A61B 6/4283

{characterised by a detector unit being housed in a cassette}

Definition statement

This place covers:
Both matrix and film detectors.



[US2012097860]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Film cassette holder construction	G03B 42/02
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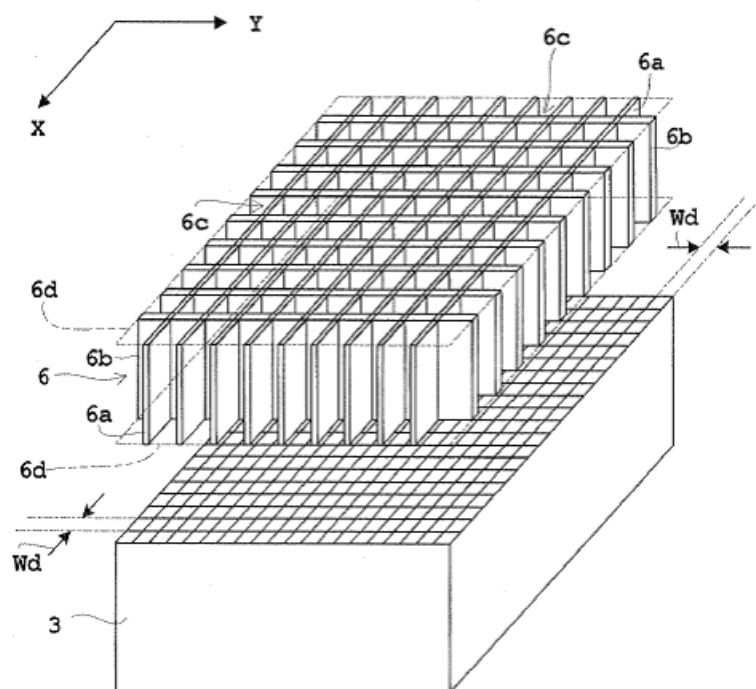
A61B 6/4291

{the detector being combined with a grid or grating}

Definition statement

This place covers:

Radiation diagnosis devices comprising a detector unit combined with a grid, such as an anti-scatter grid or with a grating, as used in X-ray phase contrast imaging ([A61B 6/484](#)).



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Collimators for radiation diagnosis devices	A61B 6/06
Source combined with filter or grating	A61B 6/4035
X-ray phase contrast imaging	A61B 6/484
Reduction of scatter by image processing in devices for radiation diagnosis	A61B 6/5282
Anti-scatter grids	G21K 1/02
X-ray filters per se	G21K 1/10

Special rules of classification

Rules for classifying other devices situated on the beam path, used to modify properties of the beam:

- collimators to modify the spatial confinement of the radiation beam should be classified under [A61B 6/06](#),
- filters or gratings situated between the source and the patient should be classified under [A61B 6/4035](#).

A61B 6/44

{Constructional features of apparatus for radiation diagnosis}

Definition statement

This place covers:
Diagnostic devices comprising structural or mechanical arrangements allowing a specific usage or property, e.g. movement, modularity.

Special rules of classification

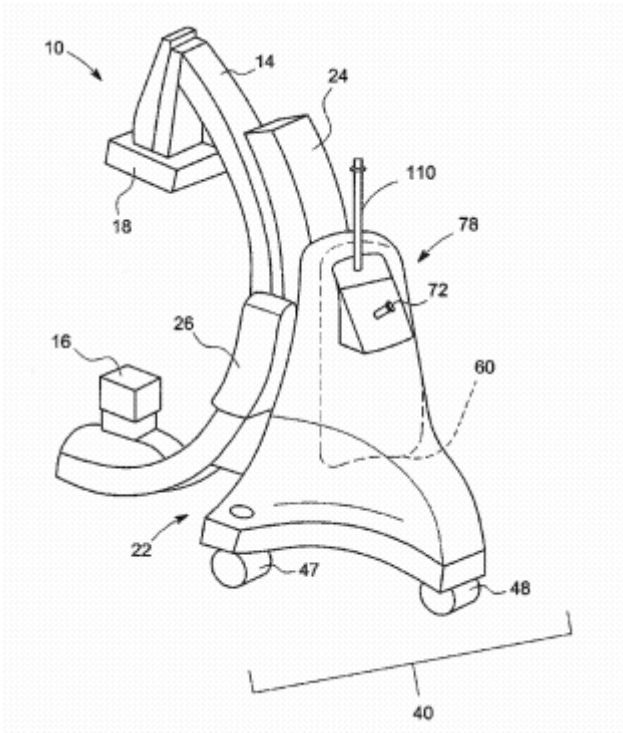
This class covers all details concerning constructional aspects not covered by any of the subgroups below.

A61B 6/4405

{the apparatus being movable or portable, e.g. handheld or mounted on a trolley}

Definition statement

This place covers:
Mobile radiation diagnosis device, e.g. mounted on casters or rollers or small handheld devices, e.g. handheld intra-operative gamma cameras.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Radiation diagnosis devices with anti-collision devices	A61B 6/102 - A61B 6/105
Ultrasound diagnostic devices mounted on a trolley	A61B 8/4405

Mobile robots

[B25J 5/00](#)

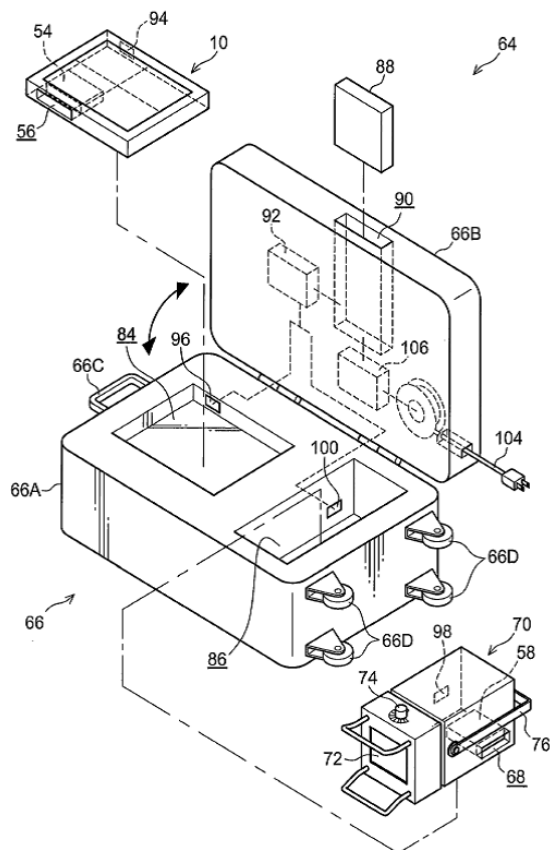
A61B 6/4411

{the apparatus being modular ([A61B 6/4283](#) takes precedence)}

Definition statement

This place covers:

Modular construction of radiation diagnosis device allowing part to be exchanged or replaced either for mounting different types of components or for simpler disassembling and reassembling.



References

Limiting references

This place does not cover:

Detector units housed in a cassette

[A61B 6/4283](#)

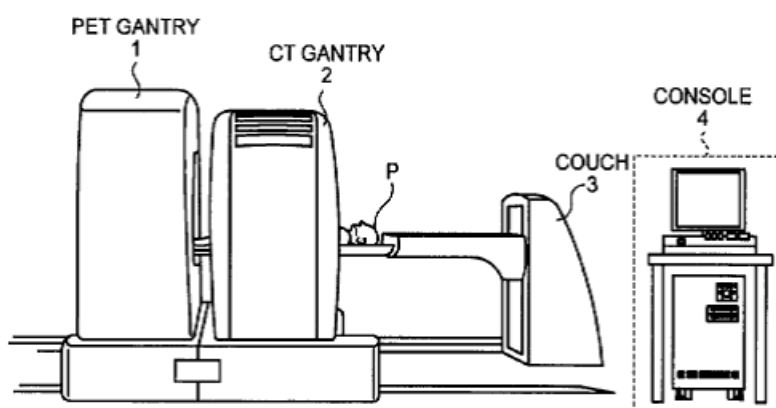
A61B 6/4417

{related to combined acquisition of different diagnostic modalities}

Definition statement

This place covers:

Constructional arrangements for facilitating the combined use of different imaging modalities including translation from one device to the other or integration of different modalities in one device. At least one modality using ionising radiation.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical diagnosis	A61B 5/0059
Magnetic resonance imaging	A61B 5/055 , G01R 33/48
Transmission tomography	A61B 6/032
Emission tomography	A61B 6/037
C-arms	A61B 6/4441
Post-acquisition processing for combination of images from different modalities	A61B 6/5229 - A61B 6/5247
Diagnosis with ultrasound	A61B 8/00

Special rules of classification

This class covers all details concerning constructional aspects to combine different diagnostic modalities in one device.

(Ionising) radiation - (ionising) radiation: e.g. PET/CT

(Ionising) radiation - other type of diagnostics: e.g. CT/ultrasound [A61B 8/00](#), X-ray/optical [A61B 5/0059](#), CT/MRI [A61B 5/055](#), [G01R 33/48](#), etc.

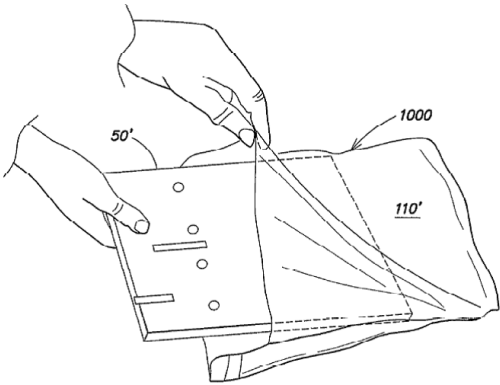
This class does not cover the combination of images coming from the different modalities per se, said combination should be classified under [A61B 6/5229](#) and its subgroups, which specify whether the diagnostic modalities are both B6 modalities or B6 and another modality.

A61B 6/4423

{related to hygiene or sterilisation}

Definition statement

This place covers:



[WO2004081867]

A61B 6/4429

{related to the mounting of source units and detector units}

Definition statement

This place covers:

Details of the mounting arrangement of the source units and/or detector units.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for diagnosis sequentially in different planes; Stereoscopic radiation diagnosis	A61B 6/02
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Special rules of classification

Imaging devices under [A61B 6/02](#) should only be classified here if the document describes particular details of the arrangement. E.g. a computed tomography scanner should be classified under [A61B 6/032](#) but not under [A61B 6/4435](#), since it is implicit in such a device that source and detector unit are coupled by a rigid structure. However, a radiation device where source and detector unit are coupled by a rigid structure and which is capable of performing tomographic imaging should be classified both under [A61B 6/4435](#) and [A61B 6/032](#) (in such a case [A61B 6/032](#) code the functional aspect "computerised tomography" and not the constructional aspect "computerised tomograph").

A61B 6/4435

{the source unit and the detector unit being coupled by a rigid structure}

Definition statement

This place covers:
Devices wherein the relative position and orientation of the source and detector units is fixed. Open structures such as C-frames and closed structures such as gantries.

Special rules of classification

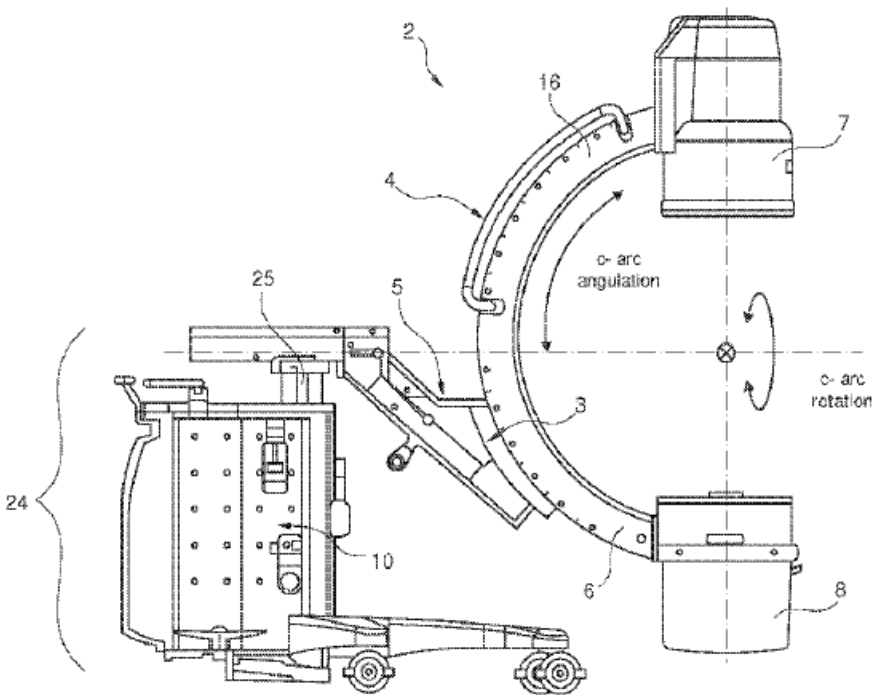
Devices where the distance between source and detector or the orientation can be modified should be classified under [A61B 6/4452](#).

A61B 6/4441

{the rigid structure being a C-arm or U-arm}

Definition statement

This place covers:
Devices wherein the source and the detector are fixed on a c or u-shaped frame.



[WO2010128417]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Data acquisition trajectories in radiation diagnosis devices	A61B 6/027
Transmission tomography	A61B 6/032

Fluoroscopy	A61B 6/487
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Special rules of classification

C-arms are usually used for fluoroscopy ([A61B 6/487](#)) or for computerised tomography ([A61B 6/032](#)). Due to their flexibility they can acquire projection data (views) along different trajectories for tomographic reconstruction ([A61B 6/027](#)).

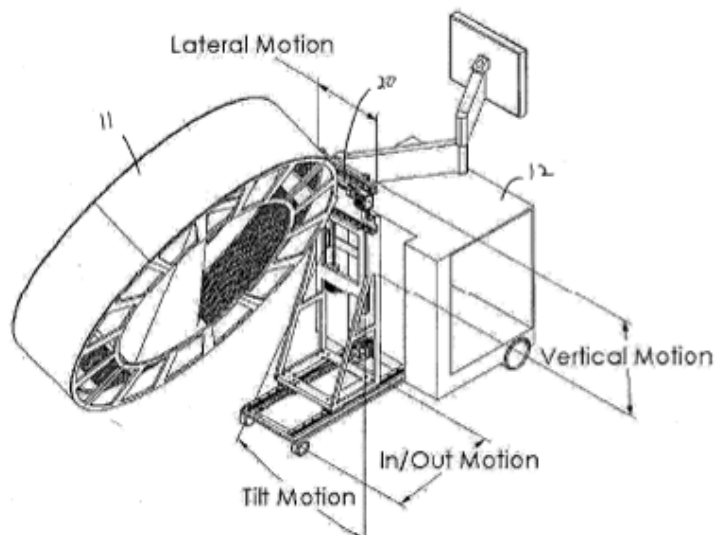
A61B 6/4447

{Tiltable gantries}

Definition statement

This place covers:

Devices wherein the source and the detector are fixed to a rigid frame forming a closed loop which can be tilted to image planes tilted with respect to the axial direction of the patient.



[US2003235266]

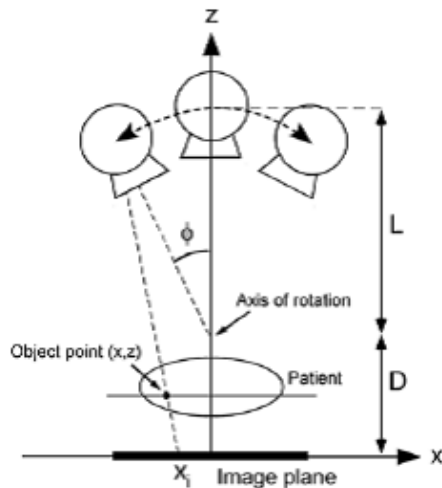
A61B 6/4452

{the source unit and the detector unit being able to move relative to each other}

Definition statement

This place covers:

Devices wherein the relative position and orientation of the source and detector units can be changed, e.g. device for performing tomosynthesis ([A61B 6/025](#)) of the breast where source and detector units are shifted along a linear trajectory but the source always points to the detector unit.



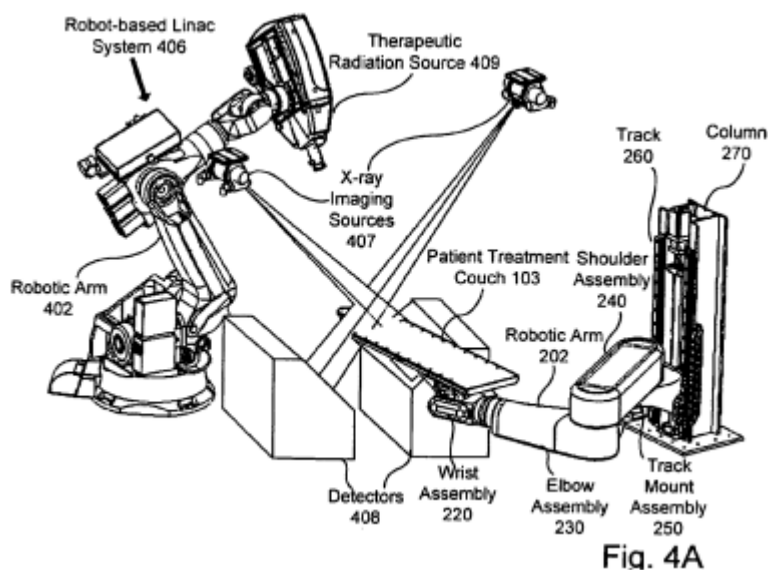
[Dobbins and Godfrey, "Digital x-ray tomosynthesis: current state of the art and clinical potential", Phys. Med. Biol. 48 (2003) R65–R106]

A61B 6/4458

{the source unit or the detector unit being attached to robotic arms}

Definition statement

This place covers:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details concerning robots	B25J
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Special rules of classification

A robotic arm is considered to be constituted by a base and a series of segments connected by joints (at least two links and two joints) and has at least 3 degrees of freedom. Typically each joint has a motor that allows the movement of the arm. An arm which is merely telescopic is not considered to be a robotic arm.

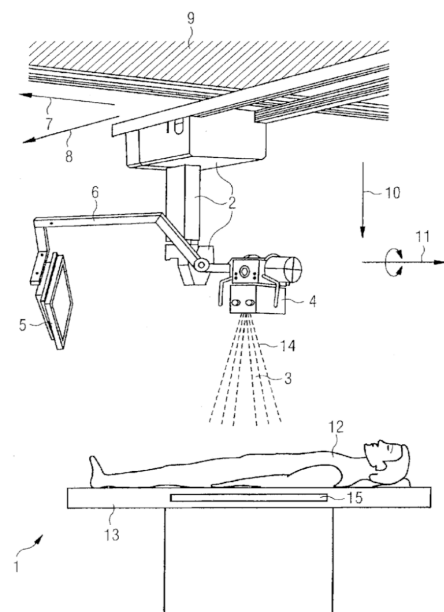
The robotic arm must be used to support at least part of the radiation diagnostic device, not e.g. only a radiotherapy source.

A61B 6/4464

{the source unit or the detector unit being mounted to ceiling}

Definition statement

This place covers:



[US 2011/0182408]

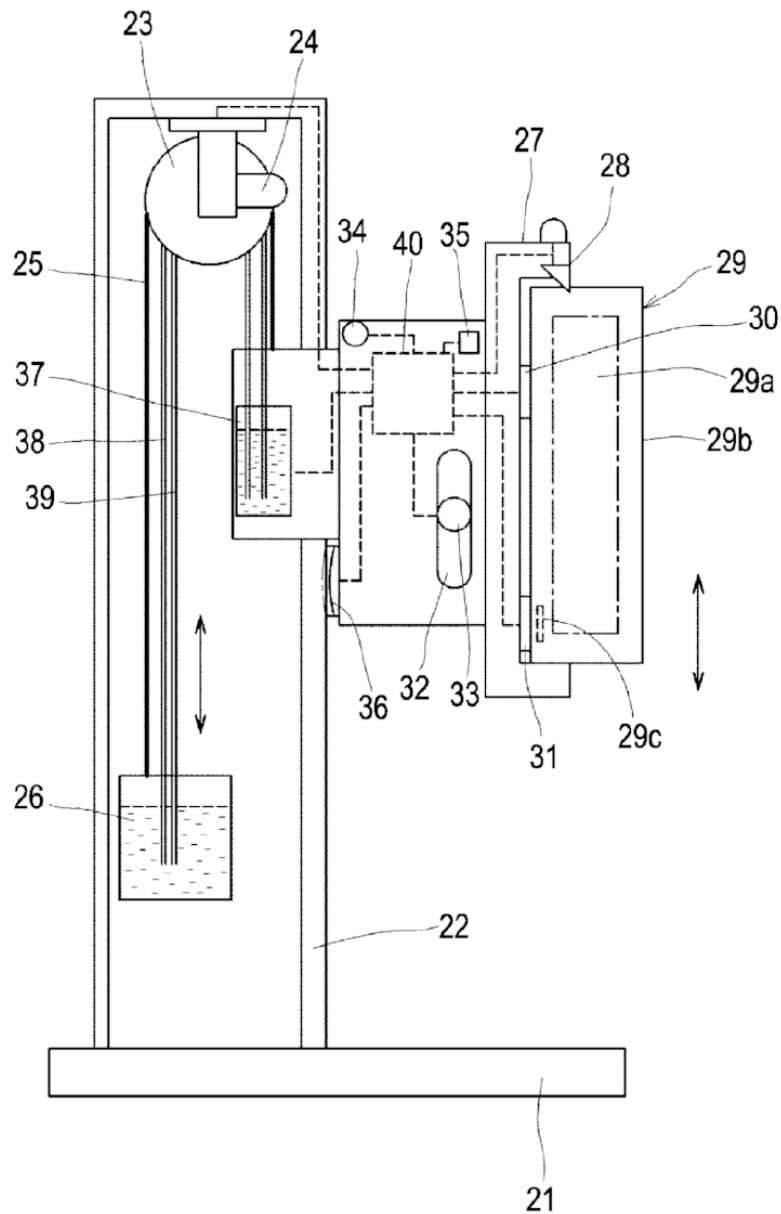
A61B 6/447

{the source unit or the detector unit being mounted to counterpoise or springs}

Definition statement

This place covers:

Mechanical arrangements of the source and detector where their displacement is controlled by a counter balance or a spring.



A61B 6/4476**{related to motor-assisted motion of the source unit}****Definition statement***This place covers:*

Radiation devices where the movement of the source unit is controlled via a servomechanism, i.e. a feedback control to correct deviations in position (usually an electric or electronic motor).

A61B 6/4488**{Means for cooling ([A61B 6/045](#) takes precedence)}****Definition statement***This place covers:*

Means for cooling in general, e.g. cooling of anode in the radiation source, cooling of the detector, etc.

References**Limiting references***This place does not cover:*

Tables or beds provide with heating or cooling means	A61B 6/045
--	----------------------------

Special rules of classification

This class covers all aspects related to cooling in a radiation diagnostic device except for tables or beds with heating or cooling means ([A61B 6/045](#)).

A61B 6/4494**{Means for identifying the diagnostic device}****Definition statement***This place covers:*

Any means for identifying X-ray apparatus or component parts thereof, e.g. removable filters, detectors. Includes bar codes, memory chips or RFIDs.

A61B 6/46**Arrangements for interfacing with the operator or the patient****Definition statement***This place covers:*

Radiation diagnosis devices comprising input and/or output means structurally or functionally designed for allowing a specific interaction with the device user or the patient.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

ICT specially adapted for the operation of medical equipment or devices	G16H 40/60
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Special rules of classification

Documents should be classified in these subgroups only if:

- they explicitly relate to radiation diagnosis devices AND
- they comprise details of the user interface.

A61B 6/461

{Displaying means of special interest}

Definition statement

This place covers:

Displays with special properties not covered elsewhere in [A61B 6/00](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Displays for electrocardiography	A61B 5/339
Displays in magnetic or electric diagnosis	A61B 5/742
Displays for ultrasound diagnosis	A61B 8/461

Special rules of classification

Touch screens should be classified here and as special input means under [A61B 6/467](#).

A61B 6/462

{characterised by constructional features of the display}

Definition statement

This place covers:

Portable displays, supports for displays.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Viewing apparatus for X-ray images	G02B 27/023
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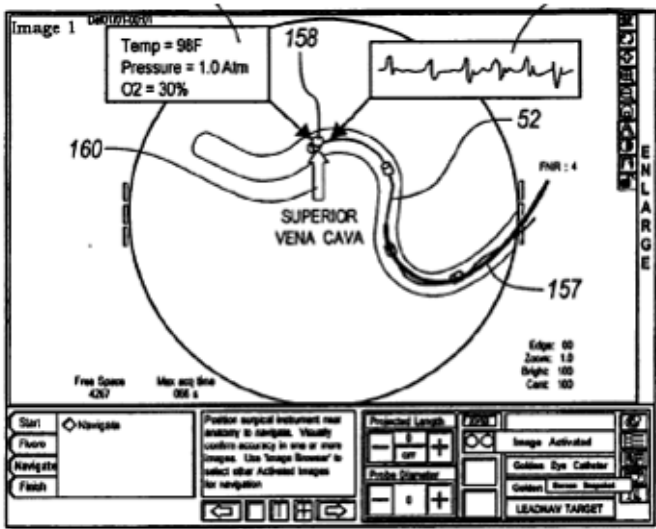
A61B 6/463

{characterised by displaying multiple images or images and diagnostic data on one display}

Definition statement

This place covers:

Display of images obtained by all types of X-ray imaging apparatus, combinations of images, e.g. side-by-side, superimposed, tiled. Also for combination of images and other data, e.g. graphs, ECG curves, pulse waveforms, alphanumeric data.



[EP1421913]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

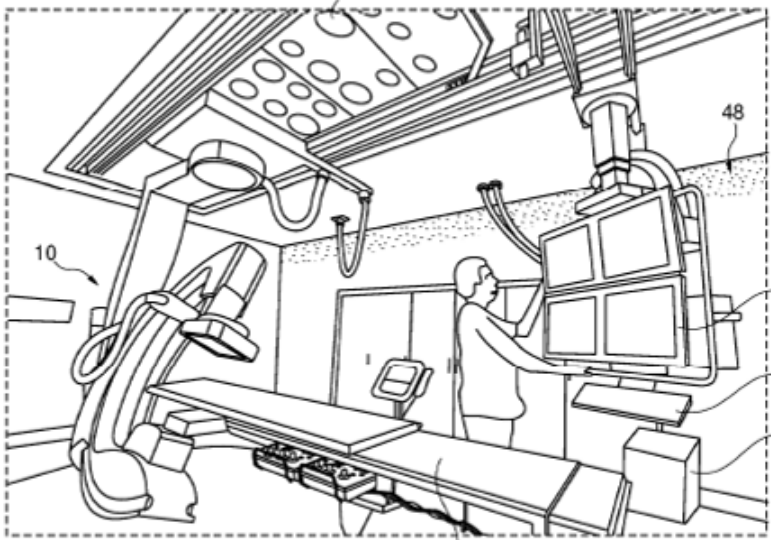
Radiation diagnosis devices comprising processing means for combining image data of a patient	A61B 6/5229
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A61B 6/464

{involving a plurality of displays}

Definition statement

This place covers:



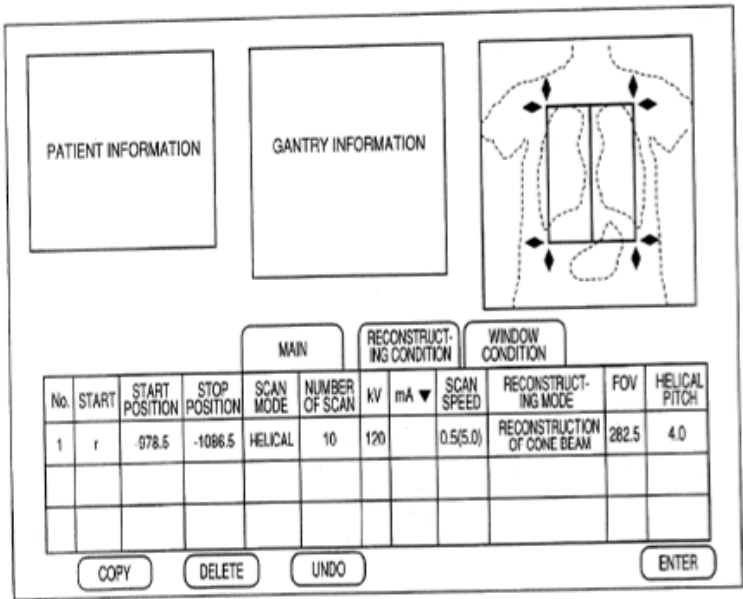
[EP2391292]

A61B 6/465

{adapted to display user selection data, e.g. graphical user interface, icons or menus}

Definition statement

This place covers:



[US2007064864]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the operation of medical equipment or devices	G16H 40/60
---	----------------------------

A61B 6/466

{adapted to display 3D data}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

3D image rendering per se	G06T 15/00
manipulating 3D models for computer graphics	G06T 19/00

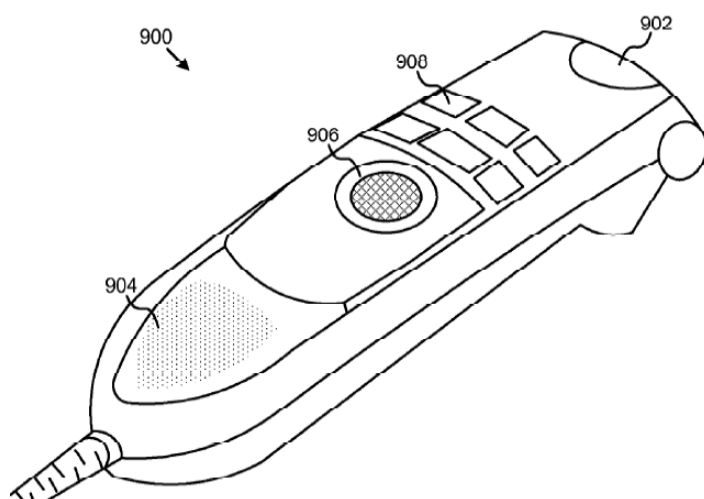
A61B 6/467

{characterised by special input means}

Definition statement

This place covers:

Both constructional (e.g. touch-screen, trackball) and functional aspects (e.g. specific purpose) of input means.



[WO2011066486]



[US2012093298]

A61B 6/468

{allowing annotation or message recording}

Definition statement

This place covers:

All types of message recording associated with radiation diagnosis imaging, e.g. annotation on image, sound recording.

A61B 6/469

{for selecting a region of interest [ROI]}

Definition statement

This place covers:

Operator selection of region of interest or specific organs to be imaged, e.g. by touch screen, keyboard or switch. Also for definition of ROI after image analysis.

Special rules of classification

This class does not cover automatic selection of a region of interest using image processing which should be classified under [A61B 6/5211](#).

A61B 6/48

{Diagnostic techniques ([A61B 6/022](#), [A61B 6/025](#) [A61B 6/032](#), [A61B 6/037](#) take precedence)}

Definition statement

This place covers:

Diagnostic devices involving a specific use of ionising radiation to perform a particular type of diagnosis. Imaging techniques are independent of the device used for implementing them.

References

Limiting references

This place does not cover:

Stereoscopic imaging	A61B 6/022
Tomosynthesis	A61B 6/025
Transmission computed tomography	A61B 6/032
Emission tomography	A61B 6/037

Special rules of classification

Imaging techniques not found under [A61B 6/02](#) and not covered by any of the subclasses should be classified as [A61B 6/48](#).

A61B 6/481

{involving the use of contrast agents}

Definition statement

This place covers:

Radiation diagnosis imaging based on or improved using an agent with particular properties for the absorption of radiation..

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Radiation diagnostic with radioactive tracers	A61B 6/4057
Acquisition of a temporal series of data	A61B 6/486
Diagnosis of blood vessels	A61B 6/504
Diagnosis of hemodynamic parameters	A61B 6/507
Contrast agents in ultrasound diagnosis	A61B 8/481
X-ray contrast preparations	A61K 49/04
Contrast agents in magnetic resonance imaging	G01R 33/5601

Special rules of classification

Mainly related to angiography (see also diagnosis of blood vessels [A61B 6/504](#)), but not exclusively.

The diagnostic of hemodynamic parameters (e.g. perfusion) by acquiring a temporal series of images should be classified under [A61B 6/507](#) and [A61B 6/486](#).

Radioactive tracers are not considered to be a contrast agent but a source to be introduced into the body ([A61B 6/4057](#)).

A61B 6/482**{involving multiple energy imaging}****Definition statement***This place covers:*

Radiation diagnostics using different radiation energy levels.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Source unit with multiple anodes	A61B 6/4021
Source unit combined with a filter	A61B 6/4035
Filters for multiple energy imaging	A61B 6/4042
Energy resolving detectors for radiation diagnosis	A61B 6/4241
Angiography	A61B 6/504
Diagnosis of bone	A61B 6/505
Measuring spectral distribution of X-rays	G01T 1/36

Special rules of classification

Radiation diagnostic devices based on multiple energy imaging should be classified under [A61B 6/482](#) and additionally according to the technique used to acquire the data at different energy levels, for example:

- A source with several anodes for producing beams with different energy [A61B 6/4021](#).
- One beam with a certain energy spectrum which is filtered after leaving the source unit [A61B 6/4035](#).
- One beam with a certain energy spectrum which is separated into several energy bands at the detector [A61B 6/4241](#).
- A dual source-detector scanner with source units emitting radiation beams of different energies [A61B 6/4014](#) and [A61B 6/4266](#).

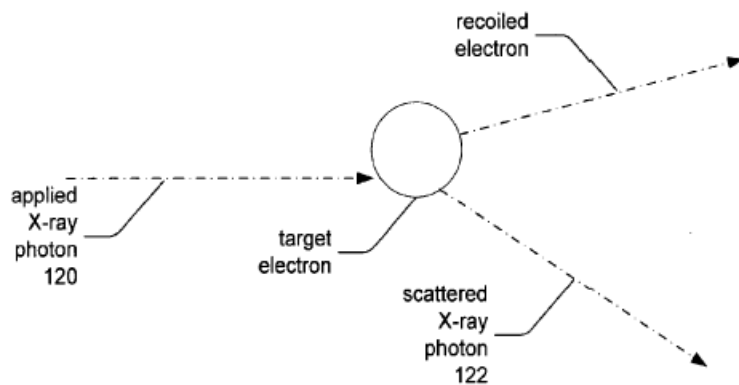
Multiple energy imaging is typically used for examining bone [A61B 6/505](#) or with contrast agents [A61B 6/481](#), where two energy bands, one above and one under the K-edge of the contrast material are used to enhance the effect of the contrast agent in angiography [A61B 6/504](#).

A61B 6/483**{involving scattered radiation}****Definition statement***This place covers:*

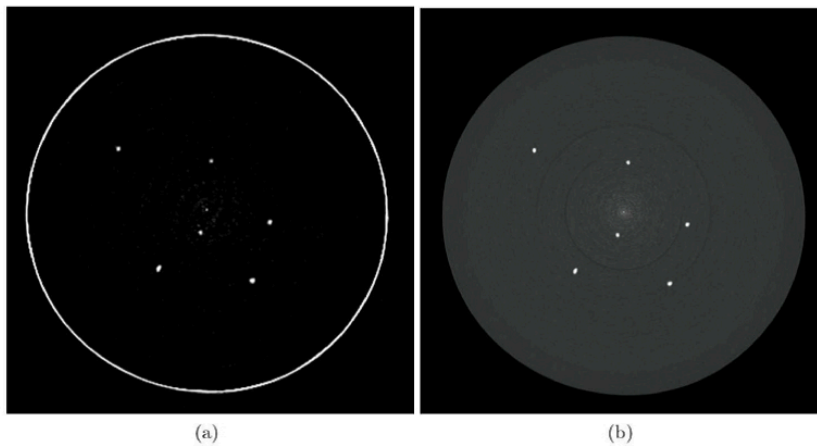
Radiation diagnostics using information from scattered radiation (non-ballistic photons).

Special rules of classification

This class does not cover reduction of artefacts caused by scatter from images ([A61B 6/5282](#)) or scatter correction performed in projection data before image reconstruction ([A61B 6/5205](#)).



[US2012157829]

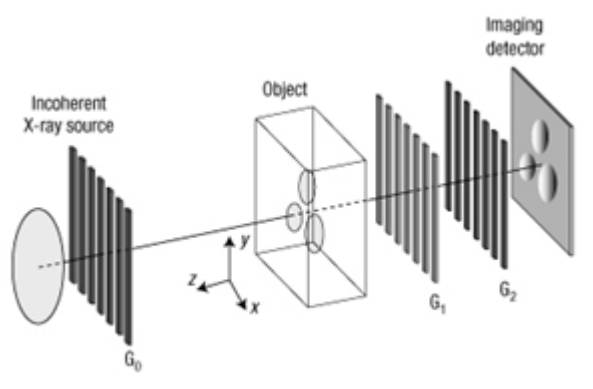


A61B 6/484

{involving phase contrast X-ray imaging}

Definition statement

This place covers:



A61B 6/485**{involving fluorescence X-ray imaging}****Definition statement***This place covers:*

Radiation diagnostics using characteristic "secondary" (or fluorescent) X-rays from an object that has been excited by bombarding with high-energy X-rays or gamma rays.

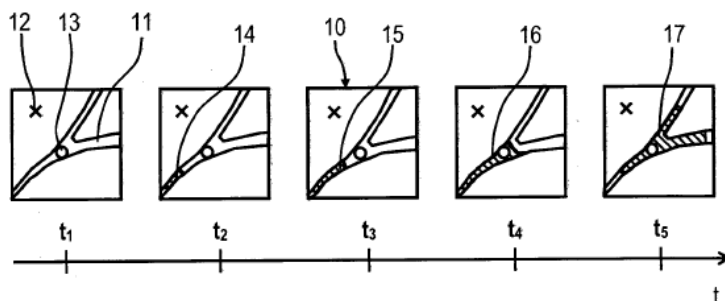
References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Investigating material by X-ray fluorescence	G01N 23/223
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A61B 6/486**{involving generating temporal series of image data}****Definition statement***This place covers:*

Dynamic imaging techniques, e.g. wherein a plurality of images of the same region are acquired during a predetermined amount of time.

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

ECG	A61B 5/318
Transmission tomography	A61B 6/032
Contrast agents in radiation diagnosis	A61B 6/481
Diagnosis of heart	A61B 6/503
Haemodynamic parameters	A61B 6/507
Extracting a diagnostic parameter from image data	A61B 6/5217
Retrospective matching to a physiological signal	A61B 6/5288

Special rules of classification

Typically used for

- real-time imaging, e.g. fluoroscopy ([A61B 6/487](#)),
- acquisition of a series ([A61B 6/486](#)) of CT images ([A61B 6/032](#)) for the analysis ([A61B 6/5217](#)) of hemodynamic parameters, e.g. perfusion ([A61B 6/507](#)), with contrast agents ([A61B 6/481](#)),
- concurrent acquisition of data of the beating heart ([A61B 6/503](#)) with a CT ([A61B 6/032](#)) scanner and an ECG ([A61B 5/318](#)) for retrospectively matching the CT data to phases of the cardiac cycle ([A61B 6/5288](#)) and reconstruct a series of CT images of the heart in different cardiac phases ([A61B 6/486](#)).

A61B 6/487

{involving fluoroscopy}

Definition statement

This place covers:

Real-time X-ray imaging during an intervention.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Image intensifiers in radiation diagnosis	A61B 6/4225
Flat panel detectors in radiation diagnosis	A61B 6/4233
C-arms	A61B 6/4441

Special rules of classification

Initially fluoroscopy was carried out using a fluoroscope, i.e. using a fluorescent screen as a detector. Later image intensifiers ([A61B 6/4225](#)) were used, and nowadays (2012) typically flat panel detectors are used ([A61B 6/4233](#)).

Very often fluoroscopy is carried out using a C-arm ([A61B 6/4441](#)).

A61B 6/488

{involving pre-scan acquisition}

Definition statement

This place covers:

Diagnostic techniques in which a first acquisition is performed prior to the actual examination.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Exposure control based on patient thickness	A61B 6/544
Automatic setup of acquisition parameters	A61B 6/545
Calibration	A61B 6/582

Special rules of classification

Typically used to identify the boundaries of the zone to be scanned and automatically adjust acquisition parameters ([A61B 6/545](#)) or to adjust the X-ray dose according to the size of the patient ([A61B 6/544](#)). The pre-scan acquisition might be carried out using a different device than the radiation diagnostic device, e.g. an optical camera.

A61B 6/50

specially adapted for specific body parts; specially adapted for specific clinical applications

Definition statement

This place covers:

Classification in this group depends on the body part or organ which is to be diagnosed. This group covers clinical applications not provided for in the subgroups.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Diagnosis by electrical, magnetic, pressure, sensing means, of particular parts of the body	A61B 5/40 - A61B 5/48
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A61B 6/501

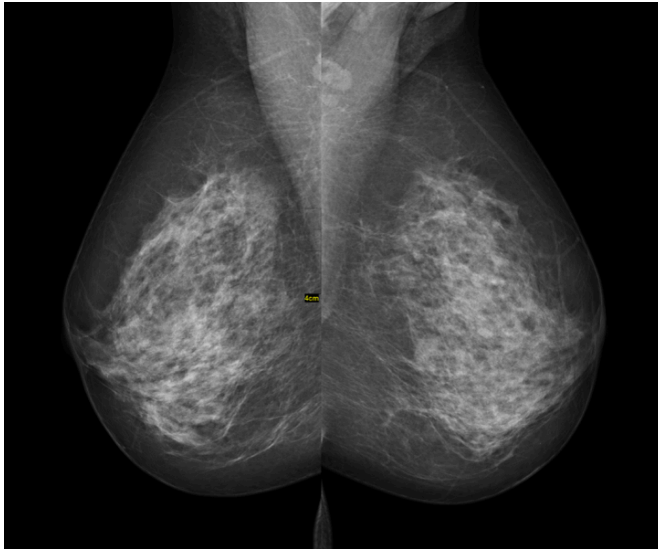
{for diagnosis of the head, e.g. neuroimaging or craniography}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electroencephalography	A61B 5/369
Ultrasonic brain imaging	A61B 8/0808
Use of CT scans for customised prostheses	A61F 2002/30948

A61B 6/502**{for diagnosis of breast, i.e. mammography}****Definition statement***This place covers:*

[wikipedia.org]

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Mammography by transillumination	A61B 5/0091
Patient immobilizing means for mammography	A61B 6/0414
Ultrasonic mammography	A61B 8/0825

A61B 6/503**{for diagnosis of the heart}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

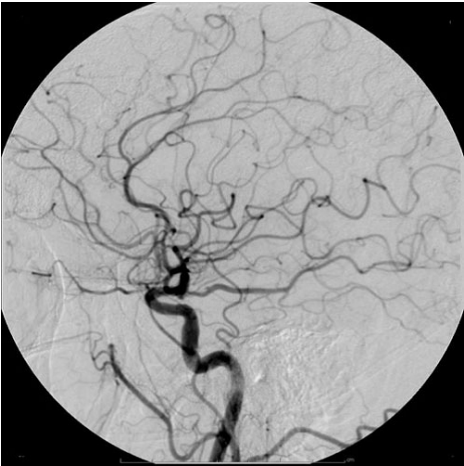
Electrocardiography	A61B 5/318
Ultrasonic heart imaging	A61B 8/0883

A61B 6/504

{for diagnosis of blood vessels, e.g. by angiography}

Definition statement

This place covers:



[wikipedia]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Locating blood vessels	A61B 5/489
Radiation imaging using contrast agents	A61B 6/481
Radiation diagnosis using multiple energy	A61B 6/482
Ultrasonic blood vessels imaging	A61B 8/0891

A61B 6/505

{for diagnosis of bone}

Definition statement

This place covers:



[radiologyinfo.org]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bone monitoring in general	A61B 5/4504
Radiation diagnosis using multiple energy	A61B 6/482
Bone diagnosis using ultrasound	A61B 8/0875

Special rules of classification

This class covers bone analysis such as quantitative analysis of bone structure or imaging of bone, e.g. for the diagnostic of fractures.

A61B 6/506

{for diagnosis of nerves}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Nerves diagnosis	A61B 5/24 , A61B 5/40
Locating nerves	A61B 5/4896

A61B 6/507

{for determination of haemodynamic parameters, e.g. perfusion CT}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting heart rate, blood pressure or blood flow	A61B 5/02
Radiation diagnosis imaging techniques involving the generation of a temporal sequence of image data	A61B 6/486
Extracting physiological parameters from image data	A61B 6/5217

A61B 6/508

{for non-human patients}

Definition statement

This place covers:

Animal imaging and pre-clinical research. Also for veterinary imaging.

A61B 6/51**for dentistry****Definition statement**

This place covers:

Radiation diagnosis devices specially adapted for dental examination, e.g. devices for panoramic imaging of the teeth.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Analysis of teeth using light	A61B 5/0088
Tomosynthesis	A61B 6/025
Computed tomography	A61B 6/032
Multiple detectors	A61B 6/4266
Radiation diagnosis of bone	A61B 6/505
Dentistry per se	A61C 1/00 - A61C 19/00

Special rules of classification

Due to their rotation capabilities needed to acquire panoramic images of the teeth, devices for panoramic radiography are often adapted to acquire projection data and generate computed tomographic images or tomosynthesis. In that case, they should be also classified under [A61B 6/032](#) or [A61B 6/025](#), respectively.

If the device combines panoramic radiography and other imaging techniques, then it might have different detectors for each imaging technique and it should be classified under [A61B 6/4266](#).

A61B 6/512**{Intraoral means}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

X-ray tubes having a small cross-section to facilitate introduction into small cavities	H01J 35/32
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A61B 6/52**{Devices using data or image processing specially adapted for radiation diagnosis}****Definition statement**

This place covers:

Radiation diagnosis devices involving any kind of processing of data (raw data or diagnostic data) or image processing for enhancement purposes, e.g. artefacts reduction or resolution improvement.

Definition statement

This class covers data or image processing in radiation diagnostics not provided for in the subgroups.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Signal processing of physiological signals	A61B 5/72
Data/image processing in ultrasound diagnostics	A61B 8/52
Image processing per se	G06T
Image analysis per se	G06T 7/00
Image reconstruction from projection	G06T 12/00

Special rules of classification

Documents should be classified in these subgroups only if:

- they explicitly relate to radiation diagnosis devices AND
- they comprise details of data or image processing.

Image processing alone should not be classified in [A61B 6/52](#), except when the processing is clearly adapted to a particular diagnostic device (e.g. removal of patient table from a CT image) or a specific diagnostic application (e.g. assessment of breast tumour size evolution from subsequent mammography acquisitions).

The subgroups are separated into processing of raw data (data output from the sensor requiring pre-processing to be used for diagnostic purposes) and diagnostic data (data readable or interpretable by medical personnel, obtained after pre-processing raw data).

A61B 6/5205

{involving processing of raw data to produce diagnostic data}

Definition statement

This place covers:

Pre-processing of data output from the sensor requiring pre-processing to be used for diagnostic purposes, e.g. sinogram filtering, combination of detector rows, columns or reconstruction of CT images from X-ray projections.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detectors calibration	A61B 6/585
Processing of raw ultrasound data	A61B 8/5207
Image reconstruction from projection	G06T 12/00

A61B 6/5211**{involving processing of medical diagnostic data}****Definition statement***This place covers:*

Processing of data readable or interpretable by medical personnel, obtained after pre-processing raw data.

A61B 6/5217**{extracting a diagnostic or physiological parameter from medical diagnostic data}****Definition statement***This place covers:*

Acquired data is used to derive a particular diagnostic index, e.g. tumour size or perfusion rate.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Extracting a diagnostic/physiological parameter from ultrasound diagnostic data	A61B 8/5223
Algorithms for biomedical image analysis	G06T 7/0012
Segmentation algorithms	G06T 7/10
ICT specially adapted for medical diagnosis, medical simulation or medical data mining	G16H 50/00

Special rules of classification

This class includes also extracting a region of an image representing a certain organ or body part by segmentation.

A61B 6/5223**{generating planar views from image data, e.g. extracting a coronal view from a 3D image}****Definition statement***This place covers:*

Generation of user selected planar views not coincident with CT slice images from CT data, e.g. sagittal or coronal slice images. Usually combined with 3D imaging.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Radiation diagnosis devices adapted to display 3D data	A61B 6/466
3D image rendering	G06T 15/00

Special rules of classification

This class also covers specific medical imaging processing such as:

- generating a planar view from a 3D data set, e.g. DRR (digitally reconstructed radiographs),
- generating a planar view from a temporal series of 2D data, e.g. MIP (maximum intensity projection).

A61B 6/5229

{combining image data of a patient, e.g. combining a functional image with an anatomical image}

Definition statement

This place covers:

Means for combining images of one or several imaging modalities, e.g. merging of contiguous sub-images to obtain a larger image or multi-modality image registration.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional details concerning the combination of different modalities in a device	A61B 6/4417
Algorithms for image registration	G06T 3/14

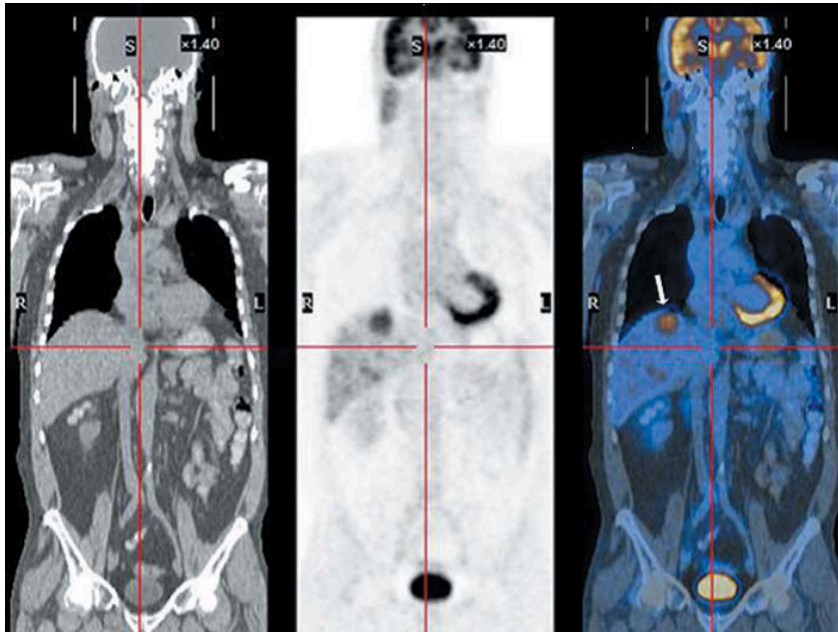
A61B 6/5235

{combining images from the same or different ionising radiation imaging techniques, e.g. PET and CT}

Definition statement

This place covers:

Combining images of the patient obtained by a diagnostic technique classified under [A61B 6/00](#) (ionising radiation).



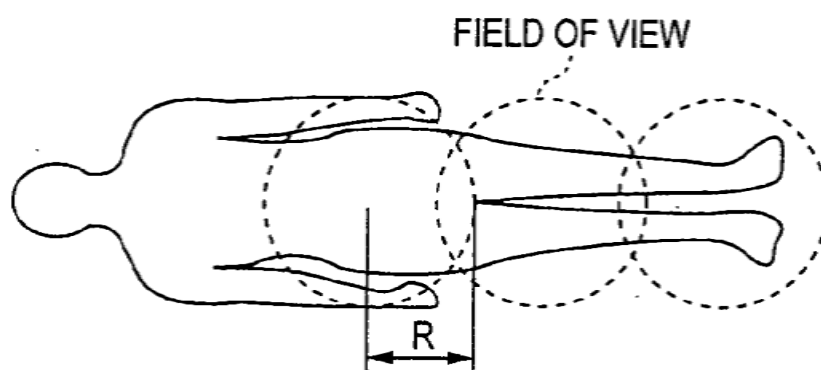
[Finger et al., "Whole body PET/CT for initial staging of choroidal melanoma", Br JOphthalmol 2005;89:1270-1274, doi:10.1136/bjo.2005.069823]

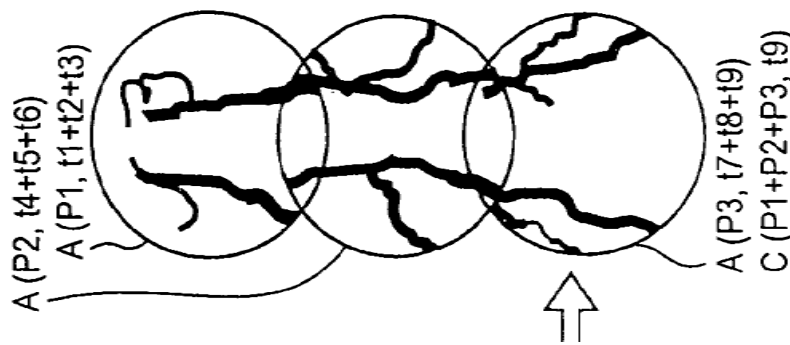
A61B 6/5241

{combining overlapping images of the same imaging modality, e.g. by stitching}

Definition statement

This place covers:





[US2004081271]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Angiography in radiation diagnosis	A61B 6/504
Spatial compounding in ultrasound diagnosis	A61B 8/5253

Special rules of classification

Typically used in angiography [A61B 6/504](#).

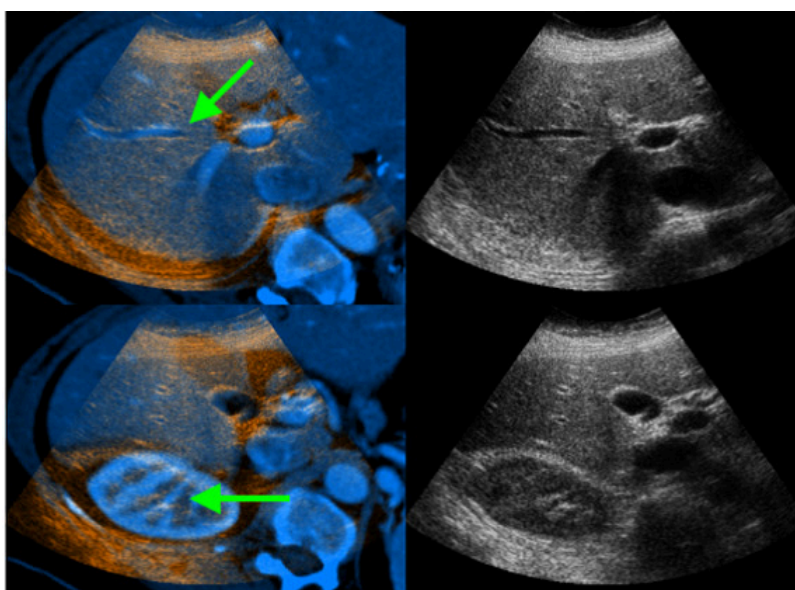
A61B 6/5247

{combining images from an ionising-radiation diagnostic technique and a non-ionising radiation diagnostic technique, e.g. X-ray and ultrasound}

Definition statement

This place covers:

Combining images of the patient obtained by a [A61B 6/00](#) diagnostic technique (ionising radiation) and a non [A61B 6/00](#) diagnostic technique.



[Wein et al., " Automatic CT-ultrasound registration for diagnostic imaging and image-guided intervention", Medical Image Analysis, Volume 12, Issue 5, October 2008, Pages 577-585]

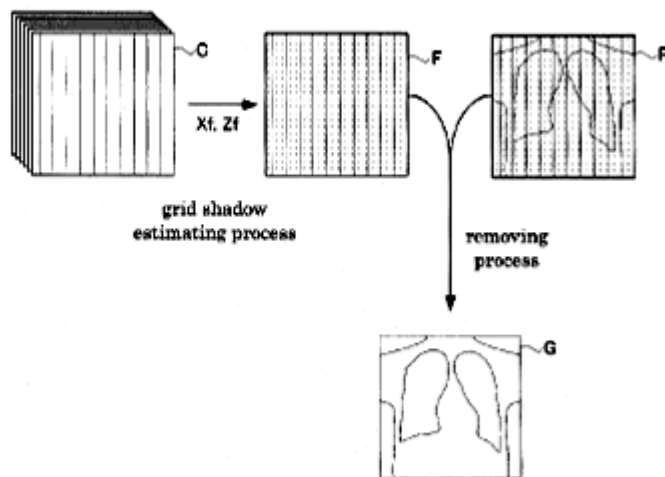
A61B 6/5252

{removing objects from field of view, e.g. removing patient table from a CT image}

Definition statement

This place covers:

Objects such as patient table, headrest, markers are eliminated from the diagnostic data. Does not apply to artefacts i.e. unpredictable features determined by heat, dust, light.



Special rules of classification

This subgroup concerns removing objects of known origin from the diagnostic images, it does not concern removing artifacts per se (i.e. unpredictable features determined by heat, dust, light), which should be classified under [A61B 6/5258](#). Typical examples are removing the patient bed from a CT image or the anti-scatter grid from a radiograph (the artifact caused is of known geometry and has the shape of the grid, so it is considered as removing the grid and not an artifact), nor does it concern removal of body tissues such as bones or anatomic parts such as blood vessels.

A61B 6/5258

{involving detection or reduction of artifacts or noise}

Definition statement

This place covers:

Data or image processing for noise or artefact reduction in radiation diagnostic images.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Algorithms for image enhancement	G06T 5/00
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Special rules of classification

Applies to reduction of artifacts inherent to the imaging technique (e.g. beam hardening in CT) or reduction of noise, but not to the removal of objects from the image ([A61B 6/5252](#)).

A61B 6/5264

{due to motion}

Definition statement

This place covers:

Data or image processing for artefact reduction wherein the artefacts are caused by motion.

A61B 6/527

{using data from a motion artifact sensor}

Definition statement

This place covers:

A motion sensor is used to detect motion and information from said sensor is used in the processing to remove motion artefacts.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Patient motion evaluation per se	A61B 5/11
Motion derived by measuring table sag	A61B 6/5276
Retrospective matching to a physiological signal	A61B 6/5288
Acquisition triggered by a physiological signal	A61B 6/541

Special rules of classification

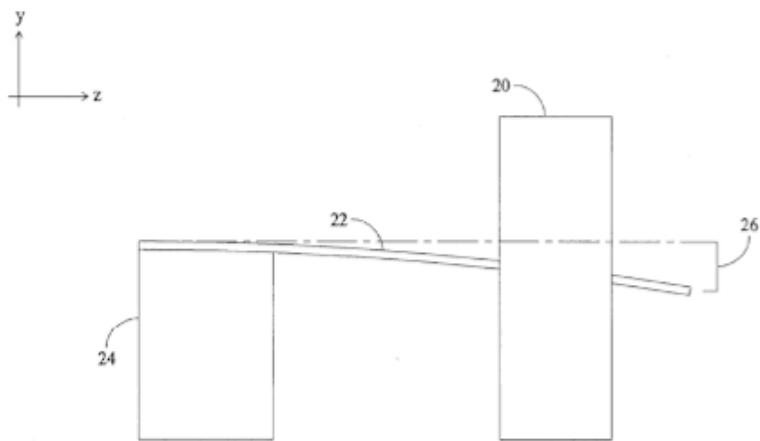
This class does not cover triggering data acquisition based on a physiological signal ([A61B 6/541](#)) or retrospectively associating acquired data to a physiological signal which has been acquired simultaneously with the data ([A61B 6/5288](#)).

A61B 6/5276

{involving measuring table sag}

Definition statement

This place covers:
Correction of misalignment errors caused by lack of rigidity of the patient table, where measurements of table sag are used.



[US2007003020]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Patient positioning supports	A61B 6/04
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A61B 6/5288

{involving retrospective matching to a physiological signal}

Definition statement

This place covers:
Post-acquisition synchronization of image and physiological data (e.g. heart rate, breathing rate), the latter being either acquired in parallel with the image acquisition, or extracted from the acquired data.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Heart rate measurement per se	A61B 5/024
Evaluating respiratory organs	A61B 5/08
Monitoring thoracic expansion occurring during breathing	A61B 5/113
Electrocardiograms	A61B 5/318

Diagnostic technique involving the generation of a temporal series of image data	A61B 6/486
Extraction of physiological parameters from medical diagnostic data	A61B 6/5217
Radiation diagnosis devices where acquisition is triggered by a physiological signal	A61B 6/541

Special rules of classification

The physiological signal is typically an electrocardiogram (ECG) [A61B 5/318](#) or a device to measure the cardiac cycle [A61B 5/0803](#).

As an example, a radiation diagnostic device with synchronous acquisition of projection data with a C-arm ([A61B 6/4441](#)) and an ECG ([A61B 5/318](#)) wherein the projection data is retrospectively associated to a certain cardiac phase ([A61B 6/5288](#)) to reconstruct a temporal series of images ([A61B 6/486](#)) of the heart ([A61B 6/503](#)) in different cardiac phases.

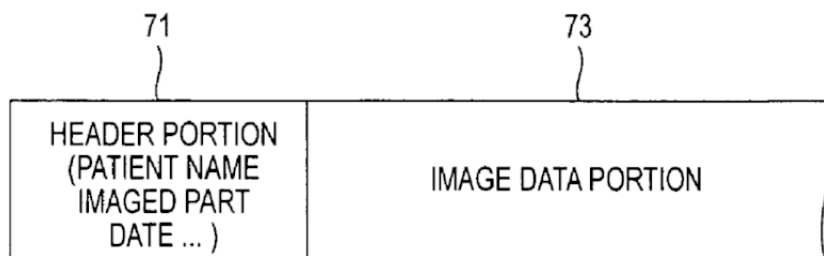
A61B 6/5294

{involving using additional data, e.g. patient information, image labeling, acquisition parameters}

Definition statement

This place covers:

Processing of data using non measured data, such as patient name or age, or image identification. Typically data can be found in the header of a digital image file (e.g. a DICOM header).



[US2006257040]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the handling or processing of patient-related medical or healthcare data	G16H 10/00
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A61B 6/54**{Control of apparatus or devices for radiation diagnosis}****Definition statement***This place covers:*

Aspects of radiation diagnostic devices concerning control of the device or parts of the device. All control aspects not covered by the subgroups should be classified in [A61B 6/54](#).

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

ICT specially adapted for the operation of medical equipment or devices	G16H 40/60
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A61B 6/541**{involving acquisition triggered by a physiological signal}****Definition statement***This place covers:*

Acquisition control wherein a signal of physiological origin (heart rate, breathing rate) is used to initiate data acquisition.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

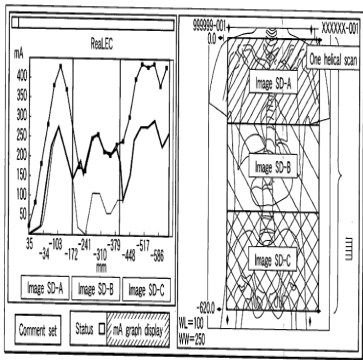
Heart rate measurement per se	A61B 5/024
Monitoring thoracic expansion occurring during breathing	A61B 5/113
Retrospective matching to a physiological signal	A61B 6/5288
Circuit arrangements for obtaining X-ray photography at predetermined instants in the movement of an object, e.g. part of a human body	H05G 1/62

A61B 6/542

{involving control of exposure}

Definition statement

This place covers:
Control of exposure parameters, e.g. to optimize exposure of different body thicknesses, to reduce patient dose, to avoid oversaturation of detector.



[US2006018425]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Source units adapted to modify characteristics of the beam during the data acquisition process	A61B 6/405
Automatic setup of acquisition parameters	A61B 6/545
Controlling X-ray tubes	H05G 1/30

Special rules of classification

In X-ray imaging, exposure is typically controlled by modifying characteristics of the source unit such as intensity or voltage ([A61B 6/405](#)). This class covers control of exposure during data acquisition. Automatic setup of the exposure parameters based on information about the patient or the diagnostic application should be classified under [A61B 6/545](#).

A61B 6/544

{dependent on patient size}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Based on pre-scan	A61B 6/488
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Special rules of classification

Exposure control dependent on patient size is often carried out by performing a pre-scan ([A61B 6/488](#)) to estimate the dimensions of the patient.

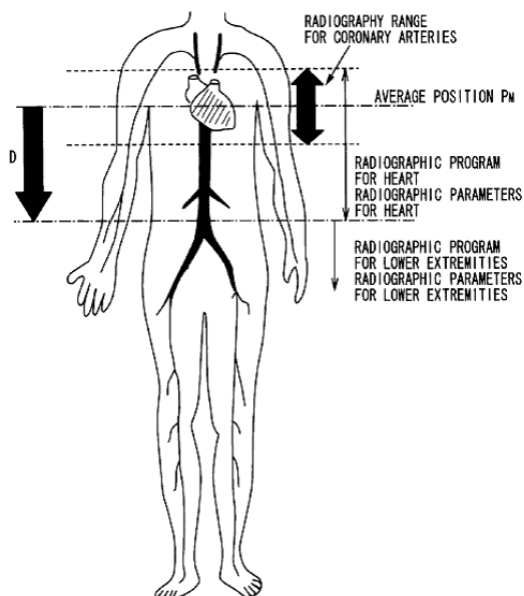
A61B 6/545

{involving automatic set-up of acquisition parameters}

Definition statement

This place covers:

Automatic setup of apparatus parameters using patient specific information, e.g. weight, height and/or diagnostic specific information, e.g. perfusion CT acquisition protocol.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Control of exposure during data acquisition in radiation diagnostic devices	A61B 6/542
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Special rules of classification

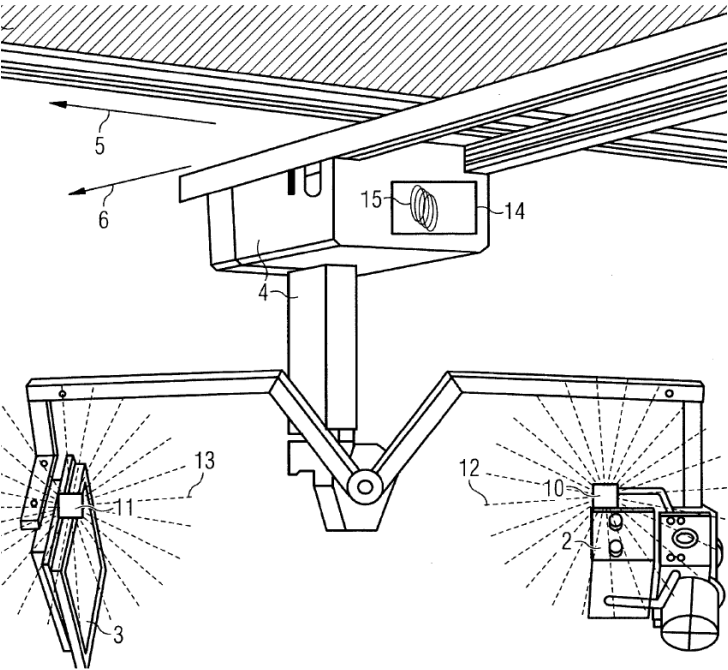
This class does not cover dynamic control of acquisition parameters to minimise patient exposure to radiation [A61B 6/542](#).

A61B 6/547

{involving tracking of position of the device or parts of the device}

Definition statement

This place covers:
Means for tracking position of any part of the radiation diagnosis device (e.g. table, C-arm). Includes optical markers, ultrasound sensors, visual linear scales.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Locating a surgical device in the body with a radiation diagnostic device	A61B 6/12
phantoms for determining position of parts of the device	A61B 6/584
Surgical navigation systems	A61B 34/20

Special rules of classification

This class does not cover tracking the position of a surgical device [A61B 6/12](#) or guiding a surgical device [A61B 34/20](#).

A61B 6/548

{Remote control of the apparatus or devices}

Definition statement

This place covers:
Remote control of any operational aspect (data acquisition, configuration, etc) of radiation diagnosis devices.

References

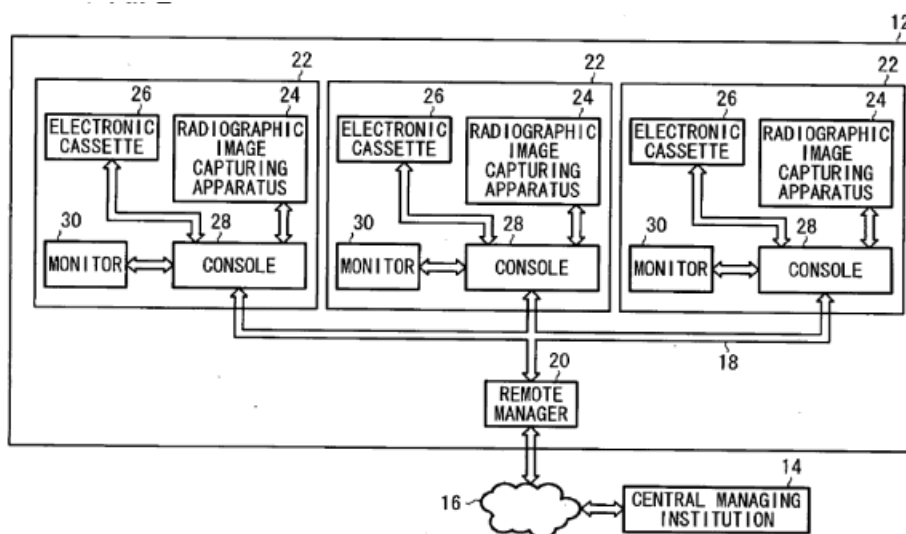
Informative references

Attention is drawn to the following places, which may be of interest for search:

Transmission of radiation diagnosis data via a network	A61B 6/56
Transmission of radiation diagnosis images via a network	A61B 6/563

Special rules of classification

Remote control is often carried out through a data network and involves transmission of data [A61B 6/56](#) or image data [A61B 6/563](#).



This class covers any kind of remote control, either of the diagnostic device itself or of devices, which are directly related to acquisition of diagnostic data. Typically remote control is carried out through a data network and involves transmission of data [A61B 6/56](#) or image data [A61B 6/563](#), but the concept is to be interpreted broadly, covering e.g. also a cable with a controller to be used in the same room. It is important however that there is a technical effect associated with the distance to the device.

- If there is a link between the remote controlled device and the data acquisition, then the subgroup [A61B 6/548](#) should be given, even if what is remote controlled is e.g. an injector.
- This class also covers voice control.

Relationship between [A61B 6/548](#) and [A61B 6/581](#): [A61B 6/548](#) relates to control of data acquisition for diagnostic purposes (e.g. remote configuration) while [A61B 6/581](#) relates to checking malfunctioning or adjusting the device itself (e.g. remote calibration or fault detection).

A61B 6/56

{Details of data transmission or power supply, e.g. use of slip rings}

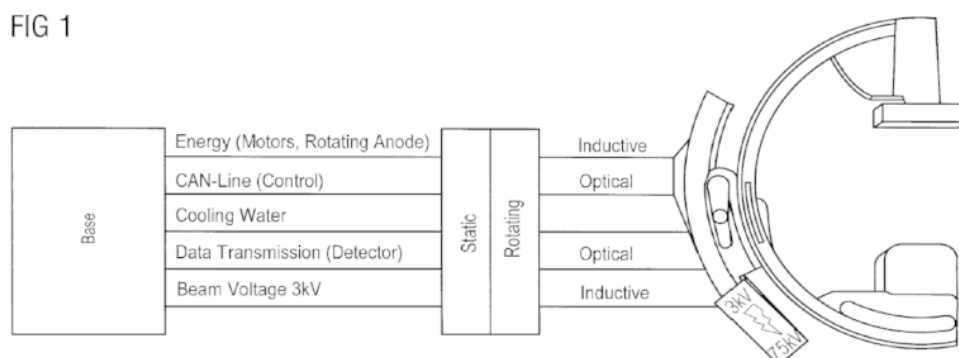
Definition statement

This place covers:

Radiation diagnosis devices comprising :

- means for transmitting / receiving data to / from an external device or between components of the device, e.g. image transmission to a remote physician workstation for diagnosis; or
- means for supplying power to any component of the device, e.g. between stationary and moving parts.

FIG 1



[US2011066022]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Flexible or turnable line connectors	H01R 35/00
Details of X-ray tube power supply arrangements	H05G 1/10

Special rules of classification

This class covers aspects of data transmission or aspects of power supply. Sometimes these are combined like in slip rings ([H01R 39/08](#)), where power and data are transmitted from a stationary to a rotating structure.

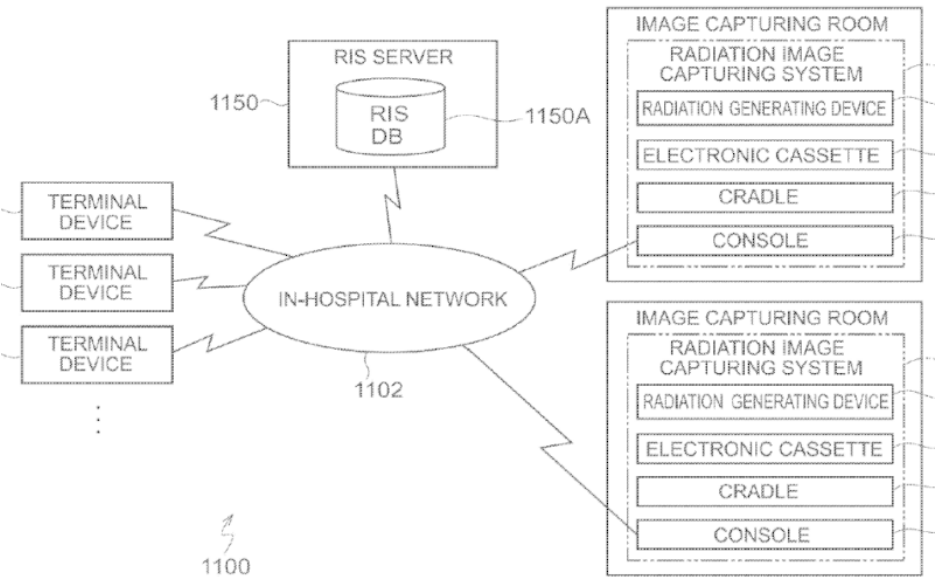
A61B 6/563

{involving image data transmission via a network}

Definition statement

This place covers:

Transmission of diagnostic image data via a network, e.g. transmission of image data from a radiation diagnosis device to a server for archiving.



[US2012018641]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the handling or processing of medical images	G16H 30/00
--	----------------------------

Special rules of classification

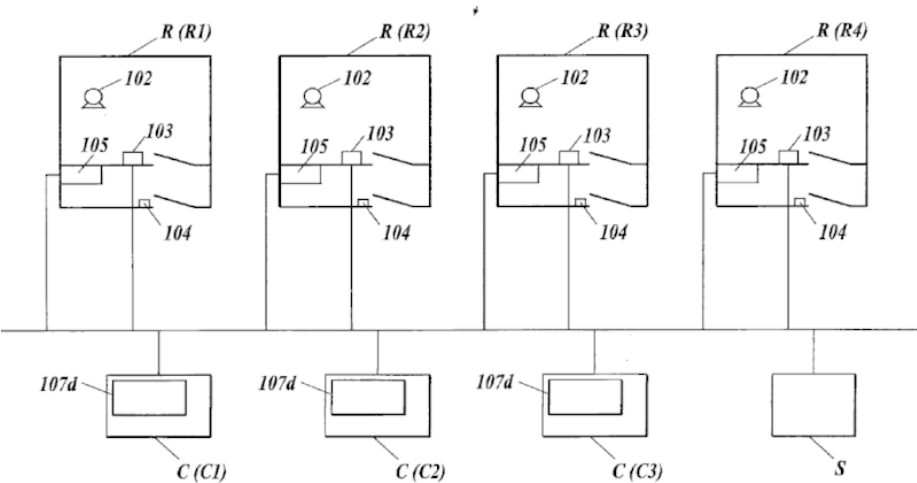
This class cover transmission of images via a PACS (Picture Archiving and Communication System) or a HIS (Hospital Information System).

A61B 6/566

{involving communication between diagnostic systems}

Definition statement

This place covers:
Details of radiation diagnosis devices related to the transfer of data between two imaging systems.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional details related to combined acquisition of different diagnostic modalities	A61B 6/4417
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Special rules of classification

Transfer of data between parts of diagnostic system are classified under [A61B 6/56](#).

A61B 6/58

Testing, adjusting or calibrating thereof

Definition statement

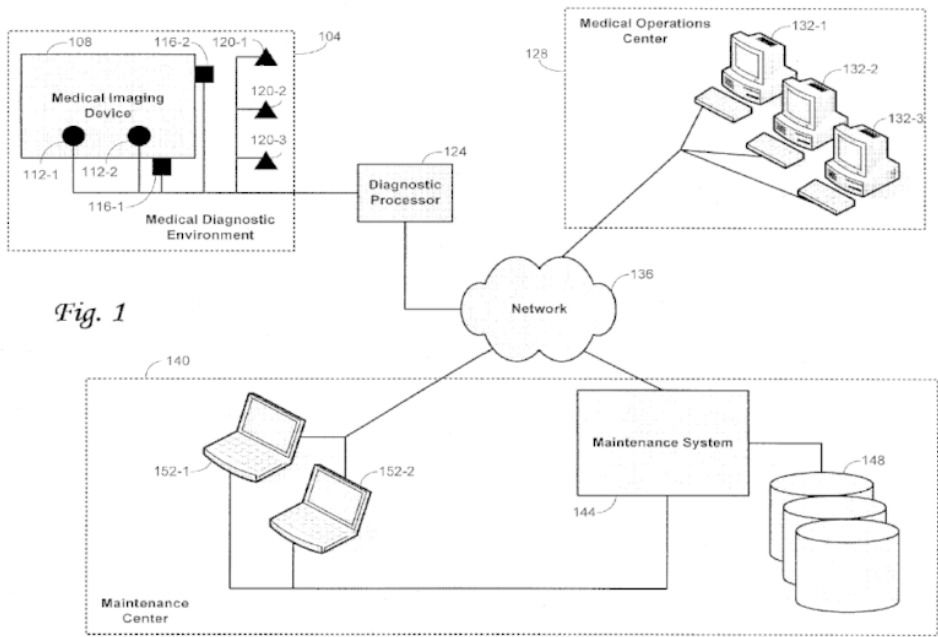
This place covers:
Means for assessing and adjusting the parameters of the device as a function of the system geometry.

A61B 6/581

{Remote testing}

Definition statement

This place covers:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Communication between imaging systems	A61B 6/566
ICT specially adapted for the remote operation of medical equipment or devices	G16H 40/67

Special rules of classification

Typically involves data transmission over a network ([A61B 6/56](#)). However, the class [A61B 6/56](#) should only be given if said data transmission is not merely mentioned but technical details therefore are disclosed.

Relationship between [A61B 6/548](#) and [A61B 6/581](#): [A61B 6/548](#) relates to control of data acquisition for diagnostic purposes (e.g. remote configuration) while [A61B 6/581](#) relates to checking malfunctioning or adjusting the device itself (e.g. remote calibration or fault detection).

A61B 6/582**{Calibration}****Definition statement**

This place covers:

Includes methods or devices for determining particular properties (geometrical or other type) of radiation diagnosis device.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Algorithms for calibration	G06T 7/80
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A61B 6/583**{using calibration phantoms}****Definition statement**

This place covers:

Methods or devices for calibration where a reference object (phantom) is used to determine particular properties of the radiation diagnosis device.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Models for medical purposes	G09B 23/28
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Special rules of classification

This class covers e.g. determining the distortion caused by the acquisition geometry of a C-arm [A61B 6/4441](#) or using a reference object to calculate quantitative values from an image.

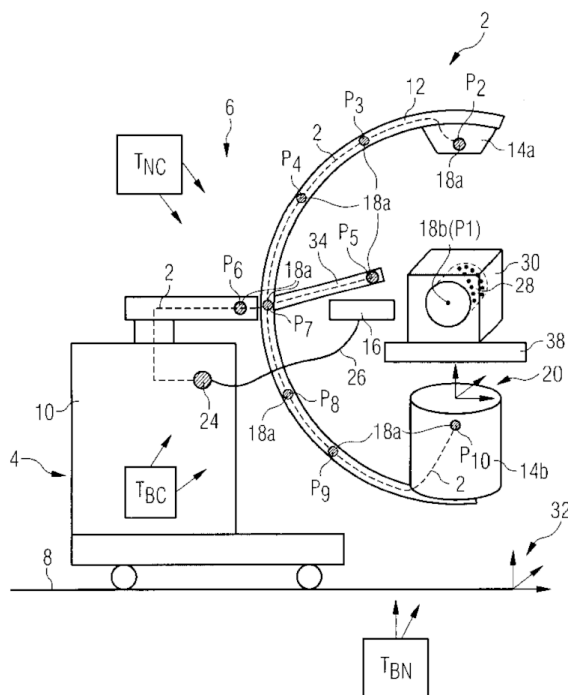
A61B 6/584

{determining position of components of the apparatus or device using images of the phantom}

Definition statement

This place covers:

Methods or devices where a reference object is used to determine the absolute or relative position of components of the device.



[DE102008012857]

Special rules of classification

This class covers e.g. the determination of the position of the source unit and detector unit of a C-arm ([A61B 6/4441](#)) at every angular position during rotation to be used in the reconstruction algorithm ([G06T 12/00](#)) to generate CT images ([A61B 6/032](#)).

A61B 6/585

{Calibration of detector units}

Definition statement

This place covers:

All types of calibration, correction or compensation, e.g. compensation for non-linear response of X-ray detectors, electric noise, saturation, charge leakage offset, temperature, crosstalk, defective pixels.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Processing of raw data	A61B 6/5205
Calibration techniques for radiation measuring devices	G01T 7/005

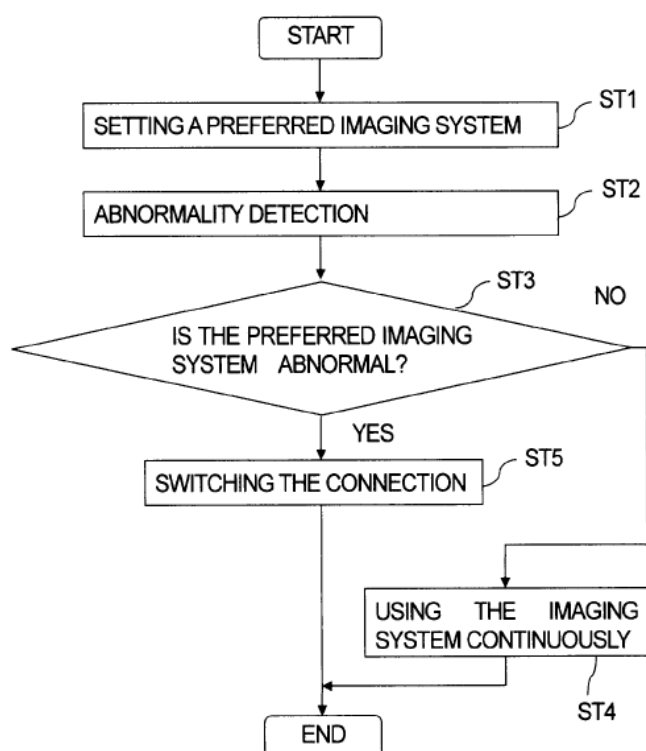
A61B 6/586

{Detection of faults or malfunction of the device}

Definition statement

This place covers:

Any means for determining or identifying a fault or failure in X-ray apparatus or component parts thereof.



[US2011129067]

A61B 6/587

{Alignment of source unit to detector unit}

Definition statement

This place covers:

Any means for aligning the source and detector unit or any use of a radiation diagnostic device involving the alignment of source and detector units.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Means for directing the radiation beam to a particular spot	A61B 6/08
Radiation diagnostic devices comprising source and detector units movable relative to each other	A61B 6/4452
Calibration in radiation diagnostic devices	A61B 6/582
Calibration using phantoms to determine position of parts of a device	A61B 6/584

Special rules of classification

A calibration method for aligning the source and detector units should also be classified under [A61B 6/582](#) or [A61B 6/584](#) (if a phantom is used).

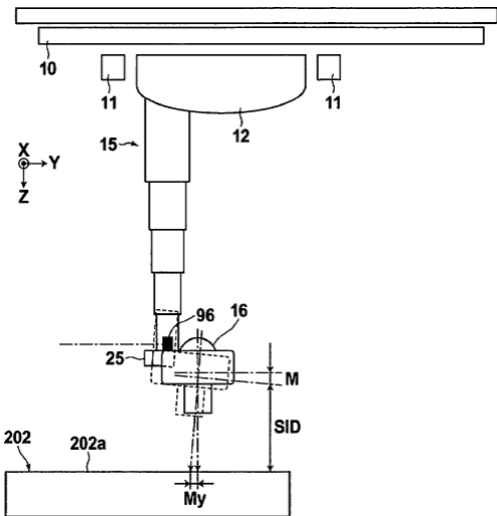
A61B 6/588

{Setting distance between source unit and detector unit}

Definition statement

This place covers:

Any means for setting the distance between source and detector unit or any use of a radiation diagnostic device involving the modifying said distance.



[US2010215152]

A61B 6/589

{Setting distance between source unit and patient}

Definition statement

This place covers:

Any means for setting the distance between source and patient or any use of a radiation diagnostic device involving the modifying said distance, e.g. to modify the magnification of an X-ray image.

A61B 7/00

Instruments for auscultation

Definition statement

This place covers:

Any instrument allowing detection of a sound generated within the body.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Methods or devices for transmitting, conducting or directing sound in general	G10K 11/00
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Special rules of classification

- Stethoscopes, i.e. devices allowing to listen to the sound, are classified in groups [A61B 7/02](#) - [A61B 7/045](#);
- Devices where sound patterns are only displayed and no listening takes place, are classified in groups [A61B 7/001](#) - [A61B 7/006](#).

A61B 7/001

{Detecting cranial noise, e.g. caused by aneurism}

Definition statement

This place covers:

Instruments comprising patient's head-mounted sensors which detect acoustic signals generated from pulsing blood flow through the patient's brain.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting intracranial pressure	A61B 5/031
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A61B 7/003

{Detecting lung or respiration noise}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting, measuring or recording devices for evaluating the respiratory organs	A61B 5/08
Monitoring sleep apnoea	A61B 5/4818
Devices for preventing snoring	A61F 5/56

A61B 7/005**{Detecting noise caused by implants, e.g. cardiac valves}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Prostheses implantable into the body	A61F 7/02
--------------------------------------	---------------------------

A61B 7/006**{Detecting skeletal, cartilage or muscle noise ([A61B 7/003](#) and [A61B 7/008](#) take precedence)}****References****Limiting references***This place does not cover:*

Detecting lung or respiration noise	A61B 7/003
Detecting noise of gastric tract	A61B 7/008

Informative references*Attention is drawn to the following places, which may be of interest for search:*

Diagnosing the musculoskeletal system or teeth	A61B 5/45
--	---------------------------

A61B 7/008**{Detecting noise of gastric tract, e.g. caused by voiding}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Diagnosing the gastrointestinal system	A61B 5/42
--	---------------------------

A61B 7/02**Stethoscopes****Definition statement***This place covers:*

Any instrument allowing to listen to sound/noise emitted by the body.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Methods or devices for transmitting, conducting or directing sound in general	G10K 11/00
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A61B 7/023

{for introduction into the body, e.g. into the oesophagus (oesophageal ECG probes [A61B 5/285](#))}

References

Limiting references

This place does not cover:

Endotracheal, oesophageal or gastric probes	A61B 5/285
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes	A61B 1/00
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A61B 7/04

Electric stethoscopes

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Microphones or acoustic transducers therefor	H04R
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A61B 7/045

{Detection of Korotkoff sounds ([A61B 5/0225](#) takes precedence; measuring blood pressure [A61B 5/021](#))}

References

Limiting references

This place does not cover:

Deriving pressure in blood vessels from Korotkoff sounds	A61B 5/0225
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring blood pressure	A61B 5/021
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A61B 8/00

Diagnosis using ultrasonic, sonic or infrasonic waves

Definition statement

This place covers:

Diagnostic equipment or methods which involve the use of ultrasonic, sonic or infrasonic waves.

A complete characterisation of the equipment or method requires the identification of both constructional and operational aspects according to the following rules.

Relationships with other classification places

Several subclasses, groups and subgroups provide for the different components or functional aspects constituting the devices for diagnosis using ultrasonic, sonic or infrasonic waves. It should be emphasized that documents describing these components should be classified in group [A61B 8/00](#) only if they disclose a device for diagnosis using ultrasonic, sonic or infrasonic waves and the link between said components or functional aspects and the clinical application is not trivial.

Techniques for short-range imaging with ultrasound per se (both devices and methods) are classified in groups [G01S 15/8906](#) and [G01S 7/52017](#). These techniques should only be classified in group [A61B 8/00](#) when the link between the use of a particular technique and a clinical application is not obvious. The fact that the device is a medical diagnostic device is not a sufficient criterion for classifying in group [A61B 8/00](#) and not in subclass [G01S](#). As an example, a document disclosing an ultrasonic device adapted to calculate cardiac output using Doppler would be classified in group [A61B 8/00](#). If, on the other hand, the document discloses the sequence of pulses and their processing to obtain the Doppler measurements, then it should be classified in groups [G01S 15/8906](#) or [G01S 7/52017](#), even if the document mentions that the device is a diagnostic device. However, if there is a link between the particular implementation of the Doppler measurements and the clinical application, it should be classified in both groups [A61B 8/00](#) and [G01S 15/8906](#). Similarly, a modular medical diagnostic device wherein the probe can be exchanged to choose among a set of probes according to several clinical applications would be classified in group [A61B 8/00](#). However, a modular medical diagnostic device with exchangeable circuit boards to provide for easier upgrade would be classified in subclass [G01S](#). Only if the choice of a particular board was related to a clinical application should it be classified under [A61B 8/00](#).

Other structural details of ultrasound/acoustic devices are classified in groups [B06B 1/00](#) (ultrasonic transducers and circuitry per se), [H10N 30/00](#) (piezoelectric or electrostrictive devices), [G10K 11/00](#) (transmitting, conducting or directing sound), [A61K 49/22](#) (ultrasound contrast preparations) or [A61B 90/39](#) (ultrasonic markers).

The same principle applies to other neighbouring fields such as, e.g. image processing ([G06T](#)). A document disclosing an algorithm for image enhancement should be classified in the corresponding group of subclass [G06T](#), even if the document mentions that the images are ultrasound images. However, if there is a link between details of the algorithm and a particular clinical application, then the document should also be classified in the corresponding group of subclass [A61B 8/00](#). On the other hand, if it is only mentioned that an algorithm for image enhancement is used but the disclosure deals mainly with details of the ultrasonic diagnostic device, then it should only be classified in group [A61B 8/00](#).

Devices for performing ultrasound therapy are classified in group [A61N 7/00](#).

Devices for diagnosis are classified in groups [A61B 5/00](#) (e.g. magnetic or light-based) and [A61B 6/00](#) (ionising radiation) and corresponding structural and non-diagnostic features can be found in [G01R 33/48](#) (nuclear magnetic radiation imaging systems) and [G01T 1/00](#) (detectors for X-ray, gamma, etc radiation).

Surgical navigation, including acoustic or image-based, are classified in group [A61B 34/20](#).

Relationships with other classification places

Details of data processing and transmission are classified in subclass [G06T](#) (image processing, generation or enhancement), groups [G16H 30/00](#) and [G16H 50/00](#) (information and communication technology for imaging and diagnostic data), and [G06V 40/00](#) (pattern recognition).

Non-medical applications of ultrasound are classified in groups [G01N 29/00](#) (investigation of materials using acoustic waves).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Diagnosis using photo-acoustic measurements	A61B 5/0095
Diagnosis using acousto-optic measurements	A61B 5/0097
Diagnosis using electronic [EMR] or nuclear [NMR] magnetic resonance	A61B 5/055
Apparatus and techniques of diagnosis using ionizing radiation	A61B 6/00
Stethoscopes and diagnosis by listening to naturally occurring sounds	A61B 7/00
Invasive surgical instruments using ultrasound within body cavities for removing obstructions or calculi	A61B 17/22
Devices for extracorporeal shock wave lithotripsy, e.g. by using ultrasonic waves	A61B 17/225
Ultrasound therapy	A61N 7/00
Generating or transmitting mechanical vibrations in general	B06B
Investigating or analysing materials by ultrasonic, sonic or infrasonic waves	G01N 29/00
Nuclear Magnetic Resonance imaging systems	G01R 33/48
Details of systems according to G01S 15/00	G01S 7/52
Systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging	G01S 15/00
Short-range imaging using acoustic waves	G01S 15/8906
Image data processing or generation, in general	G06T
Image enhancement or restoration	G06T 5/00
Image analysis	G06T 7/00
Recognition of biometric, human-related or animal-related patterns in image or video detail	G06V 40/00
Methods or devices for transmitting, conducting or directing sound in general	G10K 11/00
Healthcare informatics	G16H
Piezoelectric or electrostrictive devices in general	H10N 30/00

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

ultrasound transducer	sound generating or receiving element.
probe	combination of at least one ultrasound transducer and its housing.
raw data	data output from the sensor or detector or transducer requiring pre-processing to be used for diagnostic purposes.

diagnostic data	data readable or interpretable by medical personnel, obtained after pre-processing of raw data.
image data	medical diagnostic data in the form of two- or three-dimensional data sets.

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

US	ultrasound
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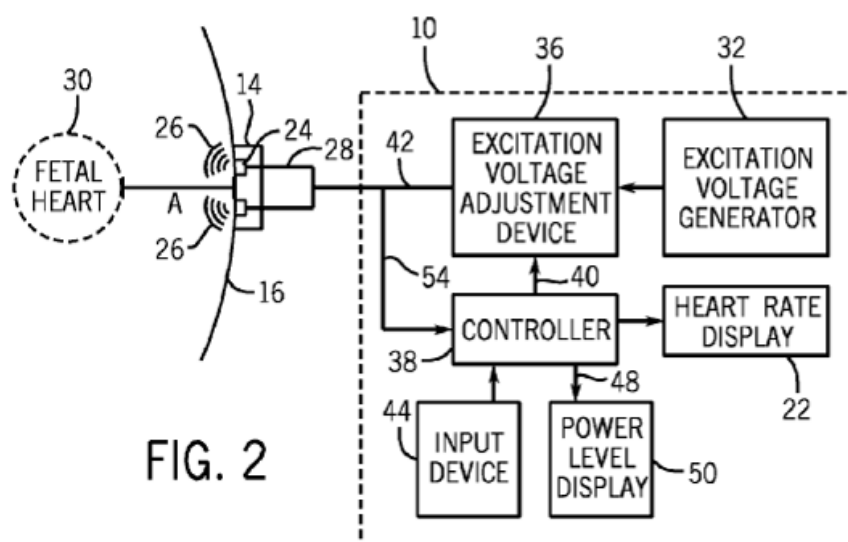
A61B 8/02

Measuring pulse or heart rate

Definition statement

This place covers:

Apparatus for detecting, measuring or recording pulse rate or heart rate, e.g. given in beats per minute.



[US2011152688]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring pulse or heart rate in general	A61B 5/024
Measuring pulse or heart rate for foetuses	A61B 5/02411
Ultrasonic heart imaging	A61B 8/0883
US blood vessel imaging	A61B 8/0891

Diagnosis using US Doppler signals	A61B 8/488
Pulse or heart rate derived from US image	A61B 8/5223

Special rules of classification

Typically done by analysis of Doppler signals ([A61B 8/488](#)) or derived from ultrasonic images ([A61B 8/5223](#)). For foetus heart rate, classify here and in [A61B 8/0866](#).

A61B 8/04

Measuring blood pressure

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring blood pressure in general	A61B 5/021
Ultrasonic blood vessels imaging	A61B 8/0891
Blood pressure derived from US image	A61B 8/5223

A61B 8/06

Measuring blood flow

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring blood flow in general	A61B 5/026
Ultrasonic blood vessels imaging	A61B 8/0891
Ultrasonic Doppler imaging	A61B 8/488
Measuring volume flow in general	G01F
Measuring the volume flow or mass flow of fluid or fluent solid material by measuring frequency, phase shift or propagation time of electromagnetic or other waves, e.g. using ultrasonic flowmeters	G01F 1/66
Devices for measuring pulsing fluid flows	G01F 1/72
Measuring speed of fluids in general	G01P 5/00

A61B 8/065

{to determine blood output from the heart}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Determination of blood output from the heart in general	A61B 5/029
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Heart imaging using ultrasound	A61B 8/0883
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A61B 8/08

Clinical applications ([A61B 8/02](#), [A61B 8/04](#), [A61B 8/06](#) take precedence)

Definition statement

This place covers:

Clinical application of the diagnosis device or methods, such as detecting organic movements or changes. A non-exhaustive list of examples of clinical applications includes the localisation or diagnosis of:

- tumours;
- cysts or nodules;
- calculi;
- swelling;
- blood vessels (except for subject matter covered by [A61B 8/02](#), [A61B 8/04](#) or [A61B 8/06](#));
- tissue interfaces.

References

Limiting references

This place does not cover:

Measuring pulse or heart rate	A61B 8/02
Measuring blood pressure	A61B 8/04
Measuring blood flow	A61B 8/06

Informative references

Attention is drawn to the following places, which may be of interest for search:

Diagnosis by electrical, magnetic, pressure or light sensing means, of particular parts of the body	A61B 5/40 - A61B 5/48
Diagnosis by radiation devices of particular parts of the body	A61B 6/50
Extraction of a diagnostic parameter from ultrasound images	A61B 8/5223

A61B 8/0808

{for diagnosis of the brain}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Head diagnosis using radiation	A61B 6/501
--------------------------------	----------------------------

A61B 8/0816**{using echo-encephalography}****Definition statement***This place covers:*

Use of ultrasound to study the intracranial structures of the brain, wherein pulse of ultrasonic waves are beamed through the head and echoes reflected by midline structures are recorded and analysed.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Diagnosis using electro-encephalography	A61B 5/369
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Special rules of classification

A typical application is Trans-Cranial Doppler (TCD) imaging wherein a Doppler acquisition ([A61B 8/488](#)) allows evaluation of blood flow in a variety of intracranial arteries by applying ultrasound to areas or windows of the skull where the bone is relatively thin. The Doppler acquisition may be combined ([A61B 8/5246](#)) with a B-mode acquisition for locating the arteries ([A61B 8/085](#)).

A61B 8/0825**{for diagnosis of the breast, e.g. mammography}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Mammography by transillumination	A61B 5/0091
X-ray mammography	A61B 6/502
Patient support for imaging suspended breast	A61B 8/406
Detection of breast cancer using biopsy	A61B 10/0041

Special rules of classification

May involve the use of specific positioning means ([A61B 8/40](#)), e.g. compression means ([A61B 8/403](#)) or means for positioning the patient in prone position ([A61B 8/406](#)). May also be used in combination with biopsy needles ([A61B 10/0041](#)), wherein the needle is attached to an ultrasound probe ([A61B 8/4455](#)) and / or tracked by the probe ([A61B 8/0841](#)).

A61B 8/0833**{involving detecting or locating foreign bodies or organic structures}****Definition statement***This place covers:*

Ultrasound diagnosis devices for localisation or tracking of organic structures (e.g. blood vessels) or foreign bodies, i.e. any kind of instrument or tissue which does not belong to the patient body by nature, e.g. tumour, implant, surgical instrument.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Other imaging methods for locating foreign bodies	A61B 5/06
Locating foreign bodies using radiation	A61B 6/12
Surgical navigation systems	A61B 34/20
Echogenic markers	A61B 90/39

A61B 8/0841

{for locating instruments}

Definition statement

This place covers:

Instruments like biopsy needles, catheters.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Biopsy needles	A61B 10/0038 - A61B 10/02
Surgical navigation systems	A61B 34/20

Special rules of classification

For example, a biopsy needle ([A61B 10/0041](#)) attached to an ultrasound probe ([A61B 8/4455](#)), wherein movement of the needle is tracked by the probe, would be classified here.

A61B 8/085

{for locating body or organic structures, e.g. tumours, calculi, blood vessels, nodules}

Definition statement

This place covers:

Detection of tumours, calculi, blood vessels, nodules for anatomical localization (e.g. detection of arteries as a support to Trans-cranial Doppler ultrasound) or diagnosis (evaluation of tumour size) purposes.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Locating particular structures in or on the body in general	A61B 5/4887
Processing for extracting a physiological parameter	A61B 8/5223

A61B 8/0866**{involving foetal diagnosis; pre-natal or peri-natal diagnosis of the baby}****Definition statement***This place covers:*

Pregnancy detection, foetal ultrasound monitoring in general (e.g. foetal imaging or foetal heart rate determination).

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Foetal pulse or heart rate determination in general	A61B 5/02411
Pregnancy and labour monitoring	A61B 5/4343
Foetal pulse or heart rate determination using (ultra/infra) sonic waves	A61B 8/02

A61B 8/0875**{for diagnosis of bone}****Definition statement***This place covers:*

Includes both quantitative analysis of bone material and visualization of bone structure.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Bone monitoring in general	A61B 5/4504
Bone diagnosis using radiation	A61B 6/505
Measuring interfaces by ultrasound	A61B 8/0858

A61B 8/0883**{for diagnosis of the heart}****Definition statement***This place covers:*

Includes both functional (e.g. heart-related physiological parameters) and anatomical (e.g. visualization of heart structure) analysis of the heart.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Electrocardiography	A61B 5/318
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X-ray heart imaging	A61B 6/503
Retrospective matching to a physiological signal	A61B 8/5284
Acquisition triggered by a physiological signal	A61B 8/543

Special rules of classification

Documents relating to heart rate ([A61B 8/02](#)) and / or blood output monitoring ([A61B 8/065](#)) should be classified here only if they describe other features pertaining to heart diagnosis. The same applies to documents relating to blood vessels analysis ([A61B 8/0891](#)).

As the heart is a permanently moving organ, diagnostic devices or methods are often adapted to take into account the dynamic aspects. In particular, retrospective ([A61B 8/5284](#)) or prospective ([A61B 8/543](#)) synchronization to a physiological signal may be used to obtain motion-free images. M-mode ([A61B 8/486](#)) or Doppler signals ([A61B 8/488](#)) may be used to visualize motion.

A61B 8/0891

{for diagnosis of blood vessels}

Definition statement

This place covers:

Mainly related to the structural diagnosis of blood vessels (since blood flow assessment is dealt with in [A61B 8/06](#)).

References

Limiting references

This place does not cover:

Measuring blood flow	A61B 8/06
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Locating blood vessels	A61B 5/489
Radiation imaging using contrast agents	A61B 6/481
X-ray blood vessels imaging	A61B 6/504
Use of ultrasound contrast agents, e.g. microbubbles	A61B 8/481

Special rules of classification

Documents relating to heart, brain or blood flow analysis should be classified here only if they describe other features pertaining to blood vessels diagnosis.

Blood vessels diagnosis is often performed using Doppler signals ([A61B 8/488](#)), due to the high accuracy of this technique to visualize blood moving inside the vessels.

A typical example of blood vessel diagnosis is compression ultrasonography, wherein venous compression ([A61B 8/403](#)) is applied and B-mode images are acquired to detect and locate ([A61B 8/085](#)) deep vein thrombosis.

A61B 8/10

Eye inspection

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for testing the eyes in general	A61B 3/00
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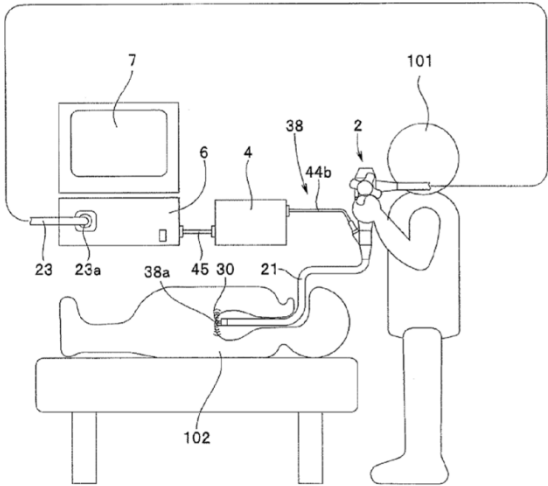
A61B 8/12

in body cavities or body tracts, e.g. by using catheters

Definition statement

This place covers:

Illustrative example of subject matter classified in this place:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Medical endoscopes	A61B 1/00
Details of catheter construction	A61B 8/445
Wireless probes	A61B 8/4472
Catheters per se	A61M 25/00

A61B 8/13

Tomography ([A61B 8/10](#), [A61B 8/12](#) take precedence)

Definition statement

This place covers:

Acquisition of a plurality of slices or planes (e.g. B-modes or C-mode images) for reconstruction of 2D or 3D images.

References

Limiting references

This place does not cover:

Eye inspection	A61B 8/10
Diagnosis using ultrasonic, sonic or infrasonic waves in body cavities or body tracts, e.g. by using catheters	A61B 8/12

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tomography for radiation diagnosis	A61B 6/02
Acquisition of a 3D volume of data	A61B 8/483

A61B 8/14

Echo-tomography

Definition statement

This place covers:

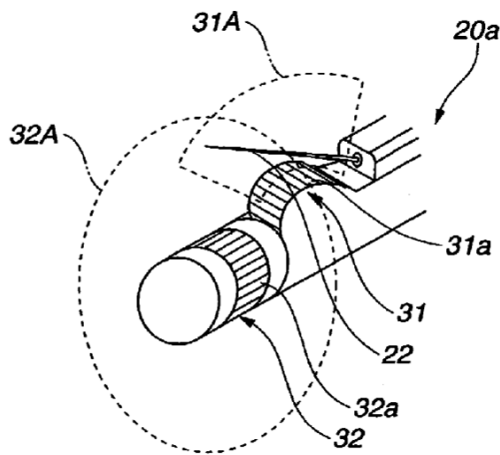
Tomography based on the measurement of waves reflected from the inspected structures, e.g. B-mode or C-mode images.

A61B 8/145

{characterised by scanning multiple planes}

Definition statement

This place covers:
Simultaneous acquisition of a plurality of planes.



[US2009082674]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Using several separate transducers or probes	A61B 8/4477
Using a specific transducer arrangement	A61B 8/4494

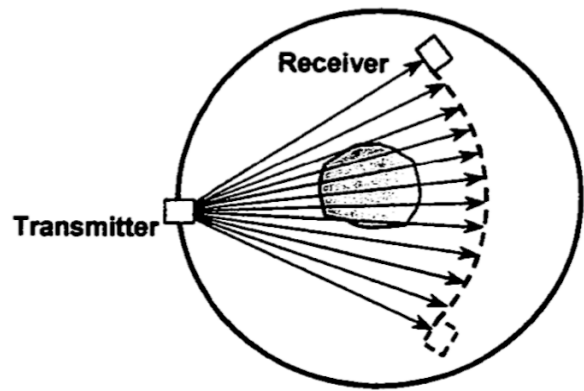
A61B 8/15

Transmission-tomography

Definition statement

This place covers:

Tomography based on the measurement of attenuation of waves transmitted or diffracted through the inspected structures.



[Jin and Wang, "Correction of the effects of acoustic heterogeneity on thermoacoustic tomography using transmission tomography", Proceedings of SPIE Vol.6086 (2006) 60860W-1 - 60860W-5, XP002447465]

A61B 8/40

{Positioning of patients, e.g. means for holding or immobilising parts of the patient's body}

Definition statement

This place covers:

Any means for supporting (e.g. tables, beds) or positioning (e.g. support position control, movement restraining devices) the patient, including immobilising part of the patient body.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

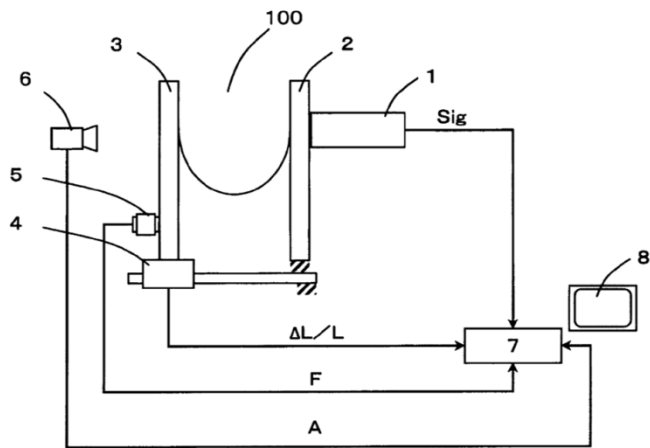
Positioning of patients in radiation diagnosis devices	A61B 6/04
--	---------------------------

A61B 8/403

{using compression means}

Definition statement

This place covers:



[WO2012036106]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

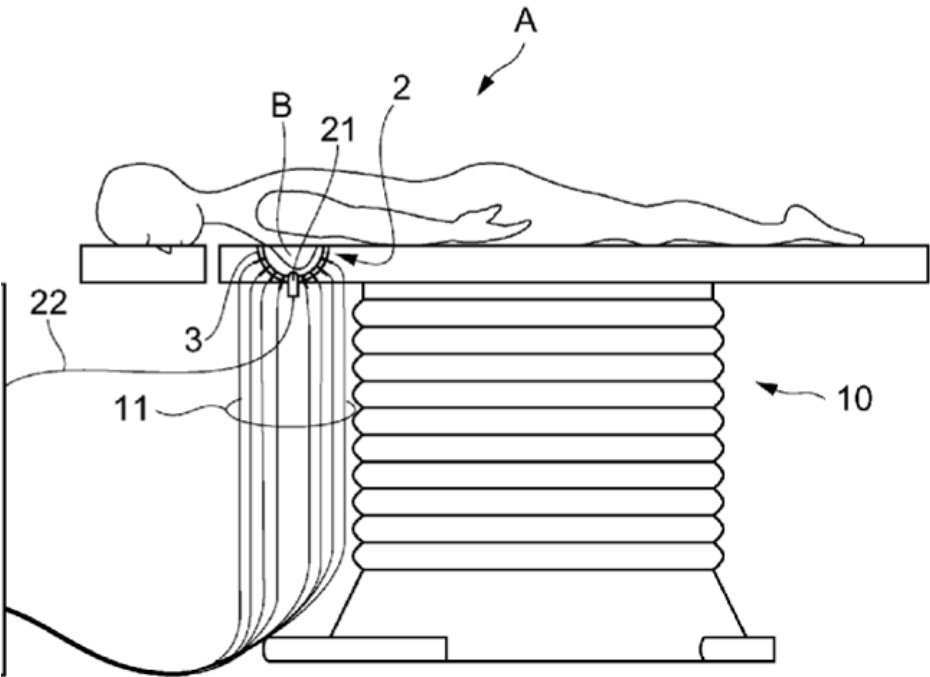
Patient supports using compression means in radiation diagnosis devices	A61B 6/0414
Diagnosis of breasts	A61B 8/0825
Diagnosis of blood vessels	A61B 8/0891

A61B 8/406

{using means for diagnosing suspended breasts}

Definition statement

This place covers:



[WO2012053518]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Patient supports for imaging suspended breasts using radiation	A61B 6/0435
Ultrasonic mammography	A61B 8/0825

A61B 8/42

{Details of probe positioning or probe attachment to the patient}

Definition statement

This place covers:

Any means for positioning and / or determining the position of the probe with respect to the patient.

References

Limiting references

This place does not cover:

Particular shape of the probe for better grip	A61B 8/4455
Details of transducer steering	A61B 8/4461

Informative references

Attention is drawn to the following places, which may be of interest for search:

Supports, positioning and alignment in fixed situation for ultrasound inspection of materials	G01N 29/223
Supports, positioning and alignment in moving situation for ultrasound inspection of materials	G01N 29/225

A61B 8/4209

{by using holders, e.g. positioning frames}

Definition statement

This place covers:

Any means for positioning the probe on the patient

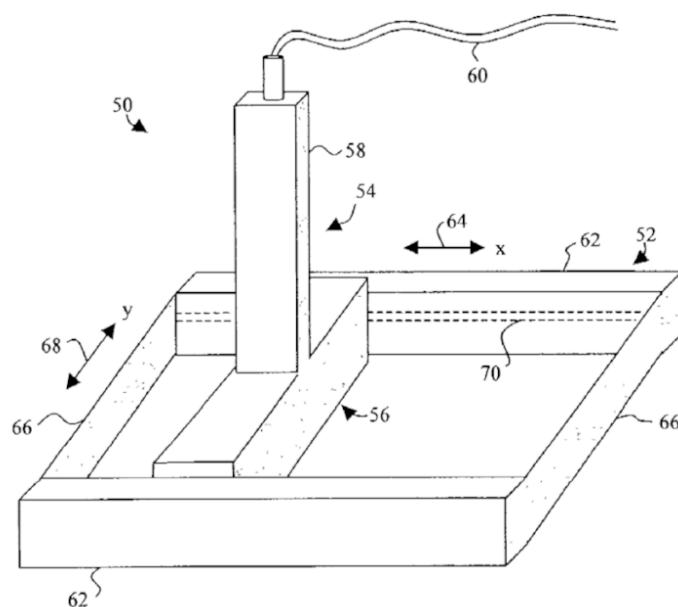


FIG. 1

[US2004087851]

A61B 8/4218**{characterised by articulated arms}****Definition statement***This place covers:*

Articulated arm (including sliding, pivoting) for holding the probe. May be provided with position encoders.

References**Limiting references***This place does not cover:*

Catheter with a probe at the tip	A61B 8/12
----------------------------------	---------------------------

A61B 8/4227**{characterised by straps, belts, cuffs or braces}****Definition statement***This place covers:*

Attachment of the probe with a strap, belt, cuff, brace. Probes mounted in a fitting attached to a strap.

A61B 8/4236**{characterised by adhesive patches}****Definition statement***This place covers:*

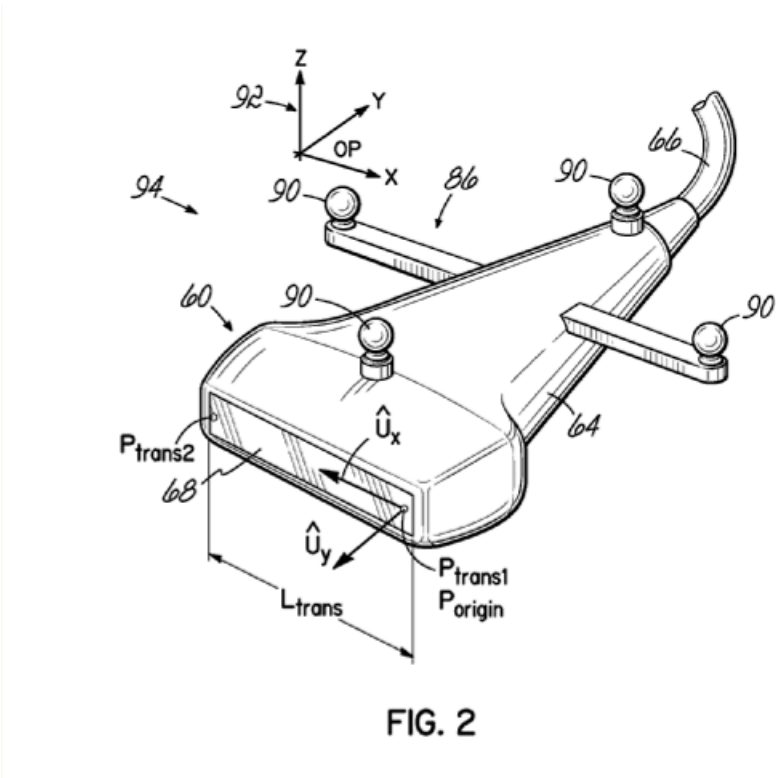
Adhesive patch for attaching the probe to the skin surface. May be combined with a swivelling/pivoting mount to allow change in probe position.

A61B 8/4245

{involving determining the position of the probe, e.g. with respect to an external reference frame or to the patient}

Definition statement

This place covers:
Any means for determining the position of the probe with respect to the patient or to an external reference, e.g. imaging or therapy system. Typically involves the use of a position and/or movement sensing unit provided either on/in the probe ([A61B 8/4254](#)) or outside the probe ([A61B 8/4263](#)).



[WO2012018851]

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Determination of probe position or applied pressure used to compress the tissue in sonoelastography	A61B 8/485
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Radiation devices for locating probes	A61B 6/12
Locating instruments by ultrasound	A61B 8/0841
Determining the quality of coupling between the probe and the tissue	A61B 8/429
Surgical navigation systems	A61B 34/20

A61B 8/4254**{using sensors mounted on the probe}****Definition statement***This place covers:*

Any kind of sensor within or attached to the ultrasound probe, providing information on the current position of the probe (e.g. accelerometer, coils sensing external magnetic fields, GPS-type position sensor).

References**Limiting references***This place does not cover:*

Position encoders part of an articulated arm	A61B 8/4218
Sensing the position of the probe from an external sensor	A61B 34/20

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Intracavitary probe positioning	A61B 8/12
---------------------------------	---------------------------

A61B 8/4263**{using sensors not mounted on the probe, e.g. mounted on an external reference frame}****Definition statement***This place covers:*

Any kind of probe position tracking means not attached to or part of the probe, e.g. tracking LED markers on the probe, tracking the probe position with a camera, probe emitting ultrasound signal for localisation purpose.

References**Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Intracavitary probe positioning	A61B 8/12
---------------------------------	---------------------------

A61B 8/4272**{involving the acoustic interface between the transducer and the tissue}****Definition statement***This place covers:*

Any means for facilitating, regulating or monitoring the quality of coupling between the transducer and the tissue.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Methods and devices for transmitting, directing or conducting sound in general	G10K 11/00
--	----------------------------

A61B 8/4281

{characterised by sound-transmitting media or devices for coupling the transducer to the tissue}

Definition statement

This place covers:

Any means used as interface between the transducer and the tissue, e.g. coupling pad, special conformable shape of the probe, fluid filled reservoir. The mere application of a layer of conducting gel between the probe and the skin does not require a classification in [A61B 8/4281](#), unless specific details of this application are described, e.g. gel containment structure on surface of the probe or particular gel mixture having specific viscosity.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Probe holders	A61B 8/4209
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A61B 8/429

{characterised by determining or monitoring the contact between the transducer and the tissue}

Definition statement

This place covers:

Any means for monitoring the quality of coupling between the transducer and the tissue. Also for the purpose of triggering/initiating image acquisition or for monitoring applied pressure in elastic imaging ([A61B 8/485](#)).

References

Limiting references

This place does not cover:

Measuring the position of the probe per se	A61B 8/4245
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Sonoelastography	A61B 8/485
------------------	----------------------------

A61B 8/44

{Constructional features of the ultrasonic, sonic or infrasonic diagnostic device}

Definition statement

This place covers:
Structural and mechanical features of the ultrasound device specially adapted for diagnostic use.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

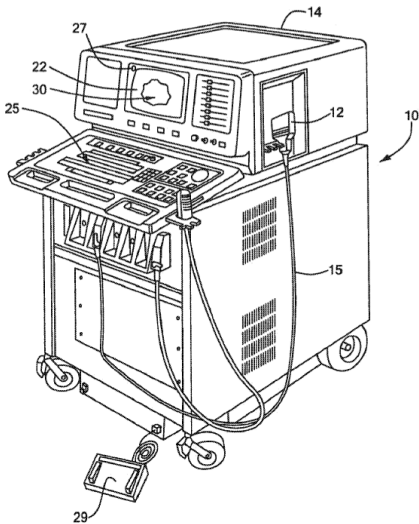
Constructional features of devices for short-range imaging with acoustic waves	G01S 7/52079
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A61B 8/4405

{Device being mounted on a trolley}

Definition statement

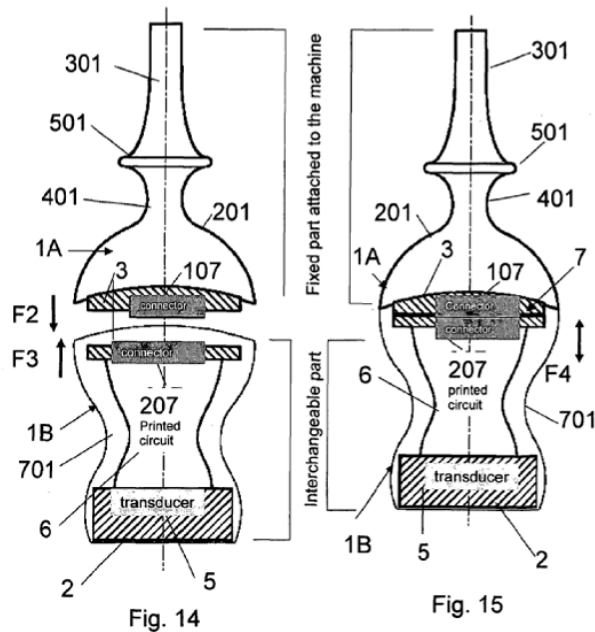
This place covers:
Apparatus mounted on casters or rollers, often resembling a cart / trolley and comprising a sonic probe. May include battery supply, telemetry means and display.



[US2012/0108965]

A61B 8/4411**{Device being modular}****Definition statement***This place covers:*

Modular construction of the device allowing parts to be exchanged or replaced either for mounting different types of components or for simpler disassembling and reassembling.



[EP1935343]

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

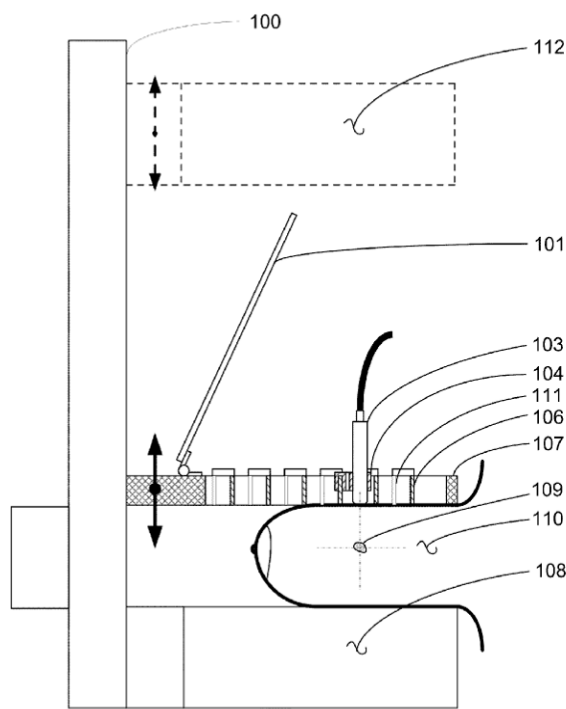
Modular devices for short-range imaging with acoustic waves	G01S 7/52082
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A61B 8/4416

{related to combined acquisition of different diagnostic modalities, e.g. combination of ultrasound and X-ray acquisitions}

Definition statement

This place covers:
Constructional arrangements for facilitating the combined use of different imaging modalities including translation from one device to the other or integration of different modalities in one device. At least one modality relates to ultrasound imaging.



[US2011/0295115: Combination of gamma-ray detector (112) and ultrasound probe (103)]

References

Limiting references

This place does not cover:

Using several separate ultrasound transducers or probes	A61B 8/4477
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A61B 8/4422

{related to hygiene or sterilisation}

Definition statement

This place covers:
Any means for protecting the probe from outside environment, e.g. hygienic cover.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

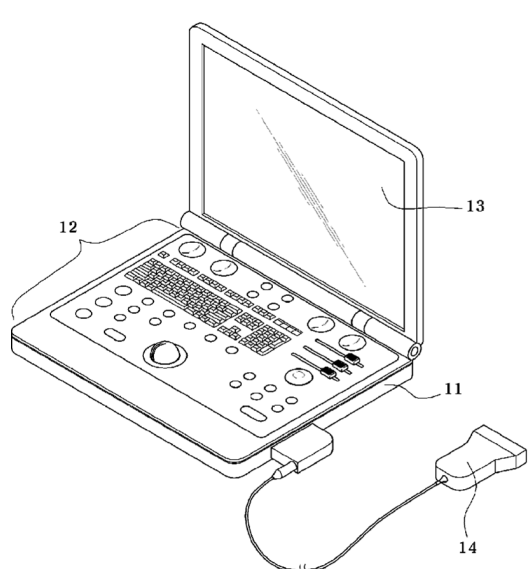
Sanitary sheaths for endoscopes	A61B 1/00142
---------------------------------	------------------------------

A61B 8/4427

{Device being portable or laptop-like}

Definition statement

This place covers:



[US2012083693]

A61B 8/4433

{involving a docking unit}

Definition statement

This place covers:

Docking unit or station for power or data transfer, either for connecting the probe or the monitoring unit

A61B 8/4438

{Means for identifying the diagnostic device, e.g. barcodes}

Definition statement

This place covers:

Any means for identifying the diagnostic apparatus or component parts thereof, e.g. replaceable components. Includes barcodes, memory chips or RFIDs.

A61B 8/444

{related to the probe}

Definition statement

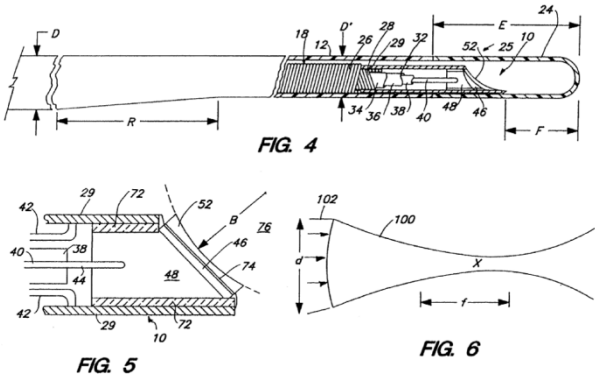
This place covers:
Constructional details of sonic diagnostic devices relating to the probe itself.

A61B 8/445

{Details of catheter construction}

Definition statement

This place covers:
Particular construction of catheter devices, e.g. balloons, pigtails, basket.



[US2003208119]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Use of catheters for ultrasound diagnosis	A61B 8/12
Catheters per se	A61M 25/00

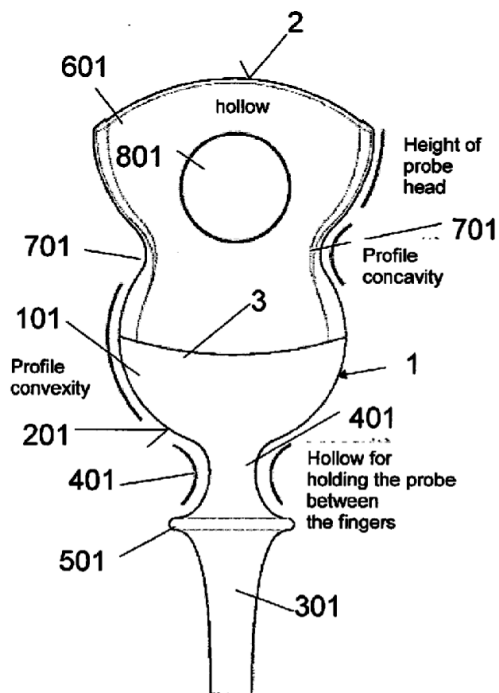
A61B 8/4455

{Features of the external shape of the probe, e.g. ergonomic aspects}

Definition statement

This place covers:

Any constructional related to the specific design of the external probe shape for a particular purpose, e.g. special grip, attachment for auxiliary devices, connectors.



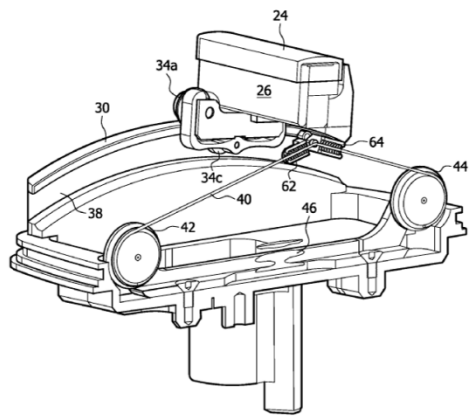
[EP1935343]

A61B 8/4461

{Features of the scanning mechanism, e.g. for moving the transducer within the housing of the probe}

Definition statement

This place covers:
Probes or catheters provided with a mechanical scanning mechanism allowing to move the transducer with respect to the probe housing, e.g. for beam steering.



[WO2010013175]

References

Limiting references

This place does not cover:

Electrical steering mechanisms	A61B 8/4488
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Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Intra-cavitary probes with motor driven transducer elements	A61B 8/12
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Informative references

Attention is drawn to the following places, which may be of interest for search:

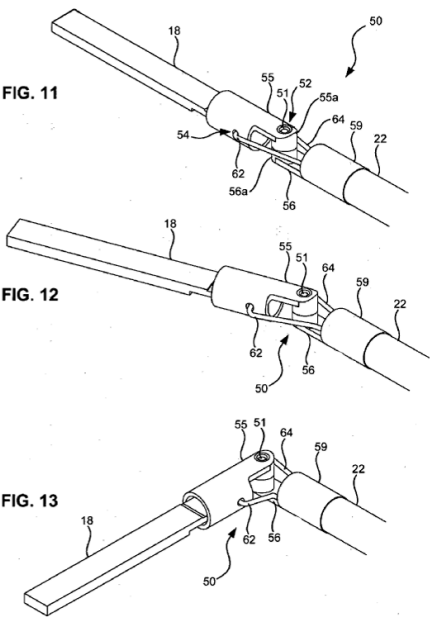
Dynamic transducer configuration in devices for short-range imaging with acoustic waves	G01S 15/8934
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A61B 8/4466

{involving deflection of the probe}

Definition statement

This place covers:
Probes comprising a scanning mechanism involving a deflection of the probe or part of the probe. Typically used by intracavitary probes ([A61B 8/12](#)).



[US2009264759]

A61B 8/4472

{Wireless probes}

Definition statement

This place covers:
Probes comprising wireless data and/or power transmission means. Includes pill-like cameras

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of data transmission	A61B 8/56
Wireless probes for inspecting or analysing materials	G01N 29/2481

A61B 8/4477**{using several separate ultrasound transducers or probes}****Definition statement***This place covers:*

Simultaneous use of multiple probes or transducers in similar or different modes for scanning of one or a plurality of patient body parts.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Using separate transducers for transmission and reception in devices for short-range imaging with acoustic waves	G01S 15/8913
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A61B 8/4483**{characterised by features of the ultrasound transducer}****Definition statement***This place covers:*

Specific details or configuration of the transducer adapted for medical imaging application, e.g. particular transducer shape

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Static transducer configuration in short-range imaging systems	G01S 15/8909
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A61B 8/4488**{the transducer being a phased array}****Definition statement***This place covers:*

Use of phased array transducers for electrical steering of the sound beam.

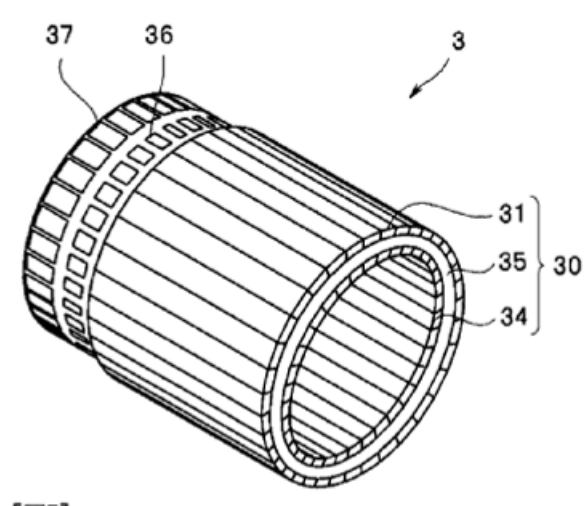
A61B 8/4494

{characterised by the arrangement of the transducer elements}

Definition statement

This place covers:

Particular arrangement of the transducer elements for facilitating the diagnostic technique, e.g. annular array on intracavitary probes ([A61B 8/12](#)) or T-shaped arrangement allowing to scan perpendicular planes simultaneously ([A61B 8/145](#)).



[WO2012127737]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements of transducers in generation of mechanical vibrations of infrasonic, sonic or ultrasonic frequency	B06B 1/0607
Devices for short-range imaging using particular transducer elements arrangements	G01S 15/8909

A61B 8/46

{Ultrasonic, sonic or infrasonic diagnostic devices with special arrangements for interfacing with the operator or the patient}

Definition statement

This place covers:

Ultrasound diagnostic devices comprising input and / or output means structurally or functionally designed for allowing a specific interaction with the device user.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the operation of medical equipment or devices	G16H 40/60
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Special rules of classification

Documents should be classified in these subgroups only if:

- they explicitly relate to ultrasound diagnosis devices AND
- they relate to details of the user interface.

A61B 8/461

{Displaying means of special interest}

Definition statement

This place covers:

Displays with special properties not covered by any of the subgroups.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Displays for electrocardiography	A61B 5/339
Displays in magnetic or electric diagnostics	A61B 5/742
Displays for radiation diagnostic	A61B 6/461

Special rules of classification

Touch screens should be classified here and as special input means ([A61B 8/467](#)).

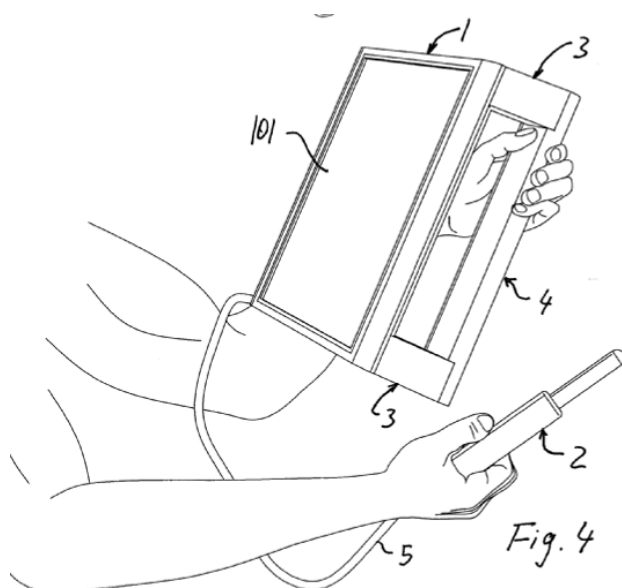
A61B 8/462

{characterised by constructional features of the display}

Definition statement

This place covers:

Construction or arrangement of display. Also for goggle-like or head up displays. Supports for display.



[WO2010012314]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Display arrangements for sonar systems	G01S 7/52053
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A61B 8/463

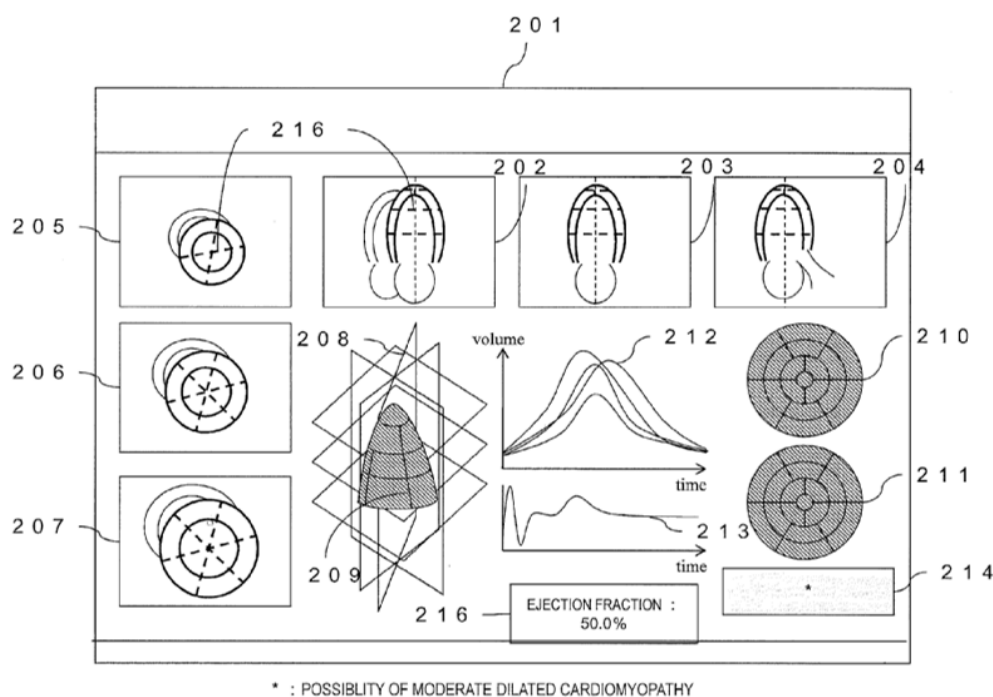
{characterised by displaying multiple images or images and diagnostic data on one display}

Definition statement

This place covers:

Combination of images, e.g. side-by-side, superimposed.

Combination of images and other data type, e.g. ECG waveforms or alphanumeric information.



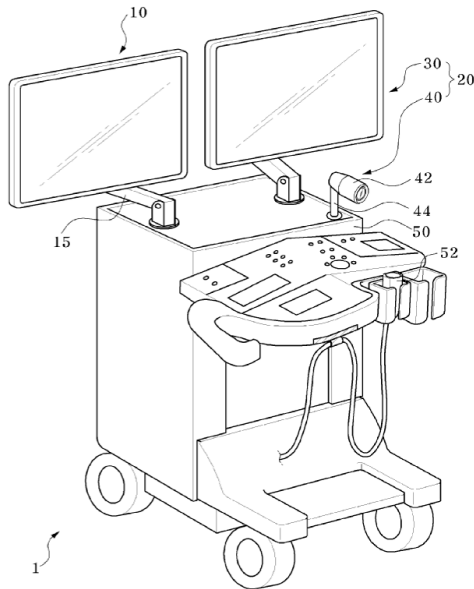
[EP2415401]

References

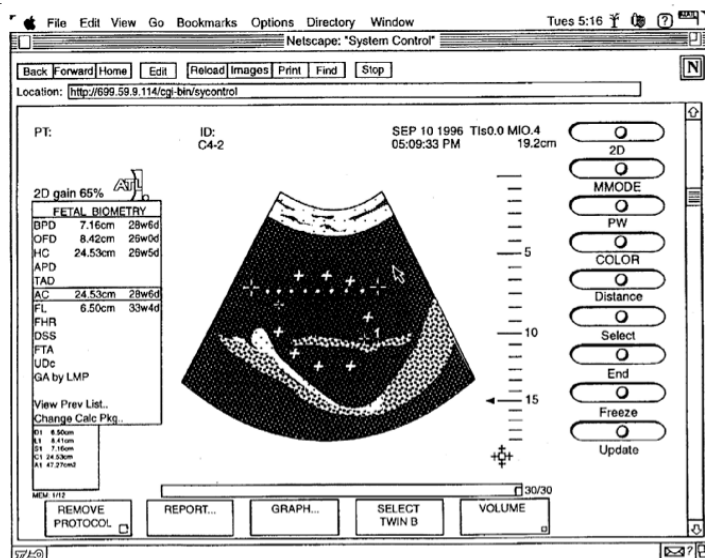
Informative references

Attention is drawn to the following places, which may be of interest for search:

Processing means adapted for combining images	A61B 8/5238
Composite display in devices for short-range imaging with acoustic waves	G01S 7/52074

A61B 8/464**{involving a plurality of displays}****Definition statement***This place covers:*

[US2011/0208050]

A61B 8/465**{adapted to display user selection data, e.g. icons or menus}****Definition statement***This place covers:*

[EP0833266]

A61B 8/466**{adapted to display 3D data}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

3D imaging and stereoscopic displays in devices for short-range imaging with acoustic waves	G01S 15/8993 , G01S 7/52068
3D image rendering per se	G06T 15/00

A61B 8/467**{characterised by special input means}****Definition statement***This place covers:*

Both constructional (e.g. touch screen, trackball) and functional aspects (e.g. specific purpose) of input means.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Particular user interfaces in devices for short-range imaging with acoustic waves	G01S 7/52084
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A61B 8/468**{allowing annotation or message recording}****Definition statement***This place covers:*

All types of message recording associated with ultrasound imaging, e.g. annotation on image, sound recording.

A61B 8/469**{for selection of a region of interest}****Definition statement***This place covers:*

Operator selection of region of interest or specific organs to be imaged, e.g. by touch screen, keyboard or switch. Also for definition of ROI after image analysis.

A61B 8/48**{Diagnostic techniques ([A61B 8/13](#) takes precedence)}****Definition statement***This place covers:*

Use of a particular imaging technique or protocol involving ultrasonic waves to obtain a specific image type.

References**Limiting references***This place does not cover:*

Ultrasound tomography	A61B 8/13
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A61B 8/481**{involving the use of contrast agents, e.g. microbubbles introduced into the bloodstream}****Definition statement***This place covers:*

Use of substance, typically introduced into the body, which presents echogenic properties and can therefore be identified and / or tracked by the diagnostic device. Also for surgical instruments coated with echogenic materials to allow them to be tracked ([A61B 8/0841](#)).

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Diagnosis of blood vessels	A61B 8/0891
Echographic preparations; Ultrasonic imaging preparations	A61K 49/22
Analysis of echo signal exploiting properties of a contrast enhancer in devices for short-range imaging with acoustic waves	G01S 7/52039

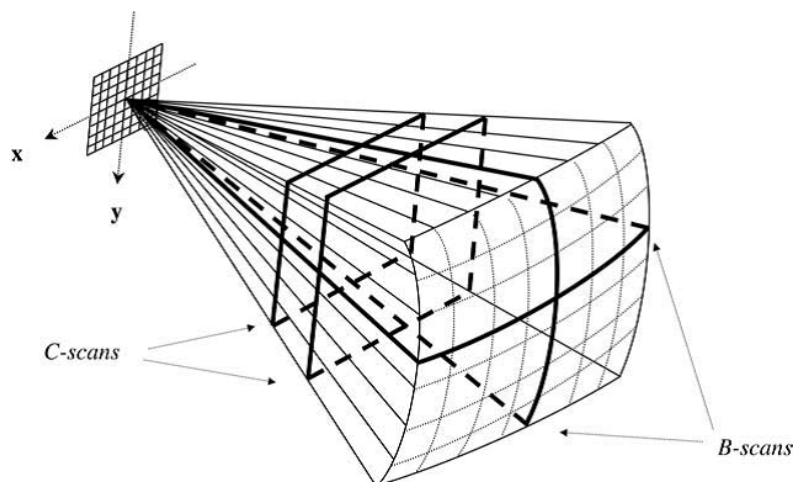
A61B 8/483

{involving the acquisition of a 3D volume of data}

Definition statement

This place covers:

Direct acquisition of a 3 dimensional image, e.g. a combination of B-mode and C-mode images.



[Smith et al., "Feasibility study: Real-time 3-D ultrasound imaging of the brain", Ultrasound in Medicine and Biology 30(10) (2004)1365-1371, XP004872070]

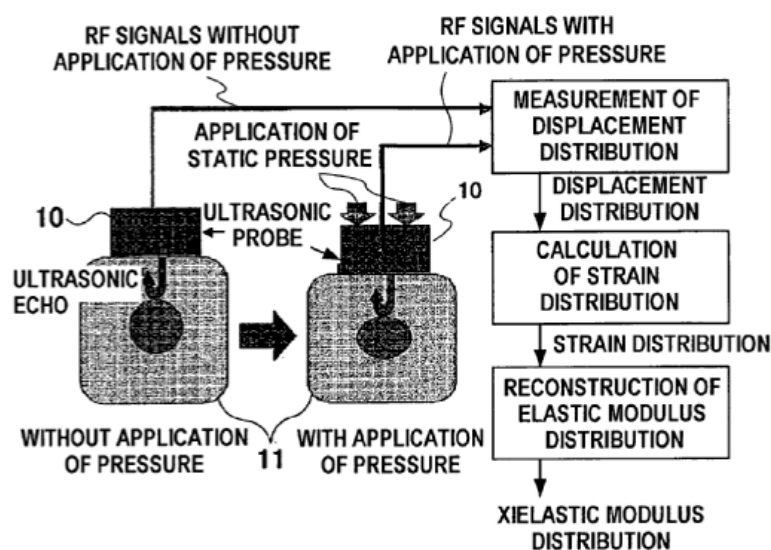
A61B 8/485

{involving measuring strain or elastic properties}

Definition statement

This place covers:

Imaging elastic properties (e.g. strain, elastic modulus, stiffness) of tissue by exciting the tissue (by direct mechanical means or ultrasonic radiation force) and detecting the resulting displacement, motion or deformation.



[EP1541090]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Determining or monitoring contact between transducer and tissue	A61B 8/429
Extracting elastic properties in devices for short-range imaging with acoustic waves	G01S 7/52042

Special rules of classification

Detection of the effects of tissue excitation can be performed by Doppler measurement ([A61B 8/488](#)) or pulse-echo methods. Resultant information is usually displayed as images (called elastograms), representing the spatial distribution of strains, shear waves, elastic moduli or tissue stiffness. Elastograms are often fused with B-mode images ([A61B 8/5246](#)) to facilitate identification of the anatomical structures to which they relate.

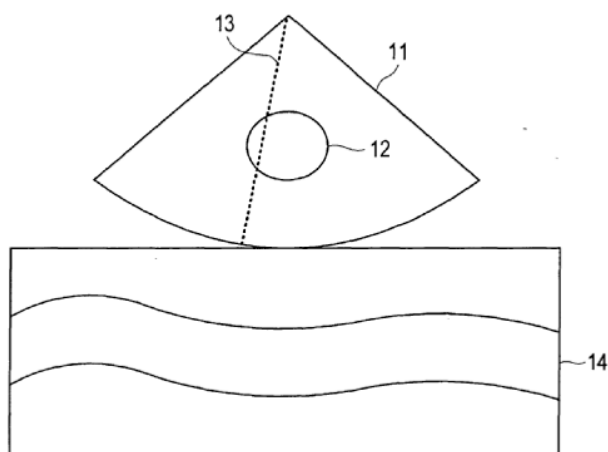
A61B 8/486

{involving arbitrary m-mode}

Definition statement

This place covers:

Motion-mode ultrasound wherein pulses are emitted in quick succession along the same path to visualize the spatial variation (e.g. movement) of a reflecting structure as a function of time. May be directly acquired or reconstructed from arbitrary line (straight, curved or polygonal) defined by a user on a B-mode image.



[EP1679038]

A61B 8/488**{involving Doppler signals}****Definition statement***This place covers:*

Ultrasound imaging technique using the wavelength (or frequency) shift of ultrasound waves reflected from moving structures. Typically used for the diagnosis of dynamic structures function, e.g. heart movement or blood flow.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

For measuring pulse or heart rate	A61B 8/02
For measuring blood flow	A61B 8/06
For heart diagnosis	A61B 8/0883
For blood vessels diagnosis	A61B 8/0891

Special rules of classification

Often fused with B-mode images ([A61B 8/5246](#)) to facilitate identification of the anatomical structures to which Doppler signals relate.

A61B 8/52**{Devices using data or image processing specially adapted for diagnosis using ultrasonic, sonic or infrasonic waves}****Definition statement***This place covers:*

Ultrasound diagnosis devices involving any kind of data or image processing for enhancement purposes, e.g. artefacts reduction or resolution improvement.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Image processing per se	G06T
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Special rules of classification

Documents should be classified in these subgroups only if:

- they explicitly relate to ultrasound diagnosis devices AND
- they relate to details of data or image processing.

Image processing alone should not be classified in [A61B 8/00](#), except when it consists in straightforward steps (e.g. thresholding, filtering) directed to an explicit diagnostic application.

A61B 8/5207

{involving processing of raw data to produce diagnostic data, e.g. for generating an image}

Definition statement

This place covers:

Pre-processing of data output from sensor to derive data usable for diagnostic purpose, e.g. filtering, phase modification.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

2D [Two Dimensional] image generation	G06T 11/00
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A61B 8/5215

{involving processing of medical diagnostic data}

Definition statement

This place covers:

Any kind of post-acquisition image processing

A61B 8/5223

{for extracting a diagnostic or physiological parameter from medical diagnostic data (for algorithms to analyse biomedical images [G06T 7/0012](#))}

Definition statement

This place covers:

Acquired data is used to derive a particular diagnostic index, e.g. tumour size.

References**Limiting references**

This place does not cover:

Algorithms for biomedical image analysis	G06T 7/0012
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Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for computer-aided diagnosis	G16H 50/00
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A61B 8/523

{for generating planar views from image data in a user selectable plane not corresponding to the acquisition plane}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Ultrasound diagnosis devices adapted to display 3D data	A61B 8/466
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A61B 8/5238

{for combining image data of patient, e.g. merging several images from different acquisition modes into one image}

Definition statement

This place covers:

Means for combining images of one or several imaging modalities, e.g. merging of contiguous sub-images to obtain a larger image or multi-modality image registration.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Determination of transform parameters for the alignment of images, i.e. image registration	G06T 7/30
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A61B 8/5246

{combining images from the same or different imaging techniques, e.g. color Doppler and B-mode}

Definition statement

This place covers:

Combining images of the patient obtained by a diagnostic technique classified under [A61B 8/00](#).

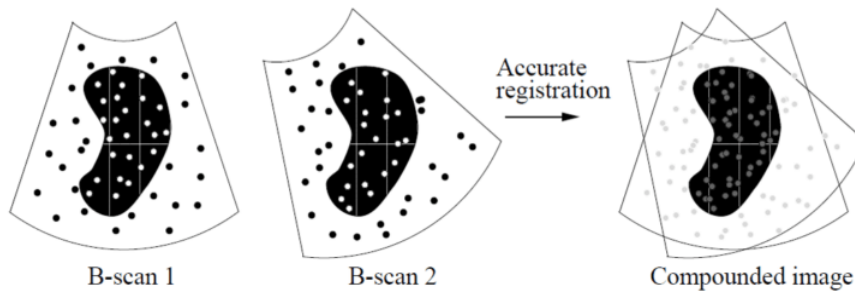
A61B 8/5253

{combining overlapping images, e.g. spatial compounding}

Definition statement

This place covers:

Compilation of multiple views acquired at different angles.



[Rohling, PhD Thesis : 3D Freehand Ultrasound: Reconstruction and spatial compounding]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

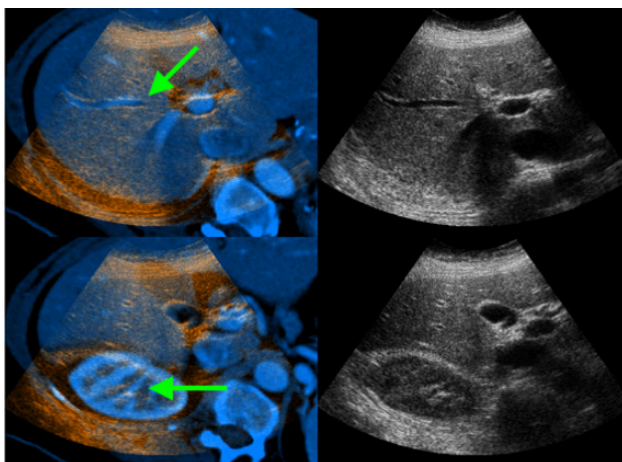
Spatial compounding for short range imaging systems	G01S 15/8995
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A61B 8/5261

{combining images from different diagnostic modalities, e.g. ultrasound and X-ray}

Definition statement

This place covers:



[Wein et al., "Automatic CT-ultrasound registration for diagnostic imaging and image-guided intervention", Medical Image Analysis, Volume 12, Issue 5, October 2008, Pages 577-585,]

A61B 8/5269**{involving detection or reduction of artifacts}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Elimination of unwanted signals in devices for short-range imaging using acoustic waves	G01S 7/52077
Image enhancement or restoration	G06T 5/00
Determining parameters from multiple pictures	G06T 7/97

A61B 8/5276**{due to motion}****Definition statement***This place covers:*

Data or image processing for artefact reduction wherein the artefacts are caused by motion.

A61B 8/5284**{involving retrospective matching to a physiological signal}****Definition statement***This place covers:*

Arranging or processing an image or a plurality of images after acquisition for synchronization purpose. Includes synchronization based on an independently acquired signal (e.g. ECG) or on a feature derived from the image(s).

References**Limiting references***This place does not cover:*

Synchronizing the ultrasound measurement to a physiological event	A61B 8/543
Retrospective scan-line arrangements in devices for short-range imaging using acoustic waves	G01S 7/52088

A61B 8/5292**{using additional data, e.g. patient information, image labeling, acquisition parameters}****Definition statement***This place covers:*

Processing of data using non measured data, such as patient name and age, or image identification. Non measured data can be typically found in the header of a digital image file (e.g. a DICOM header).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the handling or processing of patient-related medical or healthcare data	G16H 10/00
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A61B 8/54

{Control of the diagnostic device}

Definition statement

This place covers:

Ultrasound diagnosis devices comprising means for adapting the operation of the device during acquisition.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the operation of medical equipment or devices	G16H 40/60
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A61B 8/543

{involving acquisition triggered by a physiological signal}

Definition statement

This place covers:

Acquisition control wherein a signal of physiological origin (heart rate, breathing rate) is used to initiate acquisition.

References

Limiting references

This place does not cover:

Retrospective matching to a physiological signal	A61B 8/5284
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Synchronization techniques in devices for short-range imaging using acoustic waves	G01S 7/52087
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A61B 8/546**{involving monitoring or regulation of device temperature}****Definition statement***This place covers:*

Any means for controlling or assessing the temperature of the diagnosis device, e.g. cooling means for preventing skin burn

A61B 8/56**{Details of data transmission or power supply}****Definition statement***This place covers:*

Ultrasound diagnosis devices comprising:

- means for transmitting or receiving data to or from an external device or between components of the device, e.g. image transmission to a remote physician workstation for diagnosis; or
- means for supplying power to any component of the device, e.g. between stationary and moving parts.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Docking units for ultrasound devices	A61B 8/4433
Wireless diagnostic ultrasound probes	A61B 8/4472

A61B 8/565**{involving data transmission via a network}****Definition statement***This place covers:*

Transmission of diagnostic image data via a network, e.g. from a diagnostic device to a server for archiving.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the handling or processing of patient-related medical or healthcare data	G16H 10/00
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A61B 8/58**{Testing, adjusting or calibrating the diagnostic device}****Definition statement***This place covers:*

Any calibration related features or methods, including phantoms.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Means for monitoring or calibrating in devices for short-range imaging using acoustic waves	G01S 7/5205
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A61B 8/582**{Remote testing of the device}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

ICT specially adapted for the remote operation of medical equipment or devices	G16H 40/67
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A61B 8/585**{Automatic set-up of the device}****Definition statement***This place covers:*

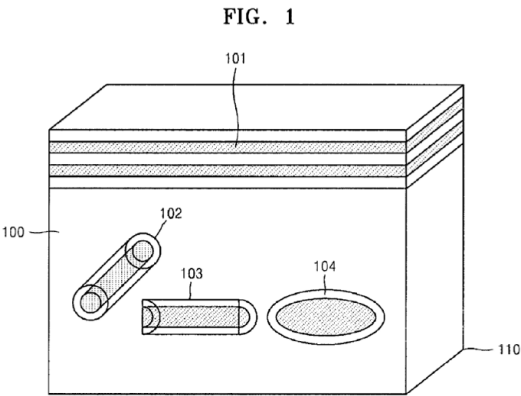
Automatic setup of data acquisition parameters (diagnostic protocol) using patient specific information, e.g. weight, height and/or diagnostic specific information.

A61B 8/587

{Calibration phantoms}

Definition statement

This place covers:
Methods or devices for calibration where a reference object (phantom) is used to determine particular properties of the diagnosis device.



[US2008139933]

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Calibration phantoms for radiation diagnosis devices	A61B 6/583
Models for medical purposes	G09B 23/28

A61B 9/00

Instruments for examination by percussion; Pleximeters

Definition statement

This place covers:
Any device used for tapping on a surface of a body area in order to determine the underlying structure condition, e.g. reflex hammer.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Percussion or vibration massage	A61H 23/00
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Pleximeter	Plate to be struck in mediate percussion, generally by a reflex hammer
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A61B 9/005

{Electric apparatus for detecting reflex action, e.g. monitoring depth of anaesthesia (detection of movements [A61B 5/11](#))}

References

Limiting references

This place does not cover:

Determining the level of anaesthesia by measuring a physiological parameter, e.g. EEG, EMG	A61B 5/4821
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Detection of movement	A61B 5/11
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A61B 10/00

Instruments for taking body samples for diagnostic purposes (for taking samples of blood [A61B 5/15](#)); Other methods or instruments for diagnosis, e.g. for vaccination diagnosis, sex determination or ovulation-period determination; Throat striking implements

Definition statement

This place covers:

Instruments or methods for taking body samples for diagnostic purposes. Examples of such instruments and their uses include, but are not limited to:

- biopsy devices;
- devices for taking cell samples;
- devices for taking fluid samples (except blood samples [A61B 5/15](#)); and
- devices to acquire samples for detection of breast cancer.

Other methods or instruments for diagnosis include, but are not limited to:

- for vaccination diagnosis;
- sex determination;
- ovulation-period determination; and
- throat striking implements.

References

Limiting references

This place does not cover:

Devices for taking samples of blood	A61B 5/15
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Surgical instruments in general	A61B 17/00
Surgical cutting instruments	A61B 17/32
Swabs	A61F 13/15
Containers for laboratory use	B01L 3/00
Containers in general	B65D
Containers for enzymology or microbiology	C12M 1/16
Preparing specimens for investigation	G01N 1/00
Menstruation tables	G06C 3/00

Special rules of classification

The breakdown indexing codes and orthogonal indexing codes are to be used for classifying the invention information (in addition to the invention symbols) in case the invention is insufficiently classified by an invention information symbol. They are also to be used for classifying the additional information.

A61B 10/0012

{Ovulation-period determination (for animals [A61D 17/002](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ovulation determination for animals	A61D 17/002
Menstruation tables	G06C 3/00

A61B 10/0038

{Devices for taking faeces samples; Faecal examination devices (anal receptacles [A61F 5/451](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Anal receptacles	A61F 5/451
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A61B 10/0041

{Detection of breast cancer (mammography by transillumination [A61B 5/0091](#), by X-rays [A61B 6/502](#), by ultrasonic means [A61B 8/0825](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Mammography by transillumination	A61B 5/0091
Mammography by X-rays	A61B 6/502
Mammography by c ultrasonic means	A61B 8/0825

A61B 10/0051

{for taking saliva or sputum samples (devices for receiving spittle [A61J 9/00](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Devices for receiving spittle	A61J 9/00
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A61B 10/0058

{for taking sperm samples (artificial insemination [A61B 17/43](#); for animals [A61D 19/021](#); genital receptacles for the male member [A61F 5/453](#); massage of the genitals [A61H 19/00](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Artificial insemination	A61B 17/43
For animals	A61D 19/021
Genital receptacles for the male member	A61F 5/453
Massage of the genitals	A61H 19/00

A61B 10/0064

{for taking sweat or sebum samples (measuring sweat production [A61B 5/4266](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring sweat production	A61B 5/4266
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A61B 10/007

{for taking urine samples (measuring urological functions [A61B 5/20](#); genital receptacles [A61F 5/451](#); urinals for bed-ridden persons [A61G 9/006](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Measuring urological functions	A61B 5/20
Genital receptacles	A61F 5/451
Urinals for bed-ridden persons	A61G 9/006

A61B 10/0096

{Casings for storing test samples ([A61B 10/0038](#), [A61B 10/0045](#) take precedence; preservation of living parts of the human or animal body [A01N 1/10](#); containers for retaining a material to be analysed [B01L 3/50](#); containers for enzymology or microbiology [C12M 1/16](#); swab-sampler being part of enzymology or microbiology container [C12M 1/30](#))}

References**Limiting references**

This place does not cover:

Devices for taking faeces samples	A61B 10/0038
Devices for taking samples of body liquids	A61B 10/0045

Informative references

Attention is drawn to the following places, which may be of interest for search:

Preservation of excised living parts of the human or animal body	A01N 1/10
Containers for retaining a material to be analysed	B01L 3/50
Containers in general	B65D
Apparatus for microbiology	C12M 1/00
Containers for enzymology or microbiology	C12M 1/16

Swab-sampler being part of enzymology or microbiology container	C12M 1/30
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A61B 10/02

Instruments for taking cell samples or for biopsy {([A61B 10/0038](#) and [A61B 10/0045](#) take precedence; needle locating or guiding means [A61B 17/3403](#); samplers for enzymology or microbiology [C12M 1/26](#); sampling or preparing biological specimens [G01N 33/48](#))}

References

Limiting references

This place does not cover:

Devices for taking faeces samples	A61B 10/0038
Devices for taking samples of body liquids	A61B 10/0045

Informative references

Attention is drawn to the following places, which may be of interest for search:

Surgical Instruments	A61B 17/00 - A61B 17/42
Surgical cutting instruments with sample retaining means	A61B 2017/320064
Needle location or guiding means	A61B 17/3403
Accessories for Surgery and Diagnosis	A61B 90/00
Samplers for enzymology or microbiology	C12M 1/26
Sampling or preparing biological specimens	G01N 33/48

A61B 10/0241

{for prostate}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Minimally invasive operation on prostate:	A61B 2017/00274
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A61B 10/025

{for taking bone, bone marrow or cartilage samples}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Trocars for bone	A61B 17/3472
Filters for solid matter	A61M 1/79

A61B 10/0266**{means for severing sample}****Definition statement***This place covers:*

e.g. with a cutter

A61B 10/0275**{with sample notch, e.g. on the side of inner stylet}****Definition statement***This place covers:*

devices with a sample notch, which may be, e.g. on an inner stylet or on an outer cannula

A61B 10/0283**{with vacuum aspiration, e.g. caused by retractable plunger or by connected syringe ([A61B 10/025](#), [A61B 10/0266](#) take precedence)}****References****Limiting references***This place does not cover:*

Instruments for taking bone, bone marrow or cartilage samples	A61B 10/025
Instruments with means for severing sample	A61B 10/0266

A61B 10/0291**{for uterus ([A61B 10/0045](#) takes precedence)}****Definition statement***This place covers:*

devices used in or near the uterus, includes devices for cervix

References**Limiting references***This place does not cover:*

Devices for taking samples of body liquids	A61B 10/0045
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

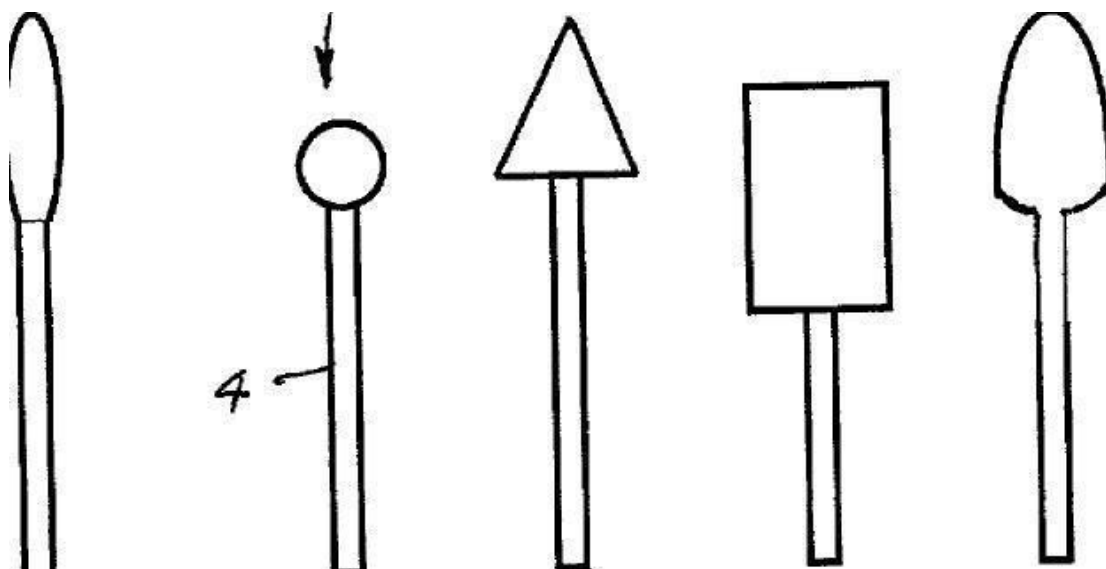
Gynecological or obstetrical instruments	A61B 17/42
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A61B 10/04**Endoscopic instruments, e.g. catheter-type instruments****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Endoscopes per se	A61B 1/00
General surgery devices to be introduced in the working channel of an endoscope	A61B 2017/0034
Catheters per se	A61M 25/00

A61B 10/06**Biopsy forceps {, e.g. with cup-shaped jaws}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

General surgical forceps	A61B 17/28
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A61B 13/00**Instruments for depressing the tongue (combined with illuminating and viewing instruments [A61B 1/24](#); combined with saliva removers [A61C 17/10](#))****Definition statement***This place covers:**Illustrative example of subject matter classified in this place:*

References

Limiting references

This place does not cover:

Stomatoscopes when combined with illuminating and viewing instruments	A61B 1/24
Saliva removers with mouth props, tongue guards, tongue depressors or cheek spreaders	A61C 17/10

A61B 16/00

Devices specially adapted for vivisection or autopsy

Definition statement

This place covers:

Instruments or appliances used in connection with autopsy.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

similar devices for medical purposes, see the relevant groups for such devices, e.g.

Similar devices for surgical purposes	A61B 17/00
Preservation of bodies of humans or animals	A01N 1/00
Operating tables	A61G 13/00
Autopsy tables	A61G 13/0027

A61B 17/00

Surgical instruments, devices or methods ([A61B 18/00](#) takes precedence; dental tools [A61C 3/00](#); eye surgery [A61F 9/007](#); ear surgery [A61F 11/20](#))

References

Limiting references

This place does not cover:

Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body	A61B 18/00
Dental tools	A61C 3/00
Eye surgery	A61F 9/007
Ear surgery	A61F 11/20

Informative references

Attention is drawn to the following places, which may be of interest for search:

Implanting tools, for dentistry	A61C 8/00
Contraceptive devices, pessaries, or applicators therefor	A61F 6/00

Special rules of classification

The use of the CPC indexing codes (2000-series symbols which include both breakdown and orthogonal symbols) for classifying the additional information is mandatory in this field.

The breakdown and the orthogonal symbols of [A61B 17/00](#) are also used for documents classified in the main trunk of [A61B 18/00](#) to index relevant aspects for which no suitable symbol is available under [A61B 18/00](#), [A61B 2018/00005](#) or [A61B 2218/00](#).

A61B 2017/00004

{{(bio)absorbable, (bio)resorbable or resorptive}}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bioabsorbable prostheses	A61F 2210/0004
--------------------------	--------------------------------

A61B 2017/00115

{with audible or visual output}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Surgical navigation systems for tracking or guiding surgical instruments	A61B 34/20
Surgical systems with images on a monitor during operations	A61B 90/37

A61B 2017/00353

{one mechanical instrument performing multiple functions, e.g. cutting and grasping}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Implements for squeezing-off ulcers or the like with an instrument channel	A61B 2017/22072
Surgical forceps with releasable heads	A61B 2017/2931
Cannulas used as instrument channel for multiple instruments	A61B 2017/3445
Suction or pumping devices for medical purposes	A61M 1/00

A61B 2017/0046**{with a releasable handle; with handle and operating part separable}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Special tools for insertion or extraction of endoprosthetic joints or of accessories thereof	A61F 2/4603
--	-----------------------------

A61B 2017/00464**{for use with different instruments}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Implements for squeezing-off ulcers or the like with an instrument channel, e.g. for replacing one instrument by the other	A61B 2017/22072
--	---------------------------------

A61B 17/00491**{Surgical glue applicators}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Surgical adhesives	A61L 24/00
Two-component delivery syringes	A61M 5/19

A61B 2017/00858**{high friction or non-slip}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Surgical instruments with a roughened portion for gripping	A61B 2017/00429
--	---------------------------------

A61B 2017/00862**{elastic or resilient}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

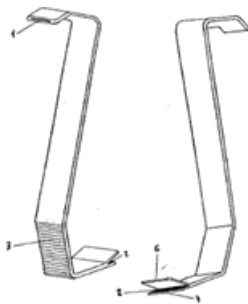
Elastic sutures, e.g. stretchable	A61B 2017/0618
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A61B 2017/00867**{shape memory effect}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Prostheses using shape memory or superelastic materials, e.g. nitinol	A61F 2210/0014
---	--------------------------------

A61B 17/02**for holding wounds open, e.g. retractors; Tractors****Definition statement***This place covers:*

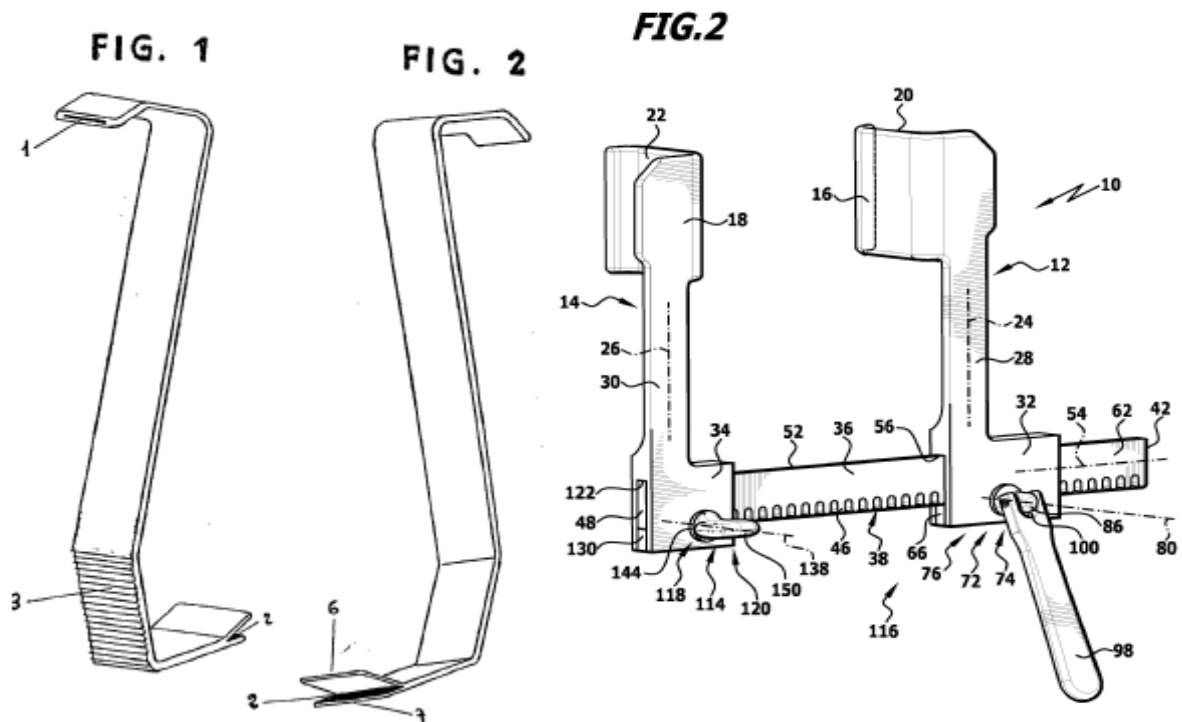
Illustrative example of subject matter classified in this place:

**References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

With illuminating arrangements	A61B 1/06
Devices for opening or enlarging the visual field, e.g. of a tube of the body	A61B 1/32
Device for performing tracheotomy	A61M 16/0472
Drainage appliances for wounds	A61M 27/00
Dilators	A61M 29/00

A61B 17/0206**{with antagonistic arms as supports for retractor elements}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/0206](#)

EP 2 241 262 A1



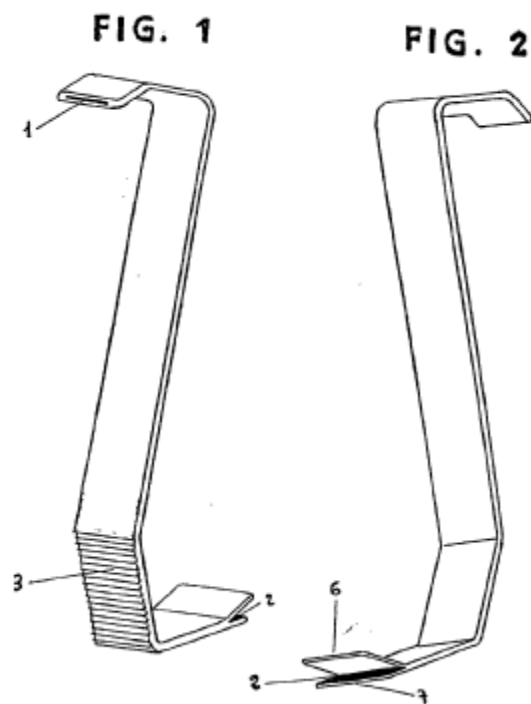
A61B 17/0218

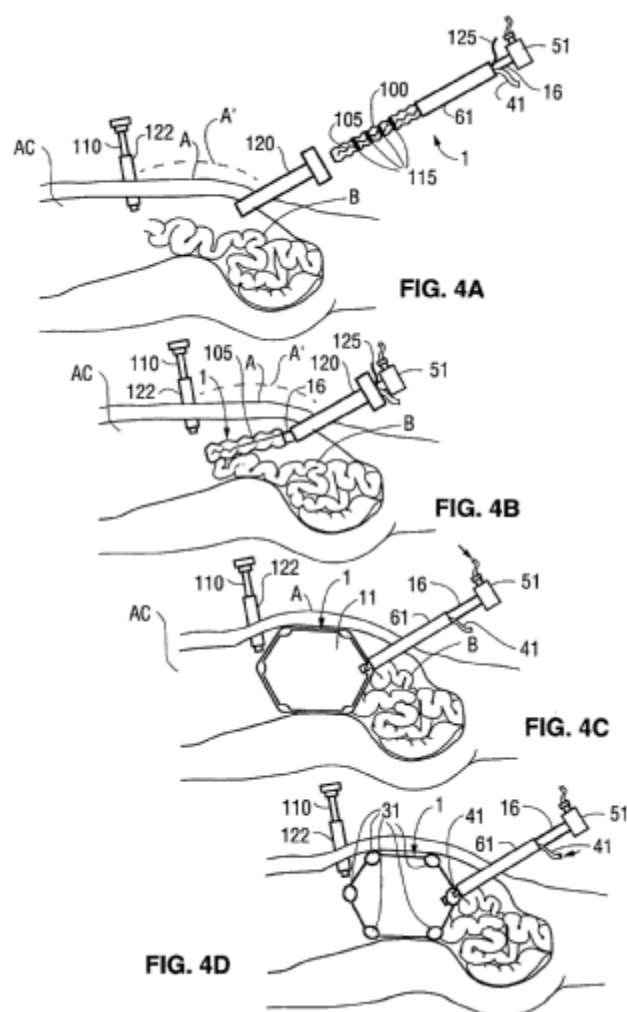
{for minimally invasive surgery ([A61B 17/0281](#), [A61B 17/0469](#), [A61B 17/12013](#), [A61B 17/1285](#), [A61B 17/29](#), [A61B 17/320016](#) take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0218](#)





References

Limiting references

This place does not cover:

For abdominal wall lifters	A61B 17/0281
Suturing instruments for use in minimally invasive surgery, e.g. endoscopic surgery	A61B 17/0469
For ligaturing or otherwise compressing tubular parts of the body	A61B 17/12013
For applying or removing clamps or clips	A61B 17/1285
Forceps for minimally invasive surgery	A61B 17/29
Endoscopic cutting instruments in general	A61B 17/320016

Informative references

Attention is drawn to the following places, which may be of interest for search:

For minimally invasive surgery in general	A61B 17/00234
---	-------------------------------

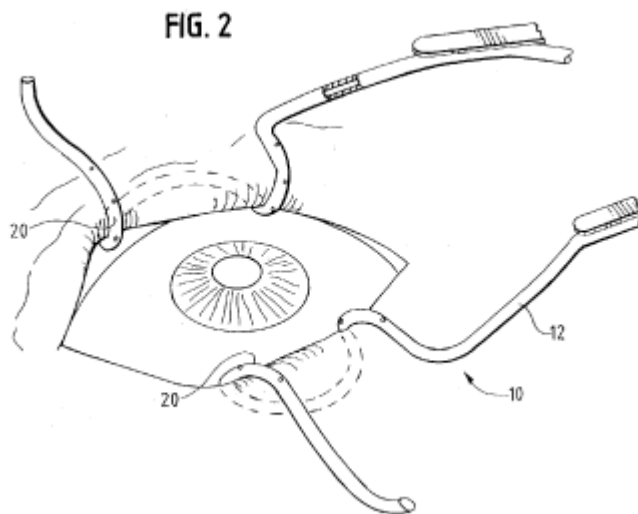
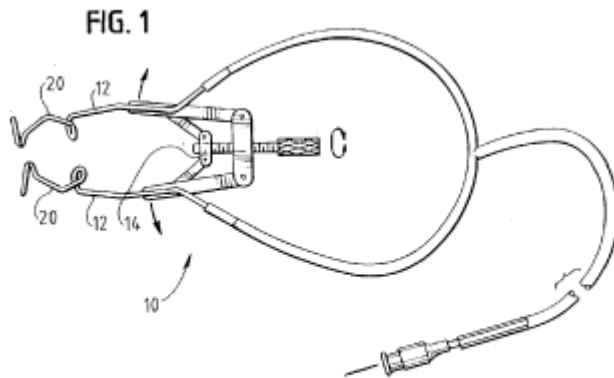
A61B 17/0231

{for eye surgery}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0231](#)



A61B 2017/0237

{for heart surgery}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopic heart surgery	A61B 2017/00243
Endoscopic access devices, i.e. trocars	A61B 17/34

A61B 2017/0243

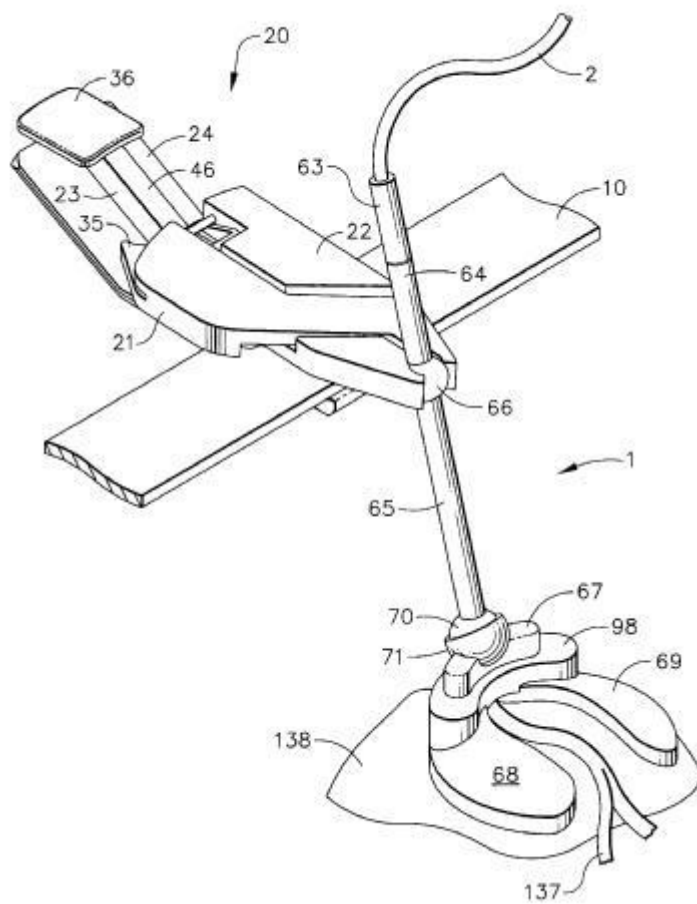
{for immobilizing local areas of the heart, e.g. while it beats}

Definition statement

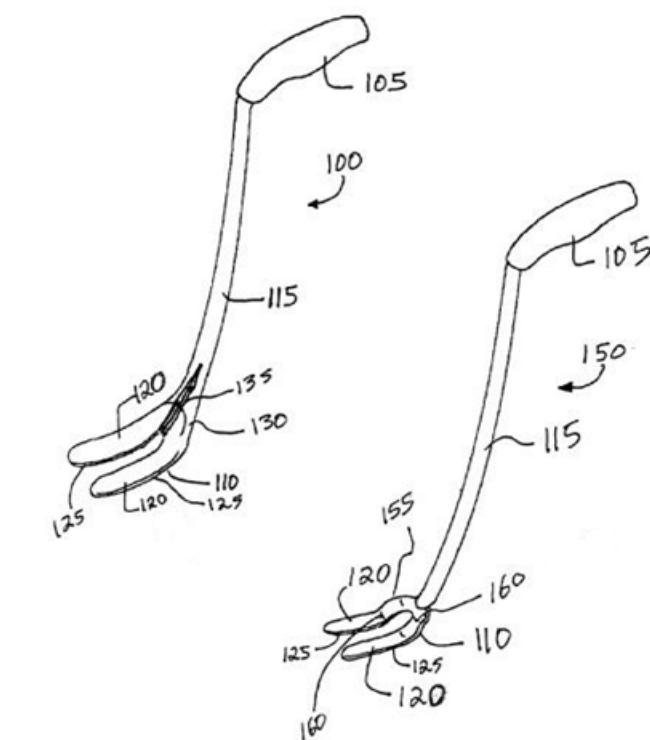
This place covers:

Illustrative examples of subject matter classified in this place:

1.



2.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fixation of trocars to inner organ or inner body tissue	A61B 2017/3488
---	--------------------------------

A61B 17/025

{Joint distractors}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/025](#)

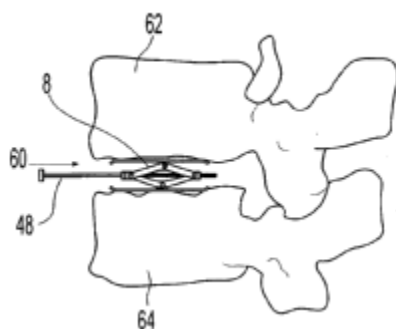


Fig. 6

References

Limiting references

This place does not cover:

Bone surgery	A61F 2/30
Hip	A61F 2/32
Knee	A61F 2/38
Shoulder	A61F 2/40
Small joints	A61F 2/42
Spine	A61F 2/44 , A61F 2/442
Instruments in general for implant	A61F 2/46

Informative references

Attention is drawn to the following places, which may be of interest for search:

For intervertebral joint distraction by acting on anchors embedded in vertebrae	A61B 17/7077
For restoring the shape of collapsed bones by injecting cement into them	A61B 17/8802
For restoring the shape of collapsed bones by expanding devices inside them	A61B 17/885

A61B 17/0281

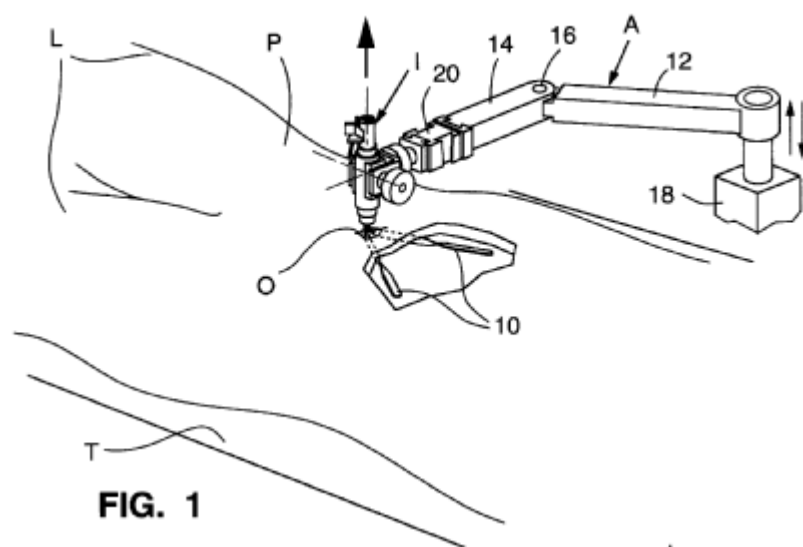
{Abdominal wall lifters}

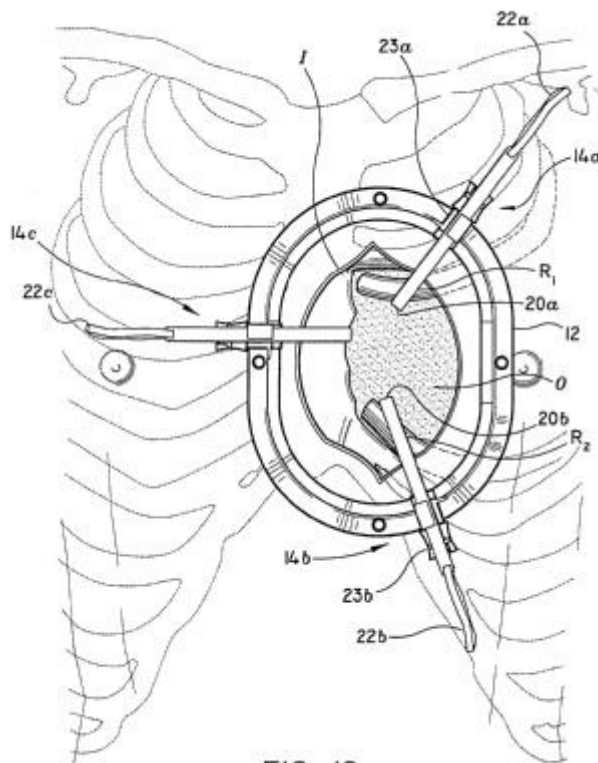
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0281](#)

U.S. Patent Oct. 13, 1998 Sheet 1 of 8 5,820,555



A61B 17/0293**{with ring member to support retractor elements}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/0293](#)

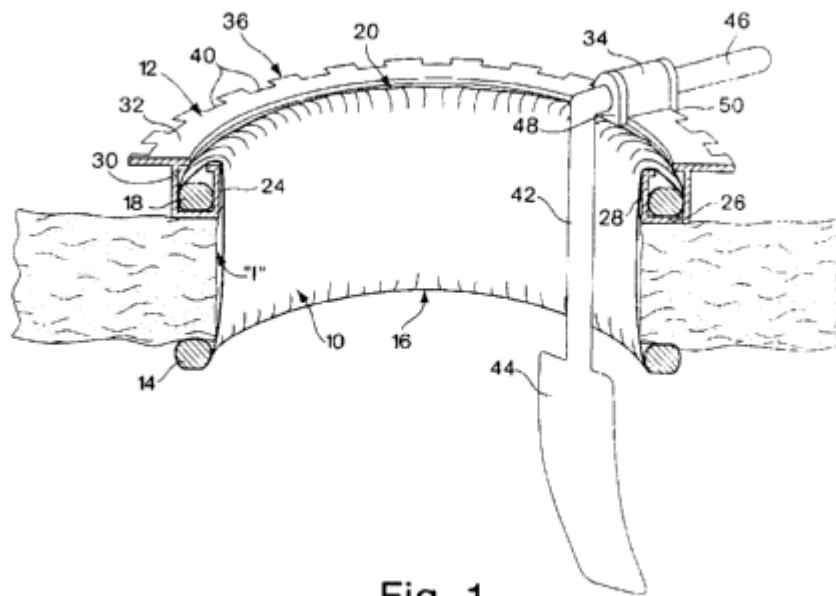


Fig. 1

A61B 17/04

for suturing wounds; Holders or packages for needles or suture materials

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

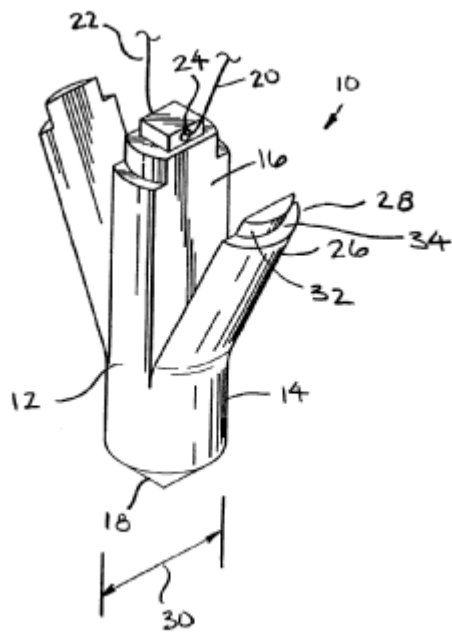
Suture materials	A61L 17/00
------------------	----------------------------

A61B 17/0401

{Suture anchors, buttons or pledgets, i.e. means for attaching sutures to bone, cartilage or soft tissue; Instruments for applying or removing suture anchors ([A61B 17/0642](#) takes precedence; fixation devices for tendons or ligaments [A61F 2/0811](#))}

Definition statement

This place covers:
See patent # US2004138707



References

Limiting references

This place does not cover:

Surgical staples for bones	A61B 17/0642
Fixation devices for tendons or ligaments	A61F 2/0811

Informative references

Attention is drawn to the following places, which may be of interest for search:

Purse-string suturing	A61B 2017/1142
-----------------------	--------------------------------

A61B 2017/0403**{Dowels}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Internal fixation devices for osteosynthesis, e.g. bone plates, screws	A61B 17/68
Dowels for connecting prosthetic parts	A61F 2002/30433

A61B 2017/0408**{Rivets}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Internal fixation devices for osteosynthesis, e.g. bone plates, screws	A61B 17/68
Rivets for connecting prosthetic parts	A61F 2002/30433 , A61F 2220/0041

A61B 2017/0409**{Instruments for applying suture anchors}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Instruments for applying suture clamps, clips or locks	A61B 2017/0488
--	--------------------------------

A61B 2017/0411**{Instruments for removing suture anchors}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Instruments for removing suture clamps, clips or locks	A61B 2017/049
--	-------------------------------

A61B 2017/0412

{having anchoring barbs or pins extending outwardly from suture anchor body}

Definition statement

This place covers:

Intended to encompass "large" barbs, e.g. ribs going around at least 1/2 of the diameter on the anchor

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

For "thin" barbs (seen in a transversal cross section)	A61B 2017/0427
--	--------------------------------

A61B 2017/0414

{having a suture-receiving opening, e.g. lateral opening}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Means for attaching suture to needle by means of a suture-receiving lateral eyelet machined in the needle	A61B 2017/06019
---	---------------------------------

A61B 2017/0427

{having anchoring barbs or pins extending outwardly from the anchor body}

Definition statement

This place covers:

Rigid barbs

A61B 2017/0438

{slotted, i.e. having a longitudinal slot for enhancing their elasticity}

Definition statement

This place covers:

Slotted shaft, i.e. distal part

A61B 2017/044**{with a threaded shaft, e.g. screws}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Threaded staples	A61B 2017/0648
------------------	--------------------------------

A61B 2017/0441**{the shaft being a rigid coil or spiral}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Coil staples	A61B 2017/0649 , A61B 2017/0647
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A61B 2017/0443**{the shaft being resilient and having a coiled or helical shape in the released state}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Coil staples	A61B 2017/0649
--------------	--------------------------------

A61B 2017/0445**{cannulated, e.g. with a longitudinal through-hole for passage of an instrument}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

For passage of suture	A61B 2017/0458
-----------------------	--------------------------------

A61B 2017/045**{snug fit within the anchor}****Definition statement***This place covers:*

Includes caps or covers pressed inside or outside the body anchor. It does also includes snap fit (e.g. connection by tab and recess)

A61B 2017/0456**{Surface features on the anchor, e.g. ribs increasing friction between the suture and the anchor}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Increasing friction between anchor and suture; hence if ribs are present to increase snug fit between an additional element and the anchor only this class is given	A61B 2017/045
---	-------------------------------

A61B 2017/0461**{with features cooperating with special features on the suture, e.g. protrusions on the suture}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Barbed sutures	A61B 2017/06176
----------------	---------------------------------

A61B 2017/0462**{One way system, i.e. also tensioning the suture}****Definition statement***This place covers:*

Triangular barbs on the suture which lock in a hole of the anchor or biased locking means in the hole of the anchor locking on protrusions of the suture

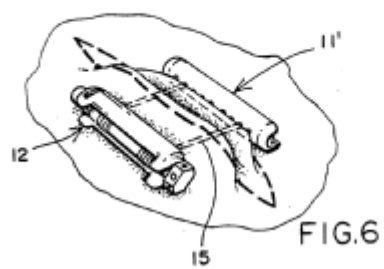
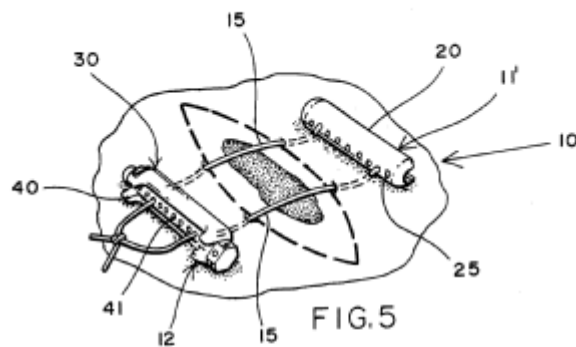
References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Means for tensioning the suture as such	A61B 2017/0496
---	--------------------------------

A61B 17/0466**{Suture bridges}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/0466](#)**U.S. Patent**

July 7, 1992

Sheet 2 of 10

5,127,412

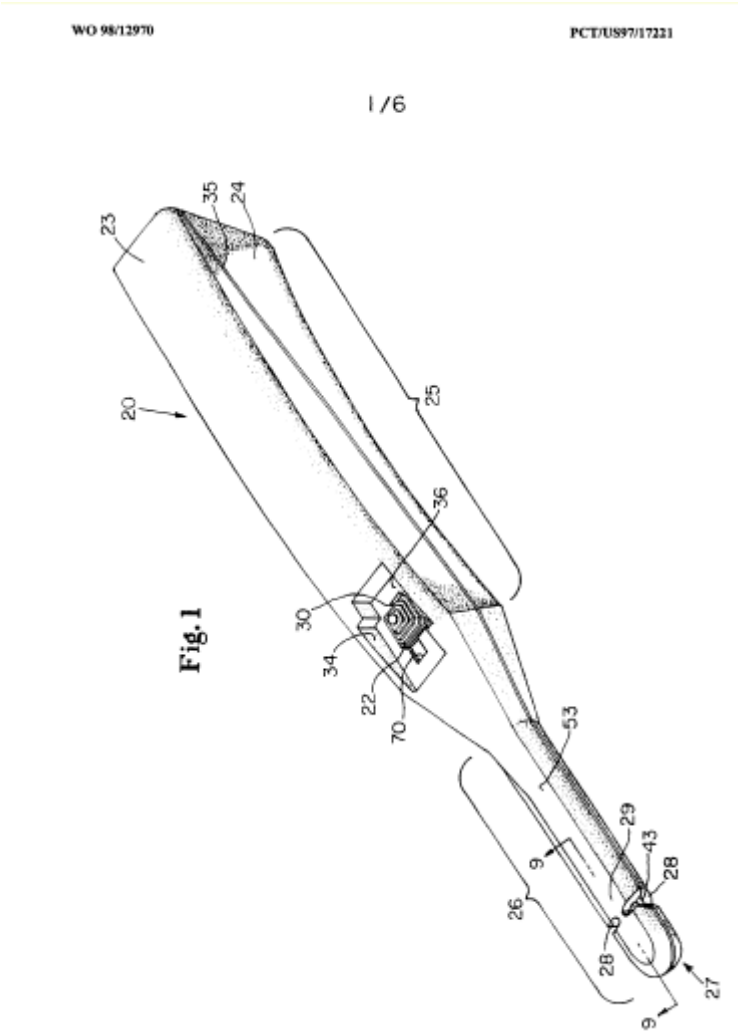
A61B 17/0467

{Instruments for cutting sutures (surgical cutting instruments [A61B 17/32](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0467](#)



References

Limiting references

This place does not cover:

Surgical cutting instruments	A61B 17/32
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A61B 17/0469

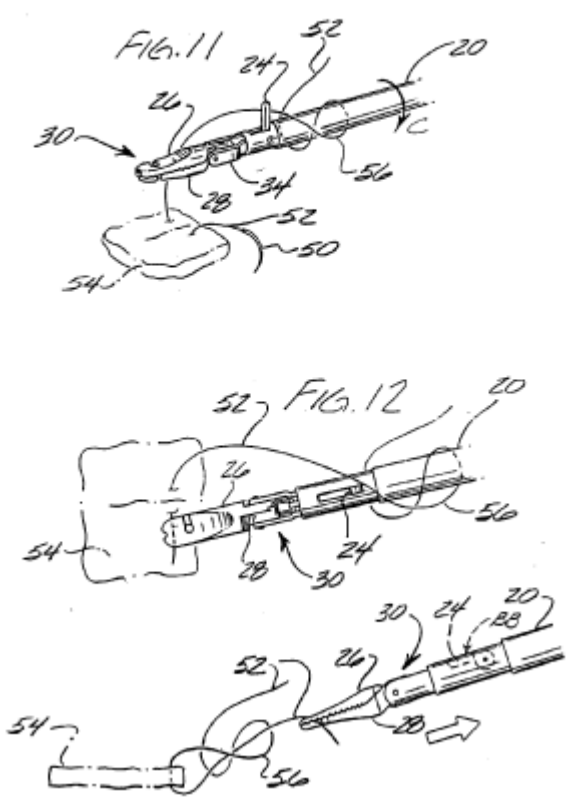
{Suturing instruments for use in minimally invasive surgery, e.g. endoscopic surgery}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0218](#)

EP 0 812 572 A1



References

Limiting references

This place does not cover:

Shuttle needle with sharp tips at both ends	A61B 2017/0609
MIS ligaturing	A61B 17/12013

A61B 2017/047

{having at least one proximally pointing needle located at the distal end of the instrument, e.g. for suturing trocar puncture wounds starting from inside the body}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

J-shaped needles	A61B 2017/0608
------------------	--------------------------------

A61B 2017/048

{for reducing heart wall tension, e.g. sutures with a pad on each extremity}

References**Limiting references**

This place does not cover:

Reshaping the heart with bags, strips, bands	A61F 2/2481
--	-----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cushions encircling the heart	A61F 2/2487
Blood pumps	A61M 60/268

A61B 17/0482

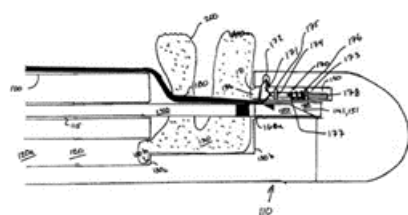
{Needle or suture guides (guides for drills, pins or wire [A61B 17/17](#); guides for puncturing needles [A61B 17/3403](#))}

Definition statement

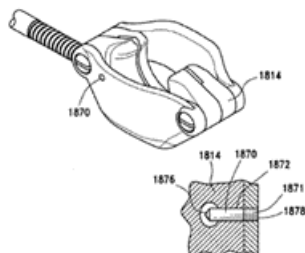
This place covers:

Illustrative examples of subject matter classified in this place:

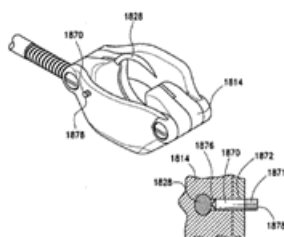
1.



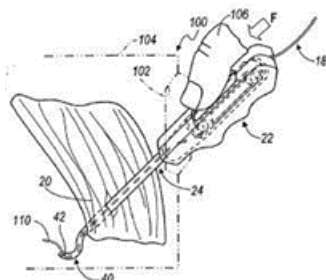
2a.



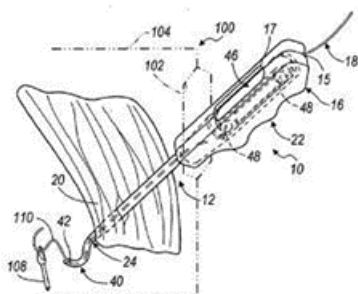
2b.



3a.



3b.



References

Limiting references

This place does not cover:

Guides for drills, pins or wire (bone)	A61B 17/17
Guides for puncturing needles	A61B 17/3403

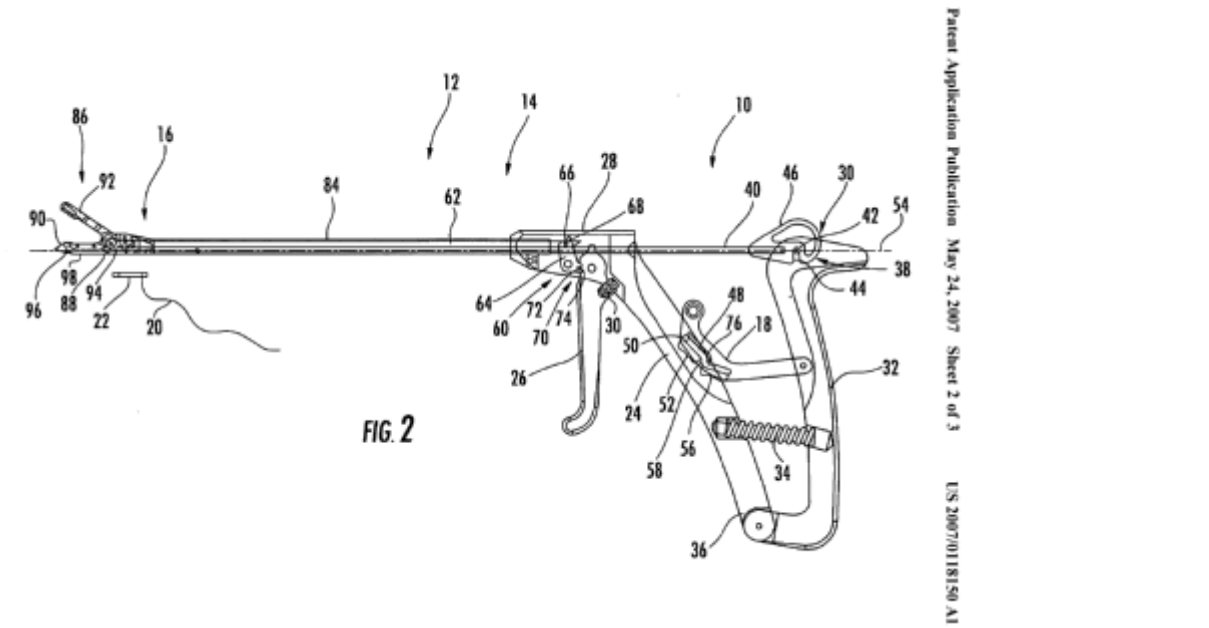
A61B 17/0483

{Hand-held instruments for holding sutures ([A61B 17/0469](#) takes precedence; other holders for needles or sutures [A61B 17/06061](#); surgical forceps [A61B 17/28](#); surgical pincettes [A61B 17/30](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0483](#)



References

Limiting references

This place does not cover:

Suturing instruments for use in minimally invasive surgery, e.g. endoscopic surgery	A61B 17/0469
Other holders for needles or sutures	A61B 17/06061
Surgical forceps	A61B 17/28
Forceps	A61B 17/28 ; A61B 17/29
Surgical pincettes	A61B 17/30

A61B 17/0485

{Devices or means, e.g. loops, for capturing the suture thread and threading it through an opening of a suturing instrument or needle eyelet}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0485](#)

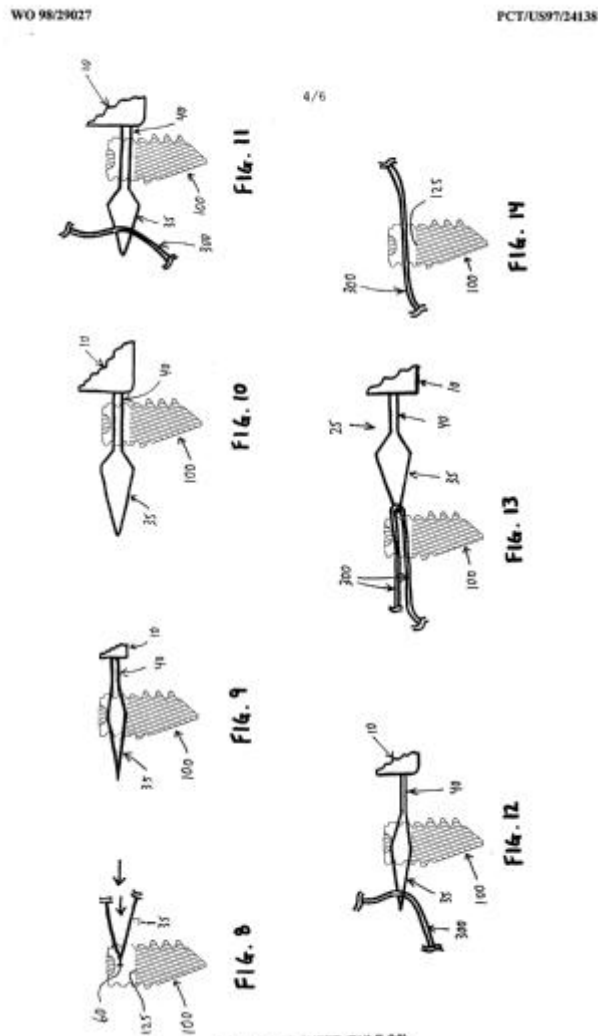


FIG. 3A

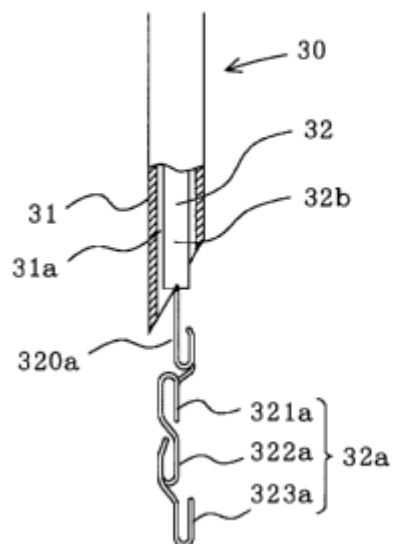
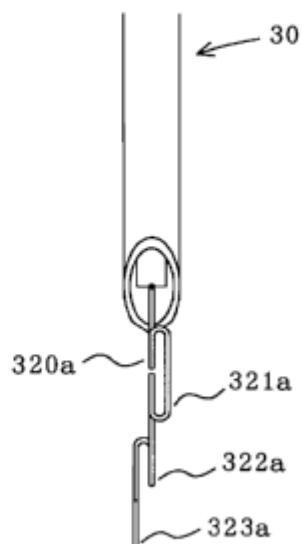


FIG.3B



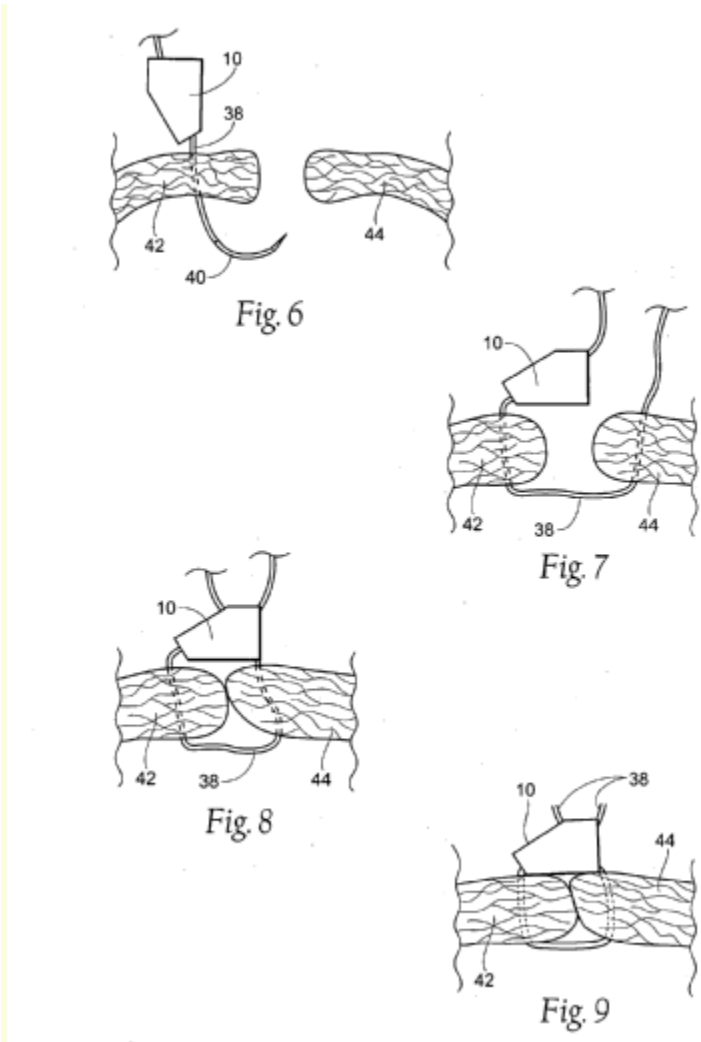
A61B 17/0487

{Suture clamps, clips or locks, e.g. for replacing suture knots; Instruments for applying or removing suture clamps, clips or locks (suture anchors [A61B 17/0401](#); wound clamps or clips [A61B 17/08](#); ligaturing clamps or clips [A61B 17/122](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0487](#)



References

Limiting references

This place does not cover:

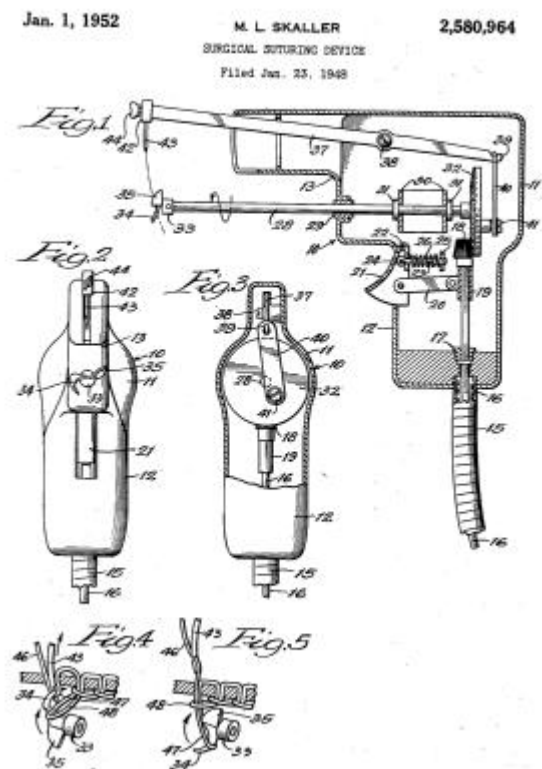
Suture anchors	A61B 17/0401
Wound clamps or clips	A61B 17/08
Ligaturing clamps or clips	A61B 17/122
Clamps comprising opposed elements which grasp one vertebra between them	A61B 17/7047

A61B 2017/0488**{Instruments for applying suture clamps, clips or locks}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Surgical instruments, devices or methods for applying suture anchors	A61B 2017/0409
Surgical instruments, devices or methods for applying wound clamps	A61B 17/10
Surgical instruments, devices or methods for applying ligaturing clamps or clips	A61B 17/128

A61B 2017/049**{Instruments for removing suture clamps, clips or locks}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Surgical instruments, devices or methods for removing suture anchors	A61B 2017/0411
Surgical instruments, devices or methods for removing wound clamps	A61B 17/10
Surgical instruments, devices or methods for removing ligaturing clamps or clips	A61B 17/128

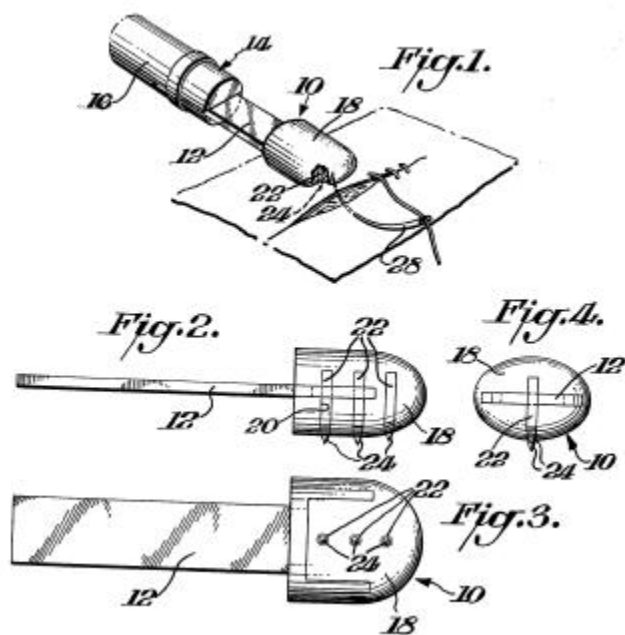
A61B 17/0491**{Sewing machines for surgery}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/0491](#)

A61B 17/0493

{Protective devices for suturing, i.e. for protecting the patient's organs or the operator}

Definition statement

This place covers:
See patent # US3878848



References

Limiting references

This place does not cover:

Blunt suture needles	A61B 2017/06085
Other devices for protecting against accidental cutting or pricking	A61B 2090/0801

A61B 2017/0495

{Reinforcements for suture lines}

References

Limiting references

This place does not cover:

Reinforcement for staple lines	A61B 17/07292
--------------------------------	-------------------------------

A61B 17/06

Needles {; Sutures; Needle-suture combinations}; Holders or packages for needles or suture materials

Definition statement

This place covers:

Essentially flexible elements.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Surgical staples	A61B 17/064
Reinforcement for staple lines	A61B 17/07292
Trocars; Puncturing needles	A61B 17/34
Nerve needles for teeth	A61C 5/40
Needles; Details of needles pertaining to their connection with syringe or hub	A61M 5/32
Sewing needles	D05B 85/00

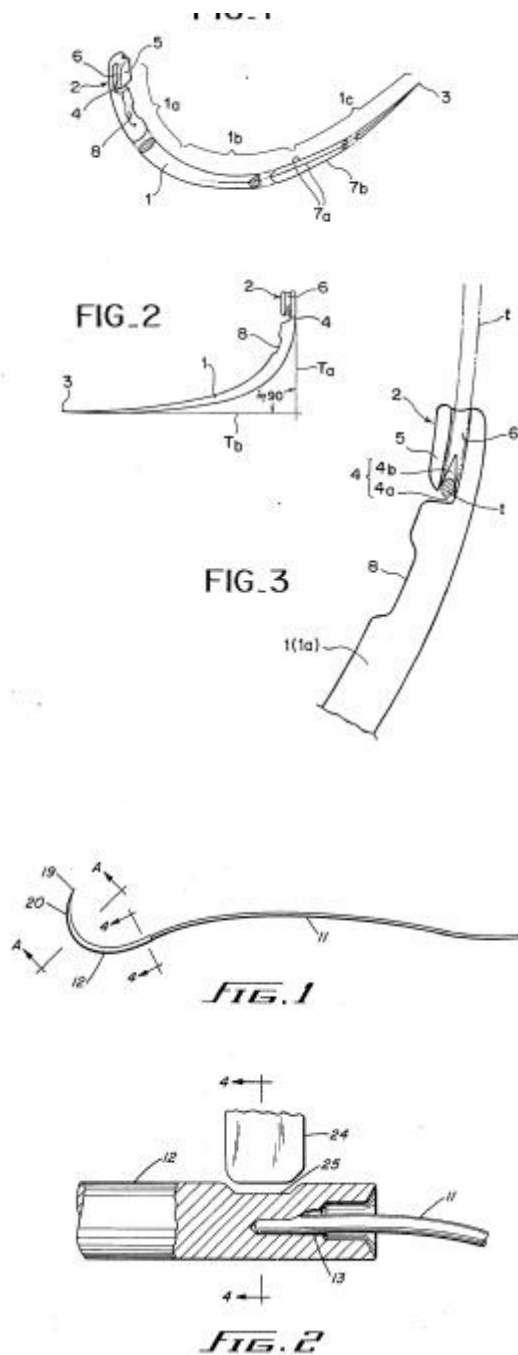
A61B 17/06004

{Means for attaching suture to needle (tipping [A61B 17/06195](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/06004](#)



References**Limiting references**

This place does not cover:

Tipping	A61B 17/06195
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Connecting wire to other metallic objects)	B21F 15/00
--	----------------------------

A61B 2017/06019

{by means of a suture-receiving lateral eyelet machined in the needle}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Suture anchors having a suture-receiving opening, e.g. lateral opening	A61B 2017/0414
--	--------------------------------

A61B 2017/06033

{using adhesives}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Glue applicators	A61B 17/00491
Adhesives for connecting prosthetic parts	A61F 2002/30448

A61B 2017/06038

{soldered, brazed or welded}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Connections or couplings between prosthetic parts of joints, soldered, brazed or welded	A61F 2002/30451
Connections or couplings between prosthetic parts, soldered, brazed or welded	A61F 2220/0058

A61B 2017/06052

{Needle-suture combinations in which a suture is extending inside a hollow tubular needle, e.g. over the entire length of the needle}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hollow or tubular needles	A61B 2017/061
---------------------------	-------------------------------

A61B 17/06061

{Holders for needles or sutures, e.g. racks, stands (hand-held holding instruments [A61B 17/0483](#); holders for articles [A61B 50/20](#); racks for syringes or for hypodermic or infusion needles [A61M 5/008](#))}

Definition statement

This place covers:

See patent # GB2011259

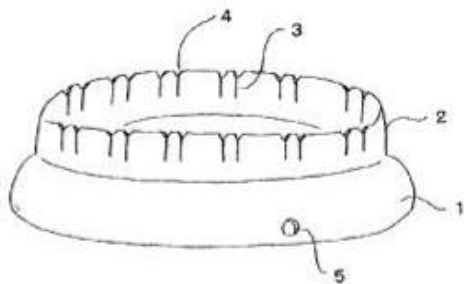
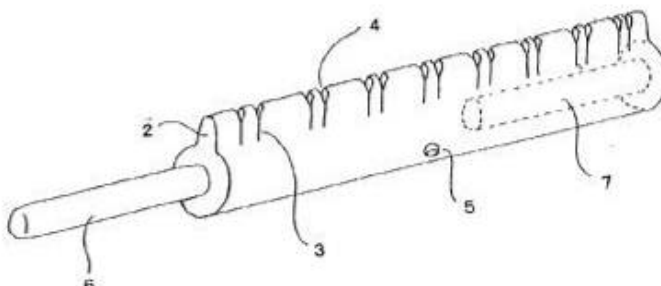
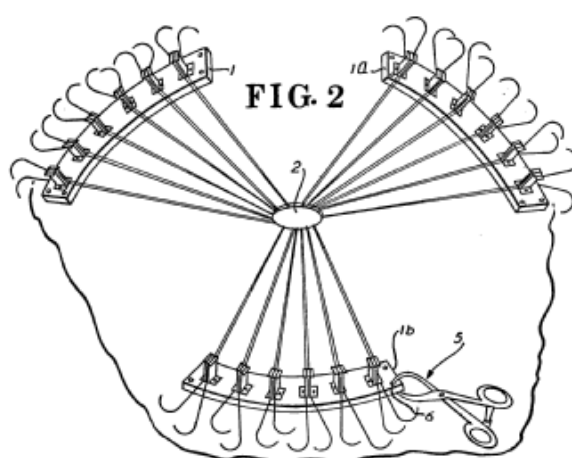
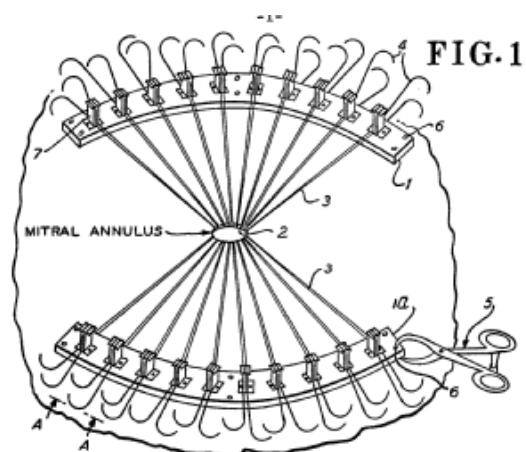


FIG. 2





References

Limiting references

This place does not cover:

Hand-held holding instruments	A61B 17/0483
Holders for articles	A61B 50/20
Racks for syringes or for hypodermic or infusion needles	A61M 5/008

A61B 17/06066

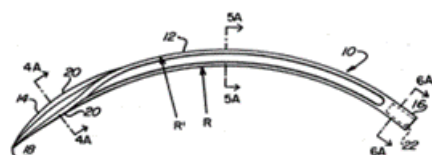
{Needles, e.g. needle tip configurations}

Definition statement

This place covers:

Illustrative examples of subject matter classified in this place:

1.



Definition statement

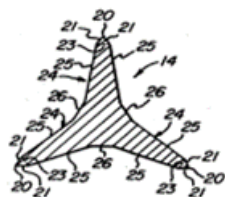
2.



3.



4.



5.



6.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Proximally pointing needle at distal end of MIS suturing instrument	A61B 2017/047
Multiple-needled MIS suturing instruments	A61B 2017/0472
Attaching suture to needle	A61B 17/06004
Suture placed inside a tubular needle	A61B 2017/06052
Double-armed sutures	A61B 2017/06057
Puncturing needles	A61B 17/34
Hypodermic needles	A61M 5/32
Making needles used for surgical purposes; needle tips	B21G 1/00

A61B 2017/06076**{helically or spirally coiled}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Sutures helically or spirally coiled	A61B 2017/06171
--------------------------------------	---------------------------------

A61B 2017/06085**{having a blunt tip}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Surgical cutting instruments being blunt dissectors	A61B 2017/320044
---	----------------------------------

A61B 2017/0609**{having sharp tips at both ends, e.g. shuttle needle alternately retained and released by first and second facing jaws of a suturing instrument}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

MIS suturing instruments	A61B 17/0469
Jaws of MIS forceps	A61B 2017/2926

A61B 2017/061**{hollow or tubular}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

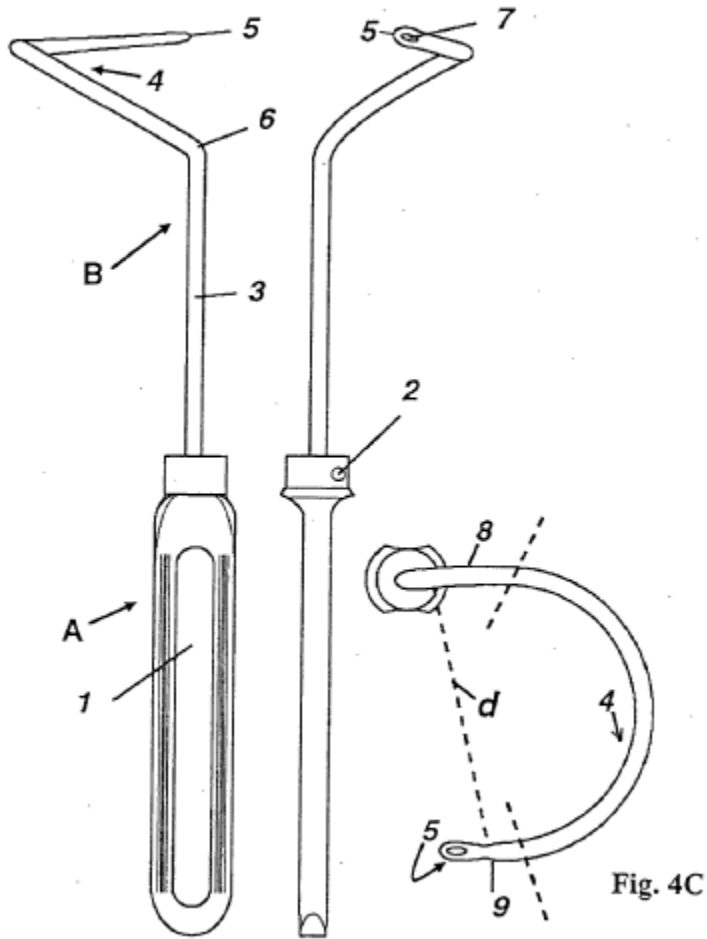
Needle-suture combinations in which a suture is extending inside a hollow tubular needle, e.g. over the entire length of the needle	A61B 2017/06052
Hollow or tubular sutures	A61B 2017/06185

A61B 17/06109

{Big needles, either gripped by hand or connectable to a handle}

Definition statement

This place covers:



A61B 17/06114

{Packages or dispensers for needles or sutures (packages for sharps [A61B 50/3001](#); for dental floss [A61C 15/043](#); packages for needles in general [B65D 85/24](#))}

References

Limiting references

This place does not cover:

Packages for sharps	A61B 50/3001
For dental floss	A61C 15/043

Informative references

Attention is drawn to the following places, which may be of interest for search:

Packaging in general	B65D 83/00 , B65D 85/00
Packages for needles in general	B65D 85/24

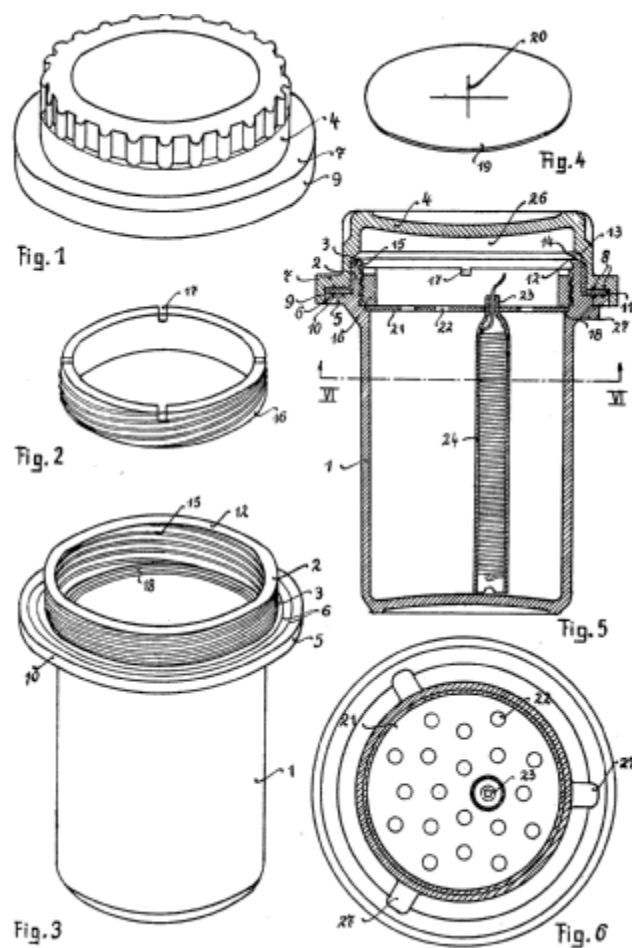
A61B 17/06119

{of cylindrical shape}

Definition statement

This place covers:

See patent # DE930771



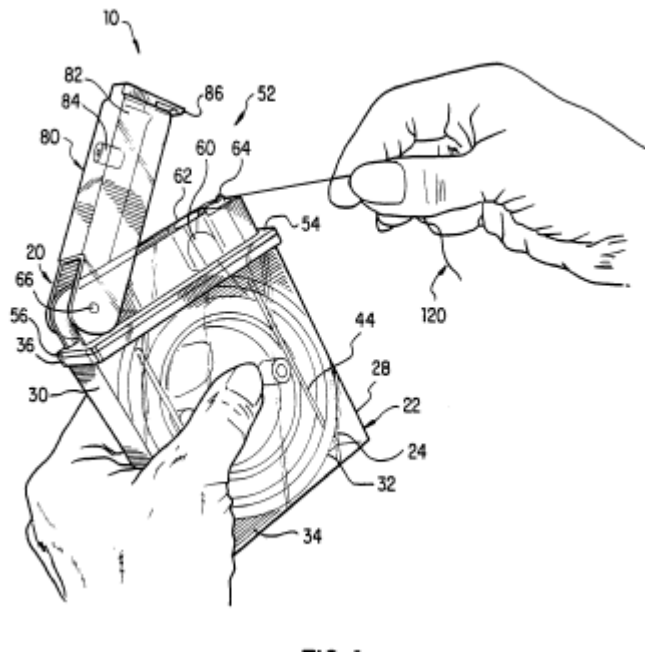
A61B 17/06123

{Flat cylinders, e.g. including an inner reel}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/06123](#)



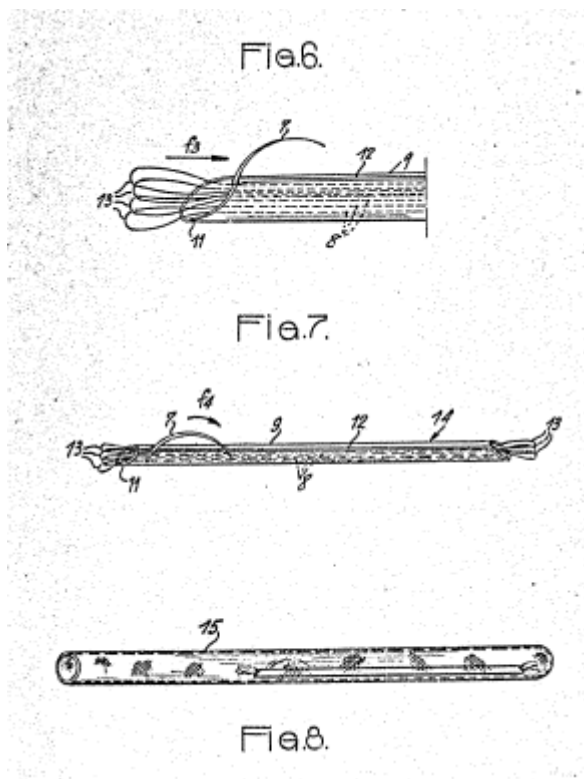
A61B 17/06128

{Elongate cylinders, i.e. tubes}

Definition statement

This place covers:

See patent # BE693850



A61B 17/06133

{of parallelepipedal shape, e.g. made of rectangular or slightly oval panels}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/06133](#)

U.S. Patent

Jul. 17, 2001

Sheet 2 of 5

US 6,260,696 B1

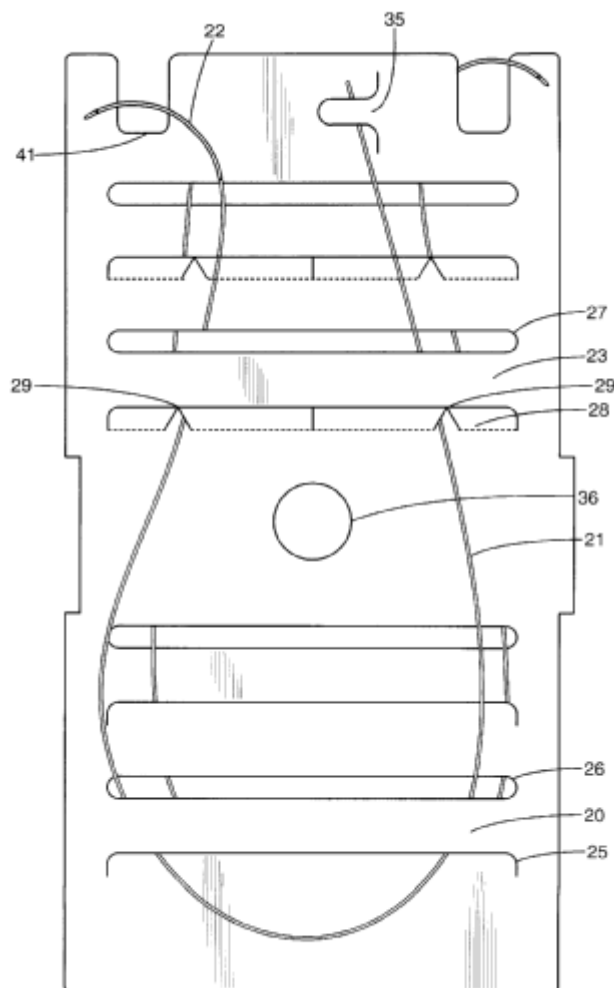


FIG. 2

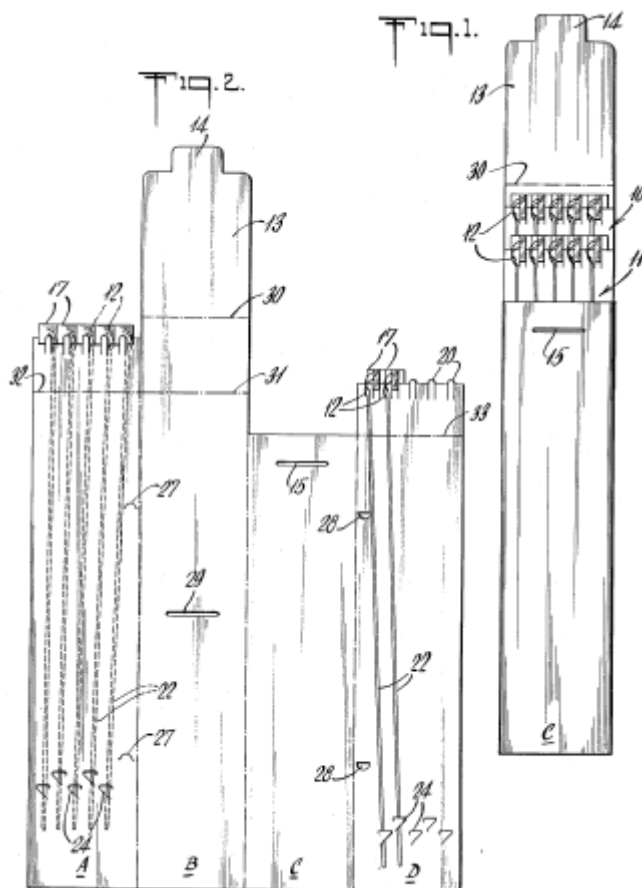
A61B 17/06138

{including a retainer comprising three or more foldable panels}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/06138](#)



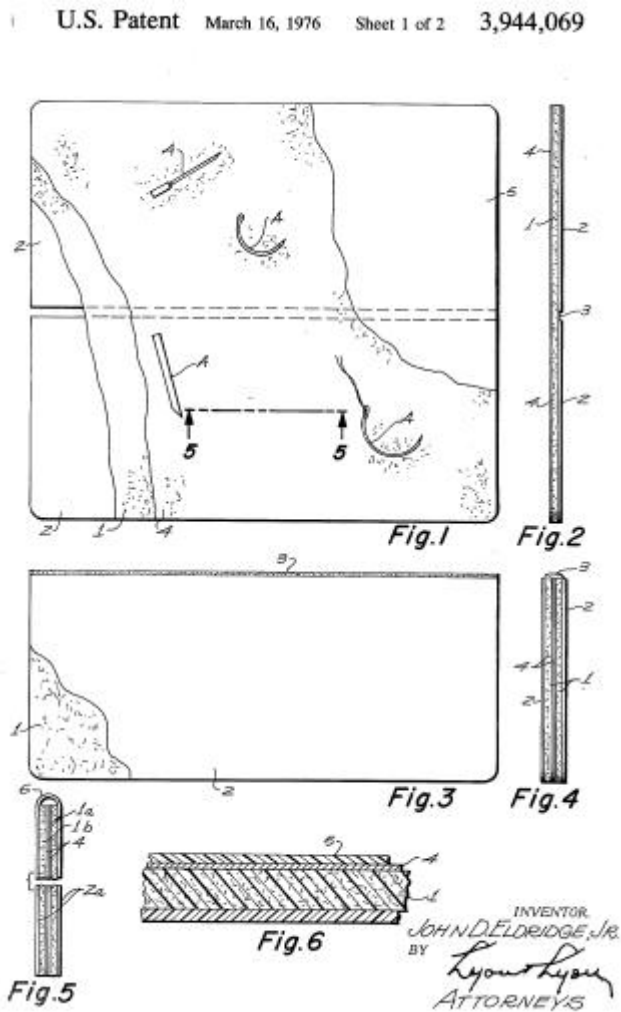
A61B 17/06161

{Devices for removing or collecting used needles or sutures ([A61B 17/0467](#) takes precedence; for sharps [A61B 50/362](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/06161](#)



References

Limiting references

This place does not cover:

Instruments for cutting sutures	A61B 17/0467
For sharps	A61B 50/362

A61B 17/06166

{Sutures (suture materials [A61L 17/00](#); manufacture of artificial threads [D01D](#); treatment of threads [D06M](#))}

References**Limiting references**

This place does not cover:

With a slip knot	A61B 2017/0475
Pre-tied sutures	A61B 2017/0477
Attaching suture to needle	A61B 17/06004
Suture placed inside a tubular needle	A61B 2017/06052
Double-armed sutures	A61B 2017/06057
Purse-string sutures	A61B 2017/1142
Suture materials	A61L 17/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Manufacture of artificial threads	D01D
Treatment of threads	D01D ; D06M

A61B 2017/06171

{helically or spirally coiled}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Helically or spirally coiled surgical needles	A61B 2017/06076
---	---------------------------------

A61B 2017/0618

{elastic, e.g. stretchable}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Prostheses of stretchable material	A61F 2210/0057
------------------------------------	--------------------------------

A61B 2017/06185**{hollow or tubular}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Hollow or tubular suture needles	A61B 2017/061
----------------------------------	-------------------------------

A61B 2017/0619**{thermoplastic, e.g. for bonding, welding, fusing or cutting the suture by melting it}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Instruments for cutting sutures	A61B 17/0467
Surgical cutting instruments using mechanical vibrations	A61B 17/320068
Surgical instruments for transferring non-mechanical forms of energy to or from the body by heating	A61B 18/08

A61B 17/06195

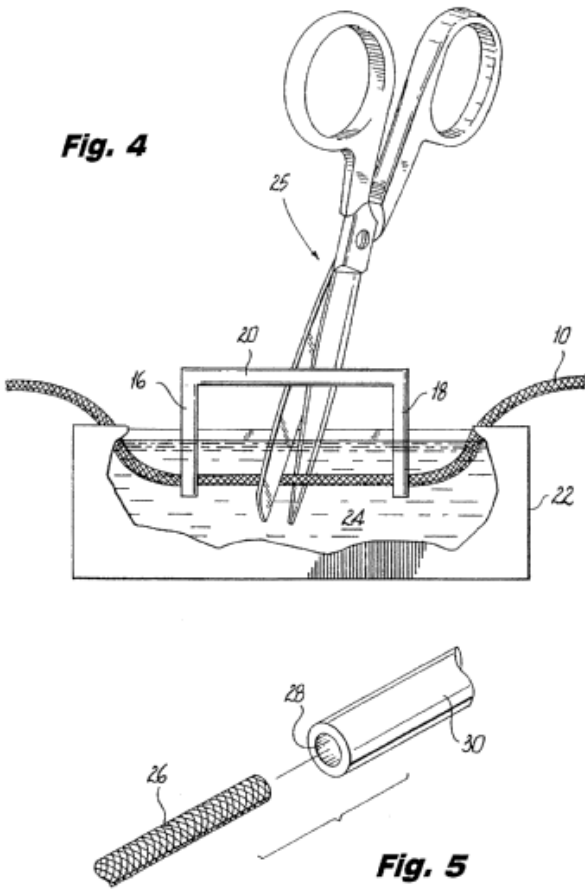
{Apparatus or means for preparing the cut end of the suture thread to be attached to the needle, e.g. tipping to prevent brooming ([A61B 17/06004](#) takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/06195](#)

U.S. Patent Jul. 22, 1997 Sheet 2 of 2 5,649,962



References

Limiting references

This place does not cover:

Means for attaching suture to needle	A61B 17/06004
--------------------------------------	-------------------------------

A61B 17/062

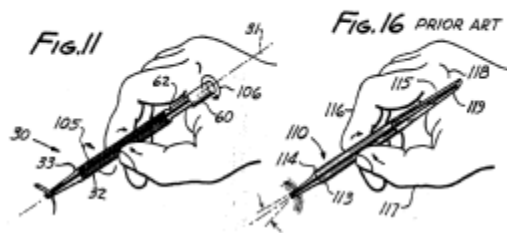
Needle manipulators

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/062](#)

U.S. Patent Aug. 28, 1979 Sheet 2 of 3 4,165,745



A61B 17/0625

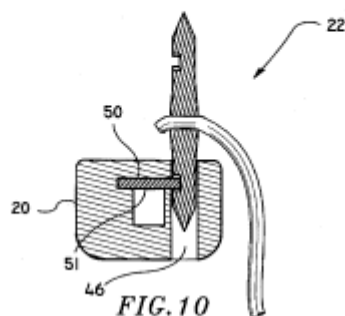
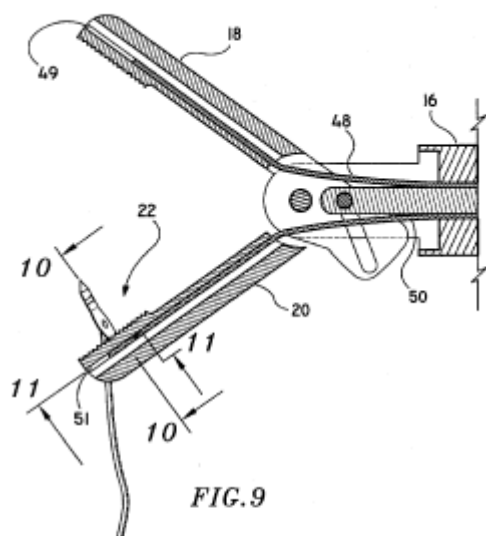
{the needle being specially adapted to interact with the manipulator, e.g. being ridged to snap fit in a hole of the manipulator ([A61B 17/06109](#) takes precedence)}

Definition statement

This place covers:

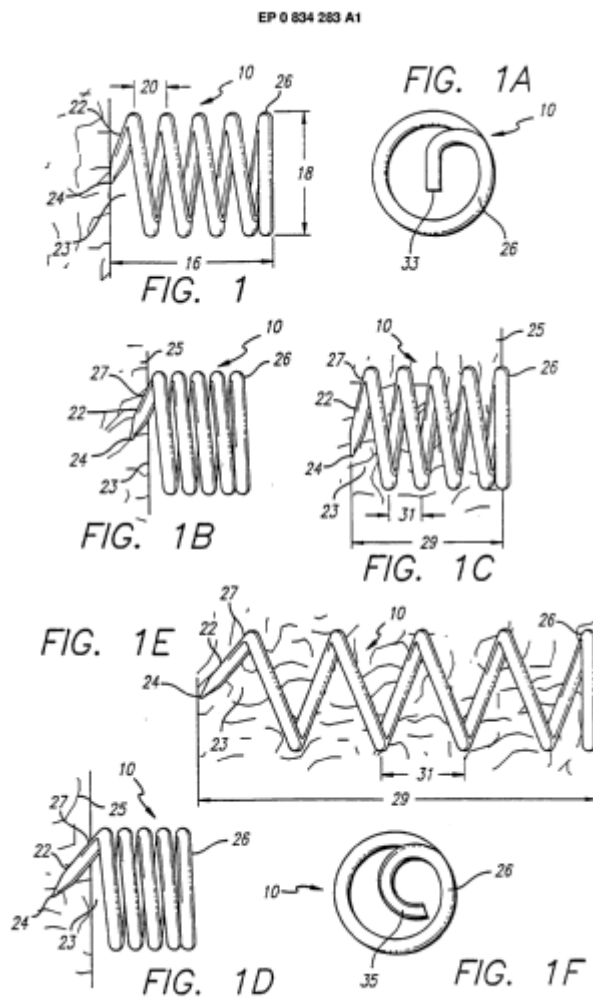
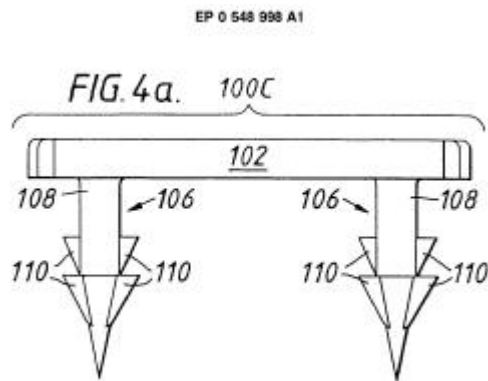
Illustrative example of subject matter classified in [A61B 17/0625](#)

U.S. Patent Dec. 2, 1997 Sheet 4 of 8 5,693,071

**References****Limiting references**

This place does not cover:

Big needles, either gripped by hand or connectable to a handle	A61B 17/06109
--	-------------------------------

A61B 17/064**Surgical staples, {i.e. penetrating the tissue}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/064](#)

References

Limiting references

This place does not cover:

Completely embedded in the heart wall for tensioning it

[A61F 2/2478](#) and
[A61F 2002/249](#)

A61B 17/0642

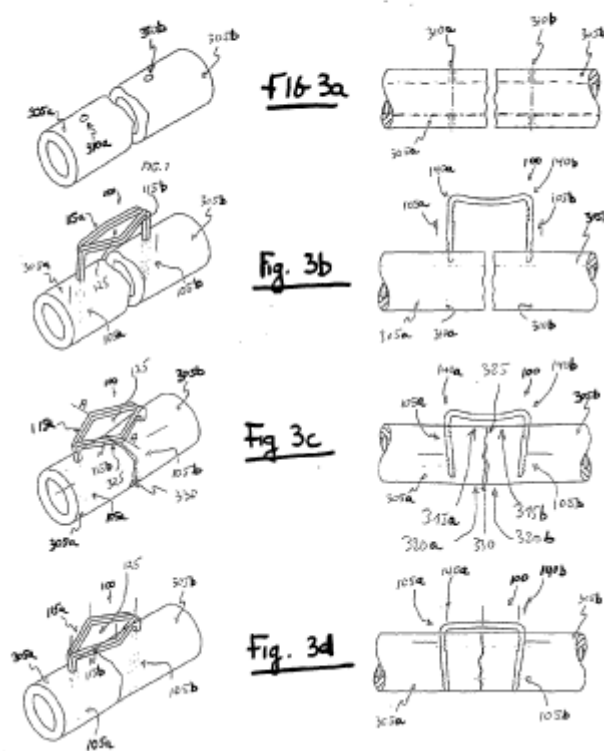
{for bones, e.g. for osteosynthesis or connecting tendon to bone}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0642](#)

EP 1 504 723 A2



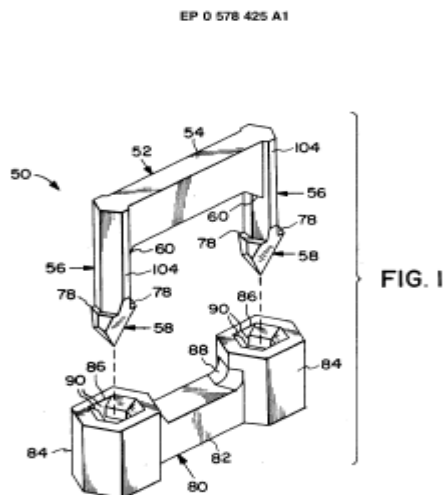
A61B 17/0643

{with separate closing member, e.g. for interlocking with staple}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0643](#)

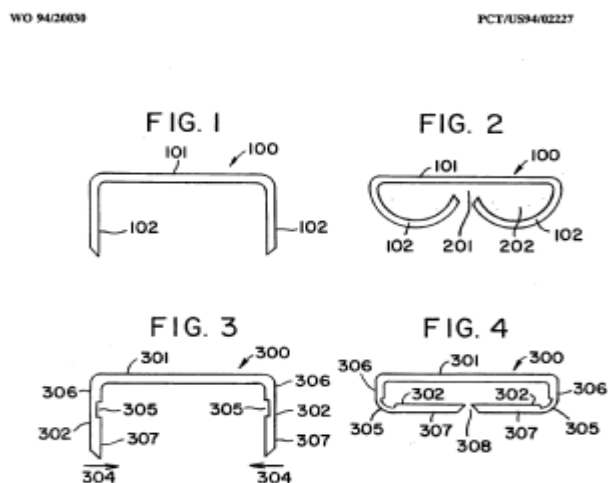
**A61B 17/0644**

{penetrating the tissue, deformable to closed position}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0644](#)



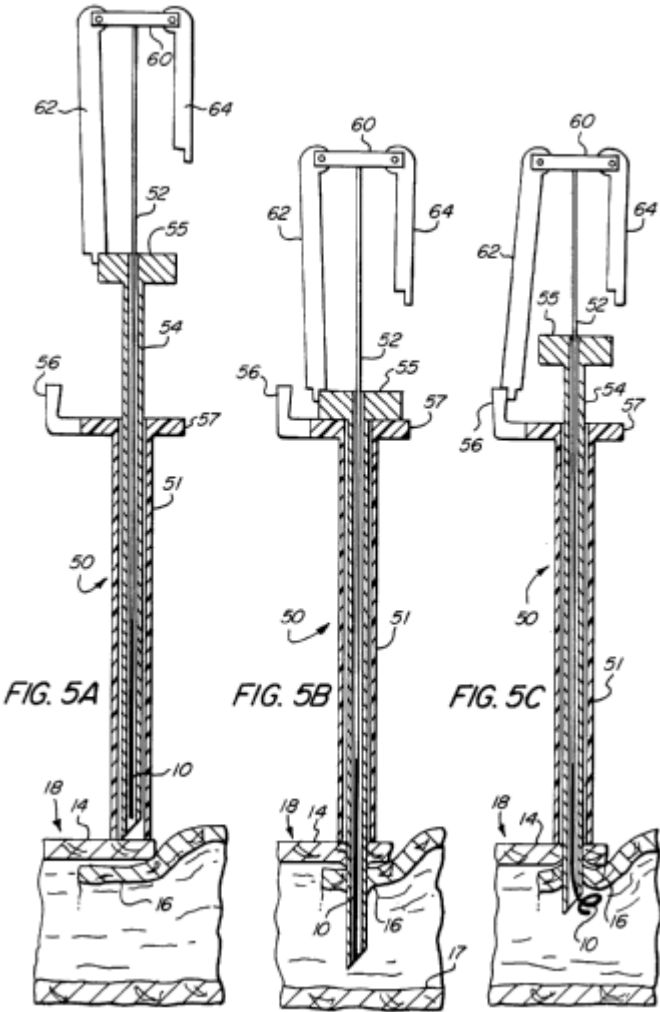
A61B 17/068

Surgical staplers {, e.g. containing multiple staples or clamps} ({staplers containing only one staple [A61B 17/10](#); magazines or containers for staples [A61B 17/105](#);} for performing anastomosis [A61B 17/115](#); {staplers in general [B25C 5/00](#)})

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/068](#)



References

Limiting references

This place does not cover:

Staplers containing only one staple	A61B 17/10
Magazines or containers for staples	A61B 17/105
For performing anastomosis	A61B 17/115
Forceps	A61B 17/28 , A61B 17/29

Informative references

Attention is drawn to the following places, which may be of interest for search:

Staplers in general	B25C 5/00
---------------------	---------------------------

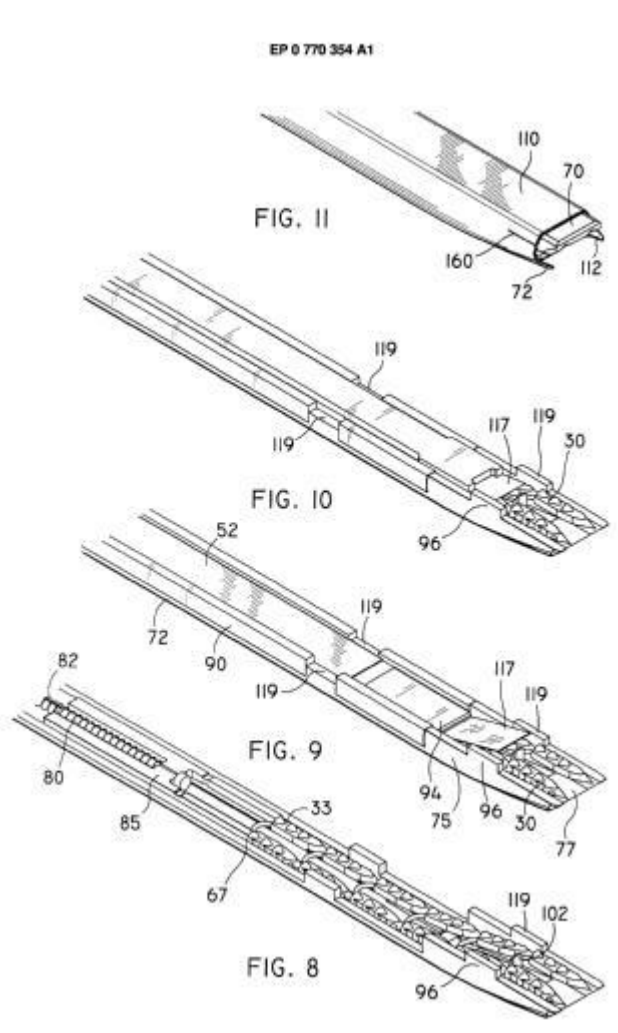
A61B 17/0682

{for applying U-shaped staples or clamps, e.g. without a forming anvil}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0682](#)



A61B 17/0684

{having a forming anvil staying above the tissue during stapling}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/0684](#)

EP 0 337 874 A1

Fig:6

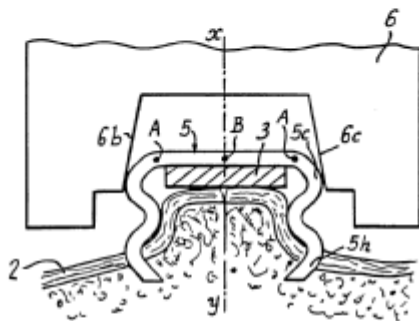
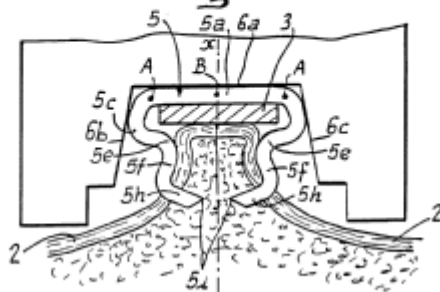


Fig:7



A61B 17/0686

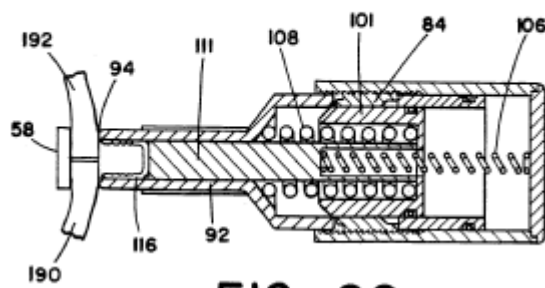
{having a forming anvil staying below the tissue during stapling}

Definition statement

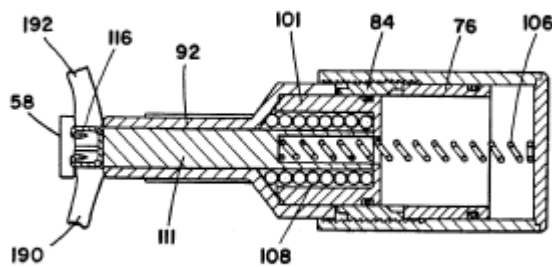
This place covers:

Illustrative example of subject matter classified in [A61B 17/0686](#)

U.S. Patent Nov. 17, 1992 Sheet 10 of 13 5,163,598



FIG_22



FIG_23

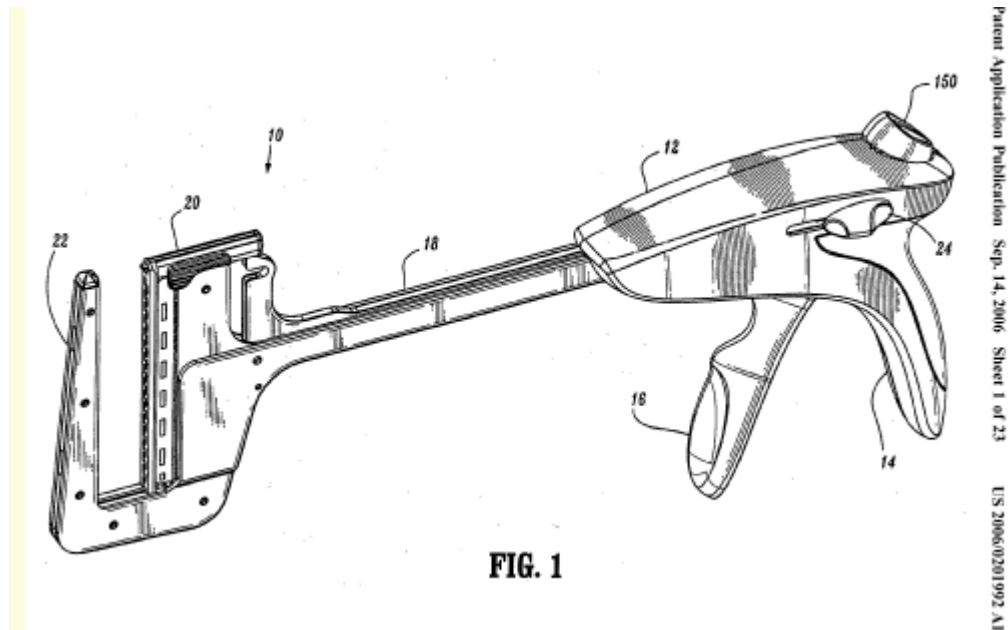
A61B 17/072

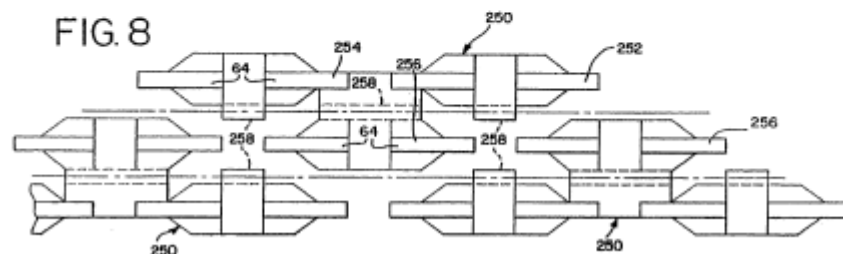
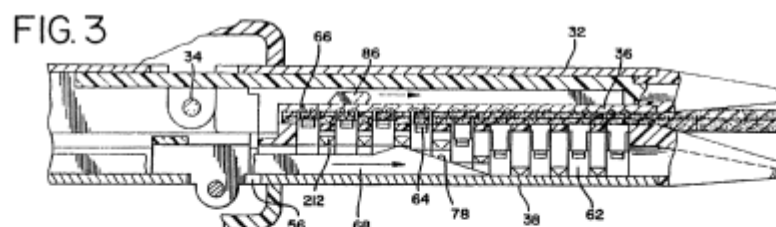
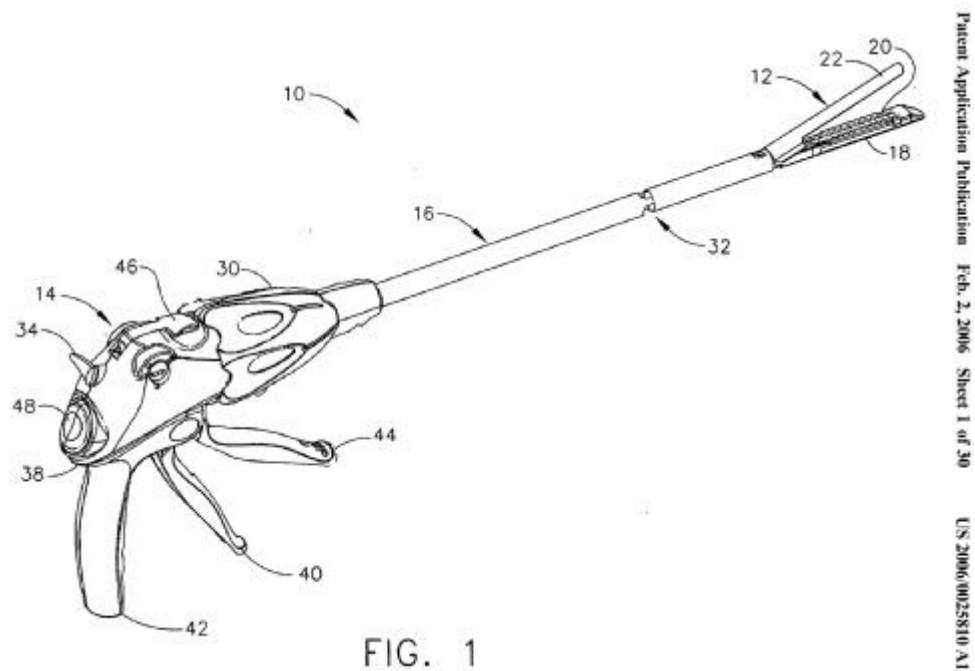
for applying a row of staples in a single action, e.g. the staples being applied simultaneously

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/072](#)



A61B 17/07207**{the staples being applied sequentially}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/07207](#)

Patent Application Publication Feb. 2, 2006 Sheet 1 of 30
US 2006/0025810 A1

U.S. Patent May 20, 1997

Sheet 3 of 8

5,630,541

A61B 2017/07221

{curved}

Definition statement*This place covers:*

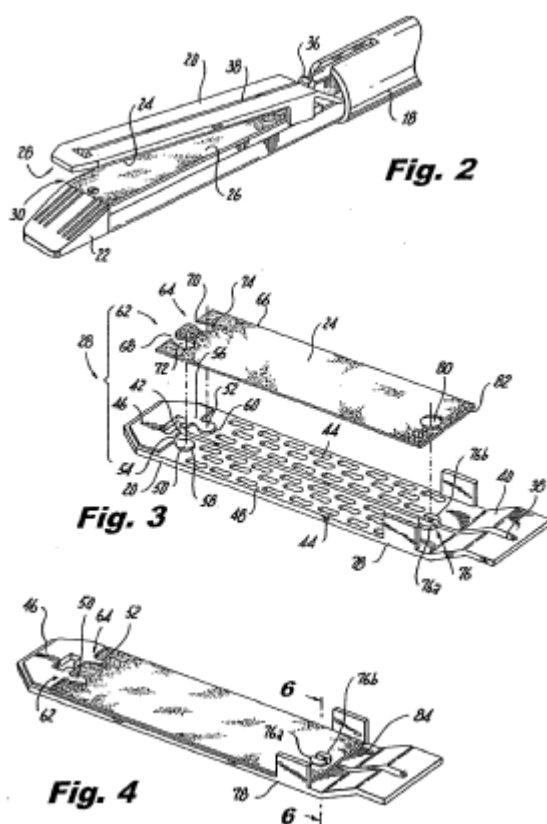
Curved in longitudinal direction or curved in the transversal direction.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Circular staplers	A61B 17/1155
-------------------	------------------------------

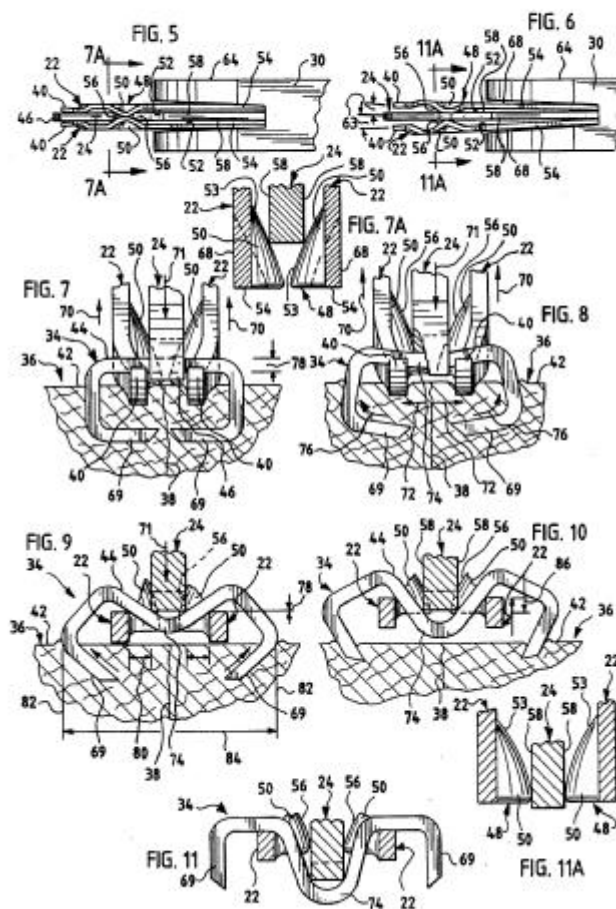
A61B 17/07292

{Reinforcements for staple line, e.g. pledgets}

Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 17/07292](#)

A61B 17/076**for removing surgical staples {or wound clamps}****Special rules of classification**Illustrative example of subject matter classified in [A61B 17/076](#)

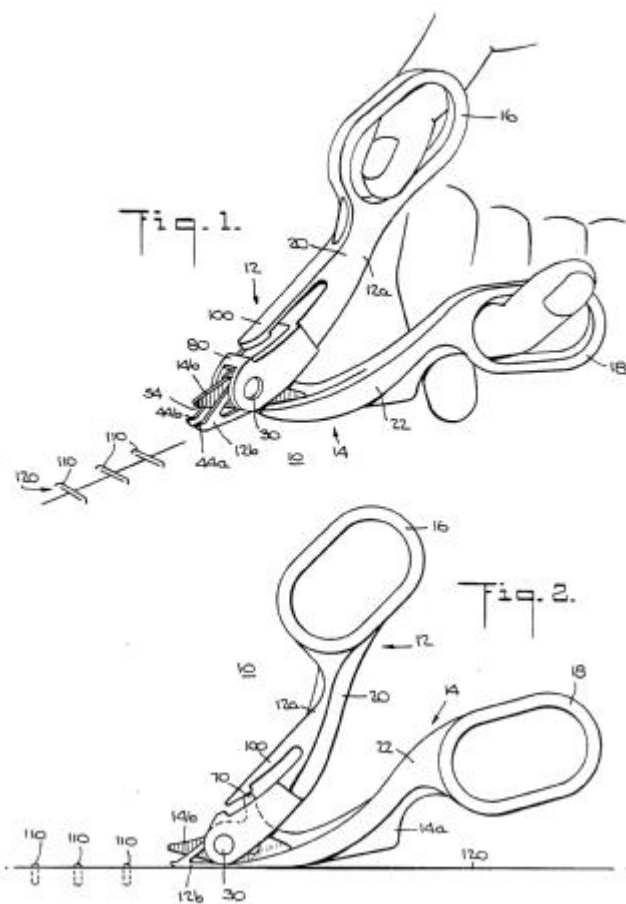
U.S. Patent Sep. 19, 1995 Sheet 2 of 5 5,451,231



WO 86/02031

PCT/US85/01726

1/4



A61B 17/08

Wound clamps {or clips, i.e. not or only partly penetrating the tissue (suture bridges [A61B 17/0466](#)); Devices for bringing together the edges of a wound}

Definition statement

This place covers:

Devices for bringing together the edges of a wound

Patent Application Publication Jan. 25, 2007 Sheet 1 of 13

US 2007/0021779 A1

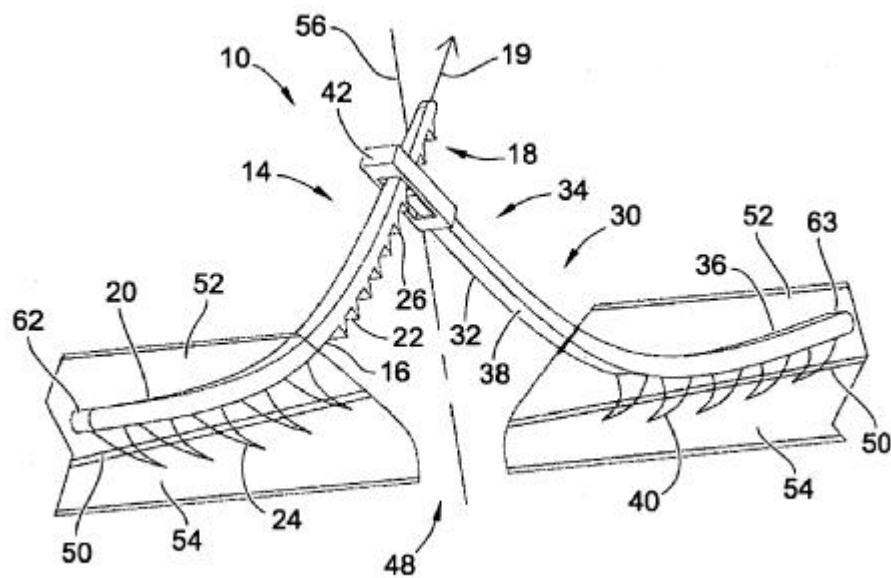


FIG. 1

U.S. Patent

Jan. 20, 1987

4,637,380

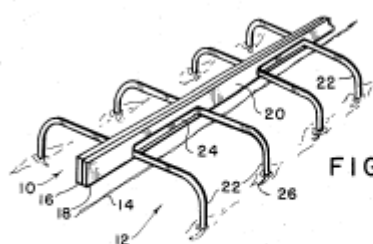


FIG. 1

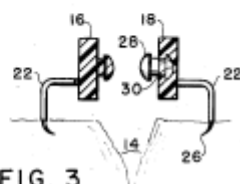


FIG. 3

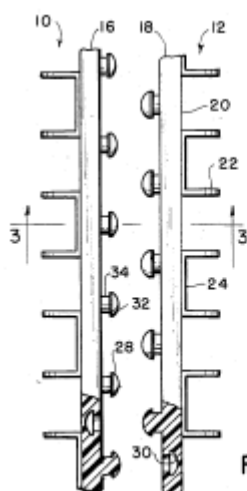


FIG. 2

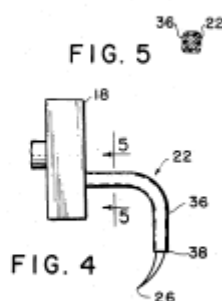


FIG. 4

FIG. 5

References

Limiting references

This place does not cover:

Suture bridges

[A61B 17/0466](#)

A61B 2017/081

{Tissue approximator ([A61B 2017/1103](#), [A61B 17/8866](#) take precedence)}

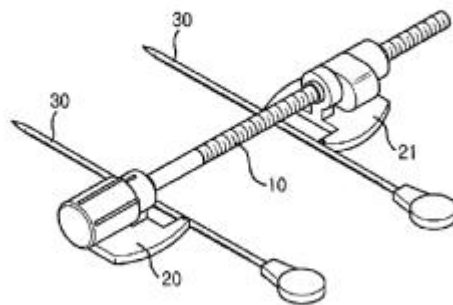
Definition statement

This place covers:

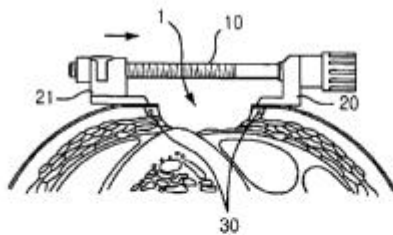
Illustrative example of subject matter classified in [A61B 2017/081](#)

Patent Application Publication Jan. 31, 2008 Sheet 1 of 3 US 2008/0027484 A1

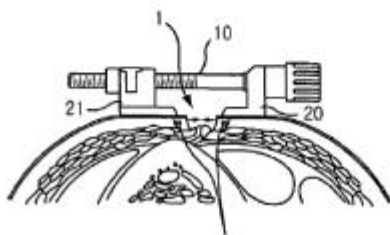
[Fig. 1]

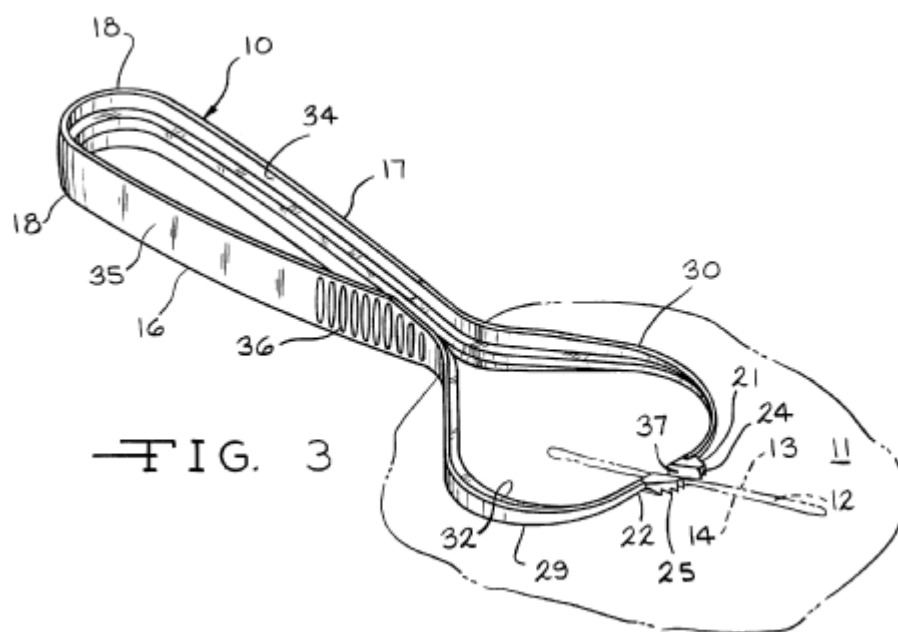


[Fig. 2]



[Fig. 3]





U.S. Patent

Oct. 26, 1999

Sheet 2 of 6

5,972,021

References

Limiting references

This place does not cover:

Approximator for anastomosis	A61B 2017/1103
------------------------------	--------------------------------

A61B 17/083

{Clips, e.g. resilient}

Definition statement

This place covers:

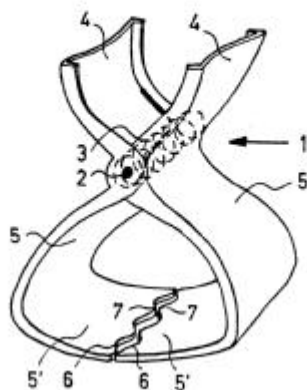
Illustrative example of subject matter classified in [A61B 17/083](#)

WO 86/06952

PCT/CH86/00067

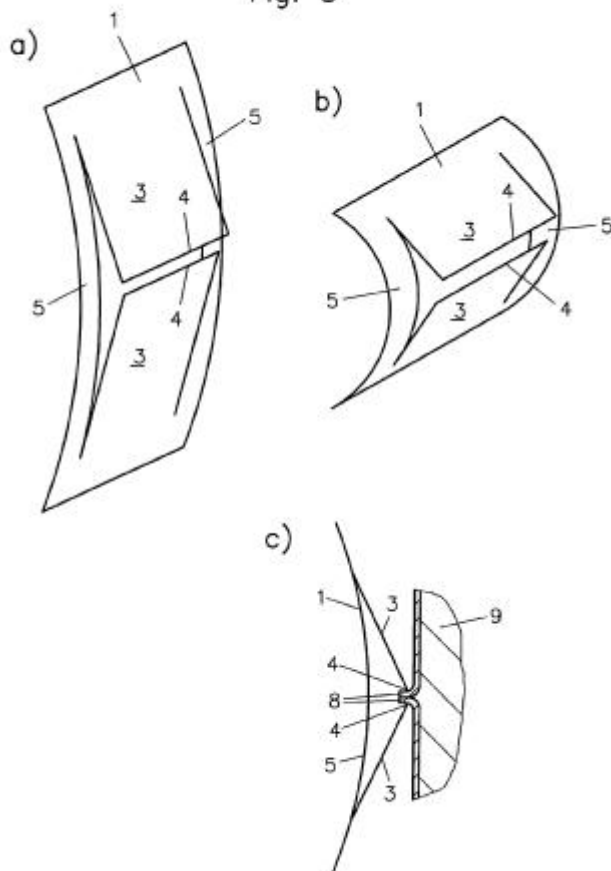
1/3

FIG. 1



EP 1 430 840 A2

Fig. 3



A61B 17/085**{with adhesive layer}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/085](#)

Patent Application Publication Nov. 27, 2003 Sheet 3 of 4

US 2003/0220596 A1

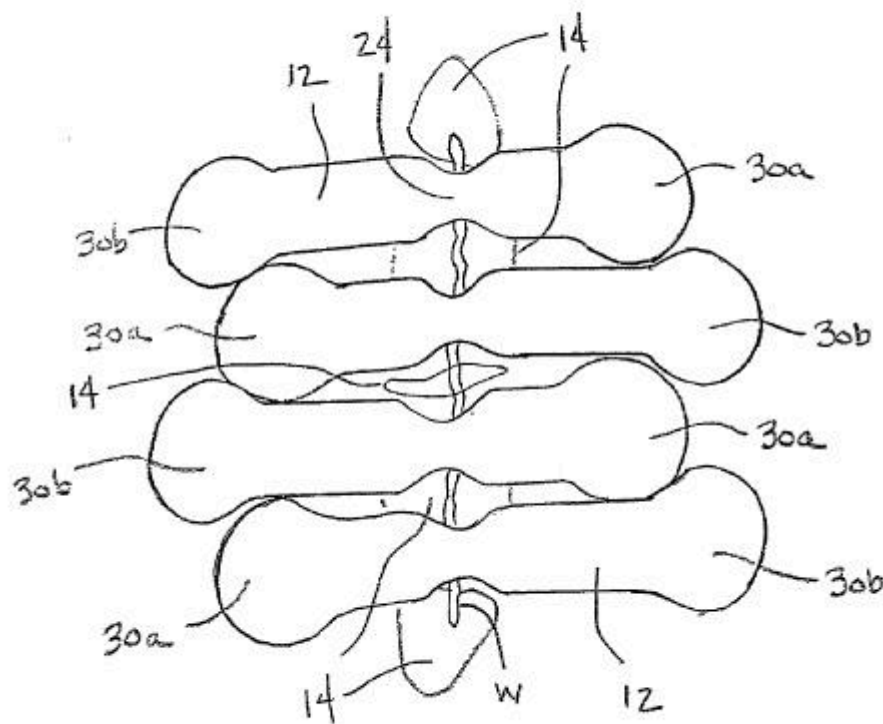


Fig. 5

US 6,176,868 B1



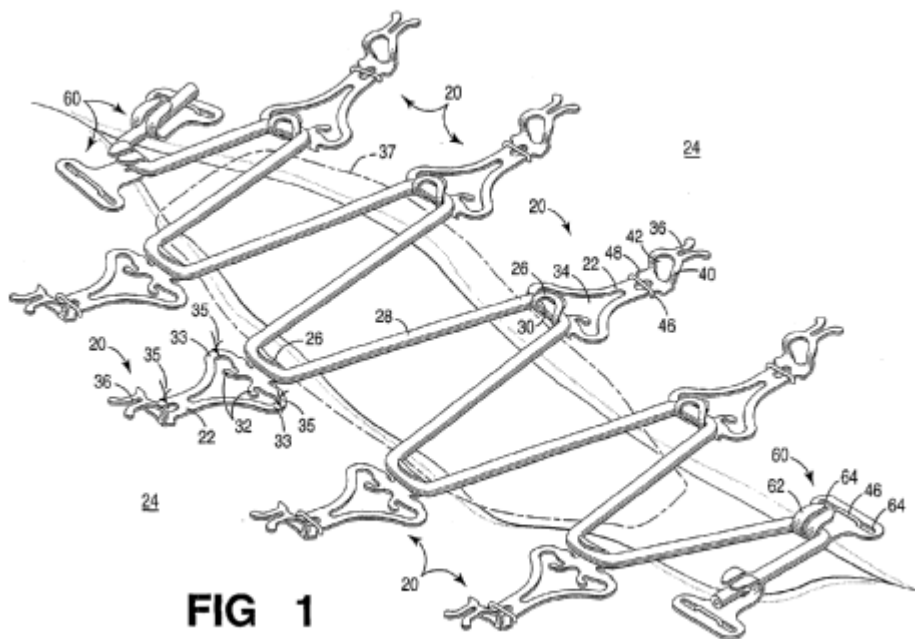
A61B 2017/086

{having flexible threads, filaments, laces or wires, e.g. parallel threads, extending laterally from a strip, e.g. for tying to opposing threads extending from a similar strip}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 2017/086](#)



Patent Application Publication Aug. 28, 2003 Sheet 1 of 11 US 2003/0163160 A1

A61B 17/10

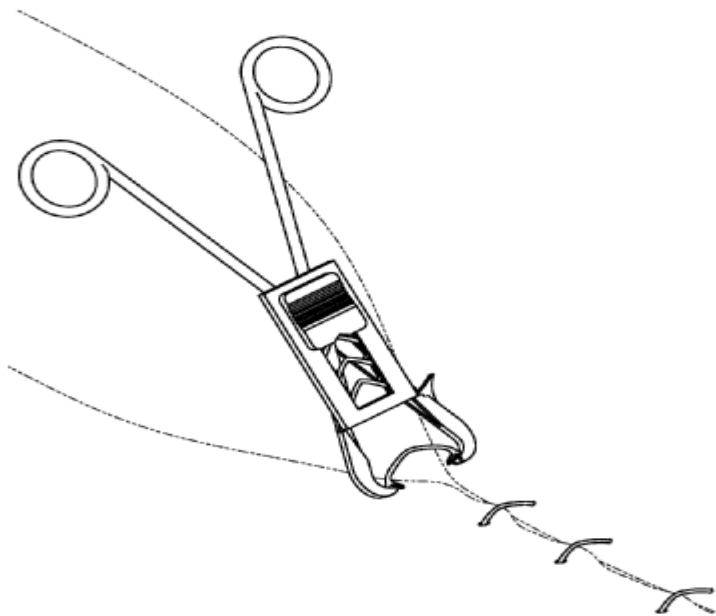
for applying or removing wound clamps {, e.g. containing only one clamp or staple ([A61B 17/076](#) takes precedence; containing multiple wound clamps [A61B 17/068](#))}; Wound clamp magazines

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/10](#)

Patent Application Publication May 1, 2008 Sheet 3 of 10 US 2008/0103510 A1



References

Limiting references

This place does not cover:

Containing multiple wound clamps	A61B 17/068
For removing surgical staples	A61B 17/076

Informative references

Attention is drawn to the following places, which may be of interest for search:

Containers, packaging elements or packages specially adapted for particular articles or with special means for dispensing contents	B65D 83/00 , B65D 85/00
--	---

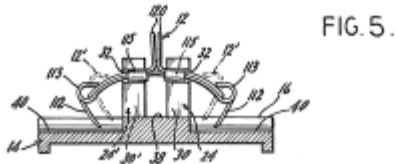
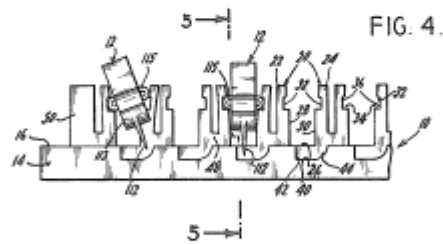
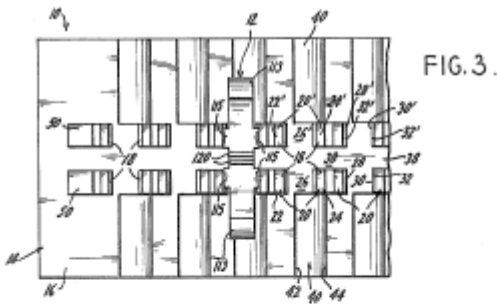
A61B 17/105

{Wound clamp magazines (for packaging sharps [A61B 50/3001](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/105](#)



References

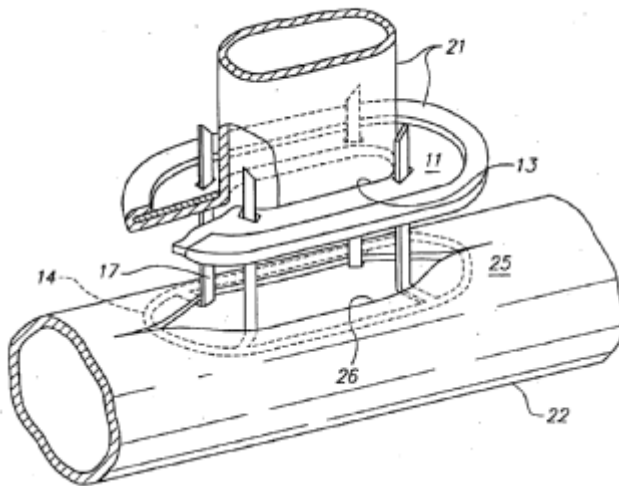
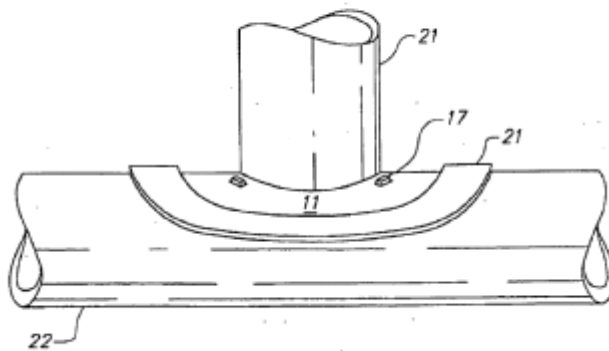
Limiting references

This place does not cover:

For packaging sharps	A61B 50/3001
----------------------	------------------------------

A61B 17/11**for performing anastomosis; Buttons for anastomosis****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/11](#)

Patent Application Publication Jul. 13, 2006 Sheet 4 of 20 US 2006/0155313 A1

**FIG. 4****FIG. 5**

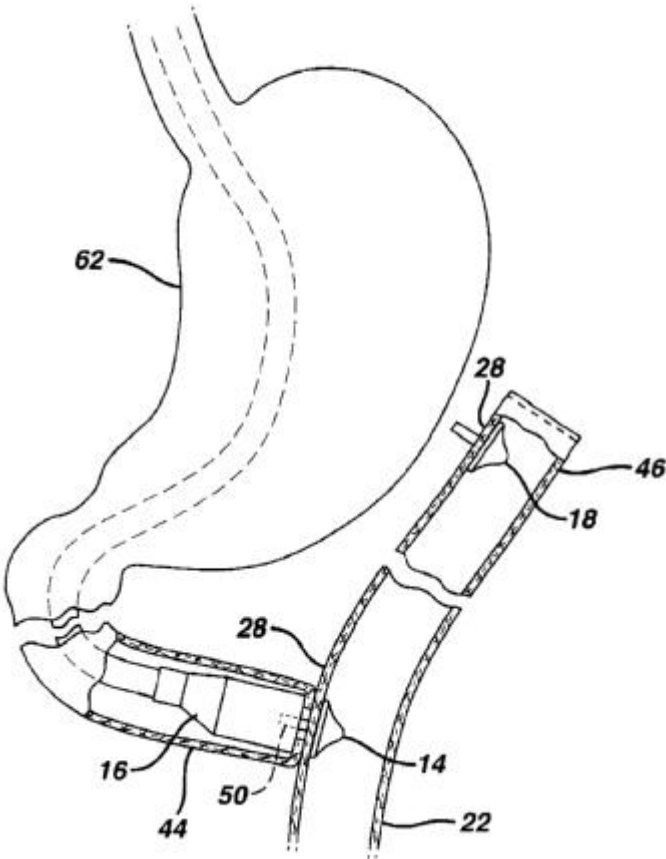
A61B 17/1114

{of the digestive tract, e.g. bowels or oesophagus}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1114](#)



References

Limiting references

This place does not cover:

Tubular implants	A61F 2/04
Obesity treatment	A61F 5/0003

Special rules of classification

Prostheses implantable into the body to facilitate anastomotic coupling	A61F 2/064
---	----------------------------

U.S. Patent

Jan. 9, 2001

Sheet 3 of 3

US 6,171,320 B1

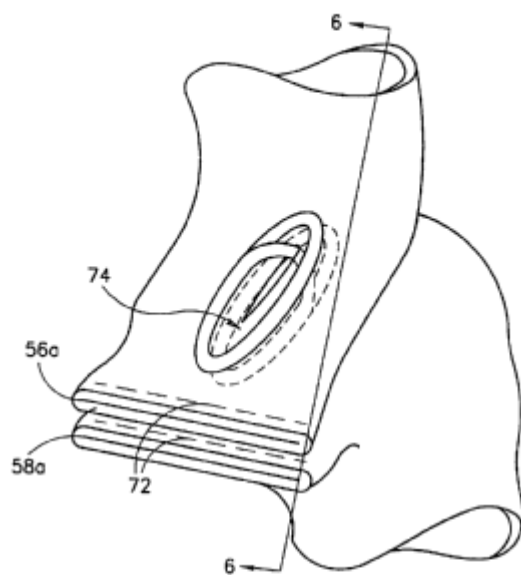


FIG. 5

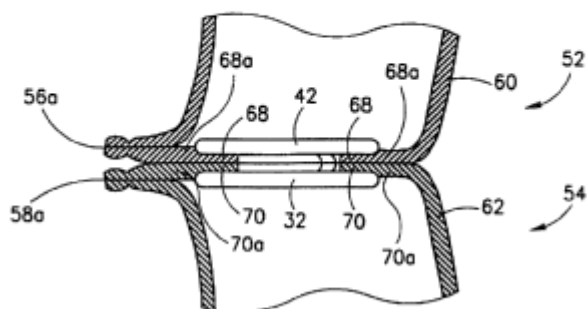


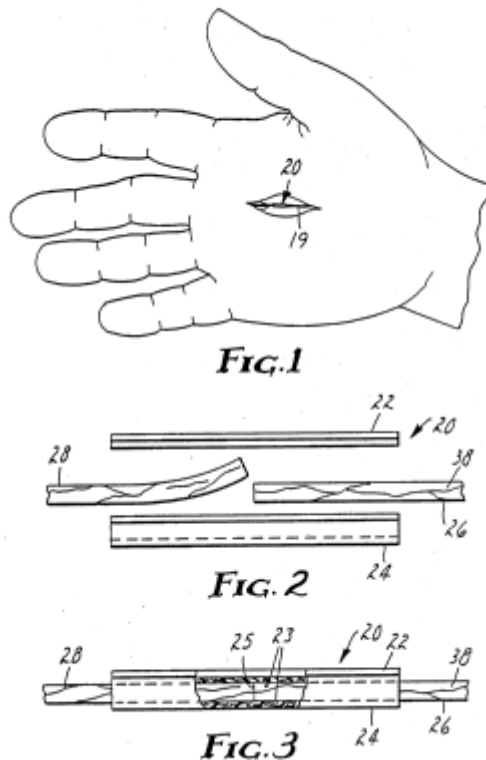
FIG. 6

A61B 17/1128

{of nerves}

Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 17/1128](#)

U.S. Patent Nov. 28, 1989 Sheet 1 of 4 4,883,618

**A61B 2017/1135**

{End-to-side connections, e.g. T- or Y-connections}

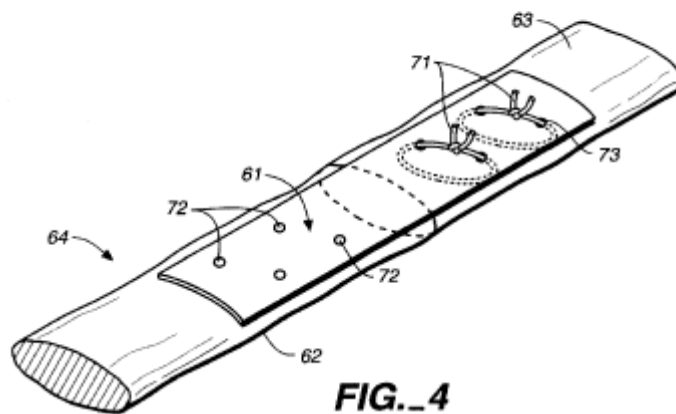
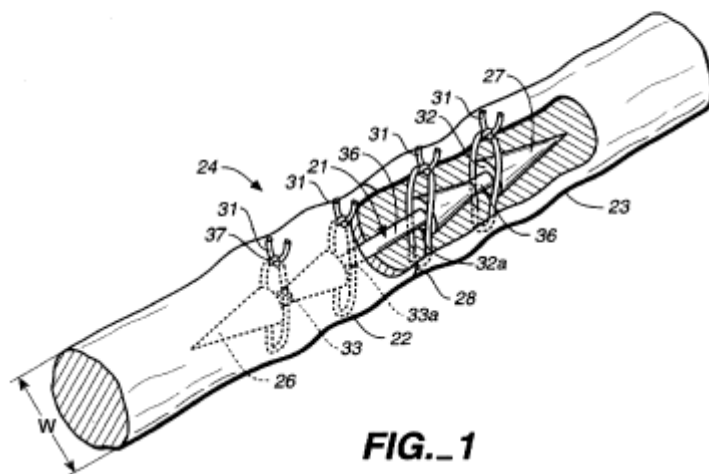
References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Y-shaped blood vessels	A61F 2002/065
------------------------	-------------------------------

A61B 17/1146**{of tendons}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/1146](#)**U.S. Patent**

Mar. 3, 1998

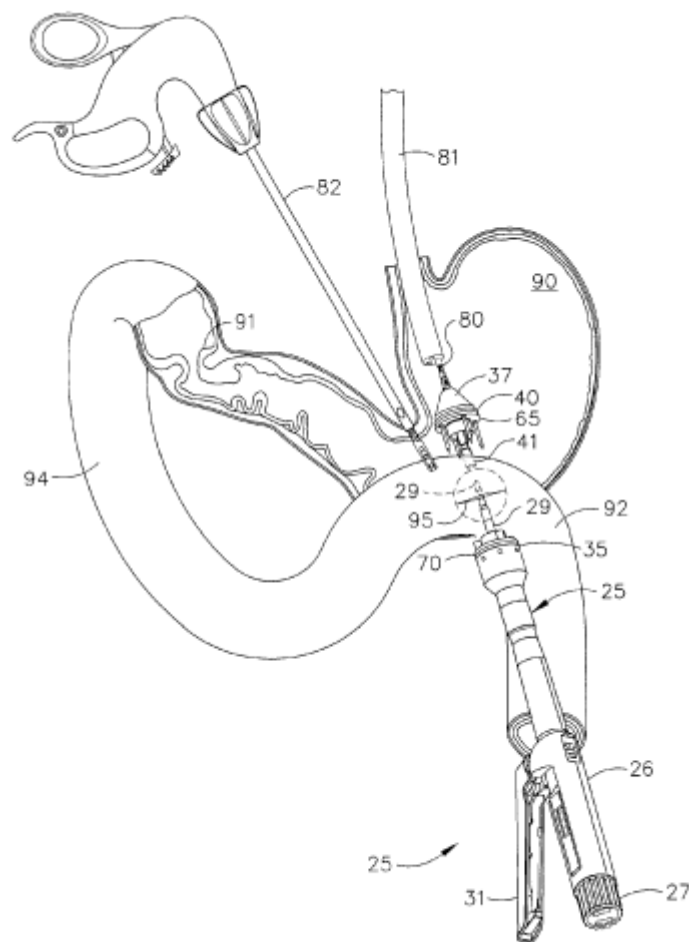
Sheet 1 of 3

5,723,008

A61B 17/115**Staplers for performing anastomosis, e.g. in a single operation****Definition statement**

This place covers:

Illustrative example of subject matter classified in [A61B 17/115](#)



A61B 17/1152

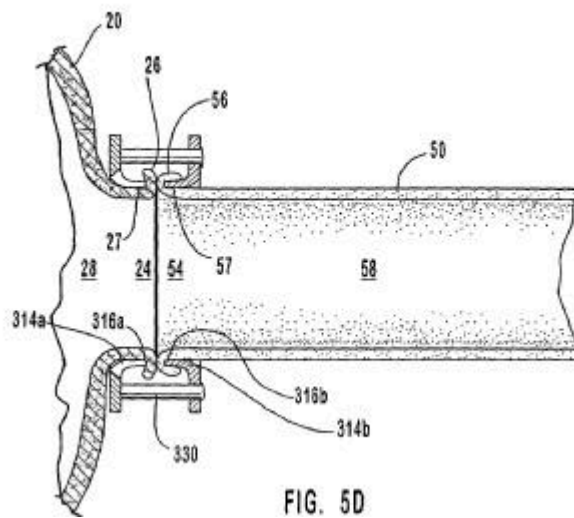
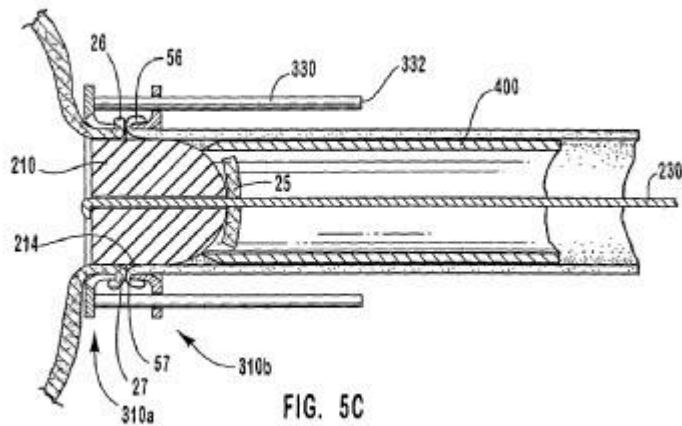
{applying the staples on the outside of the lumen}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1152](#)

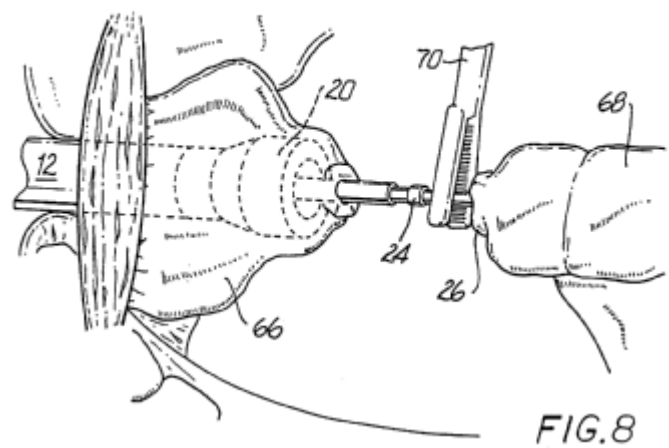
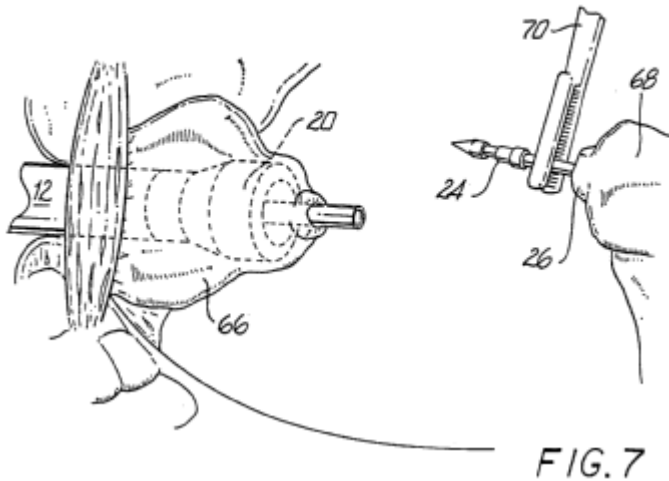
Patent Application Publication Apr. 11, 2002 Sheet 8 of 12 US 2002/0042623 A1



A61B 17/1155**{Circular staplers comprising a plurality of staples}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/1155](#)**U.S. Patent**

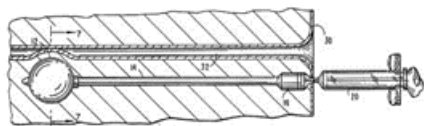
Oct. 27, 1998

Sheet 6 of 6

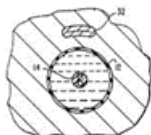
5,826,777**A61B 17/12****for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels or umbilical cord****Definition statement***This place covers:*

Illustrative examples of subject matter classified in this place.

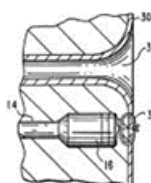
1a.



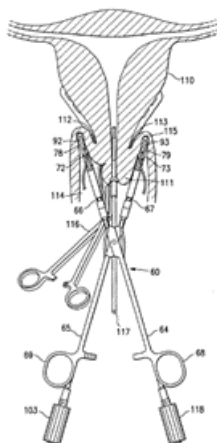
1b.



1c.



2.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Closure means for urethra or rectum or for artificial body openings	A61F 2/0004
Closure means, constricting the lumen	A61F 2/0031
Filters	A61F 2/01
Specially adapted for vas deferens or fallopian tubes	A61F 6/20
Transcervical canal	A61F 6/206
Materials for ligaturing blood vessels	A61L 17/00

A61B 17/12009

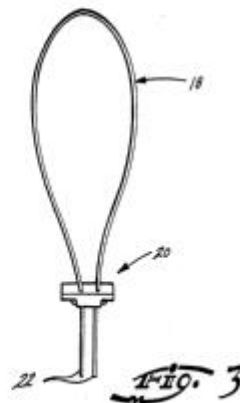
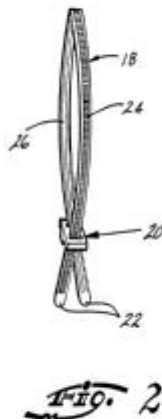
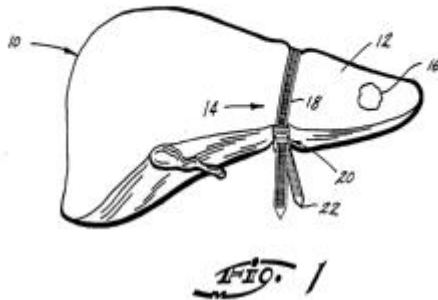
{Implements for ligaturing other than by clamps or clips, e.g. using a loop with a slip knot}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/12009](#)

U.S. Patent Apr. 19, 1994 Sheet 1 of 3 5,304,188



A61B 17/12013

{for use in minimally invasive surgery, e.g. endoscopic surgery}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/12013](#)

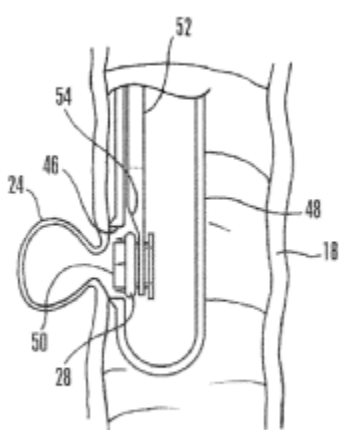


Figure 10

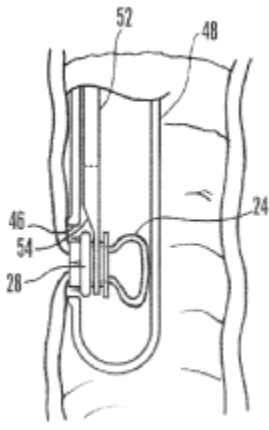


Figure 11

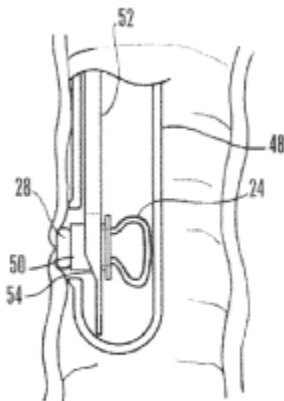


Figure 12

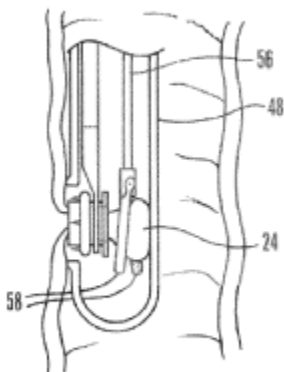


Figure 13

References

Limiting references

This place does not cover:

MIS suturing	A61B 17/0469
--------------	------------------------------

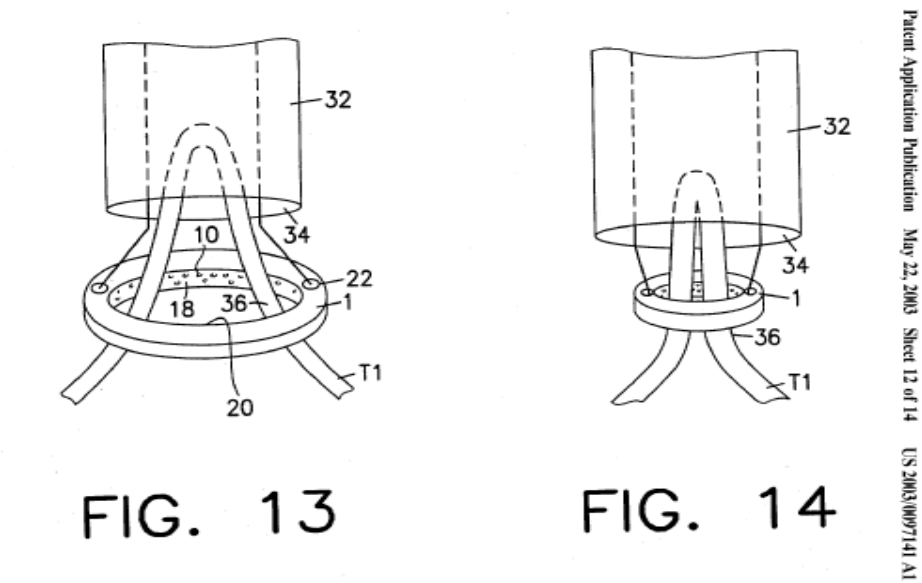
A61B 2017/12018

{Elastic band ligators}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 2017/12018](#)



A61B 17/12022

{Occluding by internal devices, e.g. balloons or releasable wires (plugging an opening in the wall of an organ [A61B 17/0057](#); occluders for the cervical canal [A61F 6/146](#); vas deferens occluders [A61F 6/20](#))}

References

Limiting references

This place does not cover:

Plugging an opening in the wall of an organ	A61B 17/0057
Occluders for the cervical canal	A61F 6/146
Vas deferens occluders	A61F 6/20

Informative references

Attention is drawn to the following places, which may be of interest for search:

When only reducing the blood flow; combine with stents modifying blood flow	A61F 2002/068
Stent graft or graft for the treatment of aneurysms	A61F 2/07
For occluding the hole of a cardiac valve cyclically	A61F 2/24 , A61F 2/2442
Stents, different from stent-grafts, adapted to cover an aneurysm	A61F 2002/823

A61B 2017/1205**{Introduction devices}****References****Limiting references***This place does not cover:*

Introducer for blood filters	A61F 2/011
Introducer for stents	A61F 2/95

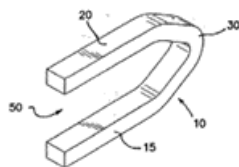
A61B 2017/12127**{Double occlusion, e.g. for creating blood-free anastomosis site}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Multiple balloon catheters	A61M 25/1011
Balloon catheters or temporarily occluding a vessel for isolating a sector	A61M 2025/1052

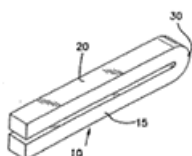
A61B 17/122**Clamps or clips, e.g. for the umbilical cord {(for the vas deferens [A61F 6/206](#))}****Definition statement***This place covers:*

Illustrative examples of subject matter classified in this place.

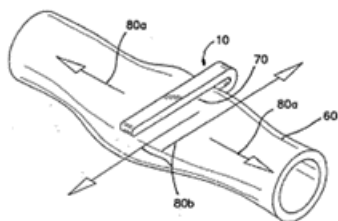
1a.



1b.



2.



References

Limiting references

This place does not cover:

For the vas deferens	A61F 6/206
----------------------	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pressure applied to the urethra by an element placed around the penis, e.g. penis clamp	A61F 2/0054
Gastric bypass	A61F 5/0003

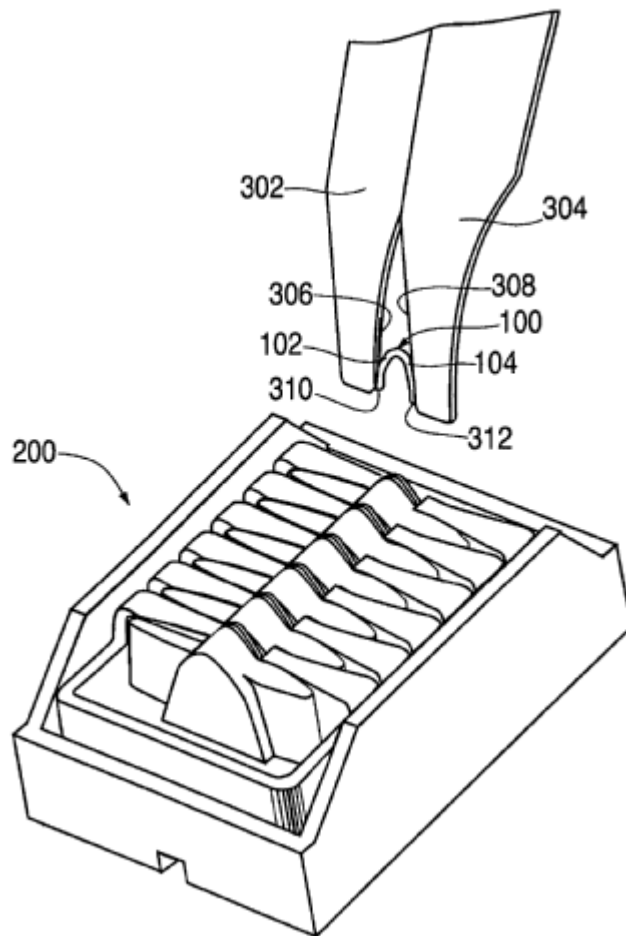
A61B 17/1222

{Packages or dispensers therefor (clip magazines incorporated in a clip-applying instrument [A61B 17/128](#); for surgical articles [A61B 50/30](#))}

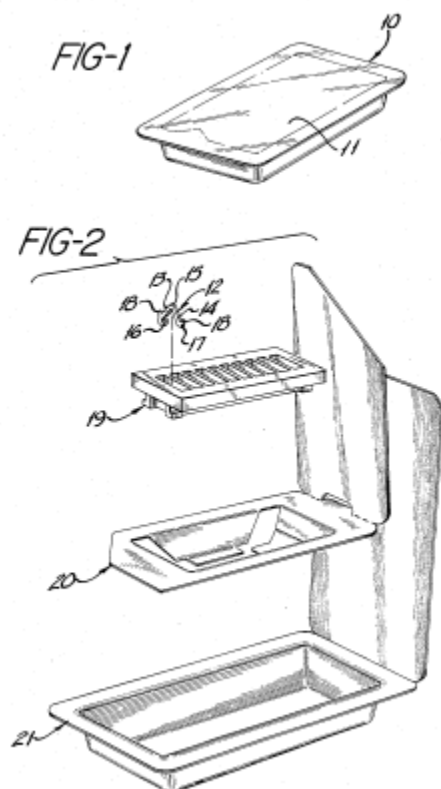
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1222](#)



U.S. Patent May 28, 1985 Sheet 1 of 3 4,519,501



References

Limiting references

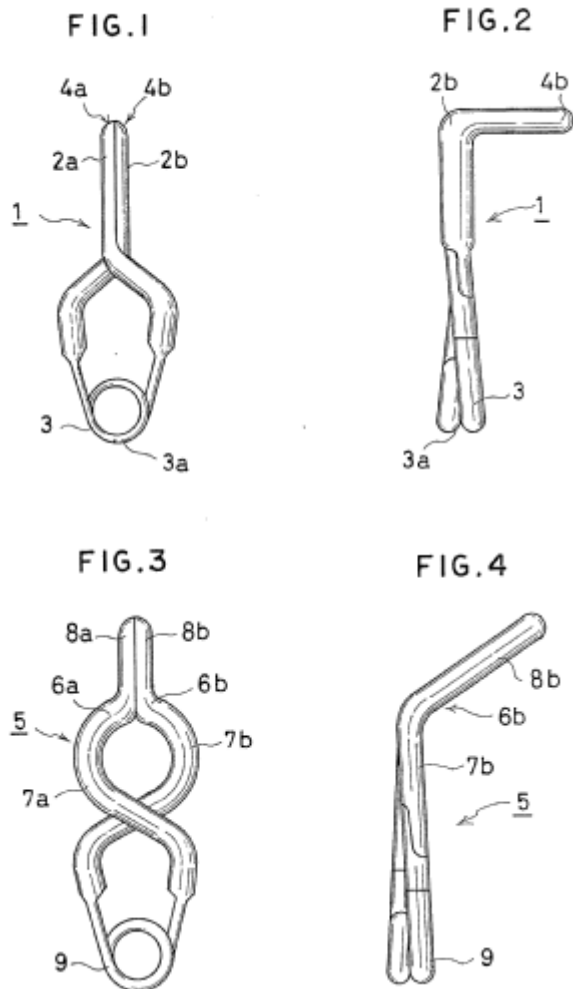
This place does not cover:

Clip magazines incorporated in a clip-applying instrument	A61B 17/128
For surgical articles	A61B 50/30

A61B 17/1227**{Spring clips}****Definition statement**

This place covers:

Illustrative example of subject matter classified in [A61B 17/1227](#)



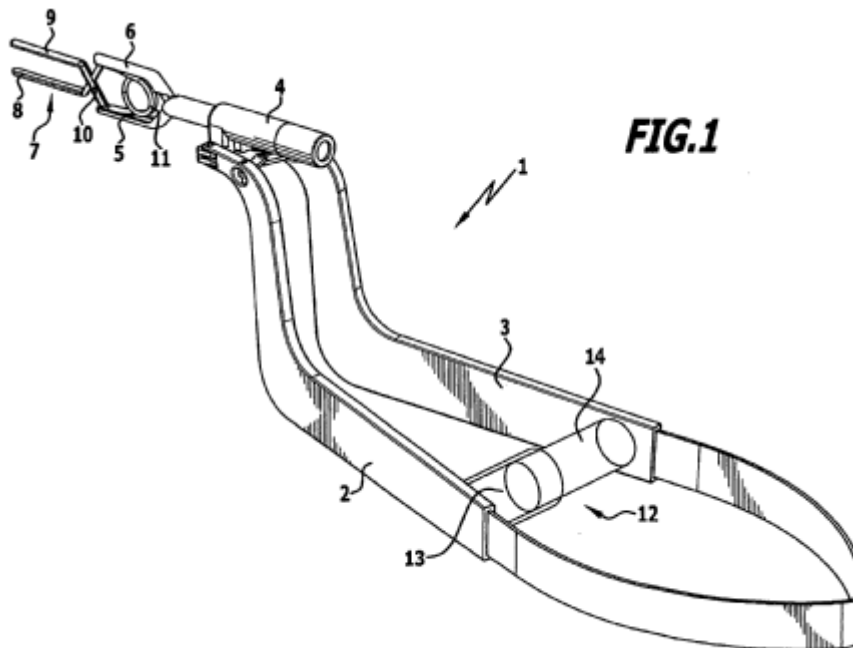
A61B 17/128

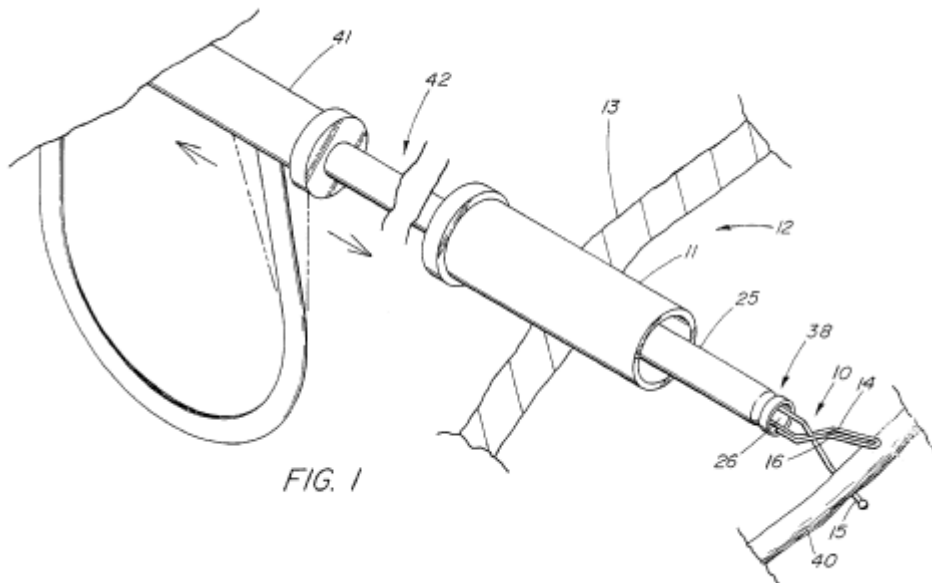
for applying or removing clamps or clips

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/128](#)



A61B 17/1285**{for minimally invasive surgery}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/1285](#)

U.S. Patent Oct. 15, 2002 Sheet 1 of 5 US 6,464,710 B1

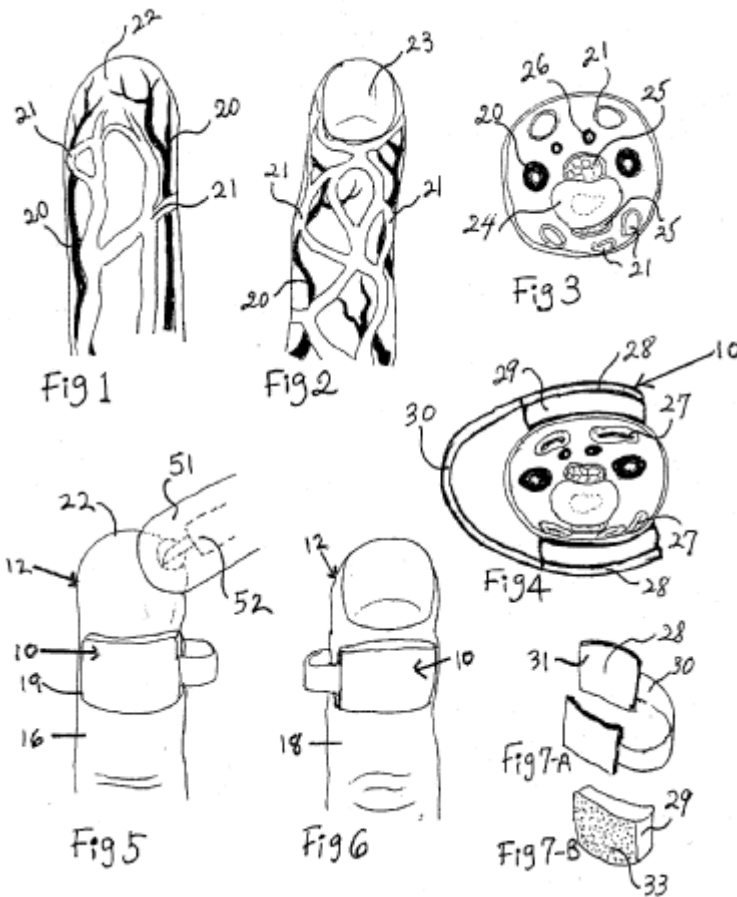
A61B 17/132

Tourniquets {(sphygmomanometer [A61B 5/022](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group:



References

Limiting references

This place does not cover:

Sphygmometers	A61B 5/022
---------------	----------------------------

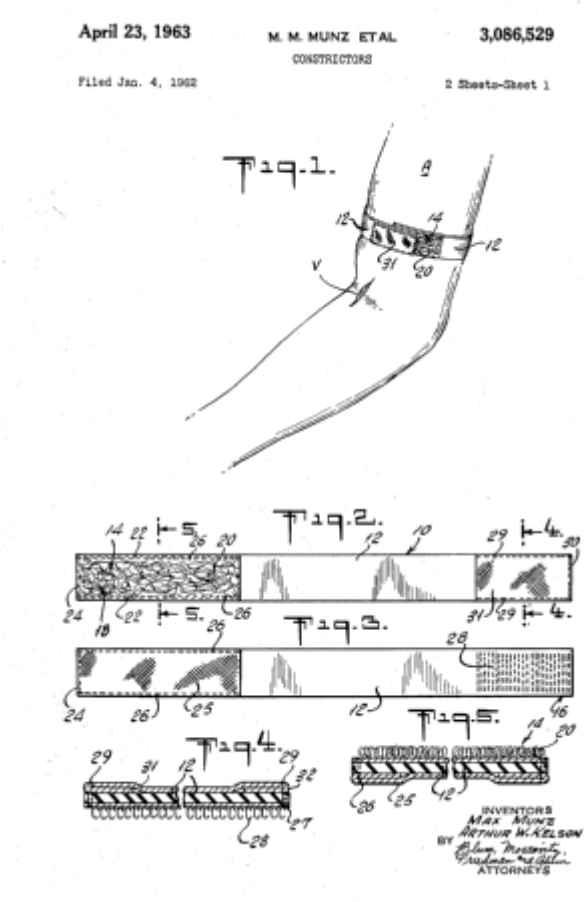
A61B 17/1322

{comprising a flexible encircling member ([A61B 17/135](#) takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1322](#):



References

Limiting references

This place does not cover:

Inflatable	A61B 17/135
Pressure pads	A61F 5/30

Informative references

Attention is drawn to the following places, which may be of interest for search:

Occluders to close blood vessels, e.g. against the skin for measuring blood pressure	A61B 5/02233
Occluders to close blood vessels, e.g. against the skin for measuring blood pressure of small dimensions	A61B 5/02241
Hemostatic bandage with means for applying local pressure	A61F 2013/00468

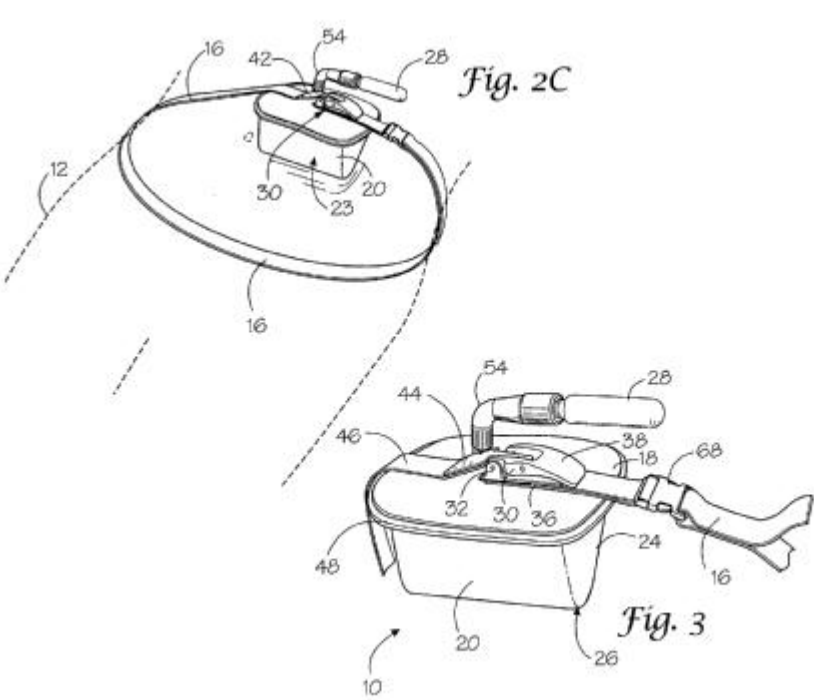
A61B 17/1325

{with means for applying local pressure (pressure pads [A61F 5/30](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1325](#)



Patent Application Publication Nov. 13, 2008 Sheet 3 of 6 U.S. 2008/0281351 A1

References

Limiting references

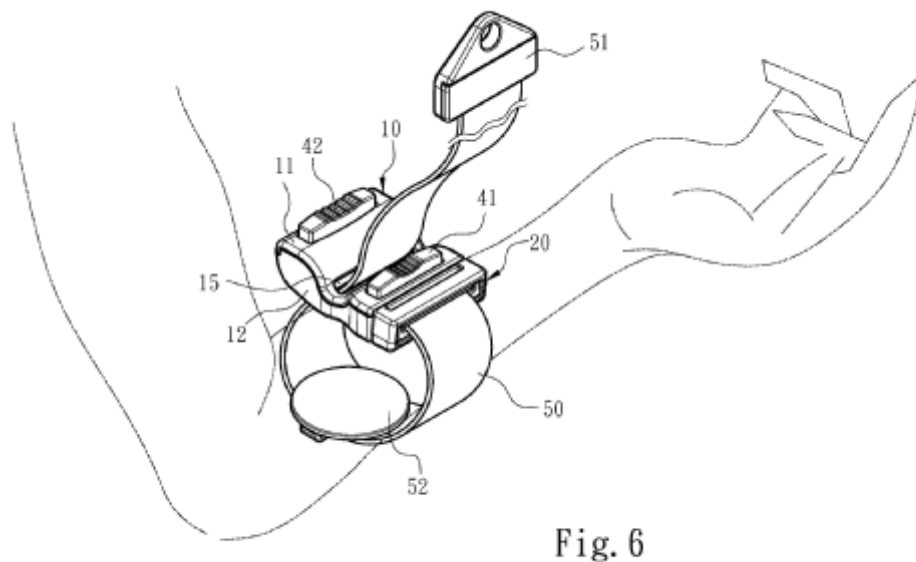
This place does not cover:

Pressure pads	A61F 5/30
---------------	---------------------------

A61B 17/1327**{Tensioning clamps}****Definition statement**

This place covers:

Illustrative example of subject matter classified in [A61B 17/1327](#)



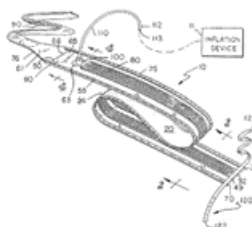
Patent Application Publication Dec. 9, 2010 Sheet 7 of 7 US 2010/0312271 A1

A61B 17/135**inflatable****Definition statement**

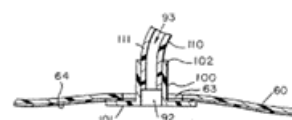
This place covers:

Illustrative examples of subject matter classified in this place:

1.



2.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For measuring blood pressure	A61B 5/022
Gastric bands, remotely adjustable, using inflatable ports	A61F 5/0056
Inflatable pressure pads	A61F 5/34

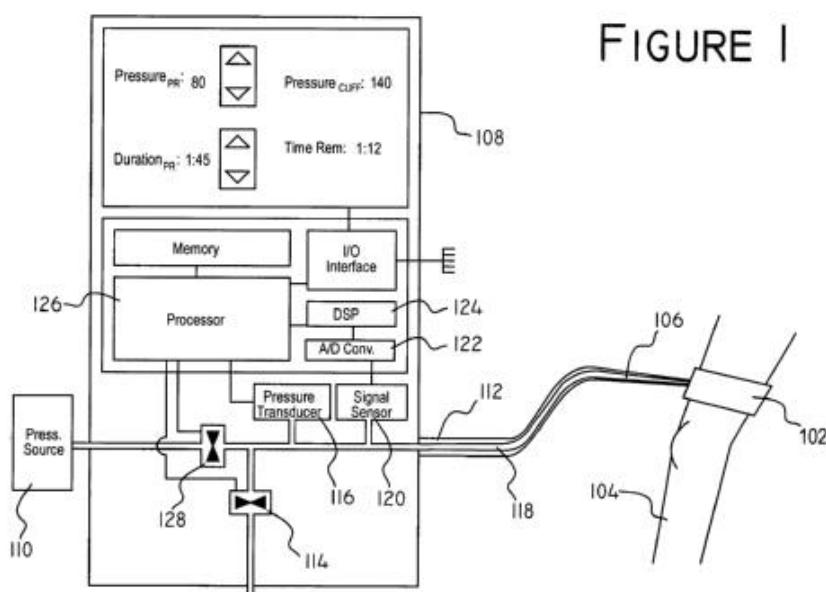
A61B 17/1355

{Automated control means therefor}

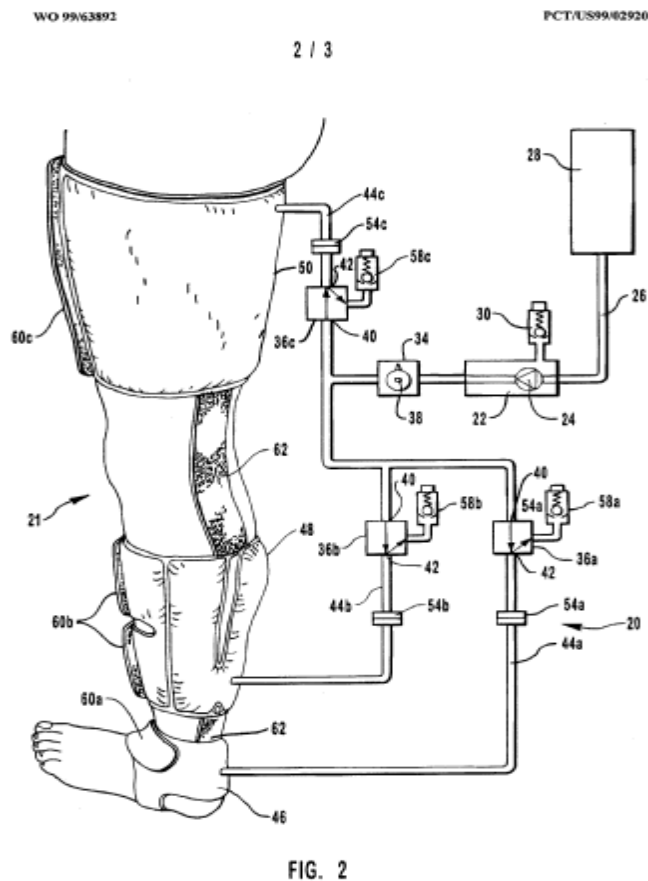
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1355](#)



Patent Application Publication Jul. 29, 2004 Sheet 1 of 11 US 2004/0147956 A1



A61B 17/14

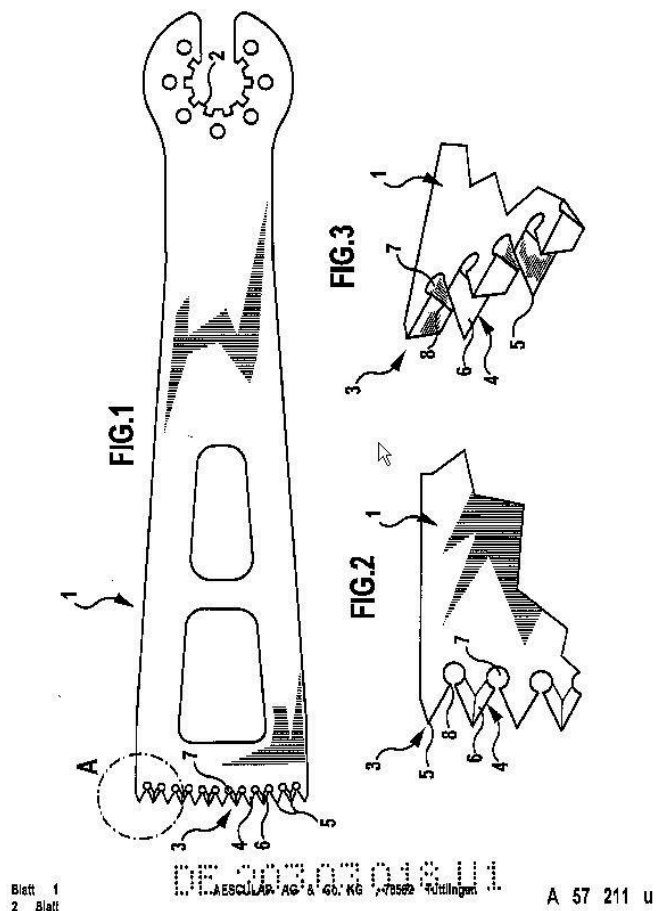
Surgical saws ({[A61B 17/1637](#) takes precedence;} dental saws for teeth [A61C 3/12](#))

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/14](#)

Typical example (DE20303018U):



References

Limiting references

This place does not cover:

Hollow drills or saws creating a curved cut, e.g. cylindrical	A61B 17/1637
Tooth saws	A61C 3/12

Informative references

Attention is drawn to the following places, which may be of interest for search:

Implanting tools or instruments for the jaw bone	A61C 8/0089
Cast-cutting saws	A61F 15/02
Saws in general	B23

A61B 17/15

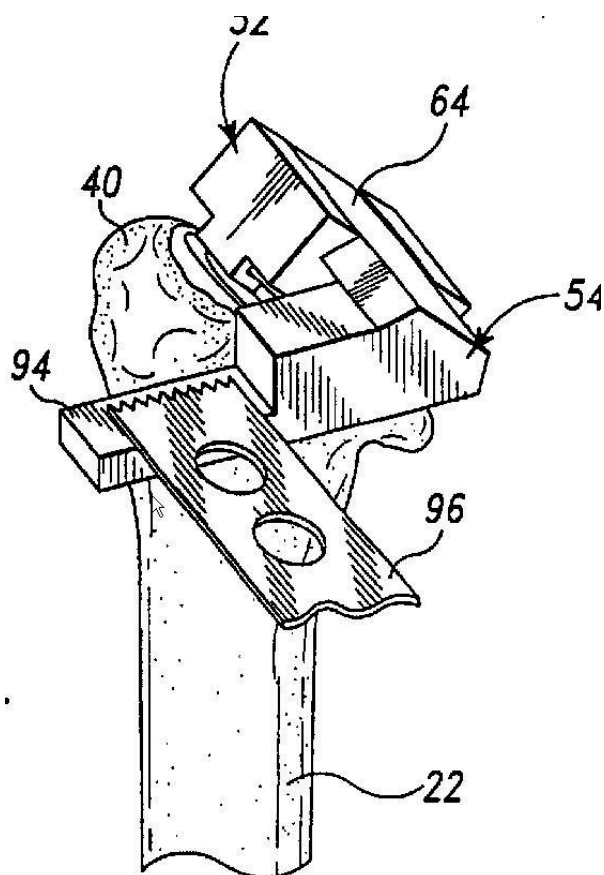
Guides therefor

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/15](#)

Typical example (EP1224912):



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements for guiding straight saw blades in general	B23D 51/025
---	-----------------------------

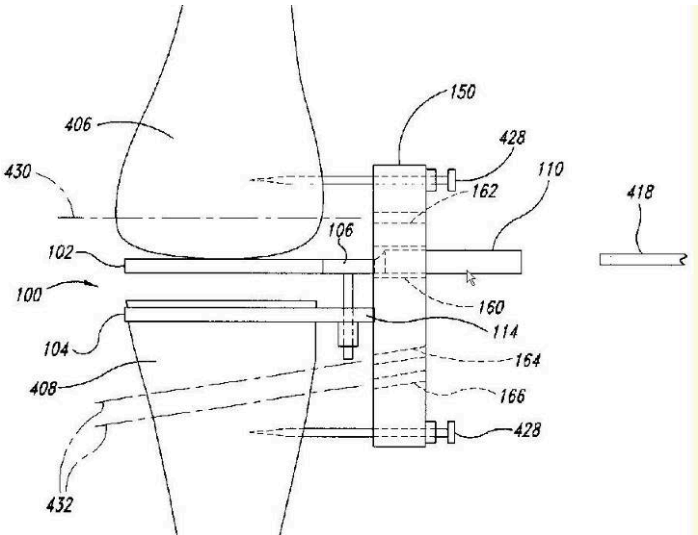
A61B 17/154

{for preparing bone for knee prosthesis}

Definition statement

This place covers:

This group covers equipment for guiding resection of more than one of the bones at the knee) (femur, tibia, patella), for example (US6478799):



References

Limiting references

This place does not cover:

Cutting femur only	A61B 17/155
Cutting tibia only	A61B 17/157
Cutting patella only	A61B 17/158

A61B 17/155

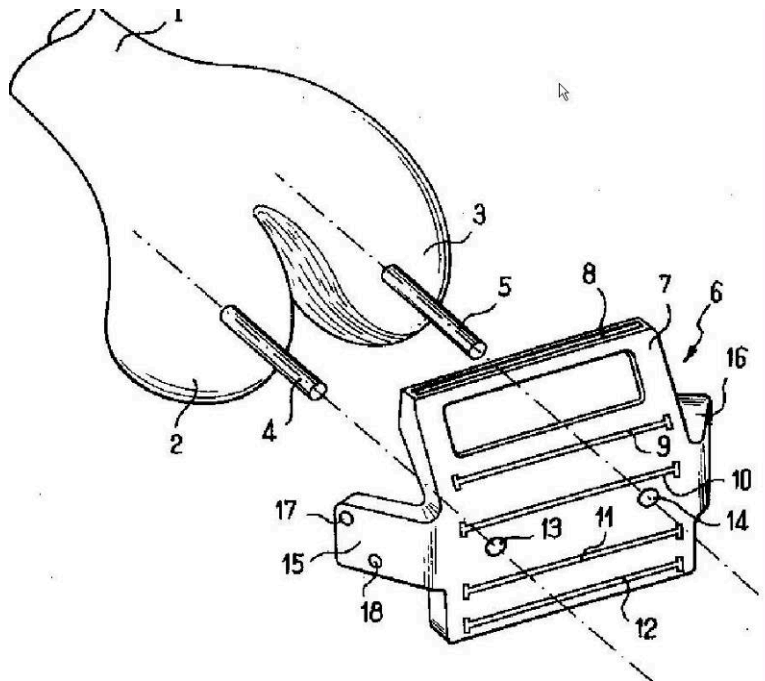
{Cutting femur}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/155](#)

Typical example (FR2838626):



A61B 17/157

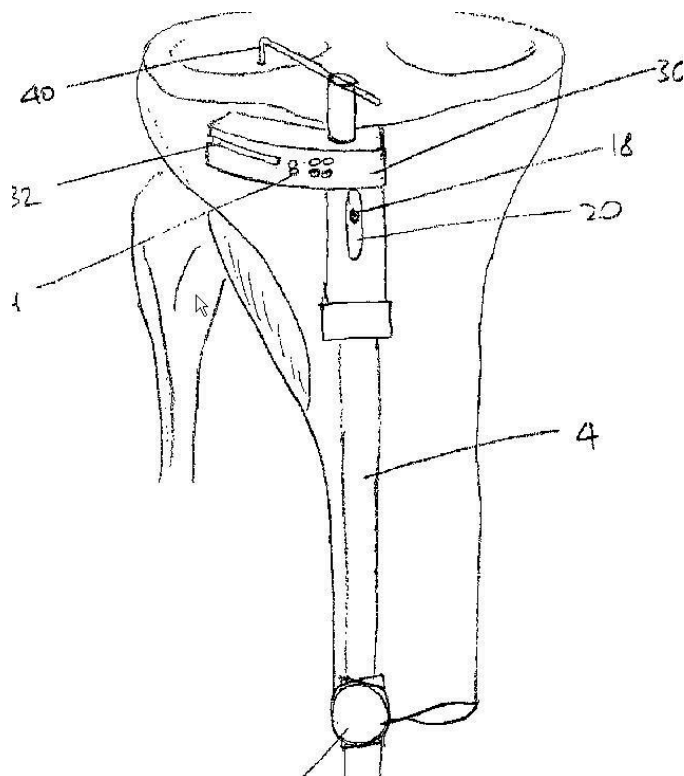
{Cutting tibia}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/157](#)

Typical example (WO03013371):



A61B 17/158

{Cutting patella}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/158](#)

Typical example (US5542947):

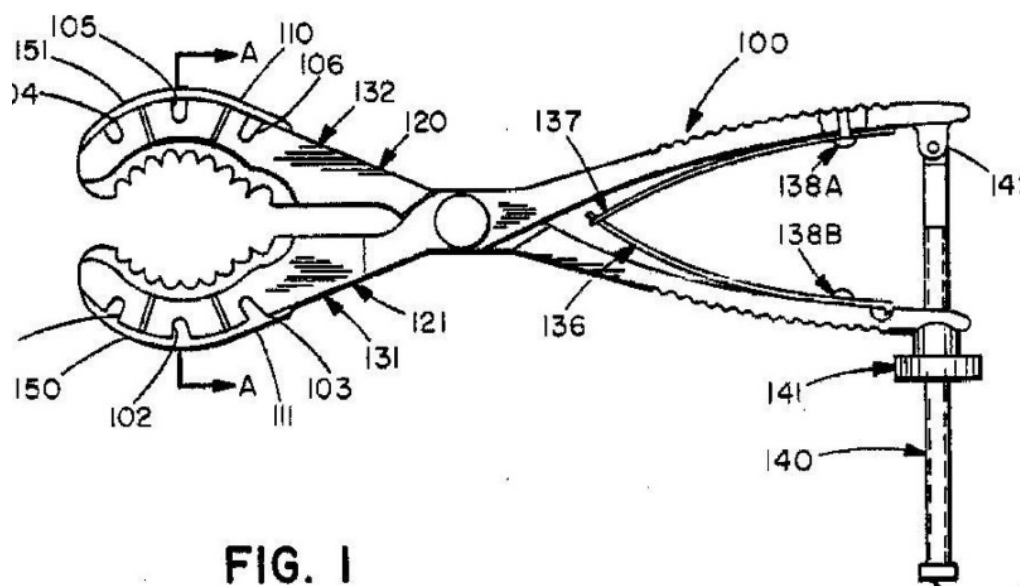


FIG. 1

A61B 17/16

Instruments for performing osteoclasis; Drills or chisels for bones; Trepanns
{(arthroscopic bone cutters [A61B 17/320016](#))}

References

Limiting references

This place does not cover:

Arthroscopic bone cutters	A61B 17/320016
---------------------------	--------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Abutting on tissue or skin	A61B 2090/036
Dental implant drills potentially for other surgical use	A61C 8/0089
Bone grinders	A61F 2/4644 , A22C 17/06

Special rules of classification

[A61B 17/1662](#) takes precedence over all other subgroups of [A61B 17/16](#) except [A61B 17/17](#)

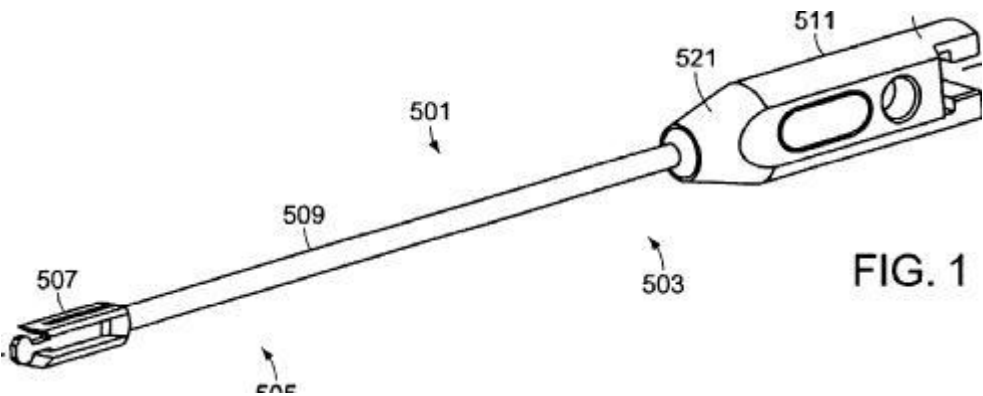
A61B 17/1604

{Chisels; Rongeurs; Punches; Stamps}

Definition statement

This place covers:

This group covers impacting or shearing devices for removing or indenting bone, for example chisels such as (EP1308132):



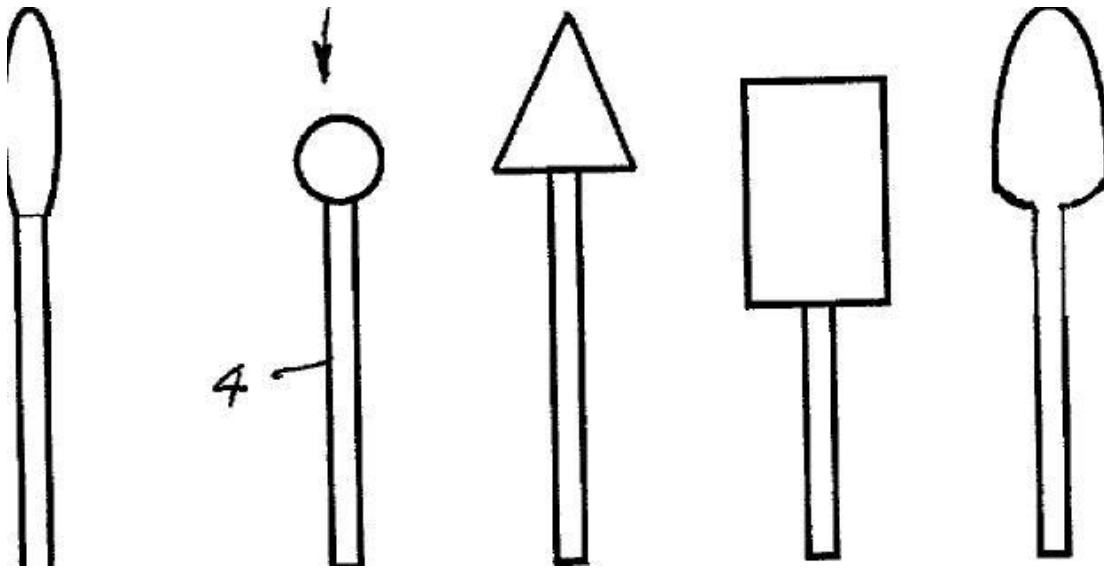
A61B 17/1615

{Drill bits, i.e. rotating tools extending from a handpiece to contact the worked material}

Definition statement

This place covers:

Typical bits :

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hand-held or like portable drilling machines	B23B 45/00
--	----------------------------

A61B 17/1617

{with mobile or detachable parts}

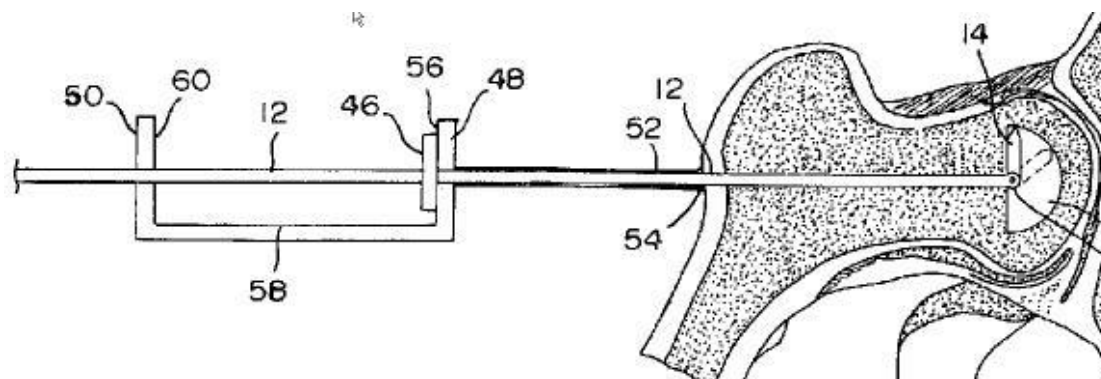
Definition statement

This place covers:

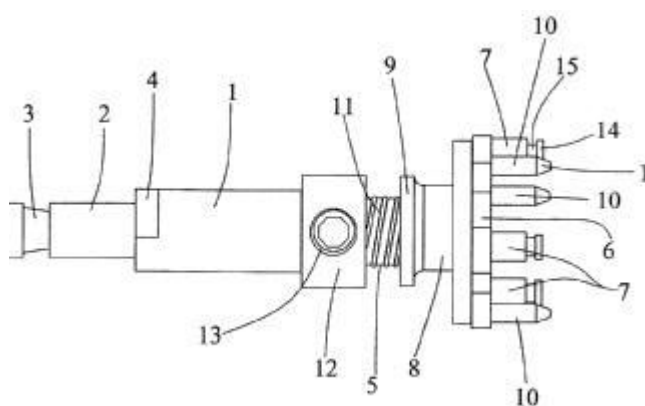
Examples:

Definition statement

US6358251



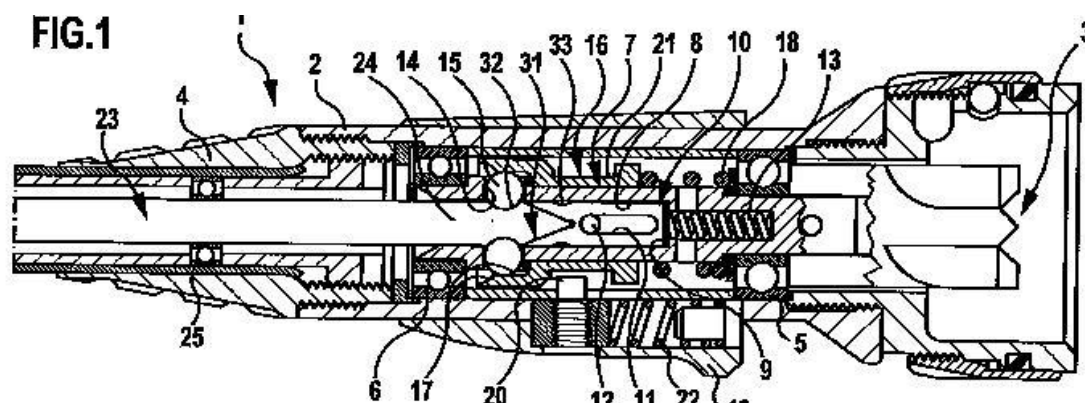
US2001006593

**A61B 17/162**

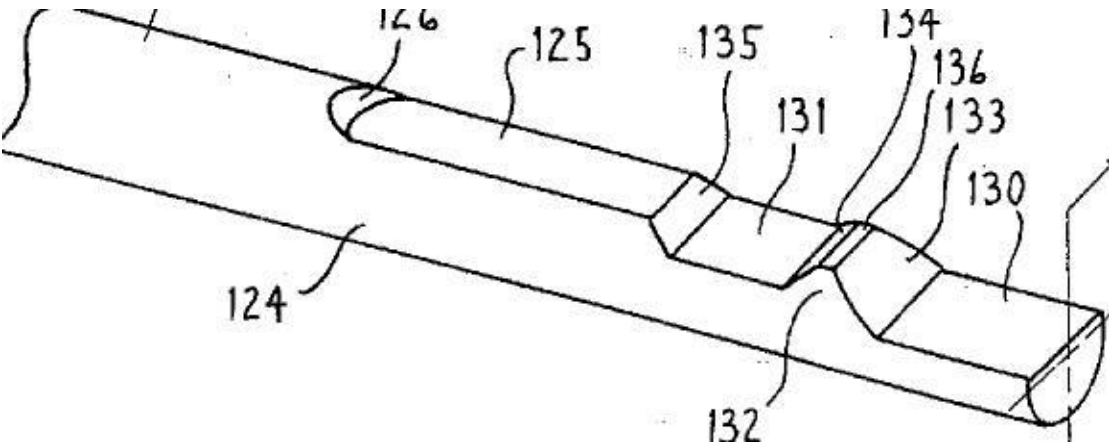
{Chucks or tool parts which are to be held in a chuck}

Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 17/162](#)

Typical chuck (DE20304155U):



Typical tool part to be held in a chuck (US5634933):



A61B 17/1622

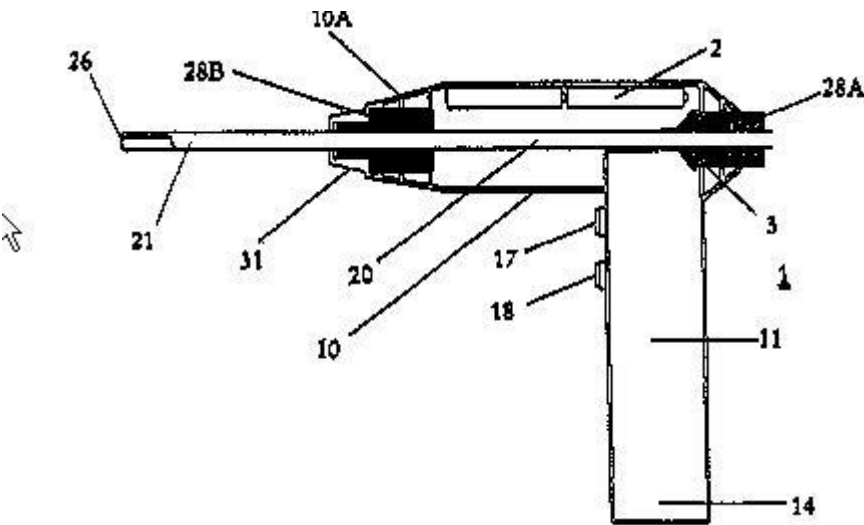
{Drill handpieces ([A61B 17/1626](#), [A61B 17/1628](#) take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1622](#)

Typical handpiece (WO0167970):



References

Limiting references

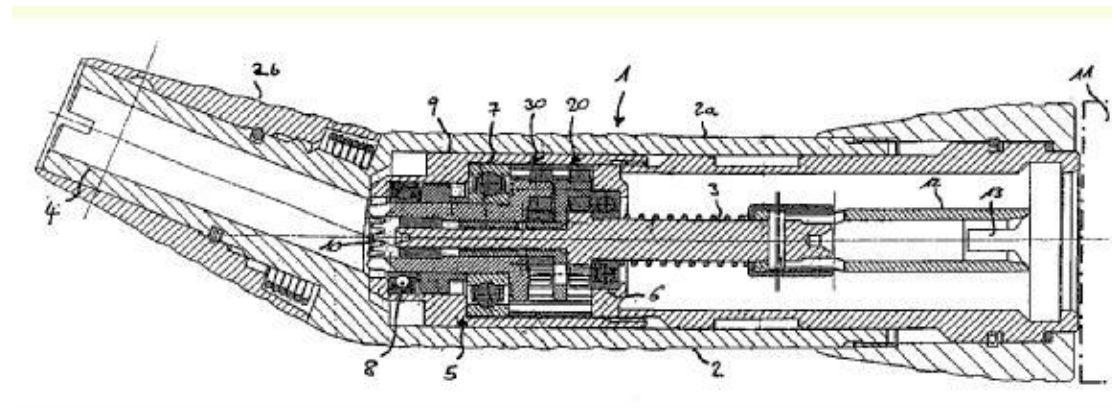
This place does not cover:

Control means and display units	A61B 17/1626
Motors and power supplies	A61B 17/1628

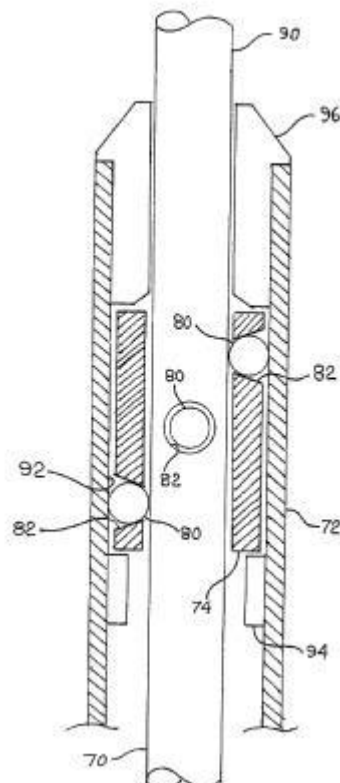
A61B 17/1624**{Drive mechanisms therefor}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/1624](#)

Examples:

WO2004047664 (uses planetary gears)



US2003219184 (uses particular ball-bearing layout)



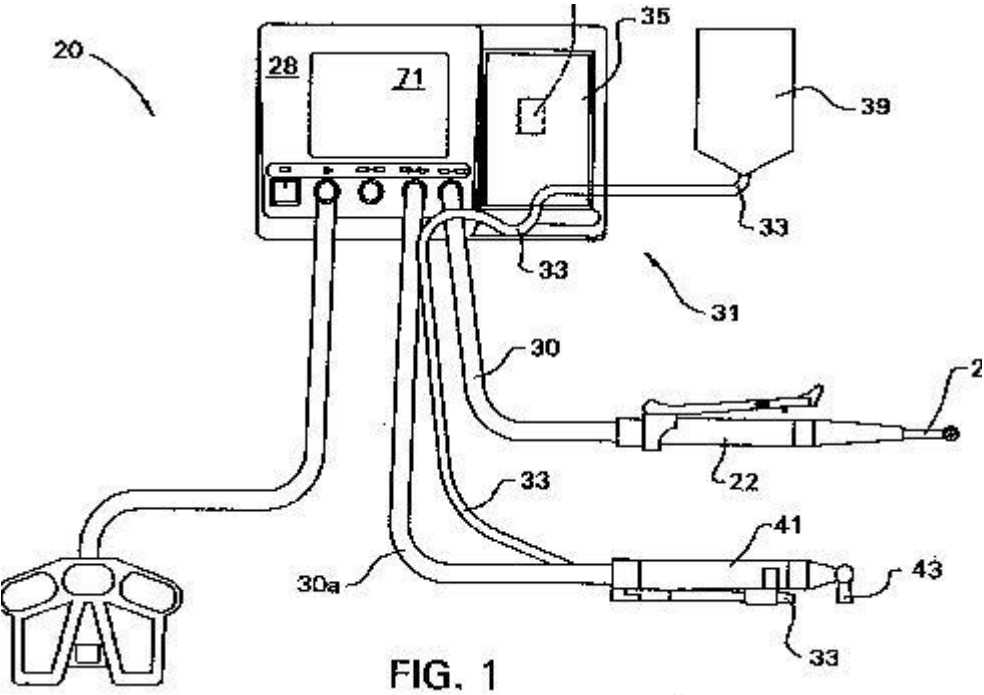
A61B 17/1626

{Control means; Display units}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1626](#)



"An advantage of the foregoing system is that it allows a single control console to be used to supply the energization signals that are applied to the handpiece that have different power consuming units, such as motors. Thus, a single control console can be used to operate a first handpiece with a motor that rotates at speeds under 3,000 RPM and requires 350 Watts or more of power, a second handpiece that has a motor that operates at speeds over 70,000 RPM and that requires approximately 150 Watts of power and a third handpiece that operates at speeds between 10,000 to 40,000 RPM and that requires only 40 Watts of power."

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Checking screw impingement on nerves	A61B 5/389 , A61B 17/7092
--------------------------------------	--

A61B 17/1628

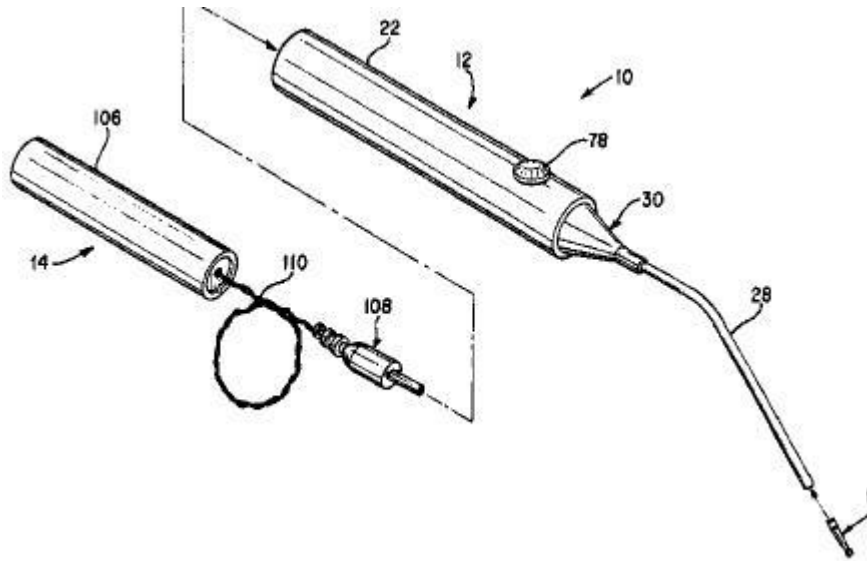
{Motors; Power supplies}

Definition statement

This place covers:

Examples:

US5796188



"A medical instrument comprising a handpiece including a body, an electrical device disposed within said body and having an operating characteristic responsive to DC voltage, and a first battery disposed within said body for applying a first DC voltage to said electrical device to cause said electrical device to operate in a first mode; and

a booster disposed externally of said body, said booster including a DC power source and means for detachably connecting said DC power source with said first battery to apply a second DC voltage greater than said first DC voltage to said electrical device to cause said electrical device to operate in a second mode;

wherein said connecting means includes a power cord extending between said booster and said handpiece to permit said booster to be located remotely from said handpiece when said electrical device is operated in said second mode."

DE20105480U

"Antriebsmotor für chirurgische Geräte mit einer stromdurchflossenen, eine Motorwicklung bildenden Leiterbahn, dadurch gekennzeichnet, dass die Leiterbahn (7) in der Motorwicklung aufgeteilt ist in eine Anzahl von elektrisch voneinander isolierten, nebeneinander verlaufenden Leitungsdrähten (8)."

A61B 17/1631

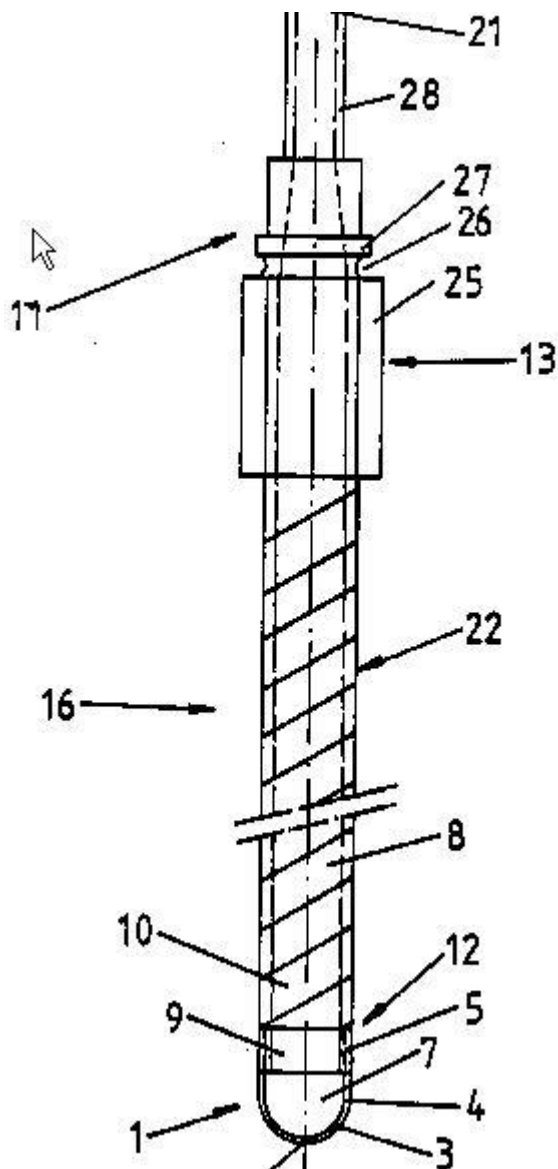
{Special drive shafts, e.g. flexible shafts ([A61B 17/1642](#), [A61B 17/164](#) take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1631](#)

Example (WO0045713):



"Der Schaft ist mindestens auf einem Teil seiner Länge bezüglich Torsion und/oder Biegung um die Längsachse (2) elastisch."

NB device provides graft material so is also classified in [A61B 17/1635](#).

References

Limiting references

This place does not cover:

Intramedullary reamers	A61B 17/164
For producing a curved bore	A61B 17/1642

A61B 17/1633

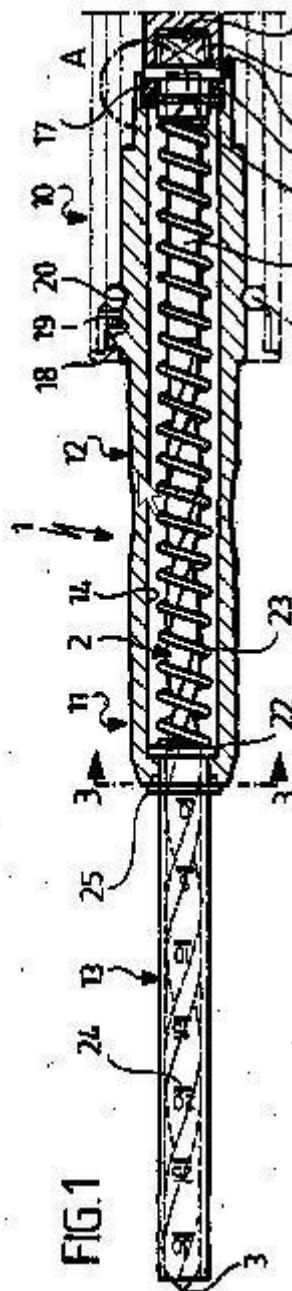
{Sleeves, i.e. non-rotating parts surrounding the bit shaft, e.g. the sleeve forming a single unit with the bit shaft ([A61B 17/1644](#) takes precedence)}

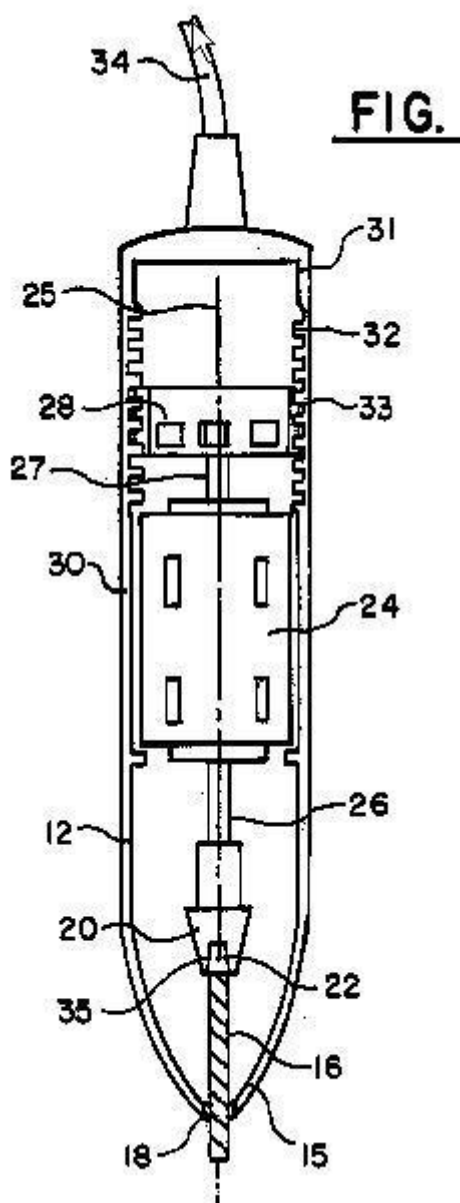
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1633](#)

Typical examples:





The group also includes so-called "shavers" i.e. instruments with sleeve having a lateral opening exposing the cutter.

References

Limiting references

This place does not cover:

Using fluid other than turbine drive fluid	A61B 17/1644
--	------------------------------

A61B 17/1635

{for grafts, harvesting or transplants}

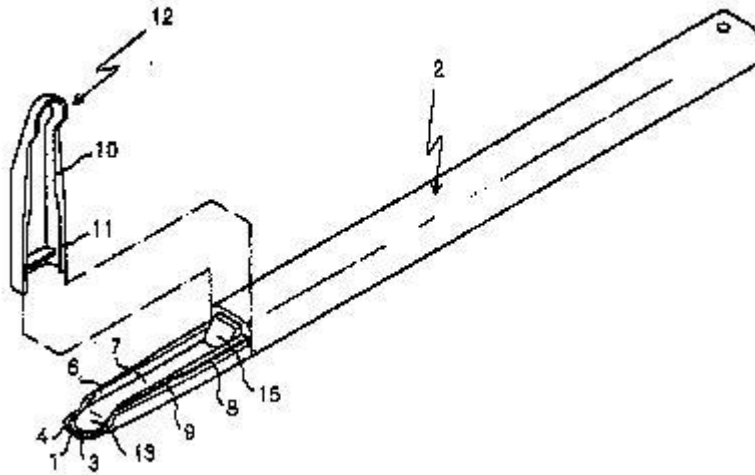
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1635](#)

Definition statement

Example (WO03030766):



"The present invention facilitates harvesting a small amount of autologous bone necessary for supplementing insufficient alveolar bone when treating artificial teeth, which has a grip part formed in an insert injection molding to have an anticorrosive blade at the front end thereof, a bone-passing opening formed between the blade and the grip part, a cross wall forming a storage space for bone harvested by the blade and past through the bone-passing opening to be collected, and a cover detachably coupled to the grip part to slide along a guide groove formed in the upper portion of the cross wall and forming a storage space to be used as a surgical treatment container storing the harvested bone."

A61B 17/1637

{Hollow drills or saws producing a curved cut, e.g. cylindrical ([A61B 10/025](#), [A61B 17/1695](#) take precedence)}

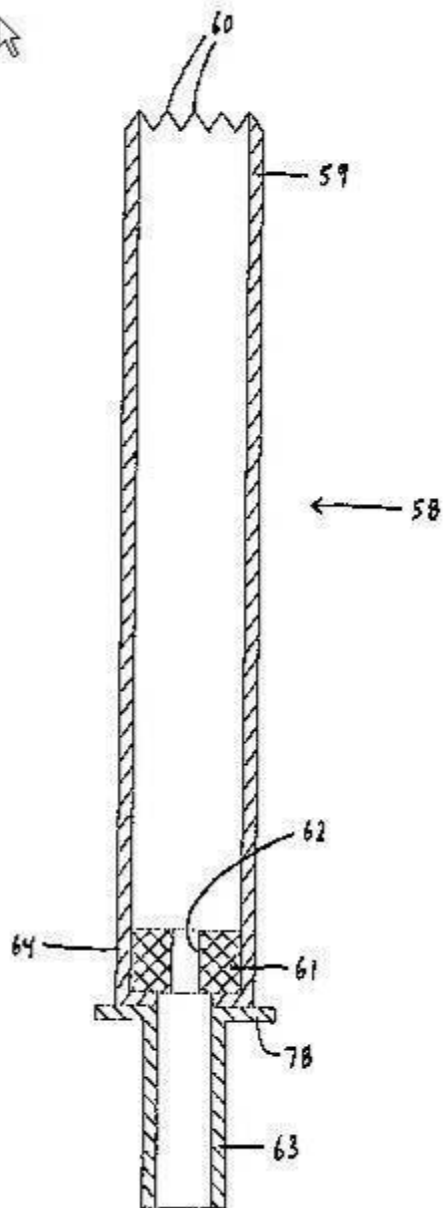
Definition statement

This place covers:

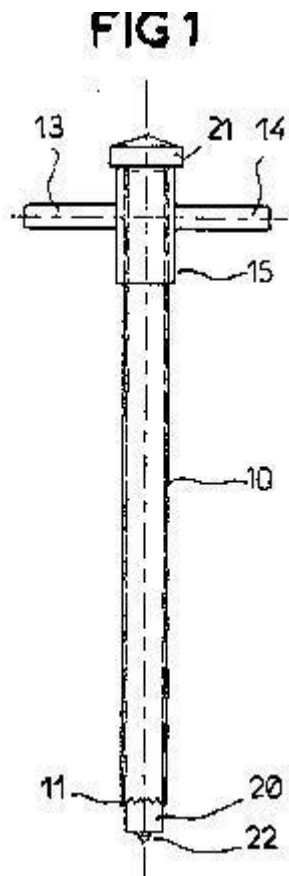
Illustrative example of subject matter classified in [A61B 17/1637](#)

Examples:

US6120511



FR2749154 (20 is a cut bone ejection rod of this instrument) -



References

Limiting references

This place does not cover:

For taking bone, bone marrow or cartilage samples	A61B 10/025
Trepan or craniotomes, i.e. specially adapted for drilling thin bones such as the skull	A61B 17/1695

A61B 17/164

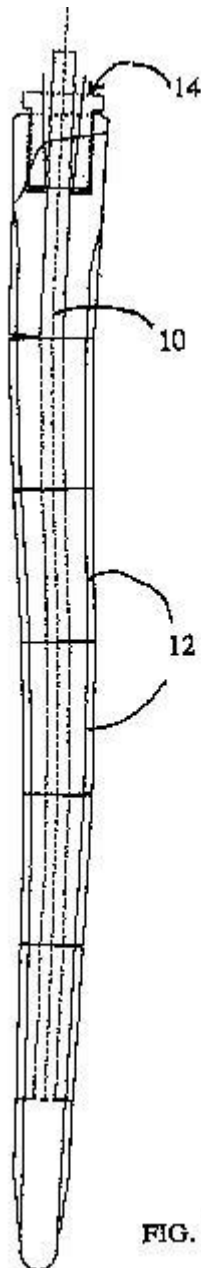
{intramedullary}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/164](#)

Example (US6283970):



A61B 17/1642

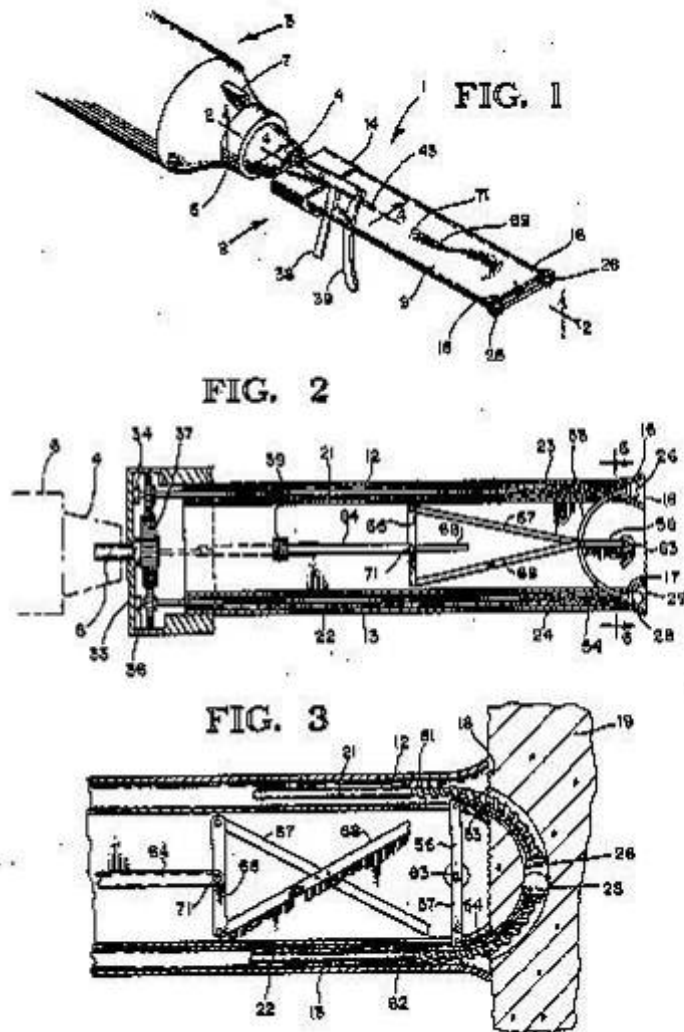
{for producing a curved bore}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1642](#)

Example (US4941466):



A61B 17/1644

{using fluid other than turbine drive fluid}

Definition statement

This place covers:

Examples:

WO03025102

LUBRICATING OIL FOR ROLLING BEARING UNIT OF HIGH-SPEED CUTTER

WO02085223

CUTTING DEVICE FOR BONE TISSUE

"The invention relates to a cutting device (1), which is provided for cutting bone tissue (3), is intended for correcting malpositions, and which enables a segment of the bone tissue (3) to be cut along a predetermined cut surface (5). To this end, a high-pressure fluid jet (2) is produced by the cutting device (1), and the jet produces, in accordance with a control program stored in a control unit (4), a cut surface (5), for example, in the shape of a circular arc."

US3076904 - Acoustically vibrated material cutting and removing devices. Ultrasonic, with cooling fluid

A61B 17/1646

{with sealing means}

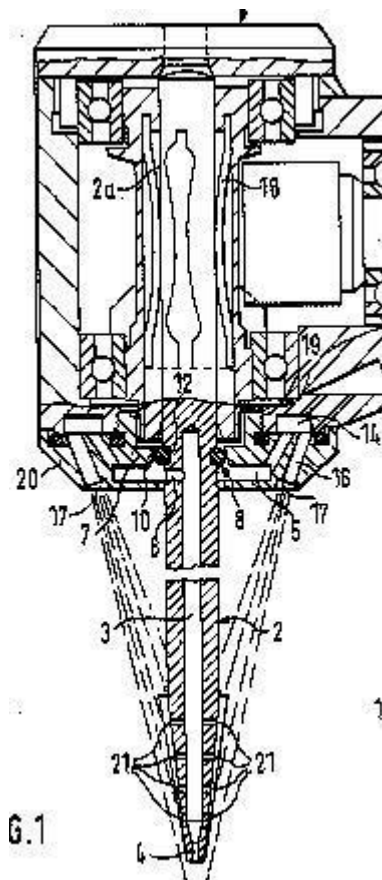
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1646](#)

Examples:

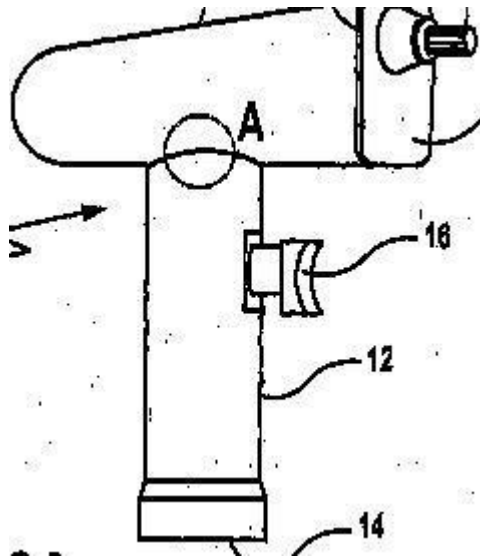
US4975056



"TI - Medical, especially dental handpiece

AB - A medical handpiece, and especially a dental handpiece, including a drivable worktool or implement which is rotatably supported with its shaft at one end of the handpiece and which projects from this handpiece end with its operating end. The implement possesses an elongate blind bore-like passageway which communicates with the outside at the work end of the implement through the intermediary of a discharge opening, and with which there is associated a supply line arranged within the handpiece for the infeed of cooling media to at least one radial through-opening of the implement which stands in communication with the elongate passageway; whereby the at least one radial through-opening is sealed with respect to the interior of the handpiece through the intermediary of a seal which encompassing the shaft of the implement and contacts against a wall portion of the handpiece."

DE20202724U:



"A surgical tool (10) has a fluid connection into the motor housing (18) with thermally operated sintered, ceramic or porous plastic sealing membrane such as Goretex or mechanical valve to close the link to liquids and open it to the hot steam used for sterilization."

PN - US5823774 A 19981020

AB - "A device is disclosed that dynamically seals the collet of a high-speed surgical or dental drill from the ingress of contaminating substances with which the tool or collet of the drill comes into contact, such as blood, saliva, saline, tissue, bone chips, and tooth particles. The dynamic seal comprises an impeller and a bearing that rotatably supports both the impeller and a surgical tool; furthermore, the seal may be disposed within a burguard that is mounted on the distal end of a surgical drill. The spinning impeller has a disc portion that imparts a centrifugal force to the flow of contaminating substances and thereby pumps the flow entering through the tool opening radially outward through discharge holes in the burguard housing. The dynamic seal further includes an O-ring for sealing against the tool shaft and blocking the contaminating substances from continuing up the tool bore and into the collet of the surgical drill. A backring retains the O-ring in place."

US-A-5823774 Dynamically sealed surgical drill

" A device is disclosed that dynamically seals the collet of a high-speed surgical or dental drill from the ingress of contaminating substances with which the tool or collet of the drill comes into contact, such as blood, saliva, saline, tissue, bone chips, and tooth particles."

A61B 17/1655

{for tapping}

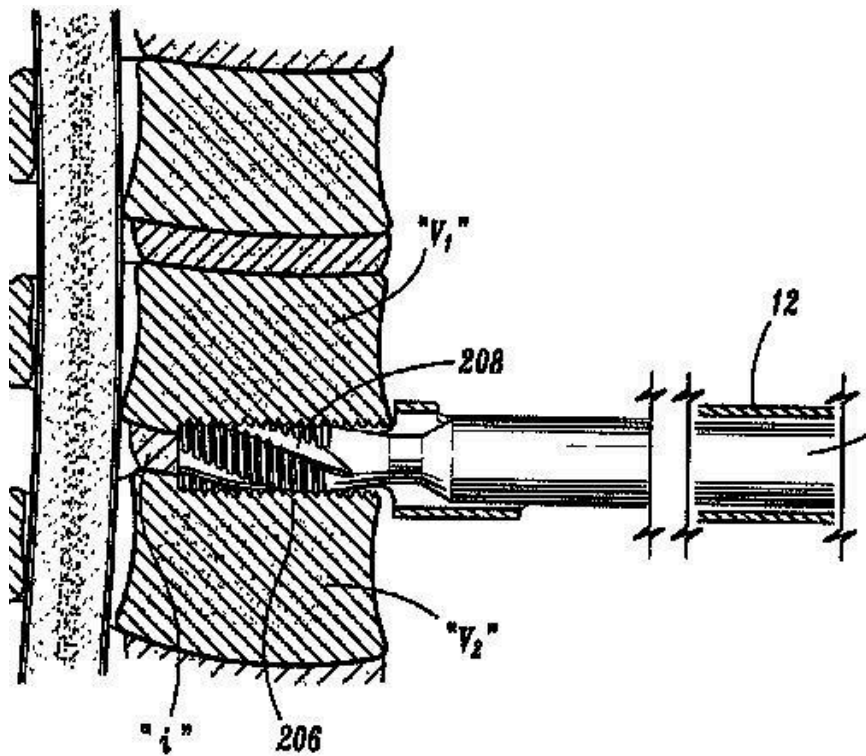
Definition statement

This place covers:

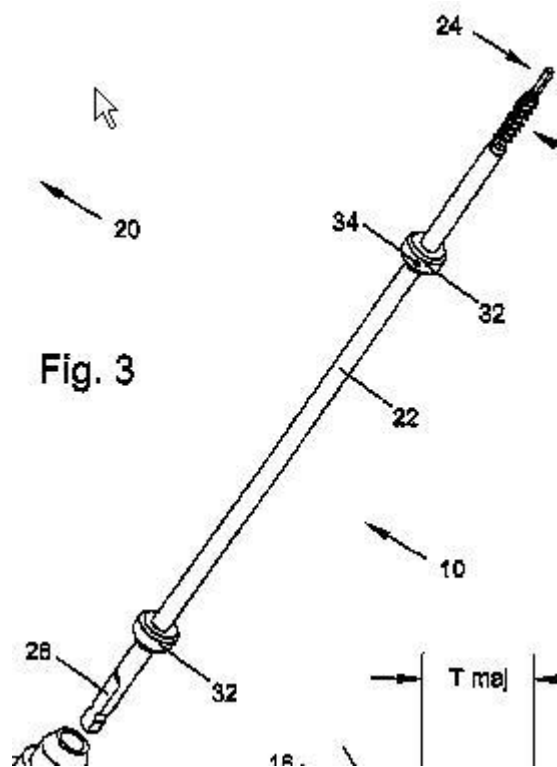
Illustrative example of subject matter classified in [A61B 17/1655](#)

Examples:

US2002143343



US2003018337 (bone drill and tap combination)



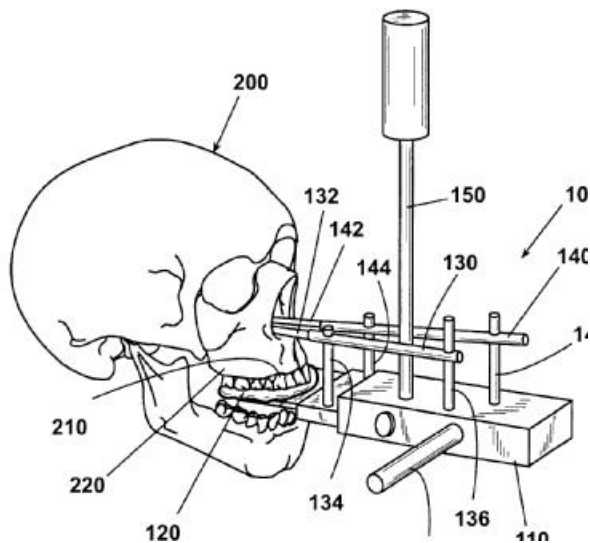
A61B 17/1657**{Bone breaking devices}****Definition statement**

This place covers:

Illustrative example of subject matter classified in [A61B 17/1657](#)

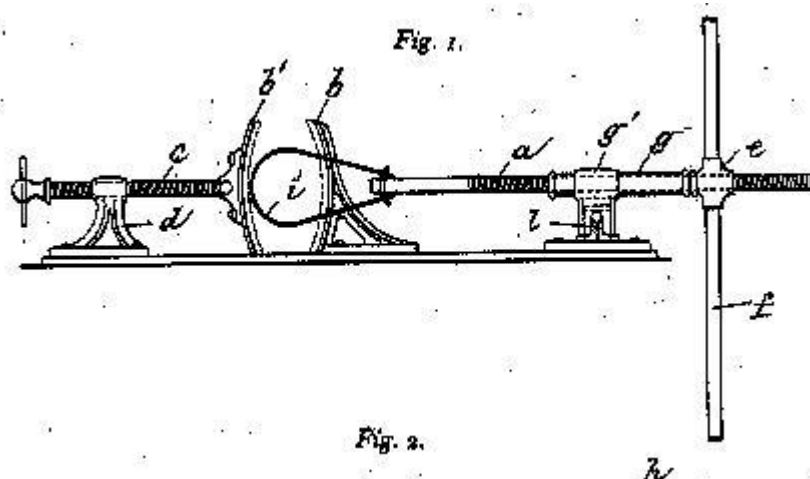
Examples:

US6547796



Simultaneously pulling the lever anteriorly and pushing the forehead posteriorly breaks the midface bones free from the skull.

DE98961 (osteoclast):



JP7136187 Bone crusher from outside of human body by impact wave in liquid.

"To enable the crushing of a human bone in a non-invasion manner from outside by arranging a plurality of fine pieces of powder on an axis vertical to a straight line connecting first and second focuses passing through a first focus of a rotary ellipse body to increase energy of an impact wave. Constitution :This apparatus is provided with an impact wave generation chamber 1 with the internal surface thereof so formed as to follow a part of a rotary ellipse body. a plurality of fine pieces 2 of

Definition statement

powder for generating an impact wave and an igniter 3 for detonate these fine powder pieces 2 simultaneously. The fine powder pieces 2 are arranged in one row on the axis vertical to a straight line linking between focuses of the rotary ellipse body passing through a first focus, and the impact wave generated is propagated to a liquid 6 in a water tank 7 with the bottom thereof being formed by a flexible film 8. Then, the plurality of fine powder pieces 2 are detonated simultaneously to apply energy of an impact wave in a wide range centering the second focus on the axis vertical to a straight line linking the first and second focuses passing through the second focus, thereby crushing a human bone."

References

Limiting references

This place does not cover:

Dental osteotomes i.e. tools producing a groove, channel or trench in the jaw	A61B 17/1604 , A61B 17/1673
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A61B 17/1659

{Surgical rasps, files, planes, or scrapers}

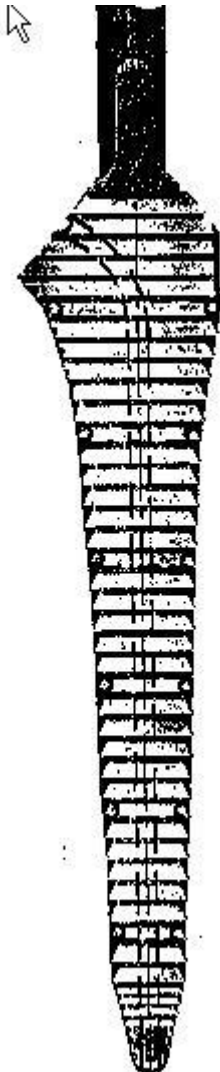
Definition statement

This place covers:

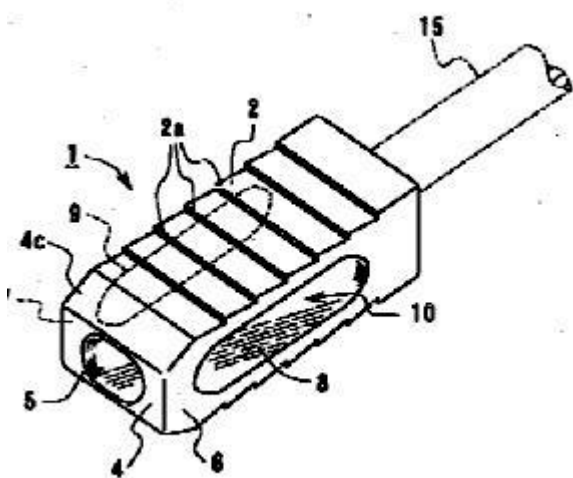
Illustrative example of subject matter classified in [A61B 17/1659](#)

Examples:

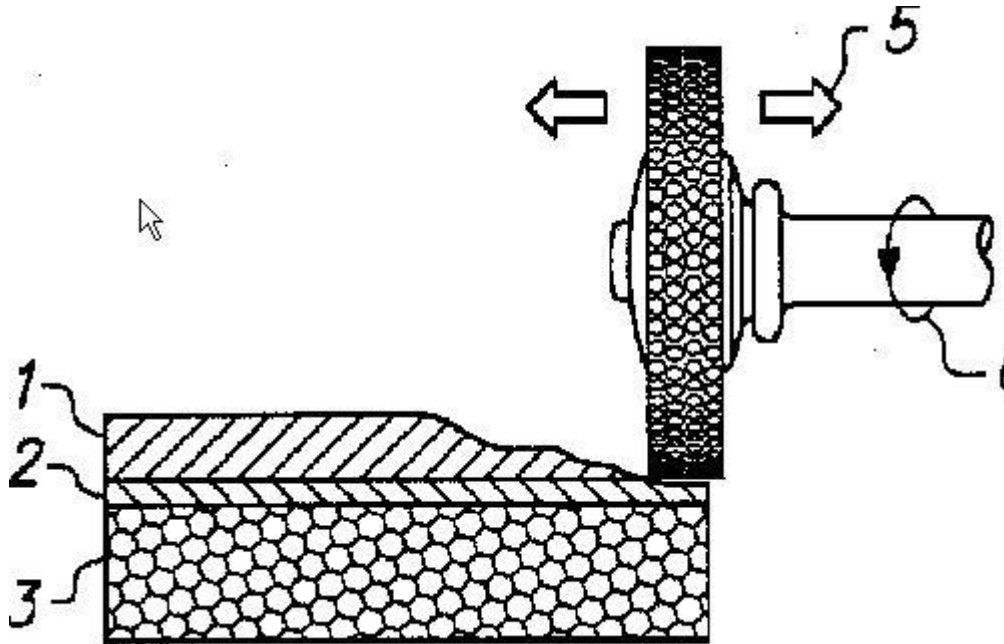
DE10108757 (rasp with passageway)



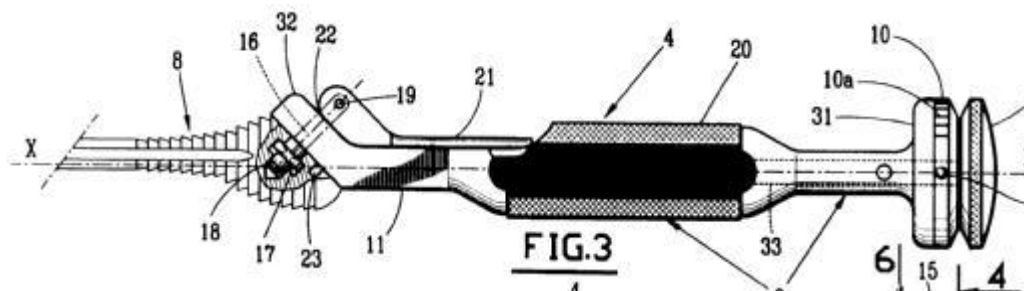
JP2000210316 (for vertebrae):



US5733288 (when the fibers of the bone brush are placed into contact with the soft tissue covering bone, the rotary action of the brush head removes the soft tissue from the bone):



FR2742038 (rasp handle):



A61B 17/1662

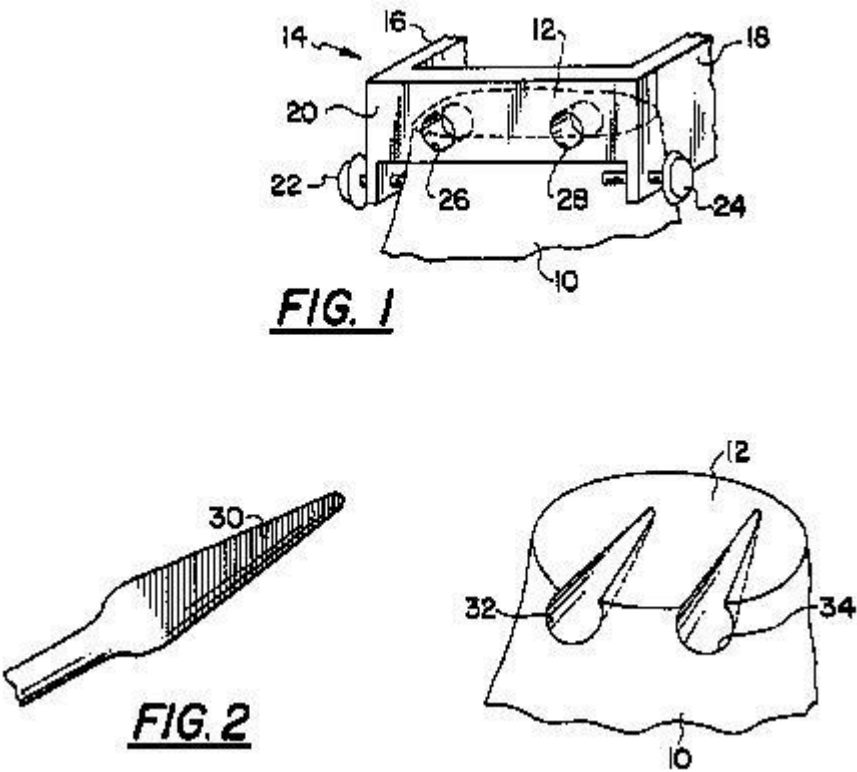
{for particular parts of the body}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1662](#)

Example (US5782924, for bone joints):



A61B 17/1664

{for the hip}

References

Limiting references

This place does not cover:

Means other than saws for removing bone from the acetabulum only	A61B 17/1666
Means other than saws for removing bone from the upper femur only	A61B 17/1668

A61B 17/1666

{for the acetabulum}

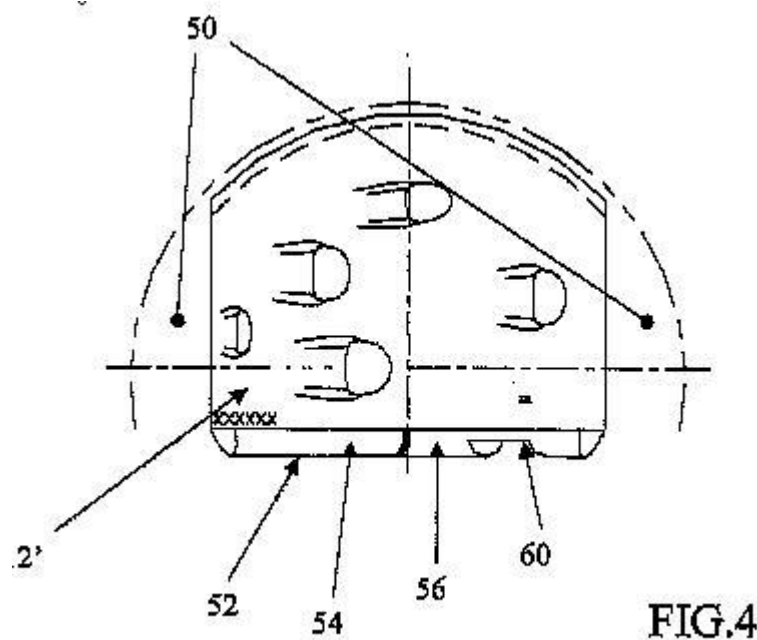
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1666](#)

Example (WO03059178):

"CONTOURED REAMER TEETH- An acetabular reamer (10') for cutting a required cut shape"



A61B 17/1668

{for the upper femur ([A61B 17/164](#) takes precedence)}

Definition statement

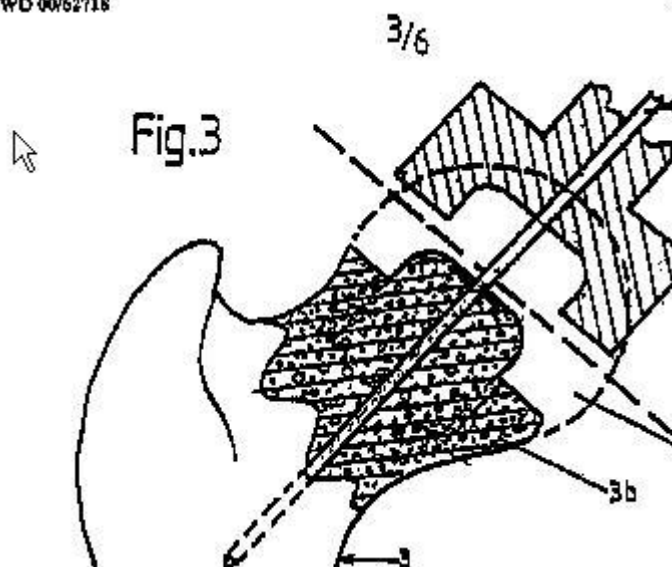
This place covers:

Illustrative example of subject matter classified in [A61B 17/1668](#)

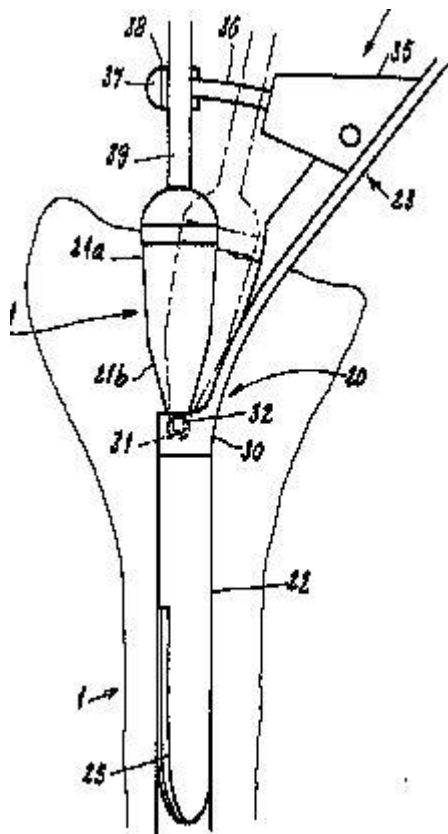
Examples:

WO0062718

WO 00/62718



FR2802080



References

Limiting references

This place does not cover:

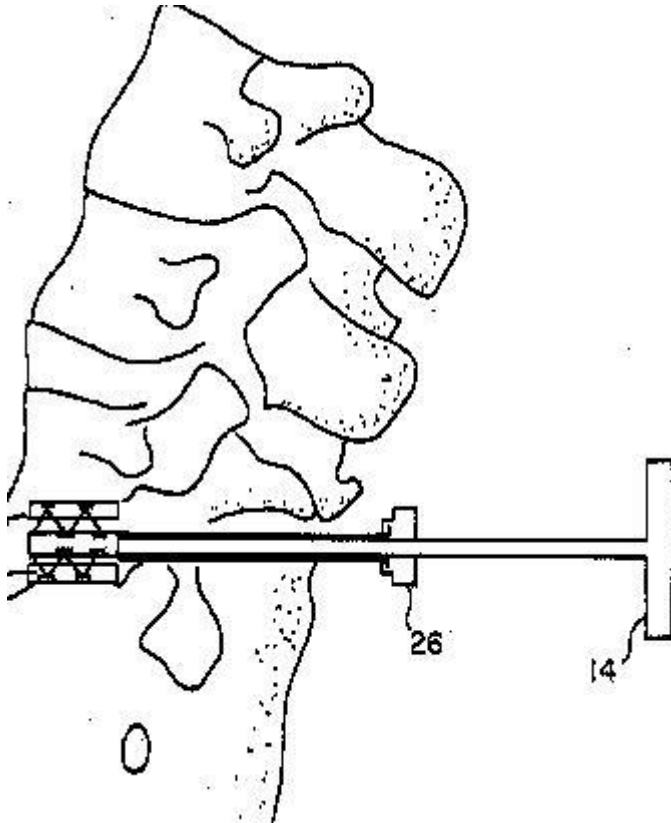
Intramedullary reamers	A61B 17/164
------------------------	-----------------------------

A61B 17/1671

{for the spine}

Definition statement*This place covers:*

Devices for making holes in vertebral bodies (e.g. for pedicle screws, or along the axis of the spine), or, as in the example below (US6224604), for preparing an intervertebral space by machining the vertebral end faces:

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Guides for spinal drills	A61B 17/1757
--------------------------	------------------------------

A61B 17/1673

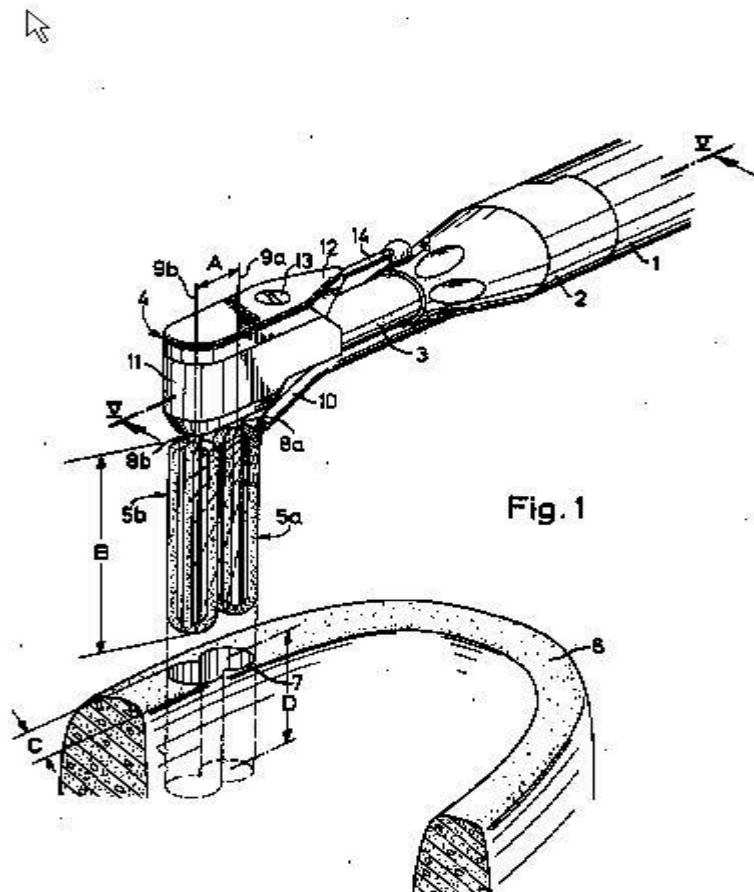
{for the jaw}

Definition statement*This place covers:*

Illustrative example of subject matter classified in [A61B 17/1673](#)

Example:

U.S. Patent Apr. 15, 1980 Sheet 1 of 27 **4,197,645**



A61B 17/1675

{for the knee}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1675](#)

Examples:

US6015411

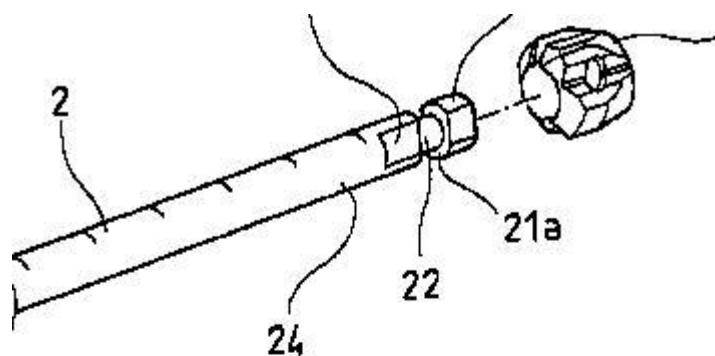
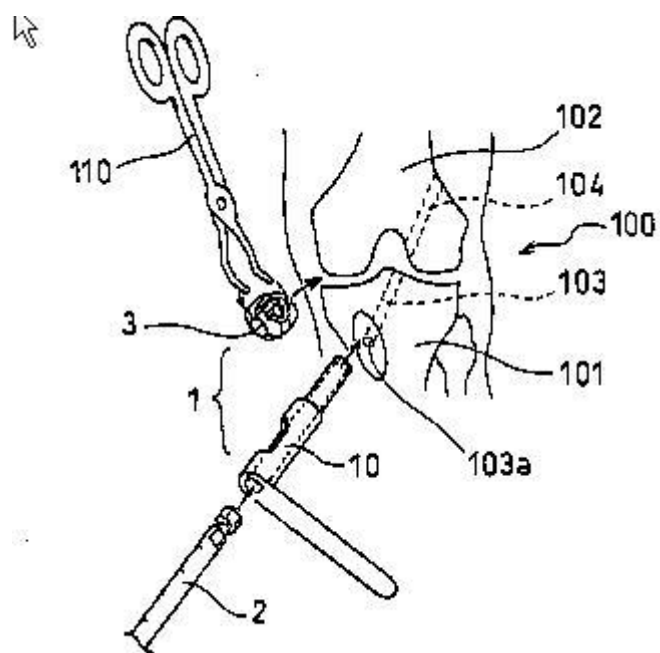
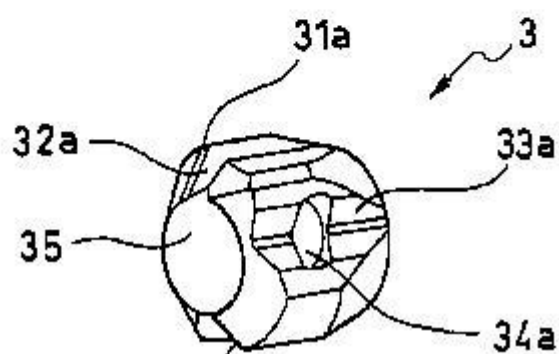
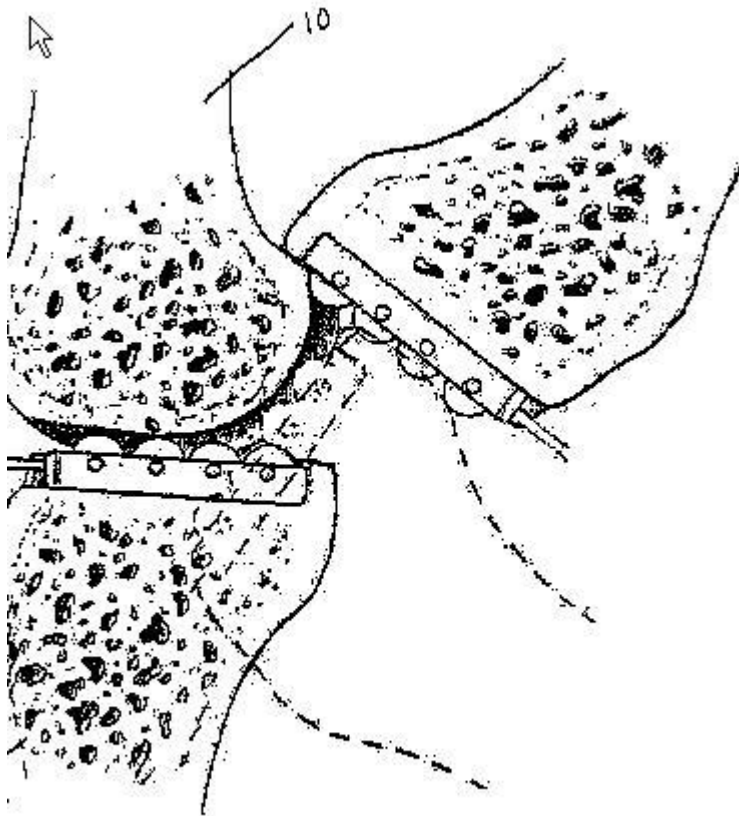


Fig. 3



US6482289



"An apparatus for sculpting the articular surface of a first bone that normally articulates in a predetermined manner with a second bone, the apparatus comprising: a bone-sculpting tool; a mount attachable to the second bone for mounting the tool in position to sculpt the articular surface as the second bone is articulated in the predetermined manner with respect to the first bone."

A61B 17/1677

{for the patella}

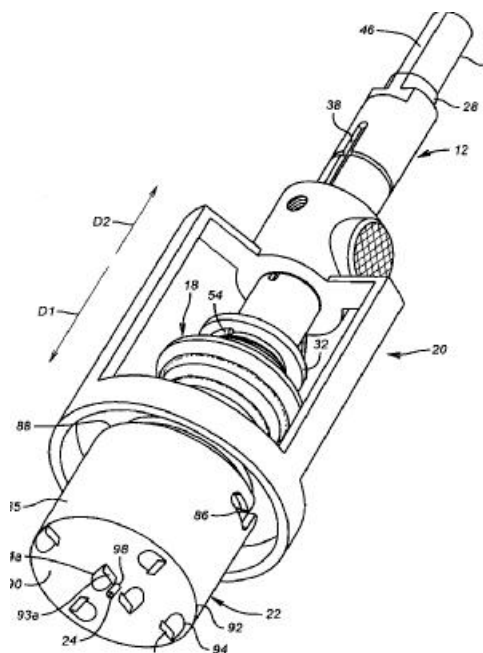
Definition statement

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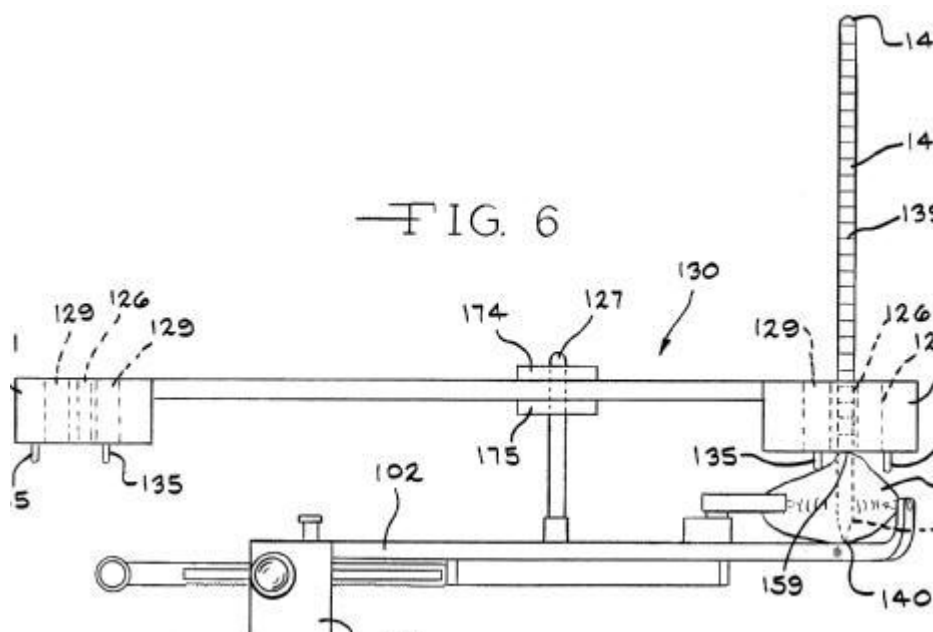
Illustrative example of subject matter classified in [A61B 17/1677](#)

Examples:

US6277121



US2003163137



A61B 17/1695

{Trepans or craniotomes, i.e. specially adapted for drilling thin bones such as the skull}

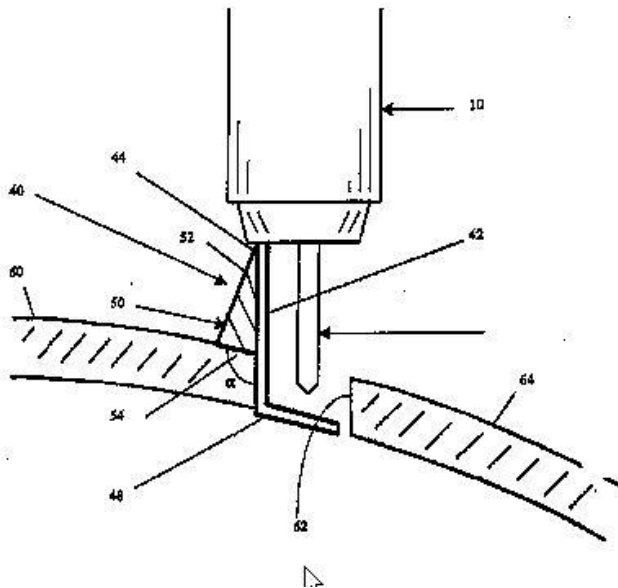
Definition statement

This place covers:

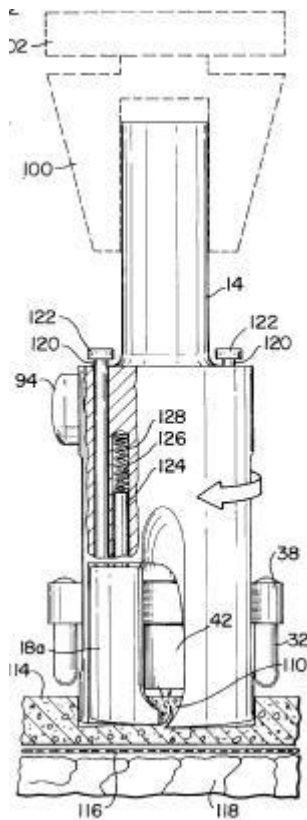
Illustrative examples of subject matter classified in [A61B 17/1695](#)

Examples:

EP1245194 (dura guard for craniotome)



US5876405 "The perforator of this invention includes safety mechanism that prevents penetration of the perforator when the drill bit has completed the cutting operation and the resistive load is removed. The perforator cuts the hole by an annular slot leaving a plug of the bone structure that is removed and returned to the original hole for re-filling the hole which aids in the healing process. A clutch may be provided that decouples the drill bit from the drive motor upon sensing a void in the drill passage during the drilling operation."



A61B 17/1697

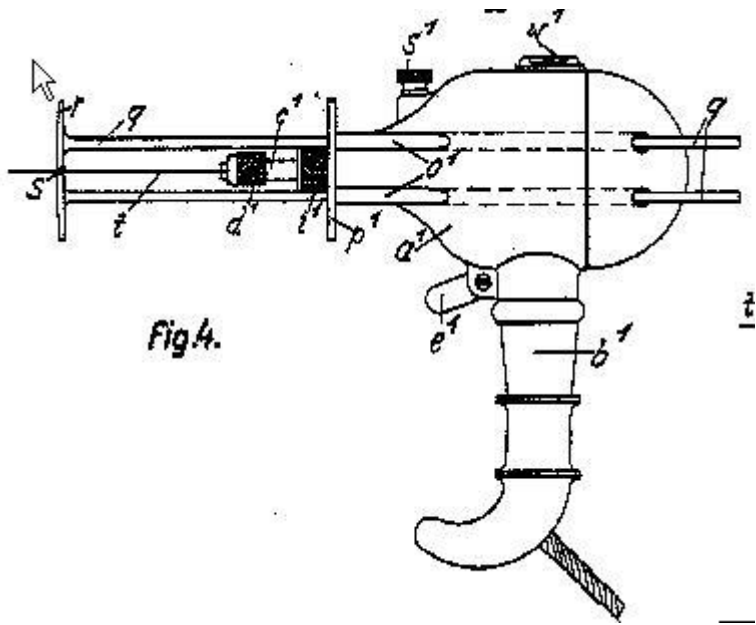
{specially adapted for wire insertion}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/1697](#)

Example (GB353706):



A61B 17/17

Guides {or aligning means} for drills {, mills, pins or wires}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Abutting means, stops, e.g. abutting on tissue or skin	A61B 2090/033
Stops attached to drilling tools, tool holders or drilling machines per se, e.g. drill depth limiters	B23B 49/003

A61B 17/1714

{for applying tendons or ligaments (implements for applying tendons or ligaments [A61F 2/0805](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Implements for applying tendons or ligaments	A61F 2/0805
--	-----------------------------

A61B 17/1725

{for applying transverse screws or pins through intramedullary nails or pins}

References**Limiting references**

This place does not cover:

Drill guides using imaging means	A61B 17/1703
Drill guides using electromagnetic effects	A61B 17/1707

A61B 17/1739

{specially adapted for particular parts of the body}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Drill guides using imaging means	A61B 17/1703
----------------------------------	------------------------------

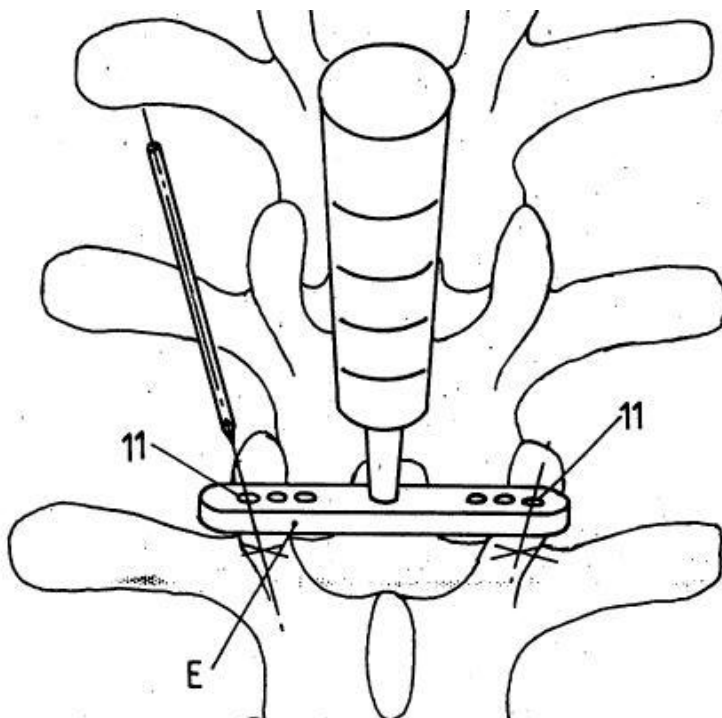
A61B 17/1757

{for the spine}

Definition statement

This place covers:

The cutting may be into the vertebral body, e.g. guiding pedicle screw bores as in this example:



or to prepare vertebral end faces as in this example:

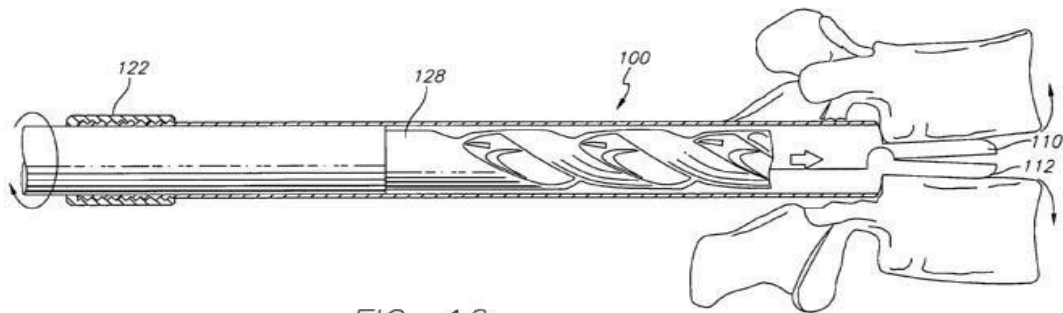
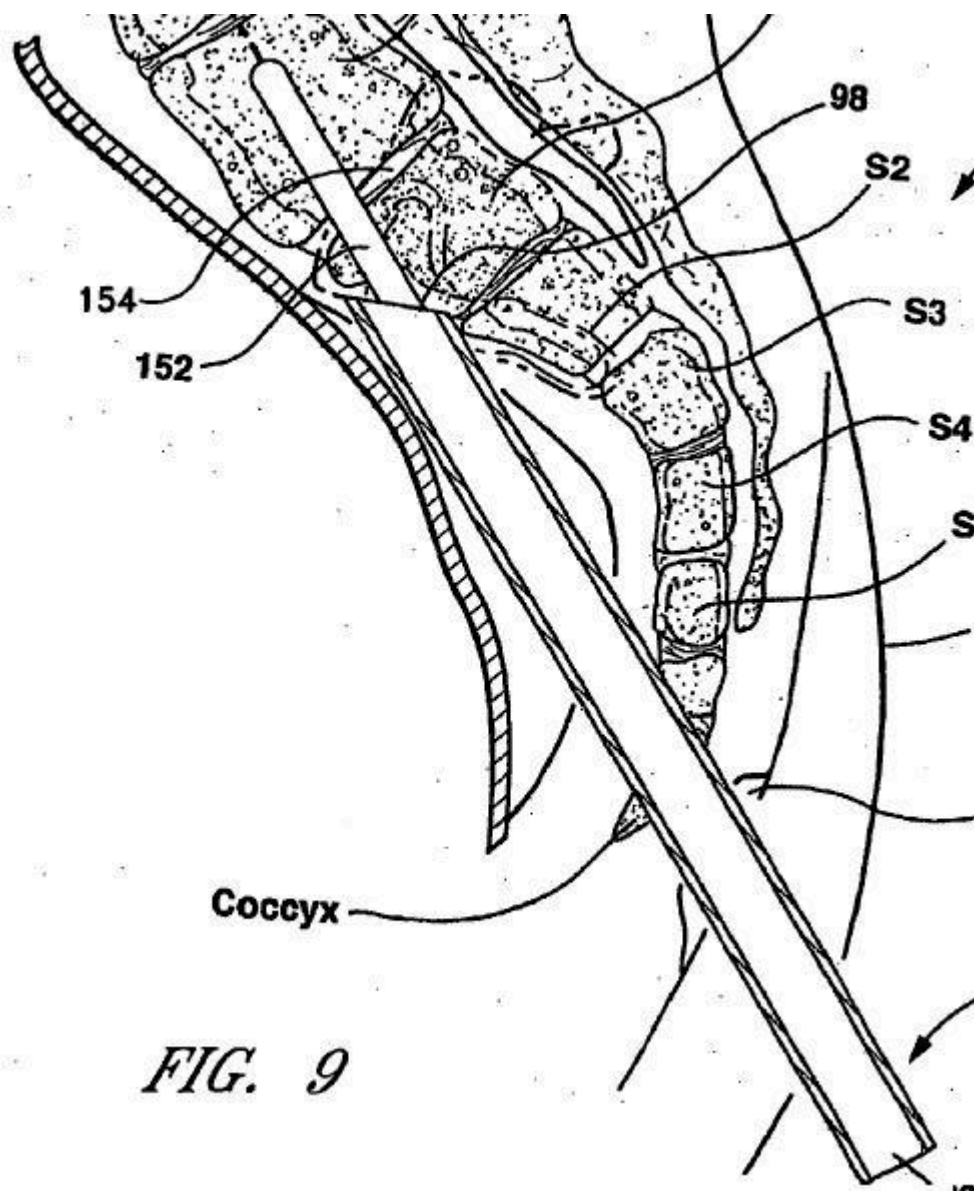


FIG. 16

or longitudinally along the spine:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Joint distraction for the spine	A61B 2017/0256
Spinal drills	A61B 17/1671

A61B 17/176

{for the jaw}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Guiding dental drills	A61C 1/082
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A61B 17/20

for vaccinating or cleaning the skin previous to the vaccination {(Vaccination diagnosis other than by injuring the skin [A61B 10/0035](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Diagnosis by vaccination other than by injuring the skin	A61B 10/0035
Implements for cleaning or washing the skin of surgeons or patients	A61B 90/80
Medical syringes, e.g. enemata; Irrigators	A61M 3/00
Devices for bringing media into the body in a subcutaneous, intra-vascular or intramuscular way; Accessories therefor, e.g. filling or cleaning devices, arm rests	A61M 5/00

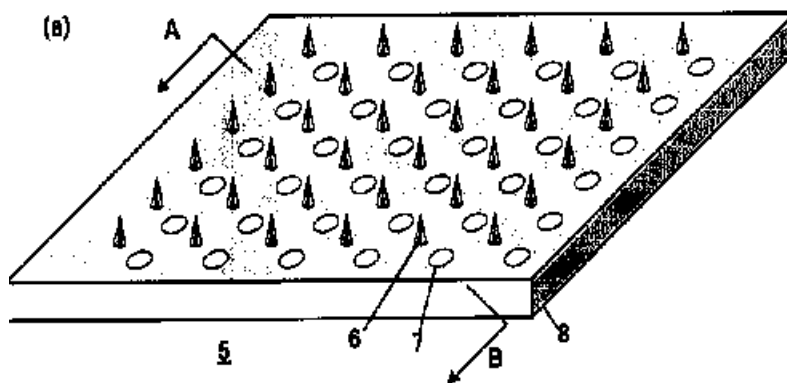
A61B 17/205

{Vaccinating by means of needles or other puncturing devices}

Definition statement

This place covers:

Mainly arrays of needles also for use other than vaccination.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Intradermal administration through microneedles	A61K 9/0021
Introducing media into the body by using microneedles	A61M 37/0015

A61B 17/22

Implements for squeezing-off ulcers or the like on inner organs of the body; Implements for scraping-out cavities of body organs, e.g. bones; for invasive removal or destruction of calculus using mechanical vibrations; for removing obstructions in blood vessels, not otherwise provided for

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

For biopsy	A61B 10/02
Gynaecological or obstetrical instruments or methods	A61B 17/42

References out of a residual place

Examples of places in relation to which this place is residual:

Atherectomy devices	A61B 17/3207
Dilators	A61M 29/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ultrasound therapy	A61N 7/00
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A61B 17/22004

{using mechanical vibrations, e.g. ultrasonic shock waves ([A61B 17/225](#) takes precedence)}

References

Limiting references

This place does not cover:

Or extracorporeal lithotripsy	A61B 17/225
-------------------------------	-----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

(Handheld) ultrasonic cutting devices	A61B 17/320068
Sound producing devices	G10K

A61B 17/22012

{in direct contact with, or very close to, the obstruction or concrement (for removing obstructions in blood vessels by laser [A61B 18/245](#))}

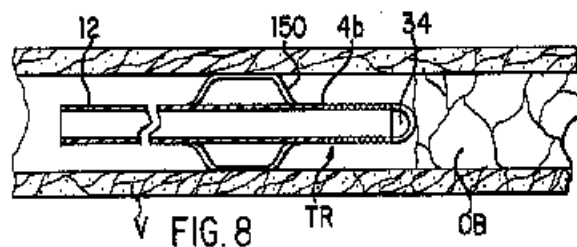
Definition statement

This place covers:

U.S. Patent

Nov. 23, 1999

Sheet 5 of 5

5,989,208

Generally catheter like devices for breaking obstructions in vessels or organs.

References**Limiting references**

This place does not cover:

Removing obstructions in blood vessels by laser	A61B 18/245
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A61B 17/22031

{Gripping instruments, e.g. forceps, for removing or smashing calculi ([A61B 17/221](#) takes precedence)}

References**Limiting references**

This place does not cover:

Gripping devices in the form of loops or baskets	A61B 17/221
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Informative references

Attention is drawn to the following places, which may be of interest for search:

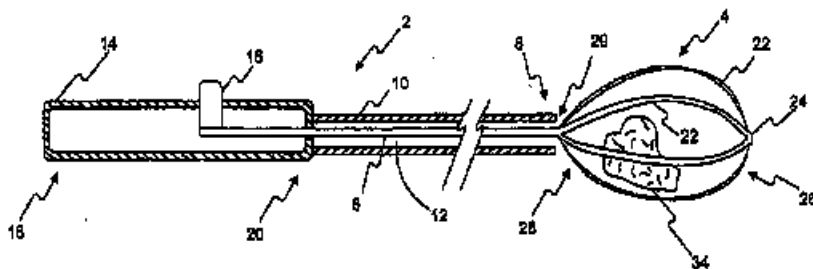
Endoscopic forceps,	A61B 17/29.
---------------------	-----------------------------

A61B 2017/22065**{Functions of balloons}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Dilators made of swellable material	A61M 29/02
-------------------------------------	----------------------------

A61B 2017/22072**{with an instrument channel, e.g. for replacing one instrument by the other}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Multiple coaxial sliding cannulas	A61B 17/3417
-----------------------------------	------------------------------

A61B 17/221**Gripping devices in the form of loops or baskets {for gripping calculi or similar types of obstructions (surgical snare instruments [A61B 17/32056](#))}****Definition statement***This place covers:*Illustrative examples of subject matter classified in [A61B 17/221](#)**References****Limiting references***This place does not cover:*

Surgical snare instruments	A61B 17/32056
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A61B 17/225

for extracorporeal shock wave lithotripsy [ESWL], e.g. by using ultrasonic waves

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Intracorporeal lithotripsy	A61B 17/2202
Mechanical waves not for extracorporeal lithotripsy	A61B 17/320068
Ultrasonic waves for treatment of bones or cancer, e.g. with pneumatic drives	A61N 7/00 , A61H 23/008

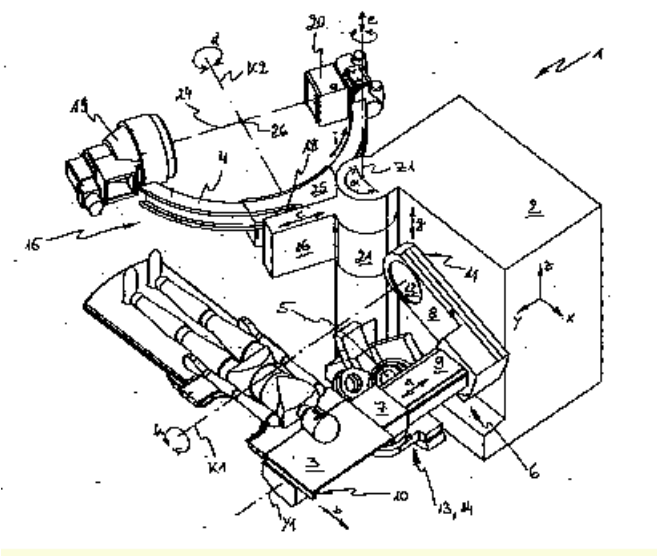
A61B 17/2255

{Means for positioning patient, shock wave apparatus or locating means, e.g. mechanical aspects, patient beds, support arms or aiming means}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/2255](#)



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

positioning of patients for radiation diagnosis	A61B 6/04
Positioning of locating means inside shock wave apparatus	A61B 17/2256

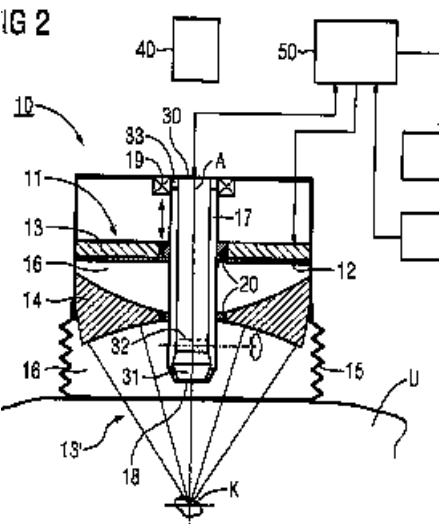
A61B 17/2258

{integrated in a central portion of the shock wave apparatus}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/2258](#)



A61B 17/24

for use in the oral cavity, larynx, bronchial passages or nose (for medical inspection of cavities or tubes in the body [A61B 1/00](#)); Tongue scrapers

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Inspections of cavities in the body	A61B 1/00
-------------------------------------	---------------------------

Special rules of classification

Maxillary sinus lift is classified in [A61C 8/00](#)

A61B 17/28

Surgical forceps (biopsy forceps [A61B 10/06](#); {for holding suture needles or materials [A61B 17/0483](#); for removing or smashing calculi [A61B 17/221](#); surgical scissors [A61B 17/3201](#);} obstetrical forceps [A61B 17/44](#))

References

Limiting references

This place does not cover:

Biopsy forceps	A61B 10/06
Hand-held instruments for holding suture needles or materials	A61B 17/0483

Limiting references

Gripping devices in the form of loops or baskets for removing or smashing calculi	A61B 17/221
Surgical scissors	A61B 17/3201
Obstetrical forceps	A61B 17/44

Informative references

Attention is drawn to the following places, which may be of interest for search:

For inserting intraocular lenses	A61F 2/1662
Hand-held gripping tools in general	B25B 7/00

A61B 17/2812

{with a single pivotal connection ([A61B 17/29](#) takes precedence)}

References**Limiting references**

This place does not cover:

Forceps for minimally invasive surgery	A61B 17/29
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Means for protection against accident injuries by used needles	A61M 5/321
Tools enabling the (needle) cap placement; Some of the devices under these codes are pincette or forceps like	A61M 2005/3215

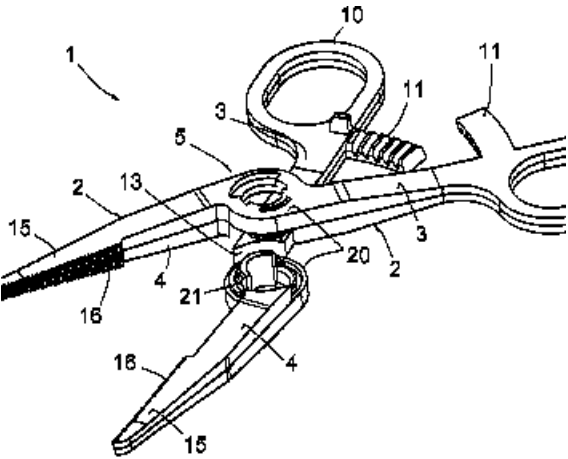
A61B 17/2816

{Pivots}

Definition statement

This place covers:

Details or special features of pivot points.



A61B 17/285

combined with cutting implements

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For biopsy	A61B 10/06
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A61B 17/295

combined with cutting implements

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For biopsy	A61B 10/06
Mechanical endoscopic instruments performing multiple functions	A61B 2017/00353.
Ultrasonic cutting devices with additional clamping means	A61B 17/320092

A61B 17/30

Surgical pincettes, i.e. surgical tweezers {without pivotal connections (for holding suture needles or materials [A61B 17/0483](#))}

References**Limiting references**

This place does not cover:

Hand-held instruments for holding suture needles of materials	A61B 17/0483
---	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wound clamps	A61B 17/08
Means for protection against accident injuries by used needles	A61M 5/321
Tools enabling the (needle) cap placement	A61M 2005/3215
Hand held gripping tools without pivotal connections in general	B25B 9/02

A61B 17/32

Surgical cutting instruments ({[A61B 18/042](#) takes precedence; suture cutters [A61B 17/0467](#);} implements for ligaturing and cutting {[A61B 17/122](#), [A61B 17/12](#); instruments for rupturing the amniotic membrane [A61B 17/4208](#); specially adapted knives for eye surgery [A61F 9/0133](#)})

References**Limiting references**

This place does not cover:

Suture cutters	A61B 17/0467
Surgical instruments for ligaturing or otherwise compressing tubular parts of the body combined with cutting implements	A61B 17/12
Implements for ligaturing and cutting	A61B 17/122
Specially adapted knives for eye surgery	A61F 9/0133

Informative references

Attention is drawn to the following places, which may be of interest for search:

Instruments for ligaturing or cutting	A61B 17/128
Instruments for rupturing the amniotic membrane	A61B 17/4208

A61B 17/32002**{with continuously rotating, oscillating or reciprocating cutting instruments}****Definition statement***This place covers:*

Mainly shavers for cutting away unwanted tissue from for instance a knee or an intervertebral disk.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Rotating cutters for atherectomy	A61B 17/320758
Similar devices for eye surgery	A61F 9/00763

A61B 2017/320044**{Blunt dissectors}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Suture needles having a blunt tip	A61B 2017/06085
-----------------------------------	---------------------------------

A61B 2017/320052**{Guides for cutting instruments}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Visible markers with marking agent for marking skin or other tissue	A61B 2090/395
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A61B 17/320068**{using mechanical vibrations, e.g. ultrasonic ([A61B 17/22012](#) takes precedence; dental tooth drilling devices operated by vibration [A61C 3/03](#); removing intra-ocular material using mechanical vibrations [A61F 9/00745](#))}****References****Limiting references***This place does not cover:*

Removing obstructions, in direct contact or very close to the obstruction	A61B 17/22012
Dental tooth drilling devices operated by vibration	A61C 3/03
Removing intra-ocular material using mechanical vibrations	A61F 9/00745

Special rules of classification

Illustrative example of subject matter classified in [A61B 17/320068](#)

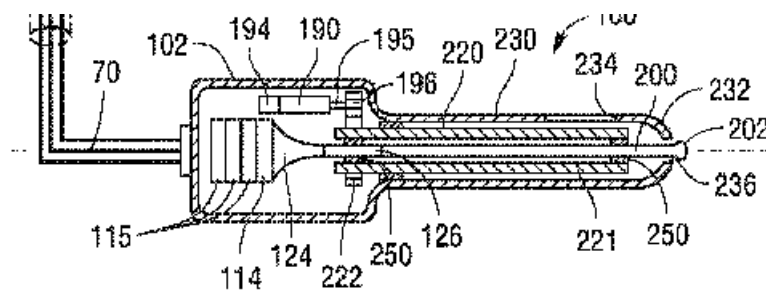


FIG. 1

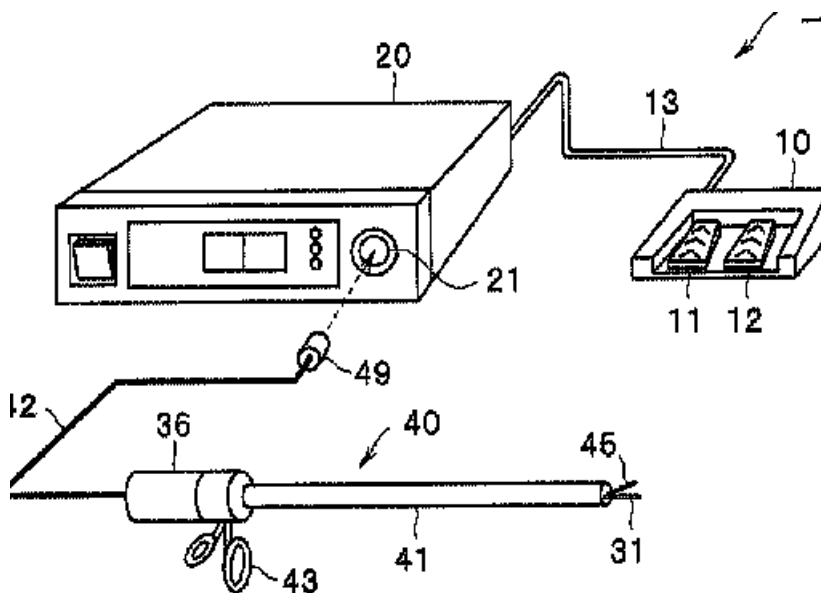
A61B 17/320092

{with additional movable means for clamping or cutting tissue, e.g. with a pivoting jaw}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/320092](#)



A61B 17/3207

Atherectomy devices {working by cutting or abrading; Similar devices specially adapted for non-vascular obstructions ([A61B 17/32037](#) takes precedence; endoscopic cutting instruments [A61B 17/320016](#))}

Definition statement

This place covers:

In general catheters for cutting or abrading obstructions from blood vessels or similar organs.

References

Limiting references

This place does not cover:

Fluid jet cutters:	A61B 17/32037
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopic cutting instruments	A61B 17/320016
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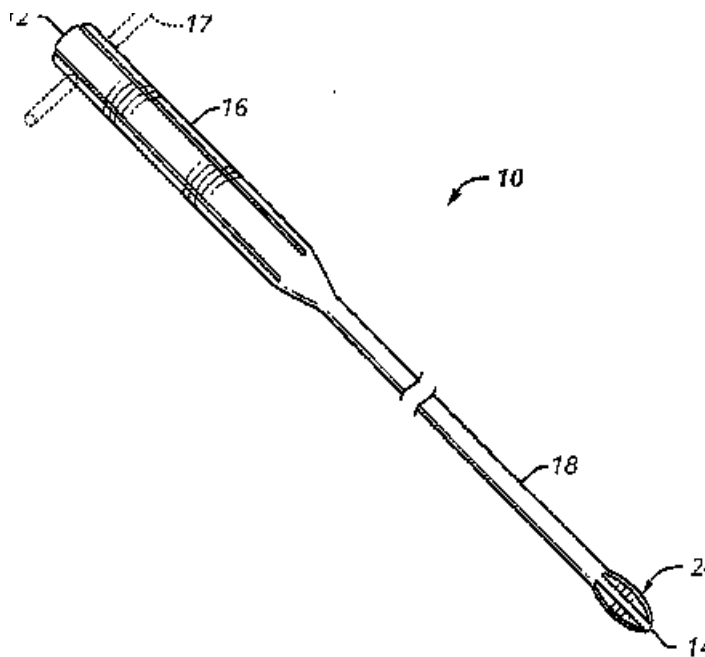
A61B 17/320708

{Curettes, e.g. hollow scraping instruments}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/320708](#)



A61B 17/320725

{with radially expandable cutting or abrading elements ([A61B 17/32075](#) takes precedence)}

References

Limiting references

This place does not cover:

Athrectomy device with pullback cutting	A61B 17/32075
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Balloons for spreading elements apart	A61B 2017/22061
Balloon catheters having a special balloon surface topography, e.g. pores, protuberances, spikes or grooves	A61M 2025/1086
Balloon catheters having balloons for removing solid matters, e.g. by grasping or scraping plaque, thrombus or other matters that obstruct the flow	A61M 2025/109

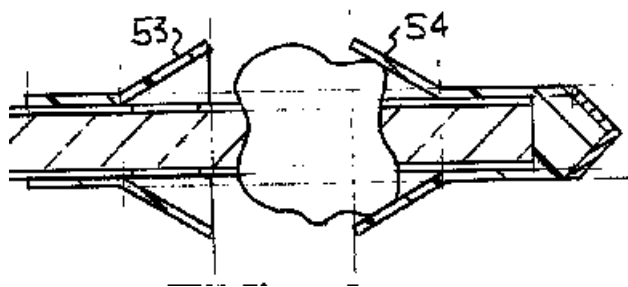
A61B 17/32075

{Pullback cutting; combined forward and pullback cutting, e.g. with cutters at both sides of the plaque}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/32075](#)

**A61B 17/32093**

{for skin incisions}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Lancets	A61B 5/1411
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A61B 17/3215

Packages or dispensers for scalpel blades {(for sharps [A61B 50/3001](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Packages or dispensers for sharps	A61B 50/3001
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A61B 17/3217**Devices for removing or collecting used scalpel blades****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Devices for removing or collecting used sharps	A61B 50/362
--	-----------------------------

A61B 17/34**Trocars; Puncturing needles****Definition statement**

This place covers:

Sharp or blunt tools for making an entry site in the body for inserting a surgical tool or implant device.
Tube like devices forming an entry port into the body.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Pointed biopsy instruments	A61B 10/0233
Skull plugs for access to the brain	A61B 2090/103
Devices for piercing the ear lobe	A44C 7/001
Catheters	A61M 25/00
Piercing needles for placement of a catheter or tool in a blood vessel	A61M 25/06
Access sites	A61M 39/02
Seals or hemostasis valves	A61M 39/06

A61B 17/3401

{Puncturing needles for the peridural or subarachnoid space or the plexus, e.g. for anaesthesia}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

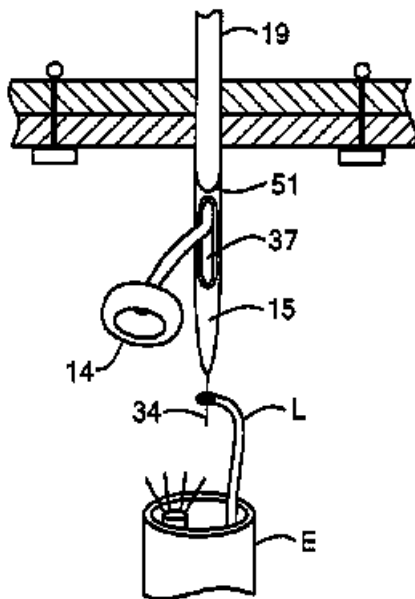
Local anaesthesia	A61M 19/00
Epidural catheters	A61M 2025/0007

A61B 17/3403**{Needle locating or guiding means}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Guides for suture needles	A61B 17/0482
Stereotactic needle or instrument guides	A61B 90/11
Guiding or tracking by nuclear magnetic resonance	G01R 33/285

A61B 17/3415

**{for introducing tubes or catheters, e.g. gastrostomy tubes, drain catheters
 (A61B 17/3417 takes precedence; body piercing catheter guide needles
 A61M 25/06)}**

Definition statement*This place covers:*Illustrative example of subject matter classified in [A61B 17/3415](#)**References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Details of tips or shafts	A61B 17/3417
Gastrostomy feeding tubes	A61J 15/0015
Body piercing guide needles for introducing catheters	A61M 25/06

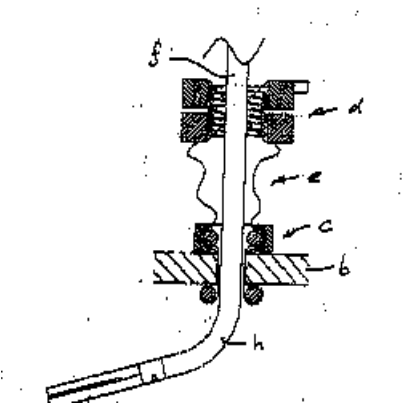
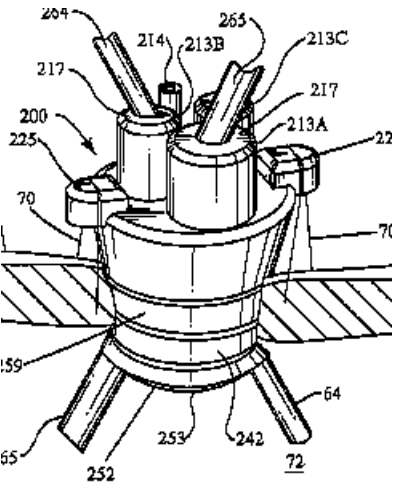
A61B 17/3423

{Access ports, e.g. toroid shape introducers for instruments or hands (access sites for liquids [A61M 39/0247](#))}

Definition statement

This place covers:

Generally more flexible shorter cannulas closely fitting in the created tissue tract such that the distal end does not substantially enters the body beyond the tract.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

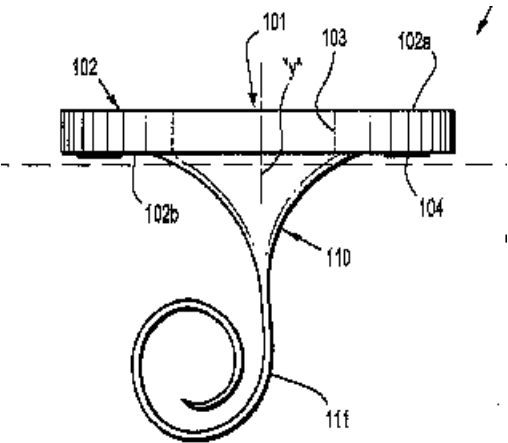
Retractors	A61B 17/02 .
Access sites for liquids:	A61M 39/02

A61B 17/3431

{being collapsible, e.g. made of thin flexible material ([A61B 17/3423](#) takes precedence)}

Definition statement

This place covers:



Made of floppy material such that the shaft collapses under pressure in the absence of an inner instrument.

References

Limiting references

This place does not cover:

Access ports	A61B 17/3423
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Flexible shafts	A61B 2017/2905
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A61B 2017/3445

{used as instrument channel for multiple instruments}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

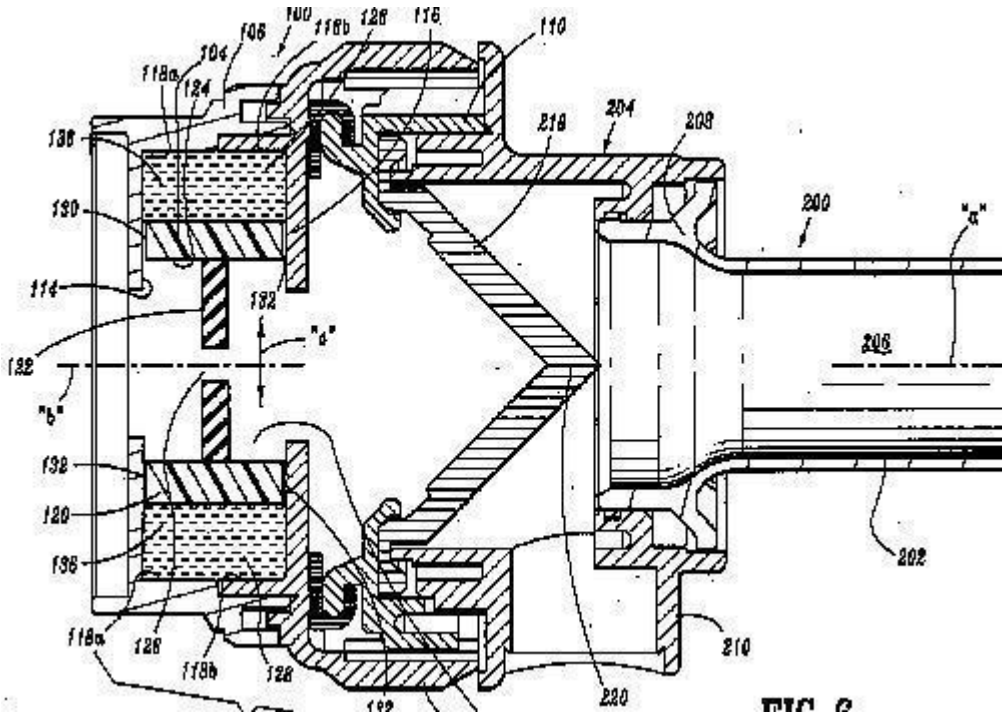
Implements for squeezing-off ulcers or the like with an instrument channel, e.g. for replacing one instrument by the other	A61B 2017/22072
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A61B 17/3462

{with means for changing the diameter or the orientation of the entrance port of the cannula, e.g. for use with different-sized instruments, reduction ports, adapter seals (expandable cannulas [A61B 17/3417](#))}

Definition statement

This place covers:



This group deals mainly with sealing arrangements at the proximal side (nr. 122 in the drawing).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Expandable cannulas	A61B 17/3417
Valves such as flapper valves:	A61B 17/3498
Haemostasis valves	A61M 39/06

A61B 17/3468

{for implanting or removing devices, e.g. prostheses, implants, seeds, wires (devices for implanting seeds [A61M 37/0069](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for introducing media in the form of pellets:	A61M 37/0069
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A61B 17/3472**{for bones, e.g. intraosseus injections}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Bone biopsy	A61B 10/025
For injecting reinforcing material into bone	A61B 17/8802

A61B 17/3474**{Insufflating needles, e.g. Veress needles}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Insufflators	A61M 13/003
--------------	-----------------------------

A61B 17/3476**{Powered trocars, e.g. electrosurgical cutting, lasers, powered knives}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Electrosurgical trocars	A61B 18/1487
-------------------------	------------------------------

A61B 17/3478**{Endoscopic needles, e.g. for infusion (biopsy needles [A61B 10/0233](#); catheters with injection needles [A61M 25/0067](#))}****Definition statement***This place covers:*

In general flexible endoscopic tools or endoscopes having a distal needle for performing a puncture at the remote distal site.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

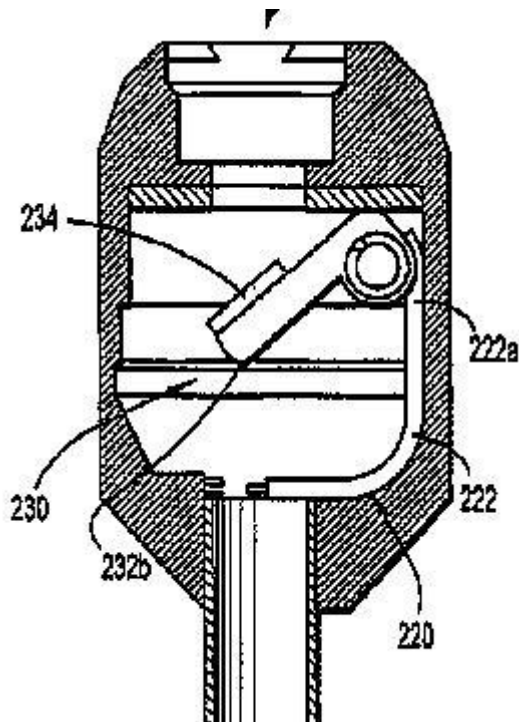
Biopsy needles	A61B 10/0233
Catheters with injection needles	A61M 25/0067
Catheters with needle tips	A61M 25/0084

A61B 17/3498

{Valves therefor, e.g. flapper valves, slide valves (haemostasis valves [A61M 39/06](#); check valves [A61M 39/24](#))}

Definition statement

This place covers:



This group deals mainly with Open/close type valves such as flap valves without any sealing effect around the shaft of an inserted tool.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Haemostasis valves	A61M 39/06
Check valves	A61M 39/24

Special rules of classification

Open/close type valves that form part of a sealing arrangement that can change diameter to seal around an instrument should be classified in [A61B 17/3462](#) unless they have special features, then they should also be classified in [A61B 17/3498](#).

A61B 17/42

Gynaecological or obstetrical instruments or methods {(ligaturing clamps or clips for the umbilical cord [A61B 17/122](#); curettage [A61B 17/320708](#))}

References**Limiting references**

This place does not cover:

Ligaturing clamps or clips for the umbilical cord	A61B 17/122
Curettage	A61B 17/320708

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for opening or enlarging the visual field	A61B 1/32
Dilators	A61M 29/00

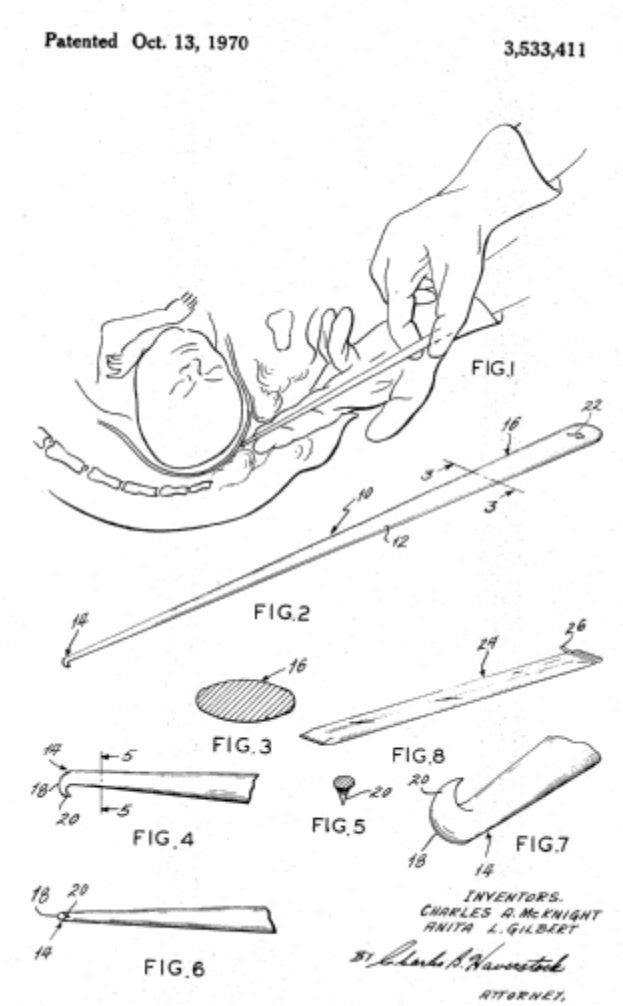
A61B 17/4208

{Instruments for rupturing the amniotic membrane}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/4208](#)



A61B 2017/4233

{Operations on Fallopian tubes, e.g. sterilization ([A61B 2017/1125](#) takes precedence)}

References

Limiting references

This place does not cover:

Forceps, specially adapted for performing or assisting anastomosis	A61B 2017/1125
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Contraceptive devices, pessaries; applicators therefor	A61F 6/00
Vas deferens occluders, fallopian occluders	A61F 6/20
Means specially adapted for ligaturing, compressing or clamping of oviduct or vas deferens	A61F 6/202

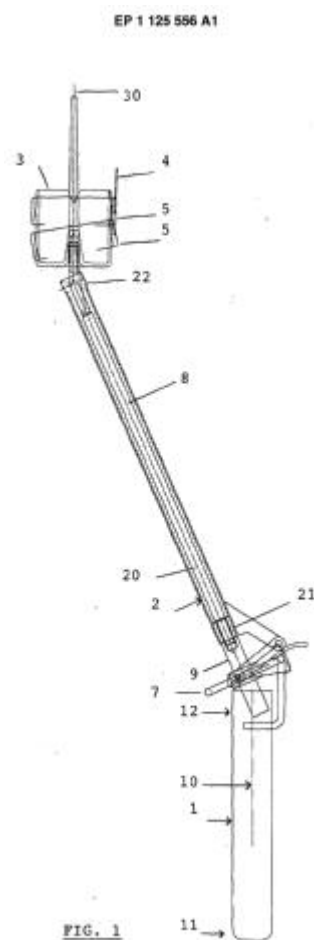
A61B 17/4241

{Instruments for manoeuvring or retracting the uterus, e.g. during laparoscopic surgery}

Definition statement

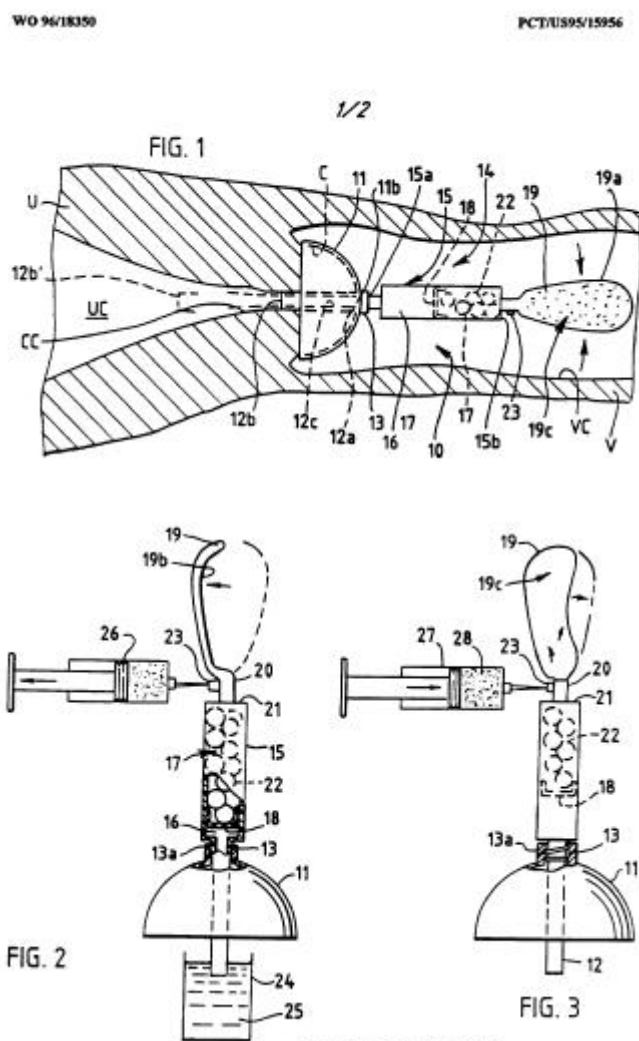
This place covers:

Illustrative example of subject matter classified in [A61B 17/4241](#)



A61B 17/425**for reproduction or fertilisation****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

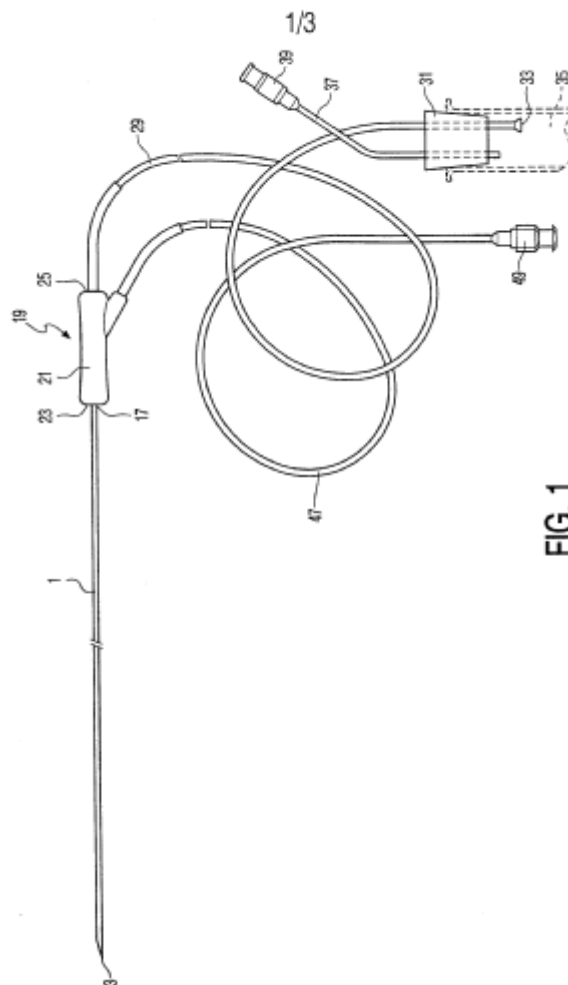
Use with animals – embryo transplant

[A61D 19/04](#)**A61B 17/43****for artificial insemination****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/43](#)

A61B 17/435**for embryo {or ova} transplantation****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/435](#)

WO 00/53108

PCT/NL00/00144



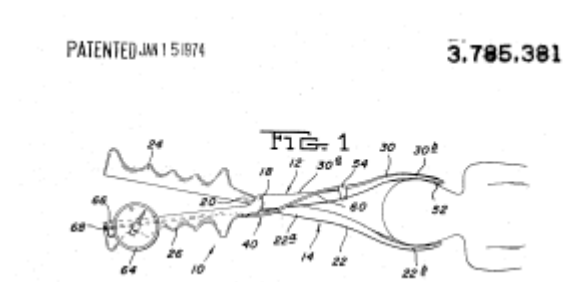
A61B 17/44

Obstetrical forceps

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/44](#)



A61B 17/442

{without pivotal connections, e.g. using vacuum}

Definition statement

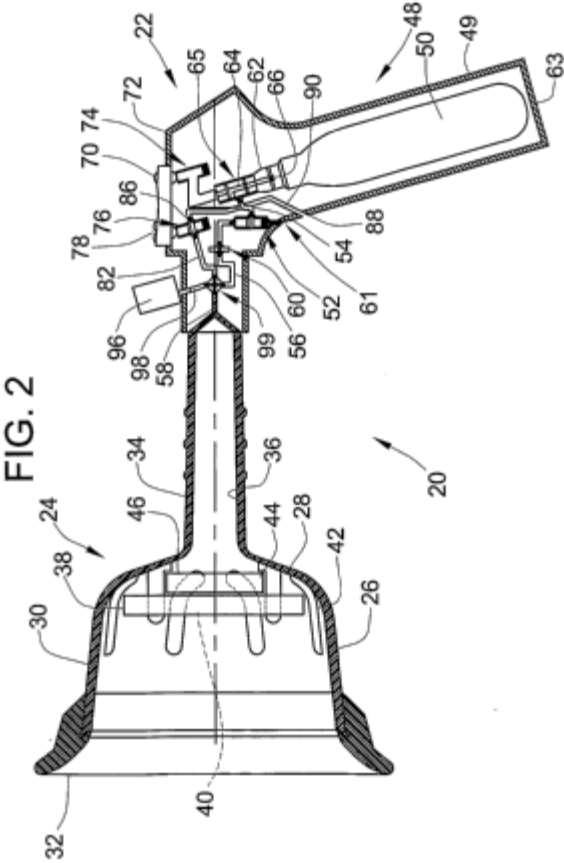
This place covers:

Illustrative example of subject matter classified in [A61B 17/442](#)

WO 03/009766

2/11

PCT/US02/23666



WO 93/17629

4/10

PCT/US92/04877

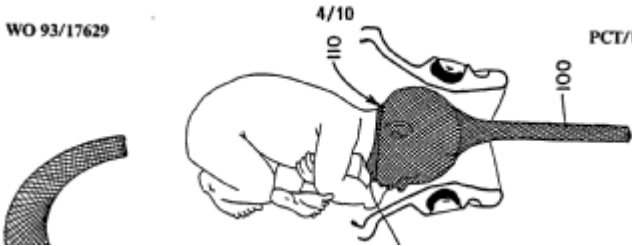


FIGURE 9

A61B 17/46

Embryotomes

Definition statement

This place covers:

Illustrative examples of subject matter classified in this place:

1.



2.



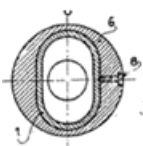
3.



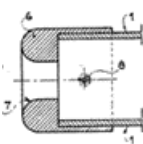
4.



5.



6.



7.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For animals	A61D 1/10
-------------	---------------------------

A61B 17/48

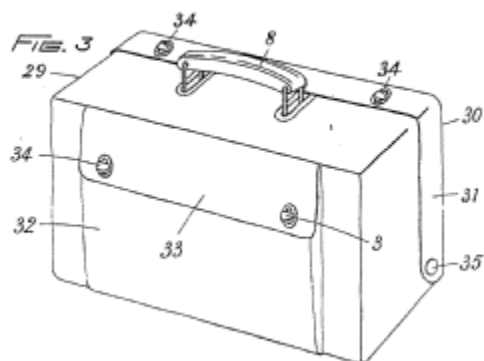
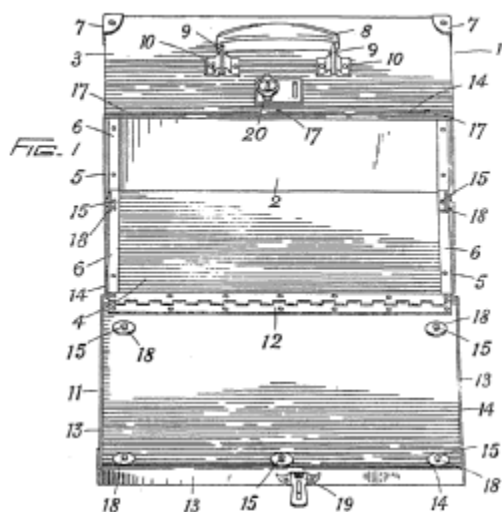
Bags for midwives

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/48](#)

See Patent # GB494596



A61B 17/50

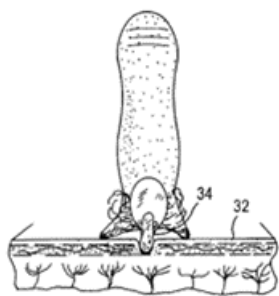
Instruments {, other than pincettes or toothpicks,} for removing foreign bodies from the human body (surgical pincettes, i.e. surgical tweezers, [A61B 17/30](#))

Definition statement

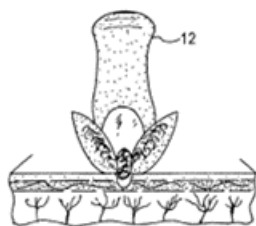
This place covers:

Illustrative examples of subject matter classified in this place:

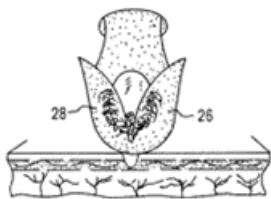
1.



2.



3.



References

Limiting references

This place does not cover:

Surgical pincettes, i.e. surgical tweezers	A61B 17/30
--	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Locating otherwise	A61B 5/06
Locating by radiation	A61B 6/00
Removing calculi	A61B 17/22

Toothpicks	A61C 15/02
------------	----------------------------

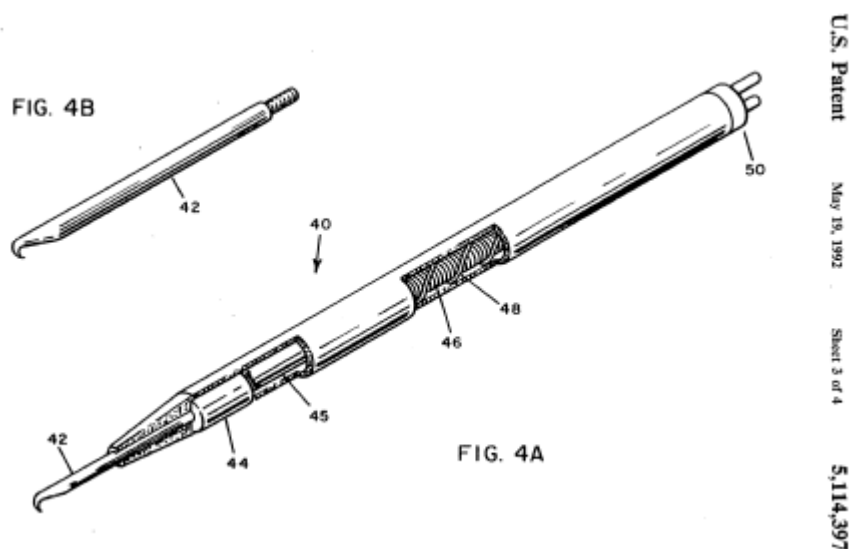
A61B 17/52

Magnets

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/52](#)



A61B 17/54

Chiropodists' instruments {, e.g. pedicure}

Definition statement

This place covers:

Illustrative examples of subject matter classified this place:

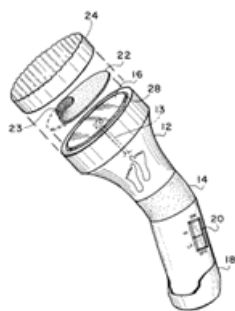
1.



2.



3.

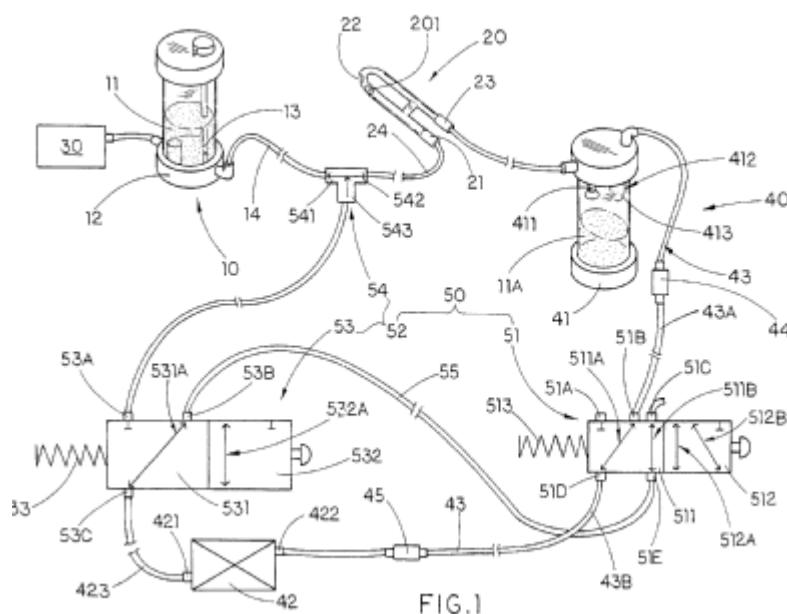


References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Manicuring or pedicuring implements	A45D 29/00
Nail files, e.g. manually operated	A45D 29/04
Bathing sponges, brushes, gloves or similar cleaning or rubbing implements for cleaning the feet or toes	A47K 7/026
Chiropractic devices	A61H 1/008
Files in general	B23D 71/00

A61B 17/545**{using a stream or spray of abrasive particles}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/545](#)

U.S. Patent

Feb. 6, 2001

Sheet 1 of 3

US 6,183,483 B1

A61B 17/56**Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor****Definition statement***This place covers:*

When the only subject matter of a document is a method, this class is given.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Orthopaedic methods or devices for non-surgical treatment of bones or joints	A61F 5/00
--	---------------------------

Special rules of classification

Documents concerning exclusively surgical methods are classified only in this group.

Surgical instruments or devices are classified only in the relevant subgroups of [A61B 17/56](#).

A61B 17/562

{Implants for placement in joint gaps without restricting joint motion, e.g. to reduce arthritic pain}

Definition statement

This place covers:

These are implants which do not restrict the relative movement of the bones and are therefore not in any way fixators.

A61B 17/58

for osteosynthesis, e.g. bone plates, screws or setting implements
([A61B 17/14](#), [A61B 17/16](#) take precedence)

References**Limiting references**

This place does not cover:

Surgical saws	A61B 17/14
Drills and other bone removal means other than saws	A61B 17/16

Informative references

Attention is drawn to the following places, which may be of interest for search:

Splints	A61F 5/01
---------	---------------------------

A61B 17/60

for external osteosynthesis, e.g. distractors, contractors

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Non-surgical i.e. non-invasive devices for reduction or distraction	A61F 5/04
Bandages, dressings or absorbent pads	A61F 13/00

A61B 17/62

Ring frames, i.e. devices extending around the bones to be positioned
([A61B 17/6433](#) , [A61B 17/66](#) take precedence)

References**Limiting references**

This place does not cover:

External osteosynthesis devices for body parts other than limbs	A61B 17/6433
---	------------------------------

External osteosynthesis alignment, compression or distraction mechanisms	A61B 17/66
--	----------------------------

A61B 17/6408

{Devices not permitting mobility, e.g. fixed to bed, with or without means for traction or reduction (without surgery [A61F 5/04](#))}

Definition statement

This place covers:

External osteosynthesis equipment comprising, or attached to, heavy or bulky objects, such as floor- or furniture-mounted fracture-setting means.

References

Limiting references

This place does not cover:

Devices used without surgery	A61F 5/04
------------------------------	---------------------------

A61B 17/6416

{with non-continuous, e.g. hinged, pin-clamp connecting element ([A61B 17/6425](#), [A61B 17/6441](#) take precedence)}

Definition statement

This place covers:

Equipment in which the pin-clamp connecting element comprises distinct parts joined to each other.

References

Limiting references

This place does not cover:

Devices specially adapted to be fitted across a bone joint	A61B 17/6425
Bilateral fixators i.e. with both ends of pins or wires clamped	A61B 17/6441

A61B 17/6441

{Bilateral fixators, i.e. with both ends of pins or wires clamped}

References

Limiting references

This place does not cover:

Ring frames	A61B 17/62
Devices not permitting mobility	A61B 17/6408
Devices specially adapted to be fitted across a bone joint	A61B 17/6425
Devices for body parts other than limbs	A61B 17/6433

Devices allowing small scale motion of bone ends	A61B 17/6491
--	------------------------------

A61B 17/645

{comprising a framework ([A61B 17/6425](#), [A61B 17/6441](#) take precedence)}

Definition statement

This place covers:

Equipment in which pin-clamp connecting elements are either multiple in parallel or not essentially linear.

References

Limiting references

This place does not cover:

Devices specially adapted to be fitted across a bone joint	A61B 17/6425
Bilateral fixators	A61B 17/6441

Informative references

Attention is drawn to the following places, which may be of interest for search:

External osteosynthesis pin clamps movable along a rod	A61B 17/6466
--	------------------------------

A61B 17/6466

{with pin-clamps movable along a solid connecting rod}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Clamp elements used in wound retractors	A61B 17/02
---	----------------------------

A61B 17/663

{for jaw bones, e.g. subcutaneous distractors with external access (periodontal bone regeneration [A61C 8/0006](#))}

References

Limiting references

This place does not cover:

Orthodontic, i.e. tooth-mounted, positioning devices	A61C 7/10 , A61C 8/0096
Periodontal regeneration	A61C 8/0006

Informative references

Attention is drawn to the following places, which may be of interest for search:

Maxillary sinus lift	A61C 8/00
----------------------	---------------------------

A61B 17/68

Internal fixation devices {, including fasteners and spinal fixators, even if a part thereof projects from the skin (bone staples [A61B 17/0642](#))}

References**Limiting references**

This place does not cover:

Bone staples	A61B 17/0642
--------------	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Dental regeneration membranes	A61C 8/0006
Prostheses implanted into the body – bones, bone grafts	A61F 2/28
Prostheses implanted into the body – joints, e.g. shoulder, spine	A61F 2/30
Devices for fastening or securing constructional elements or machine parts together, e.g. nails, bolts, clamps, clips	F16B

A61B 17/70

Spinal positioners or stabilisers, e.g. stabilisers comprising fluid filler in an implant

Definition statement

This place covers:

- Devices embedded in the vertebrae, e.g. US2009005816
- Devices placed at least partially in the disc space e.g. FR2799638, US2006224241
- Staple-like devices, e.g. US2009270917
- Vertebra or disc reinforcements other than annulus repair patches, e.g. US2008125778
- Longitudinal elements with bone anchors other than screws, hooks or wires, e.g. WO2009004625
- Nerve or anti-scarring shields, e.g. DE102008020111
- Extra-vertebral devices combined with fusion cages or disc prostheses, e.g. W00010473
- Vertebra or disc filler material, e.g. US6251139, US2008172058

Relationships with other classification places

Because spinal fusion cages generally cannot be removed without causing failure of the spinal column they are considered equivalent to prostheses and are hence classified in [A61F](#), specifically [A61F 2/4455](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Means for repairing the disc annulus	A61F 2002/4435
Orthopaedic corsets	A61F 5/02

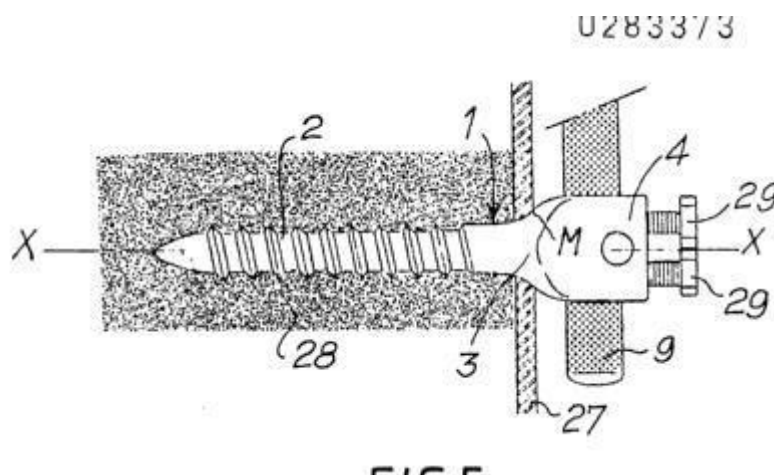
A61B 17/7001

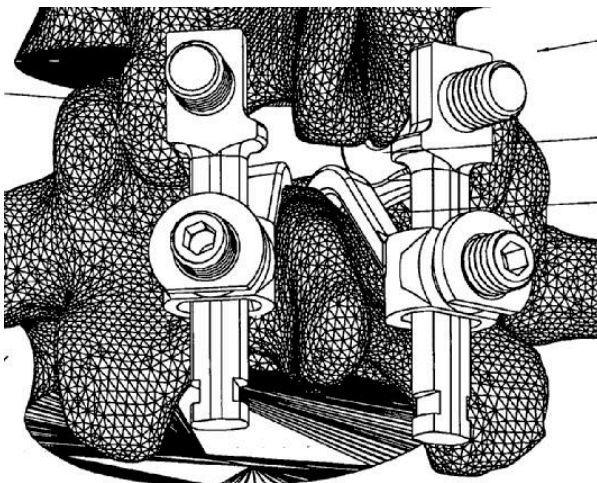
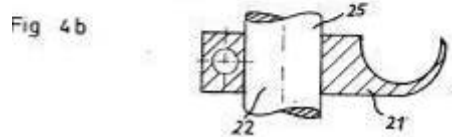
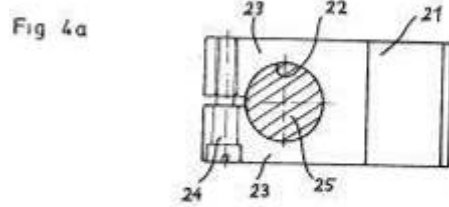
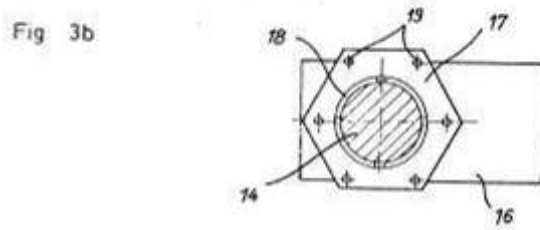
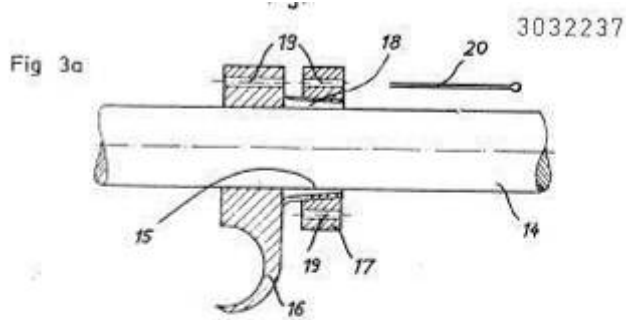
{Screws or hooks combined with longitudinal elements which do not contact vertebrae ([A61B 17/7058](#) takes precedence)}

Definition statement

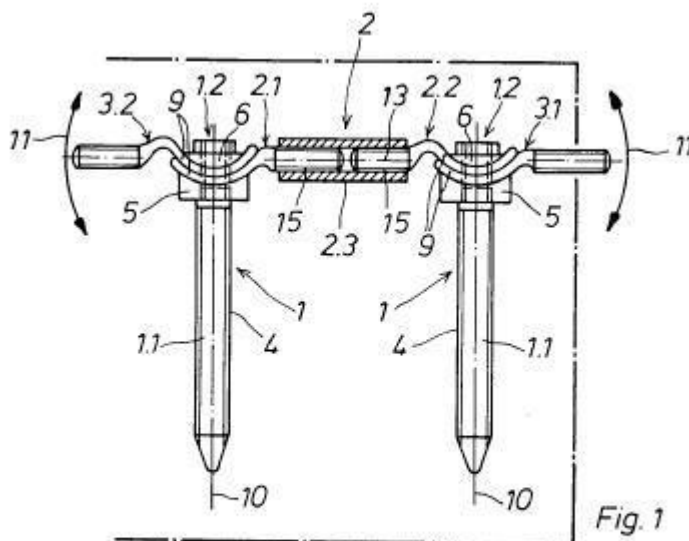
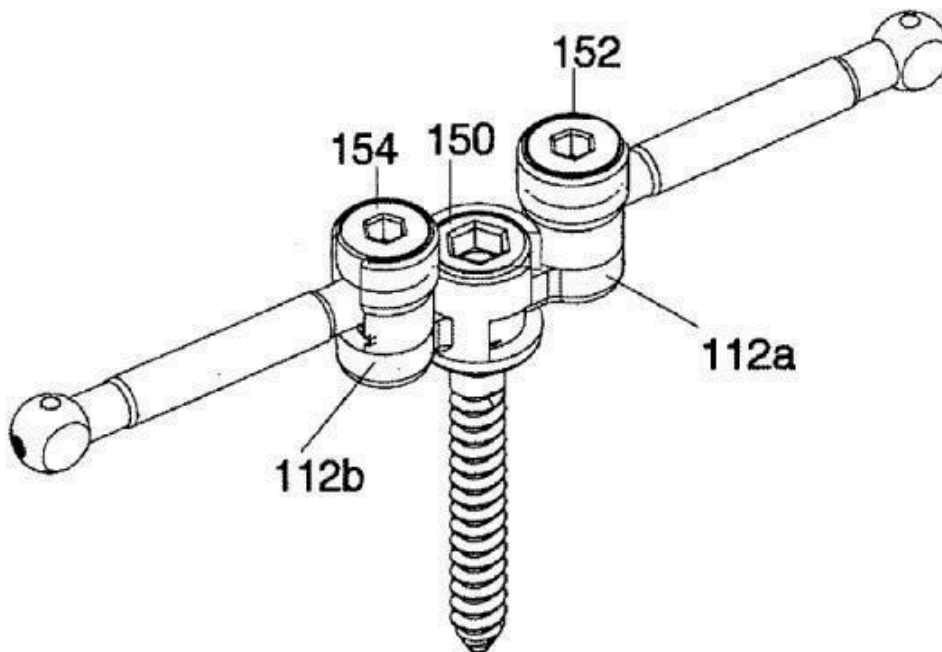
This place covers:

"longitudinal" means designed to be placed approximately along the axis of the spine from one vertebra to another. Typical examples:





[A61B 17/7001](#) also includes devices where the orientation of the longitudinal element relative to the anchors can be modified before use, but is fixed in the implanted state, e.g.



The last example above is also in [A61B 17/7014](#) because the length of the longitudinal element can be adjusted.

References

Limiting references

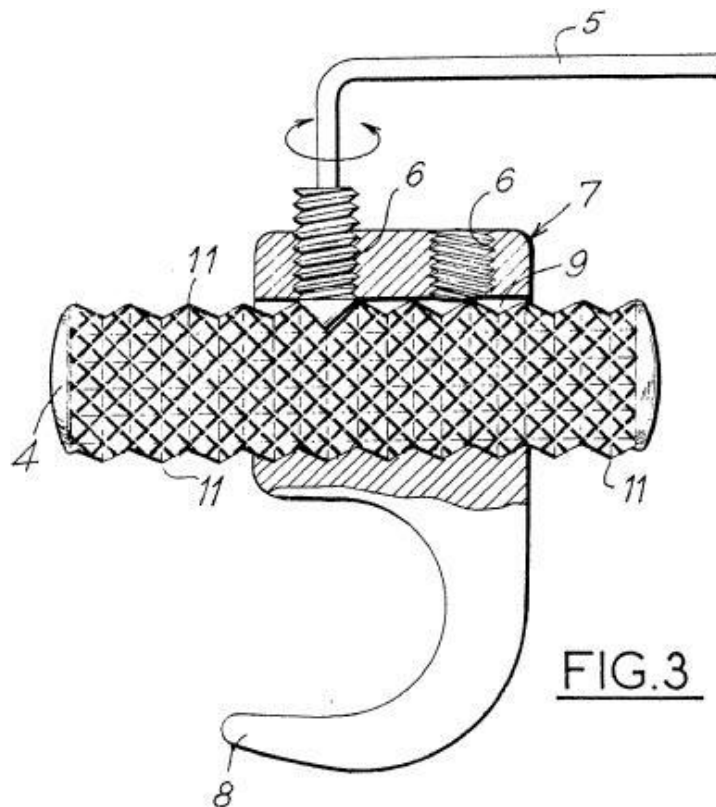
This place does not cover:

Plates mounted on top of bone anchor heads or shoulders	A61B 17/7058
---	------------------------------

A61B 17/7002**{Longitudinal elements, e.g. rods}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/7002](#)

Example:

this document is classified here (as well as in [A61B 17/7001](#) because of rod-to-hook fixation arrangement) because of the surface (in this case knurled) of the longitudinal rod:

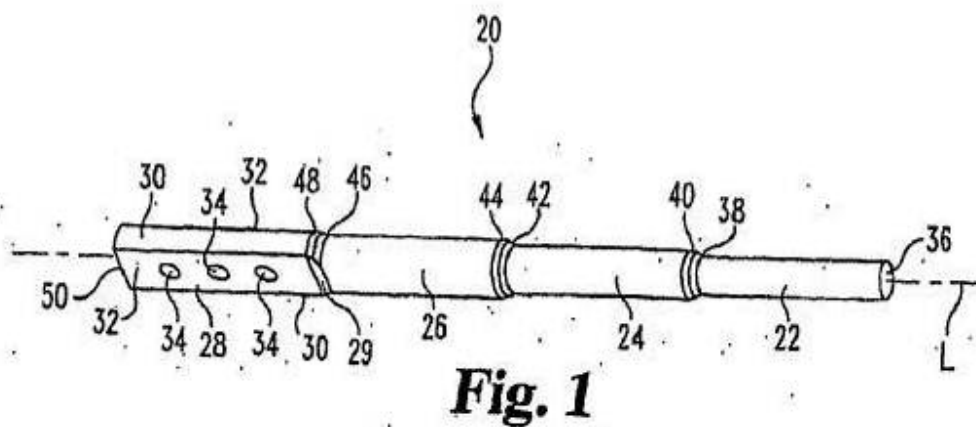
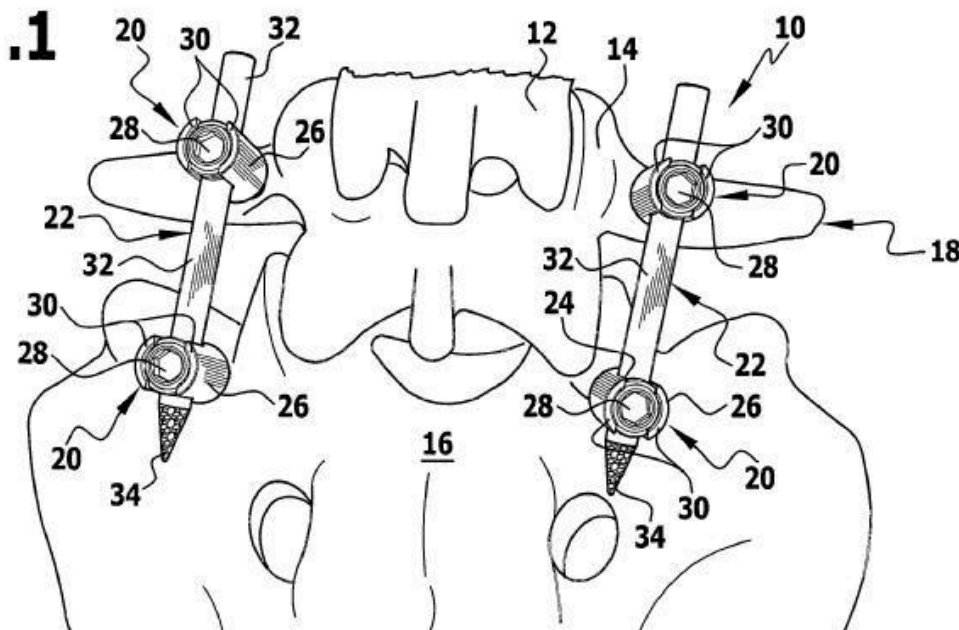


A further example:

" Tige de liaison pour redresser les deformations du rachis, caracterisee en ce qu'elle est realisee en un materiau a memoire de forme et en ce qu'elle est pourvue d' au moins un canal de circulation (2) pour un fluide calorifique ou frigorifique afin de modifier sa temperature et par suite, sa rigidite."

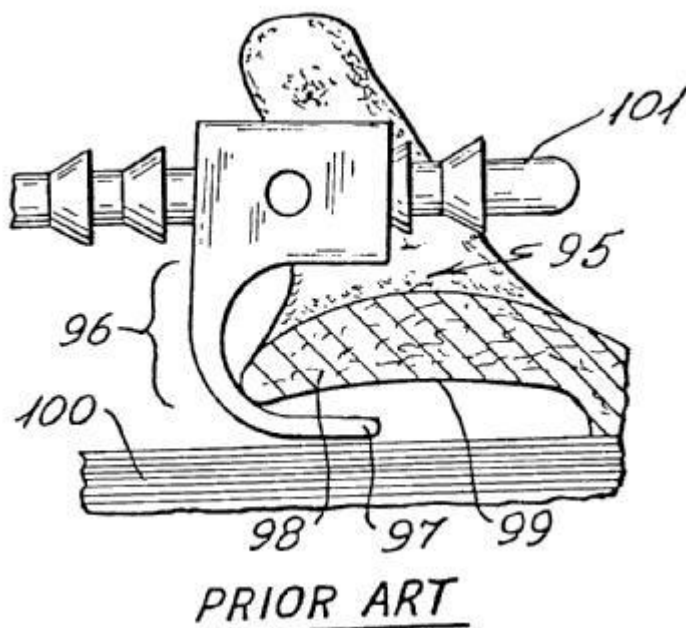
A61B 17/7004**{with a cross-section which varies along its length ([A61B 17/7019](#) takes precedence)}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/7004](#)

Examples:



Definition statement

The example below shows a typical Harrington rod, classified here because of its ratcheting annular projections:



References

Limiting references

This place does not cover:

Longitudinal elements which have flexible parts, or are connected together such that in use they can move relative to each other
--

A61B 17/7019

A61B 17/7005

{Parts of the longitudinal elements, e.g. their ends, being specially adapted to fit in the screw or hook heads}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7005](#) :

Examples:

WO2007097905

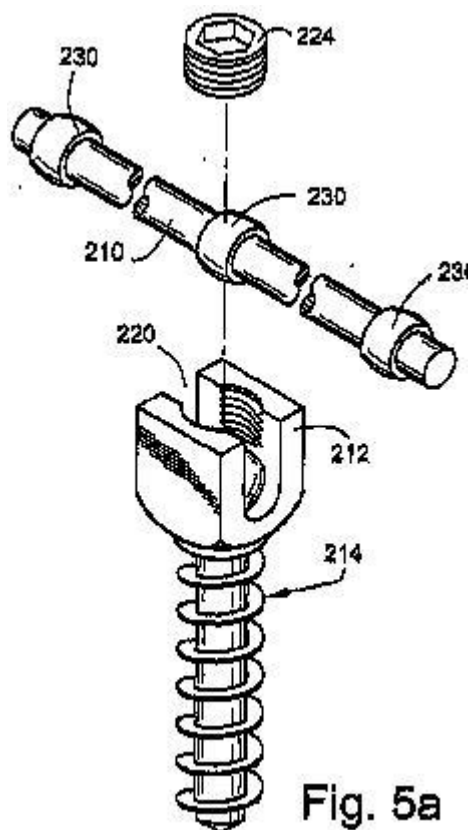


Fig. 5a

DE202007009970U

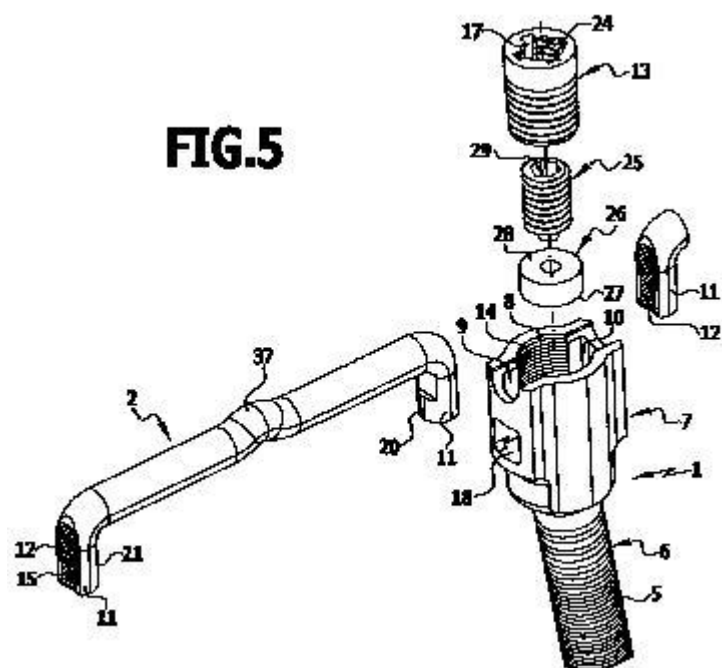
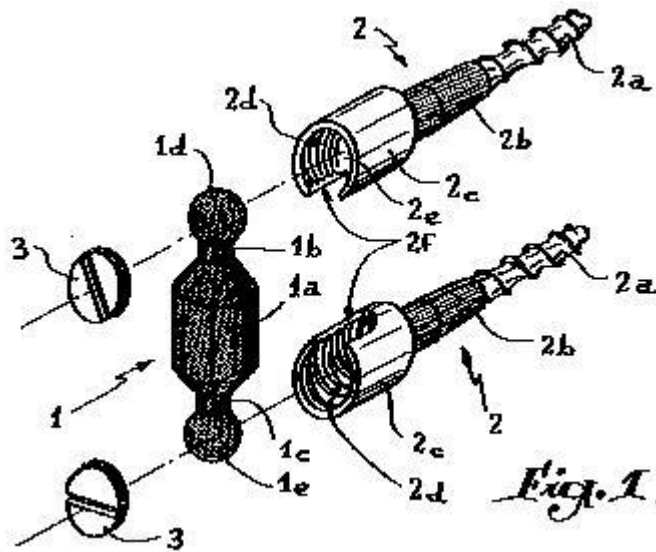
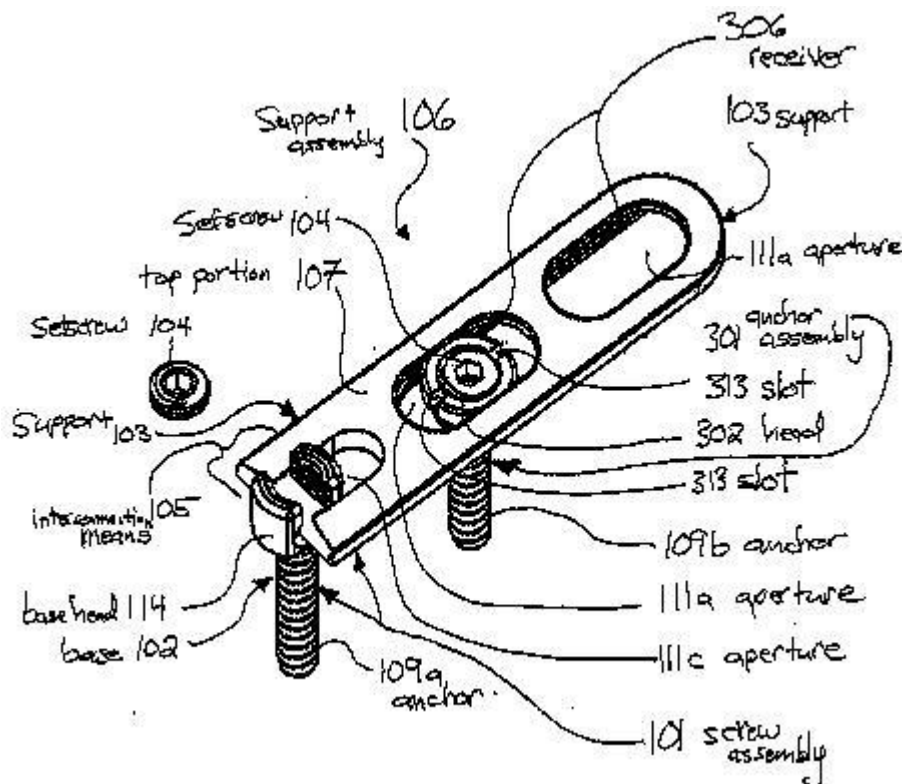


FIG. 5

EP0516567



US2006149252



A61B 17/7007

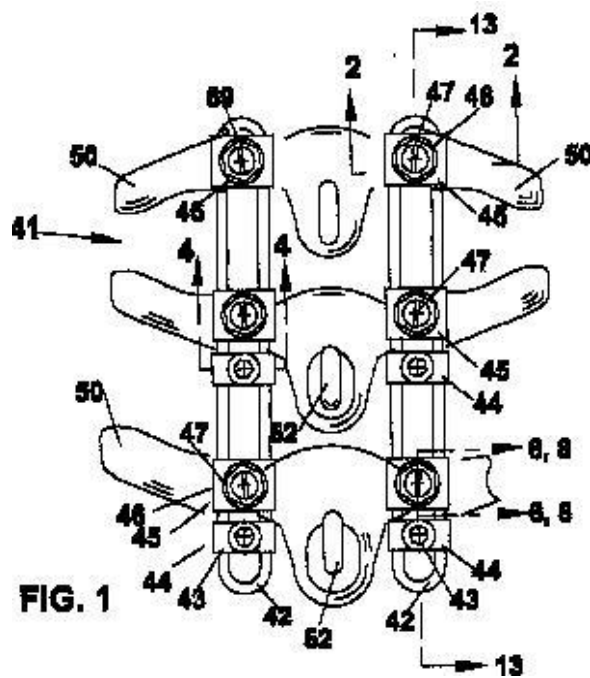
{Parts of the longitudinal elements, e.g. their ends, being specially adapted to fit around the screw or hook heads}

Definition statement

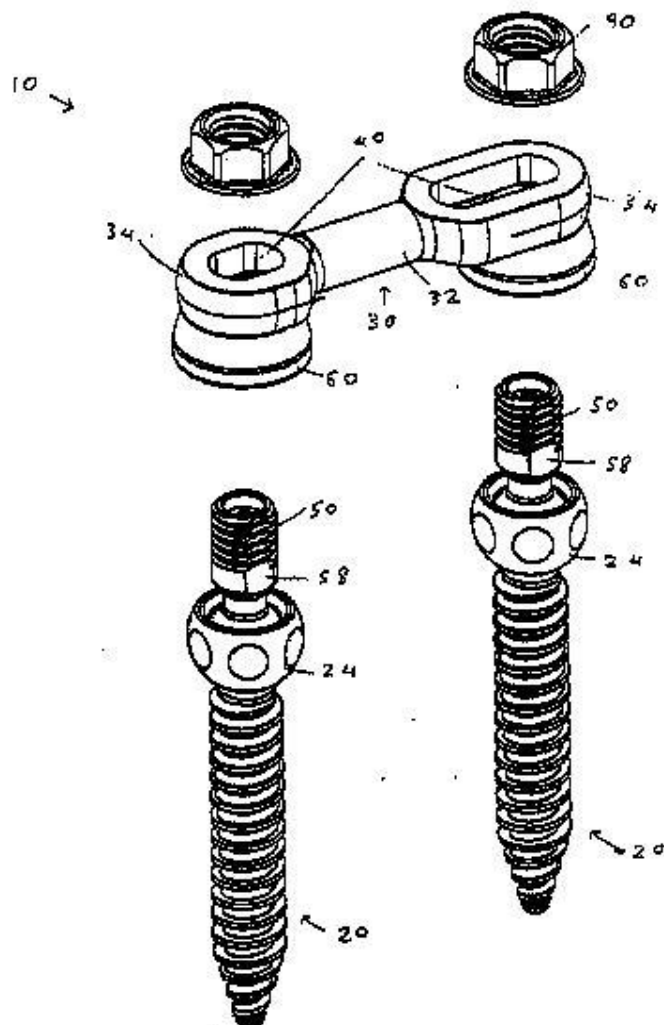
This place covers:

Illustrative example of subject matter classified in [A61B 17/7007](#)

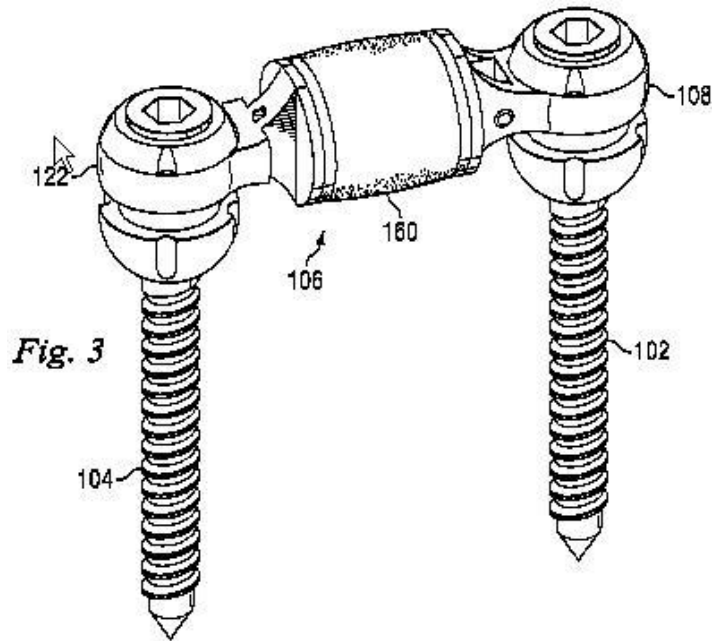
Examples: US2001037111



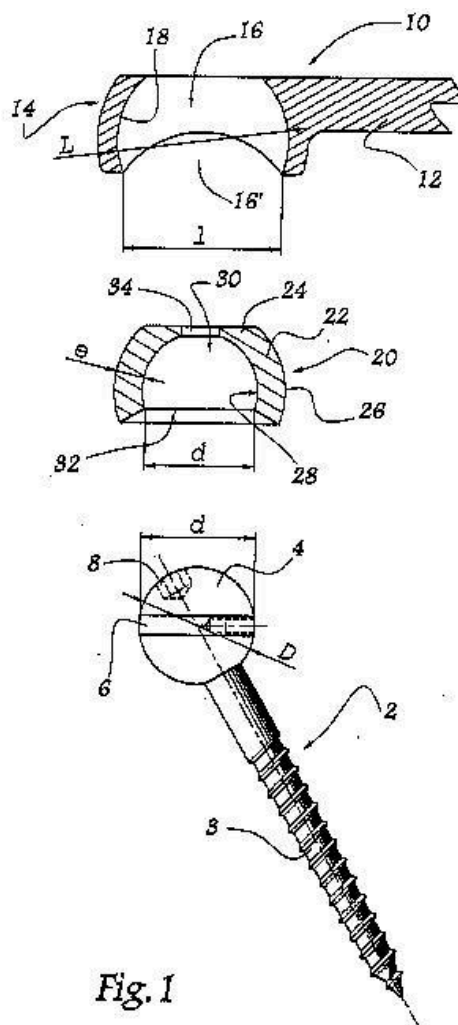
WO2006023514 :



WO2007124249



FR2827499



References

Limiting references

This place does not cover:

Plate-like head-mounted longitudinal elements with multiple screw hole rows or a non-aligned single row

A61B 17/7058

A61B 17/7008

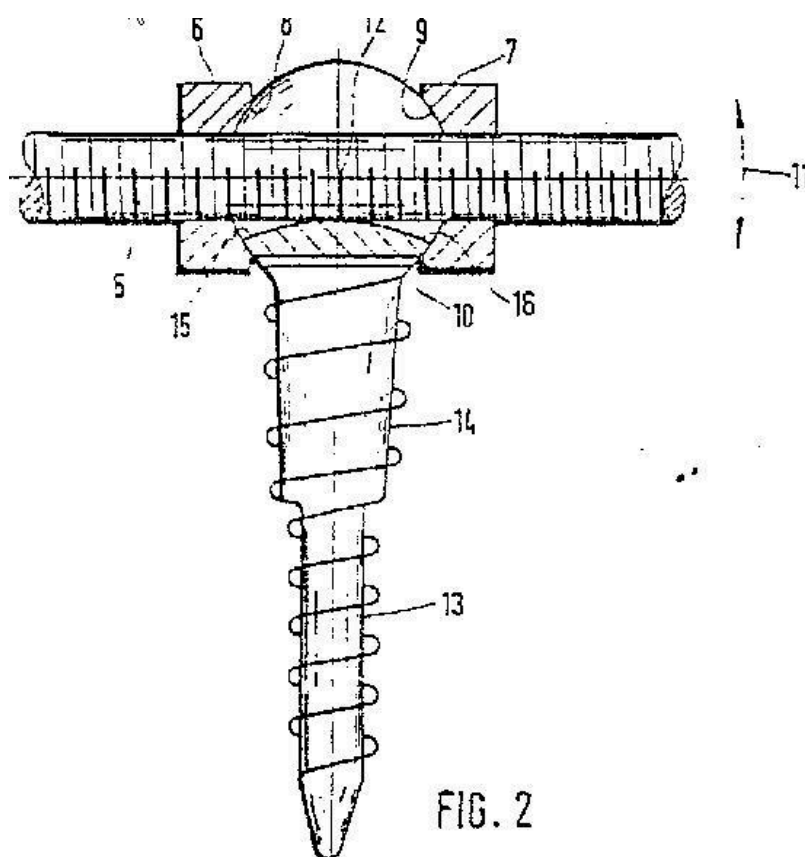
{with parts of, or attached to, the longitudinal elements, bearing against an outside of the screw or hook heads, e.g. nuts on threaded rods ([A61B 17/7007](#) takes precedence)}

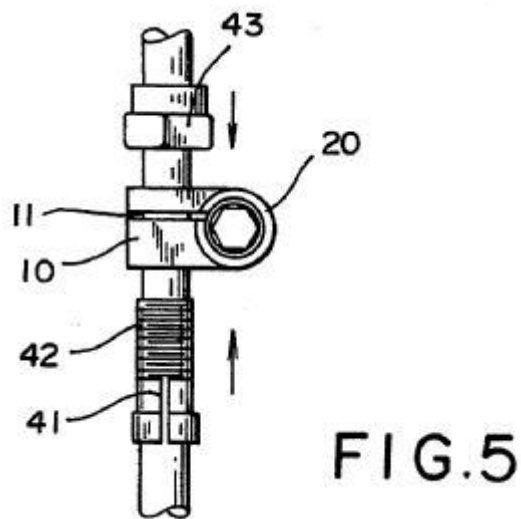
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7008](#)

Example DE3722590 :





Note that the group includes devices where a part on the longitudinal element bears against an outside of an anchor-to-longitudinal element connector, as the second of the above examples.

References

Limiting references

This place does not cover:

Longitudinal elements with parts specially adapted to fit around the screw or hook heads	A61B 17/7007
--	------------------------------

A61B 17/701

{Longitudinal elements with a non-circular, e.g. rectangular, cross-section ([A61B 17/7005](#), [A61B 17/7007](#) take precedence)}

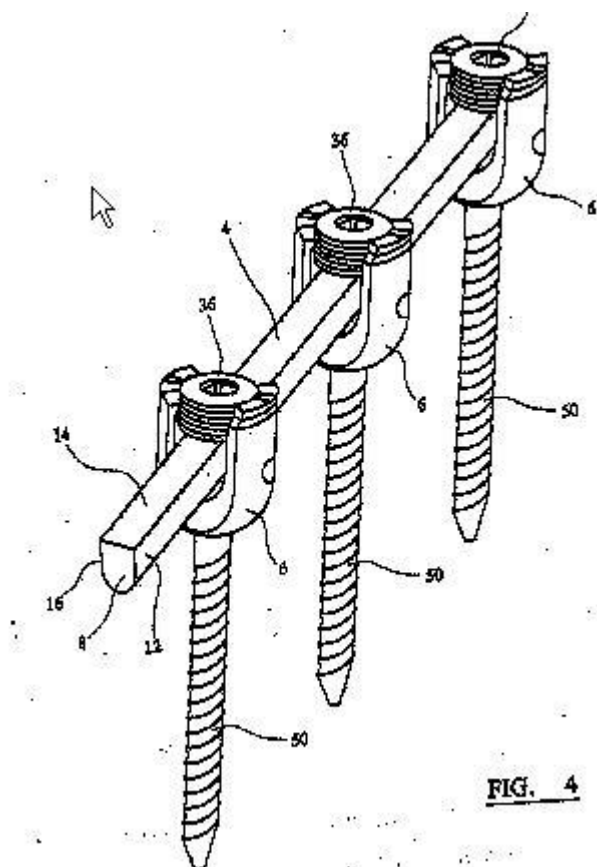
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/701](#)

Example:

WO2007045895



References

Limiting references

This place does not cover:

Longitudinal elements with parts specially adapted to fit in the screw or hook heads	A61B 17/7005
Longitudinal elements with parts specially adapted to fit around the screw or hook heads	A61B 17/7007

A61B 17/7011

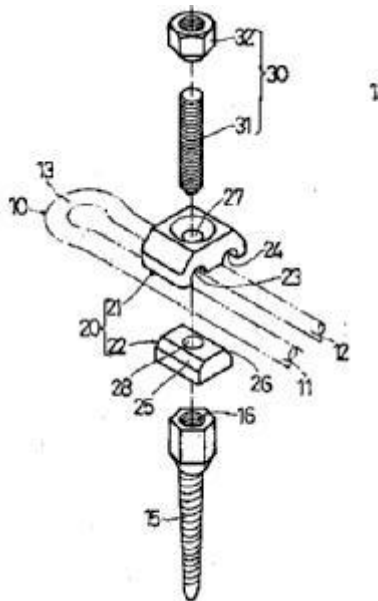
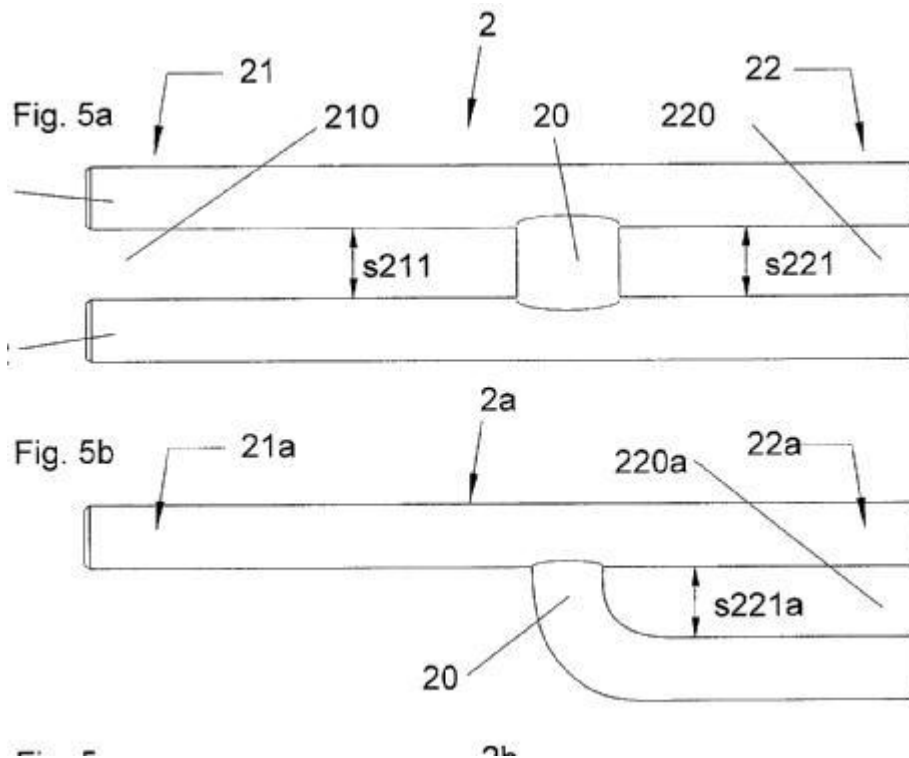
{Longitudinal element being non-straight, e.g. curved, angled or branched (adjustable length longitudinal elements [A61B 17/7014](#); [A61B 17/7019](#) takes precedence, e.g. coil springs)}

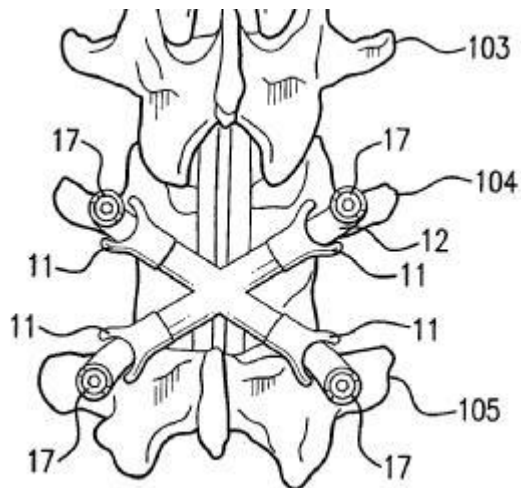
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7011](#)

Examples:





US2005033295

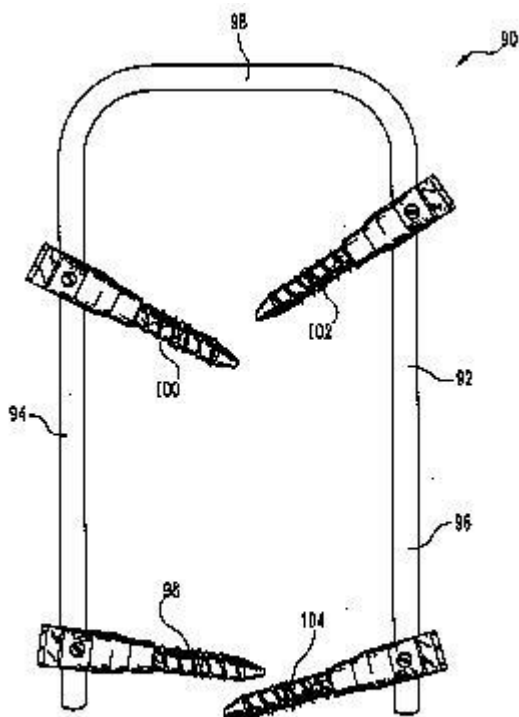


Fig. 4

References

Limiting references

This place does not cover:

Longitudinal elements connected together such that in use they can move relative to each other

[A61B 17/7019](#)

Informative references

Attention is drawn to the following places, which may be of interest for search:

Adjustable length longitudinal elements	A61B 17/7014
---	------------------------------

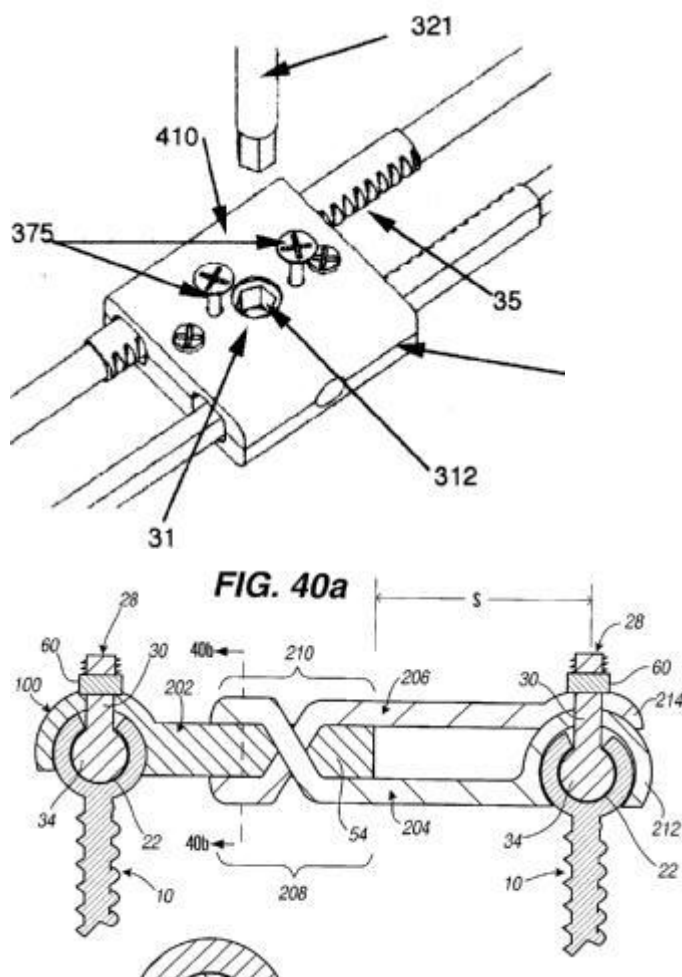
A61B 17/7014

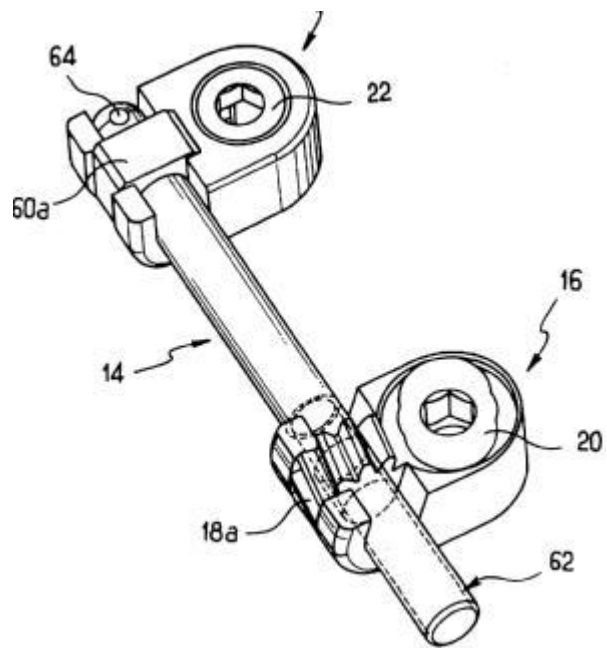
{with means for adjusting the distance between two screws or hooks}

Definition statement

This place covers:

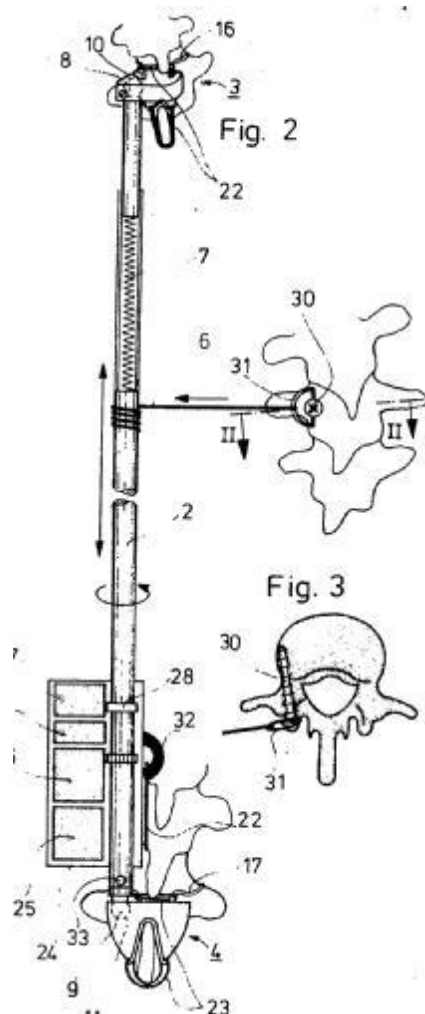
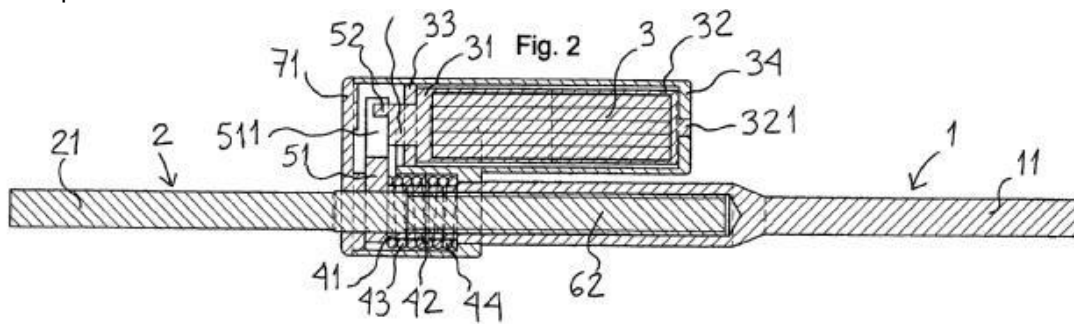
The means for adjusting the distance either adjust the length of the longitudinal element (first two examples), or displace the screws or hooks along it (third example):

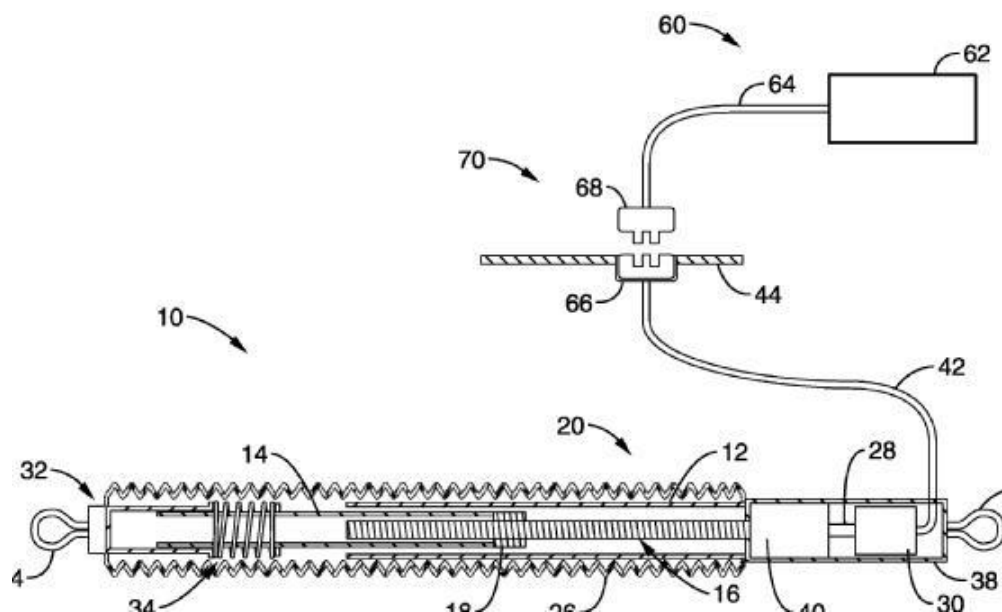


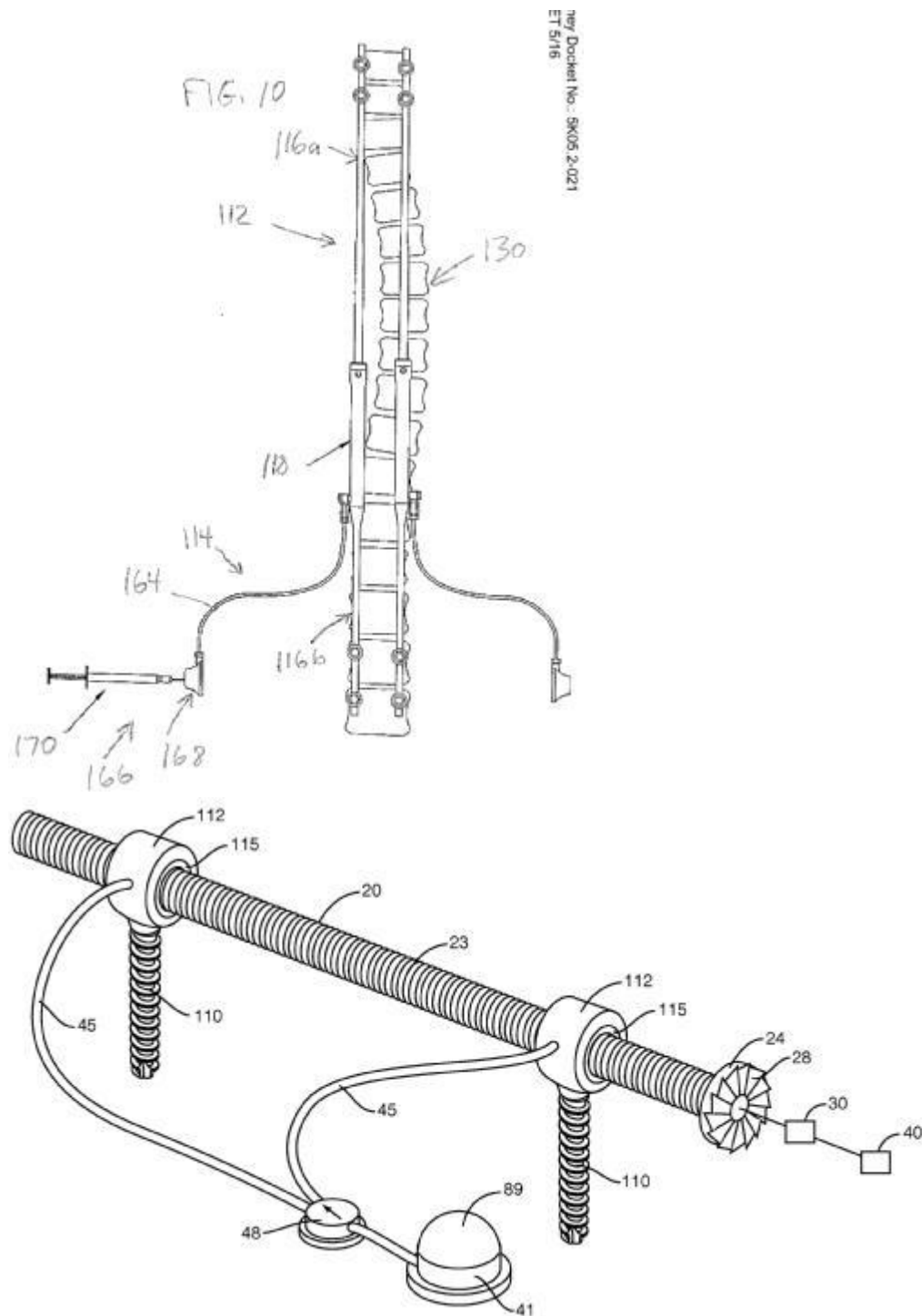


A61B 17/7016**{electric or electromagnetic means}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/7016](#)

Examples:





A61B 17/7017**{pneumatic or hydraulic means}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/7017](#)

A61B 17/7019

{Longitudinal elements having flexible parts, or parts connected together, such that after implantation the elements can move relative to each other}

References**Limiting references**

This place does not cover:

Bone anchors incorporating an articulation	A61B 17/7035
--	------------------------------

A61B 17/702

{having a core or insert, and a sleeve, whereby a screw or hook can move along the core or in the sleeve}

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Sleeve	Anything surrounding a core or insert, e.g. a coil spring
--------	---

A61B 17/7032

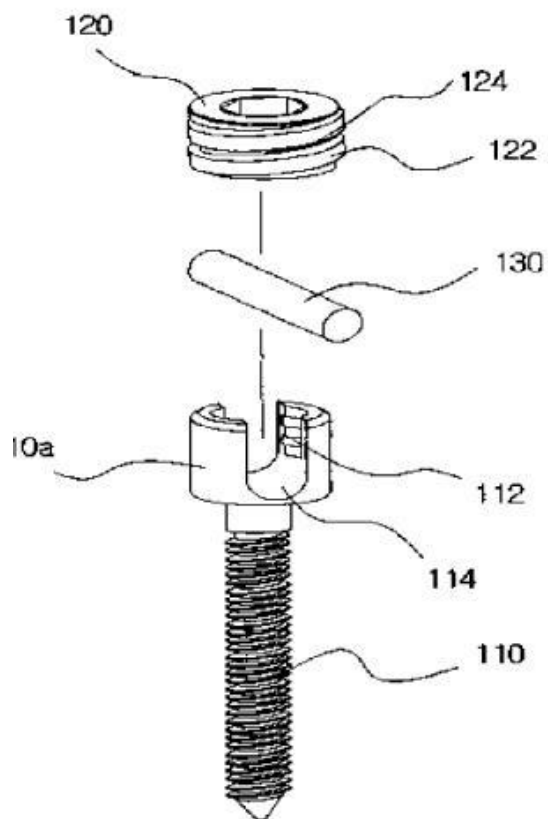
{Screws or hooks with U-shaped head or back through which longitudinal rods pass}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7032](#)

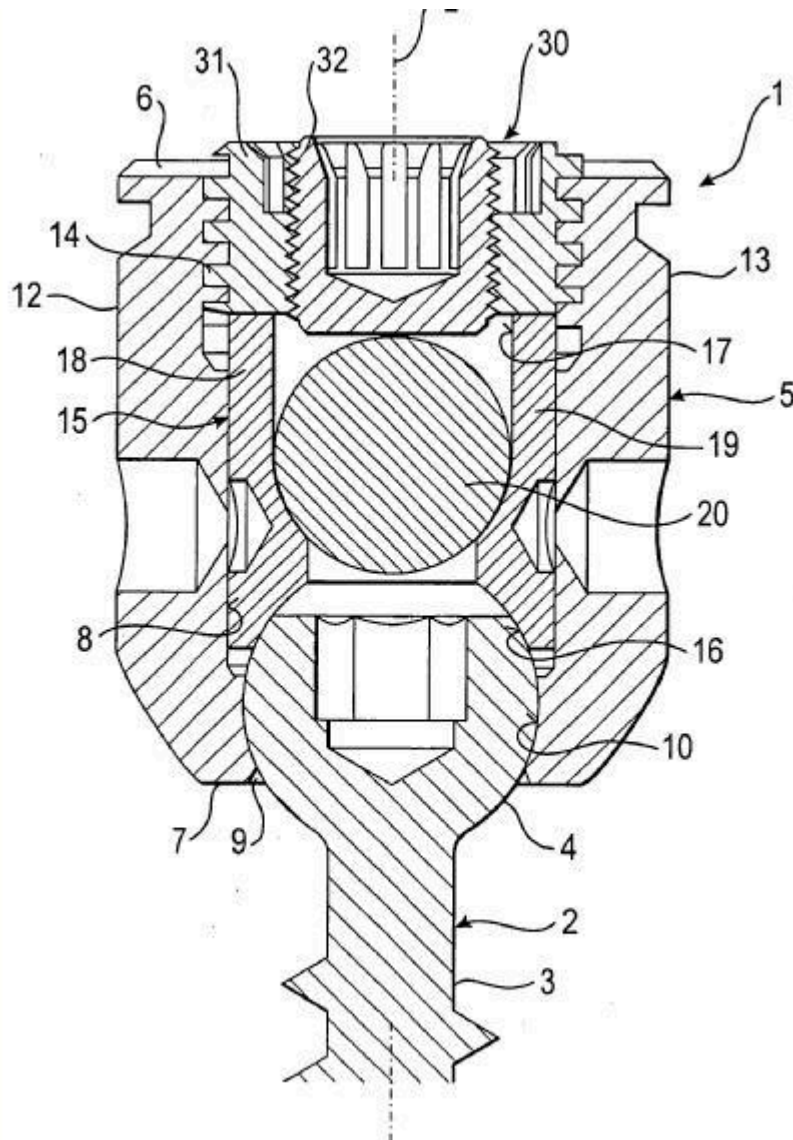
A typical example:



[Fig. 2]

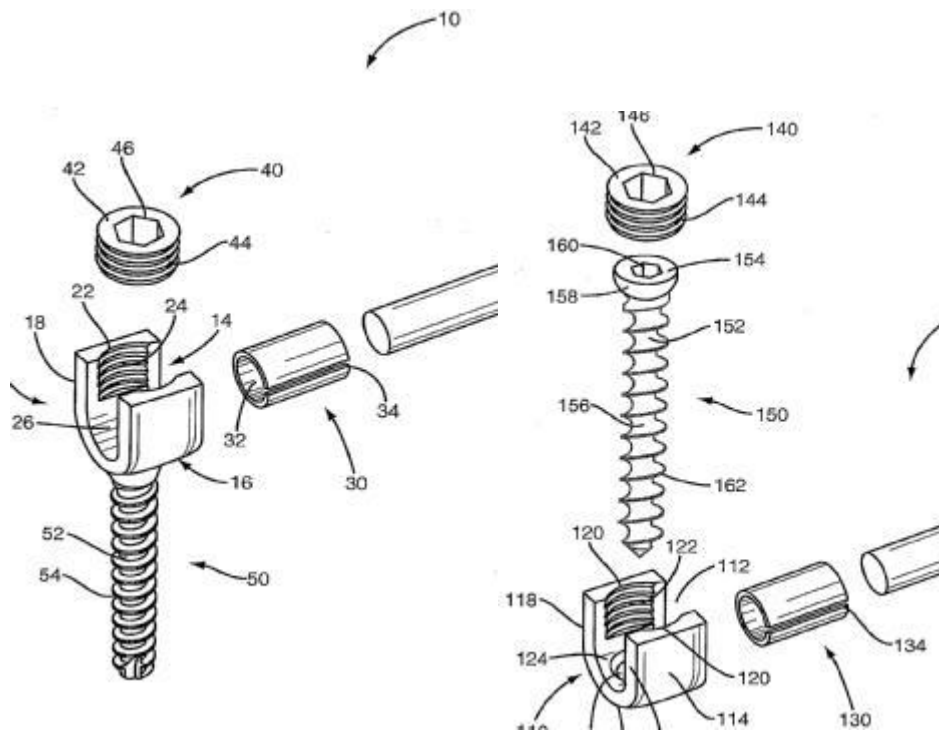
Definition statement

The device below is classified in [A61B 17/7032](#) as well as [A61B 17/7035](#), because the feature of having both inner (32) and outer (31) locking screws is unrelated to the device as a whole being polyaxial, and is hence "invention-type" information for any U-shaped head screw:



Definition statement

Classified in [A61B 17/7032](#) for left-hand embodiment and in [A61B 17/7035](#) for right-hand:

**A61B 17/7034**

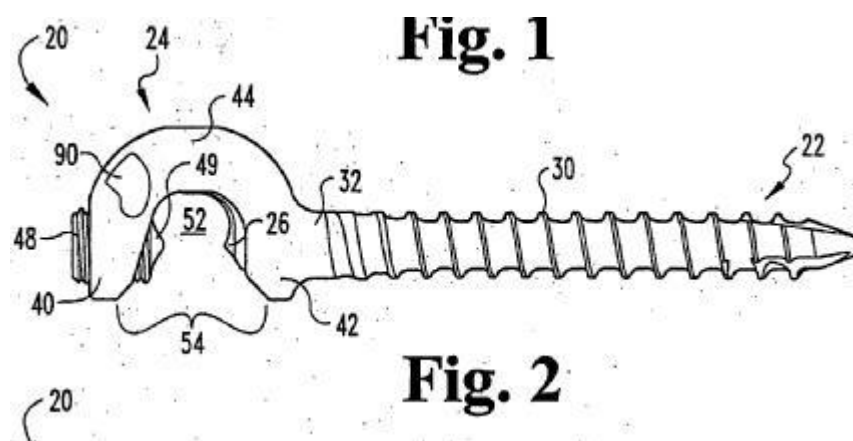
{characterised by a lateral opening}

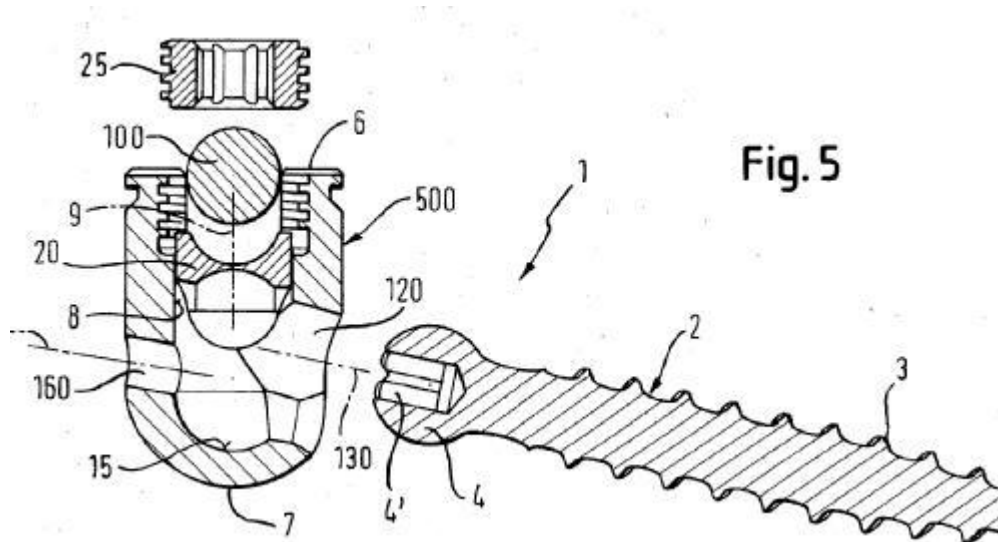
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7034](#)

Examples (the second of which is polyaxial):





A61B 17/7035

{Screws or hooks, wherein a rod-clamping part and a bone-anchoring part can pivot relative to each other}

Definition statement

This place covers:

Rotation of the bone-anchoring part about its own axis is not considered to be pivoting.

Note that the longitudinal member must be a rod (i.e. without openings, at least in the vicinity of the bone anchors) for a document to get this class.

This group includes so-called polyaxial screws/hooks, where in at least some embodiments the connection between the rod-clamping part and the rod can be locked separately from the connection

between the rod-clamping part and the bone-anchoring part (otherwise classification would be in [A61B 17/7037](#)), such as this example:

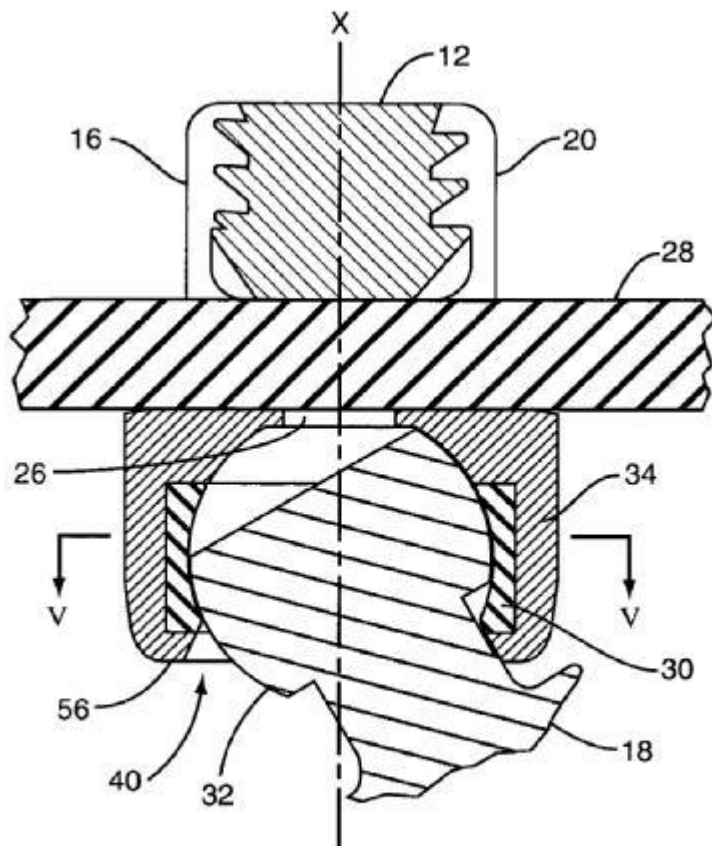
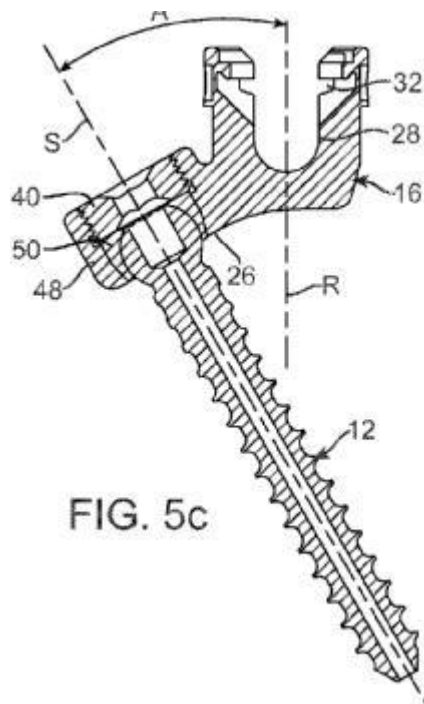


FIG. 3

Definition statement

The group also includes devices in which the rod cannot lie on the axis of the bone-anchoring part (and which are therefore also classified in [A61B 17/7041](#)), i.e. ones not referred to as polyaxial, such as this:

**A61B 17/7037**

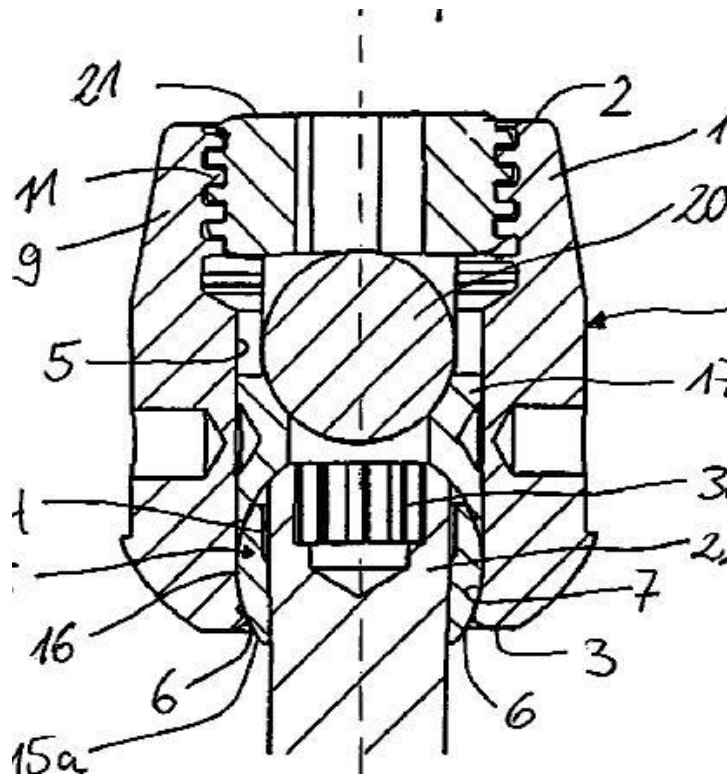
{wherein pivoting is blocked when the rod is clamped}

Definition statement

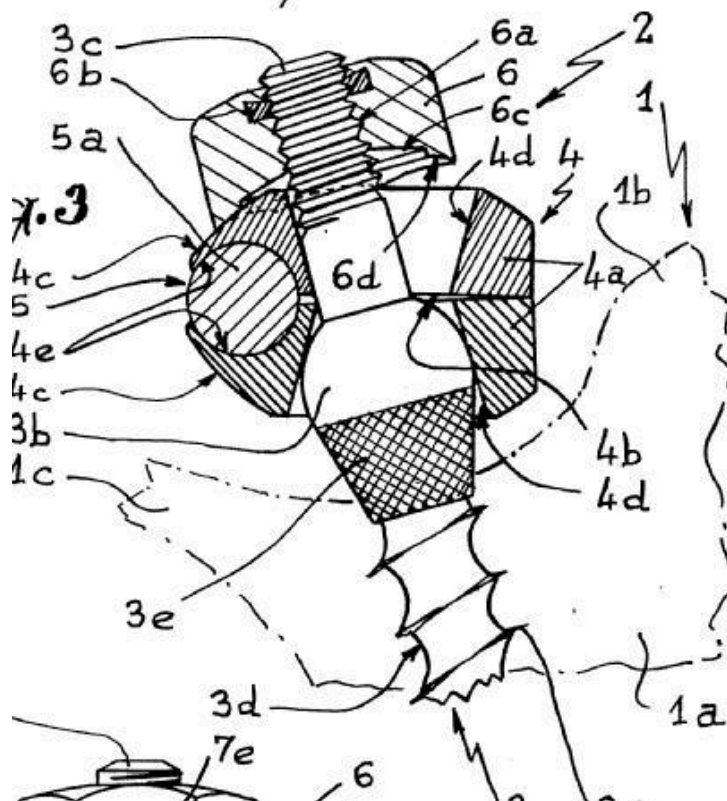
This place covers:

Illustrative example of subject matter classified in [A61B 17/7035](#)

Examples:



3/5



A61B 17/7038

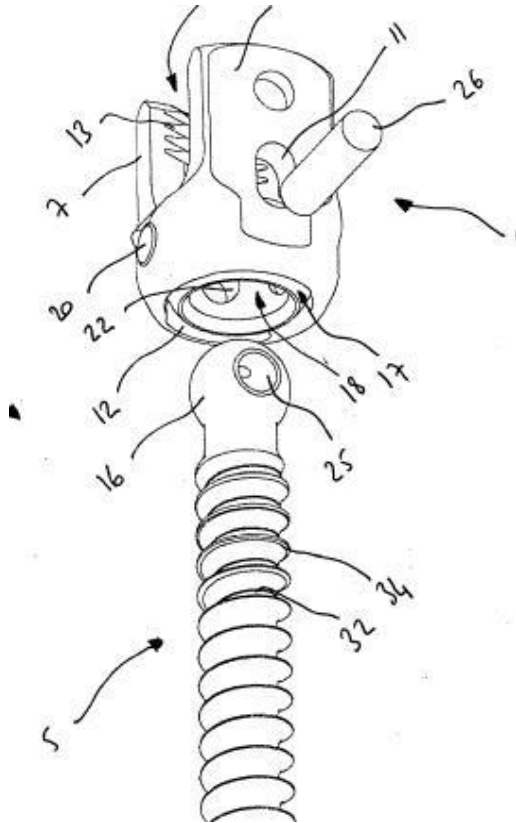
{to a different extent in different directions, e.g. within one plane only}

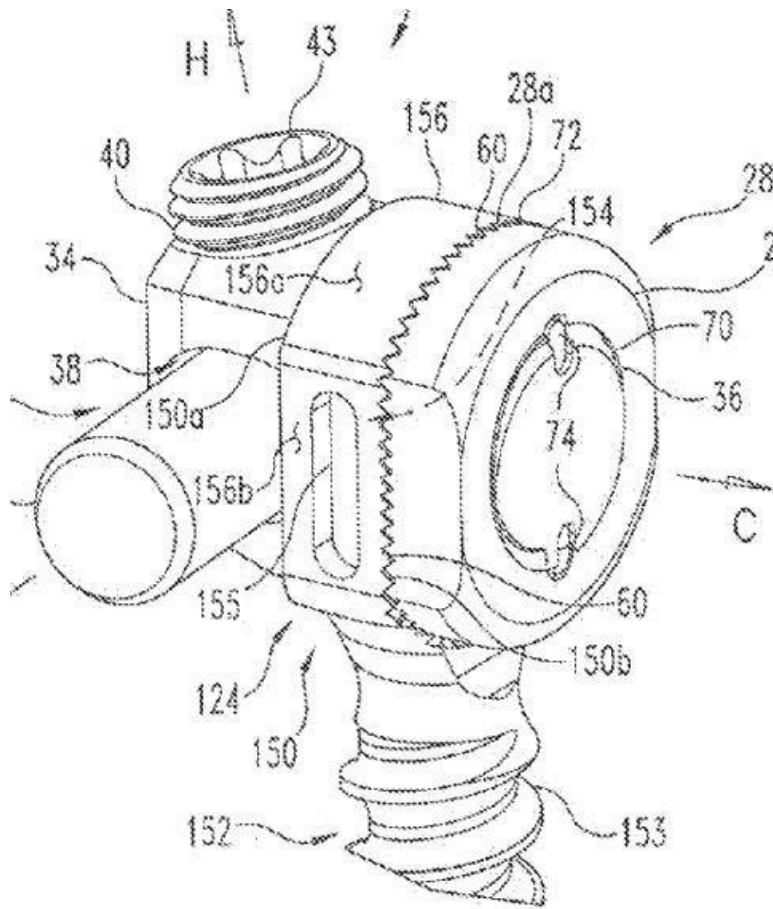
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7038](#)

Examples (in the first, the bone-anchoring part 16 pivots about pin 26, and hence only in one plane):





A61B 17/704

{the longitudinal element passing through a ball-joint in the screw head}

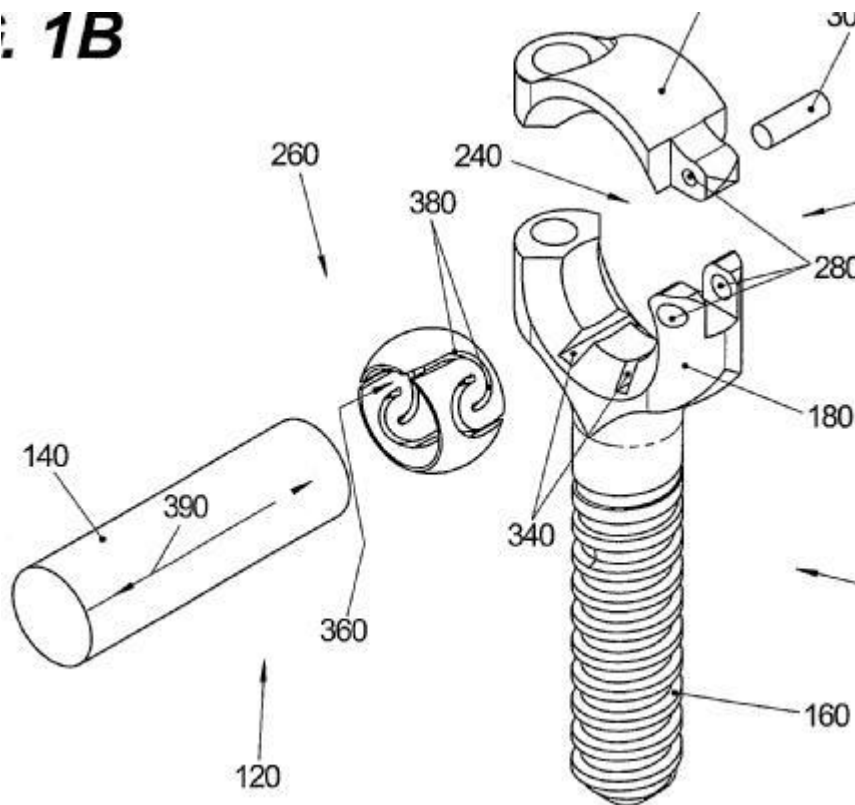
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/704](#)

Example:

1B



A61B 17/7041

{with single longitudinal rod offset laterally from single row of screws or hooks
([A61B 17/7044](#) takes precedence)}

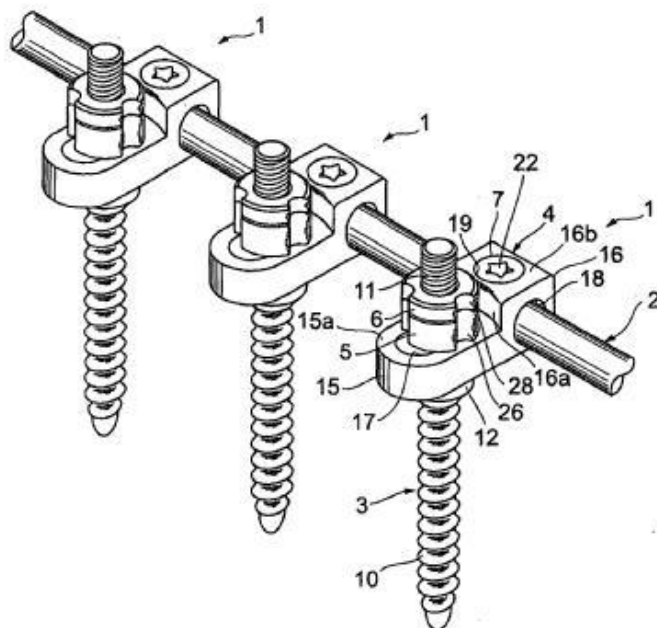
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7041](#)

Example:

Fig.1



A61B 17/7043

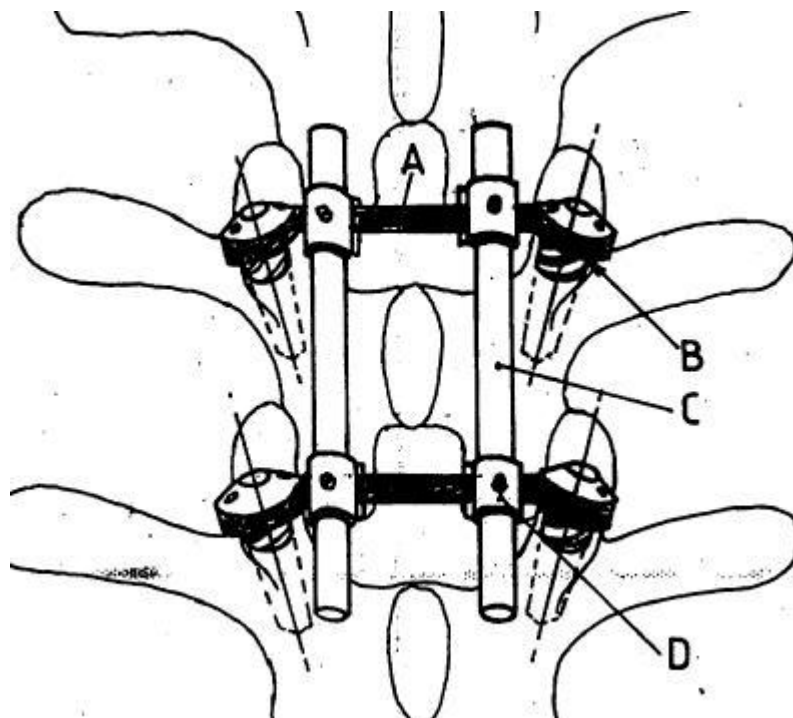
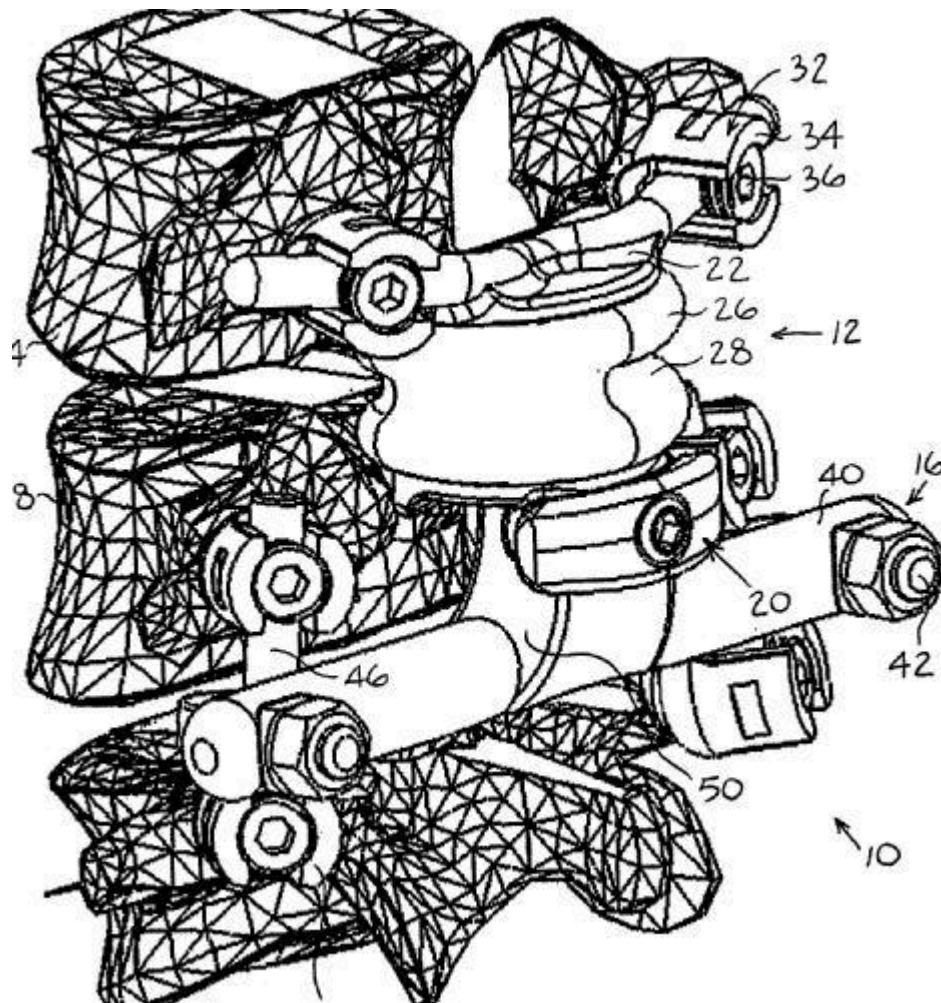
{with a longitudinal element fixed to one or more transverse elements which connect multiple screws or hooks}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7043](#)

Examples (note that, as in the second example, there may be more than one longitudinal element):



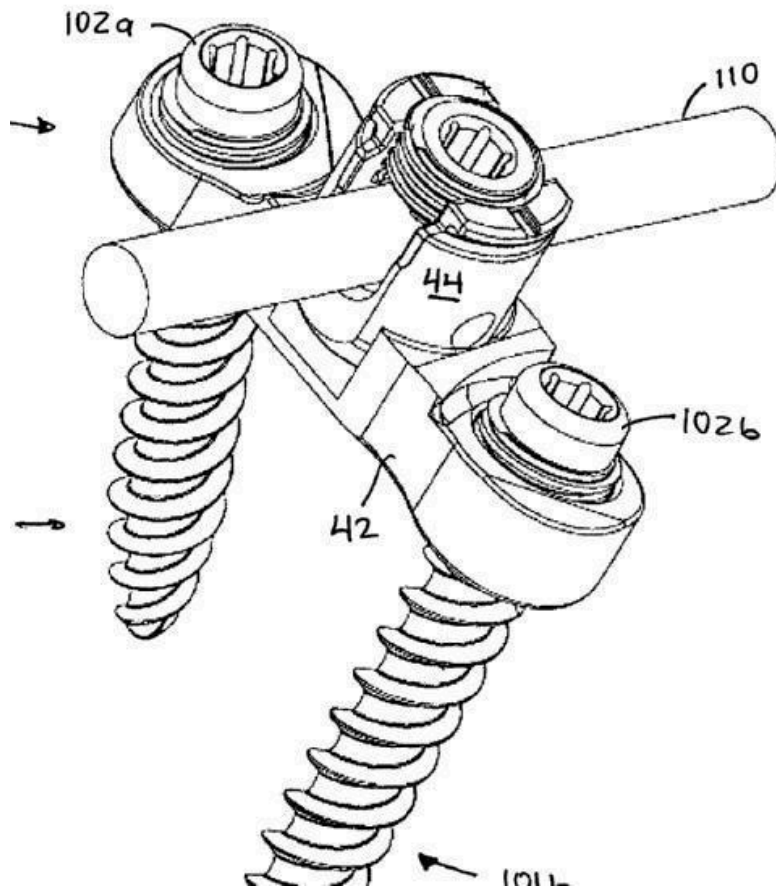
A61B 17/7044

{also having plates, staples or washers bearing on the vertebrae}

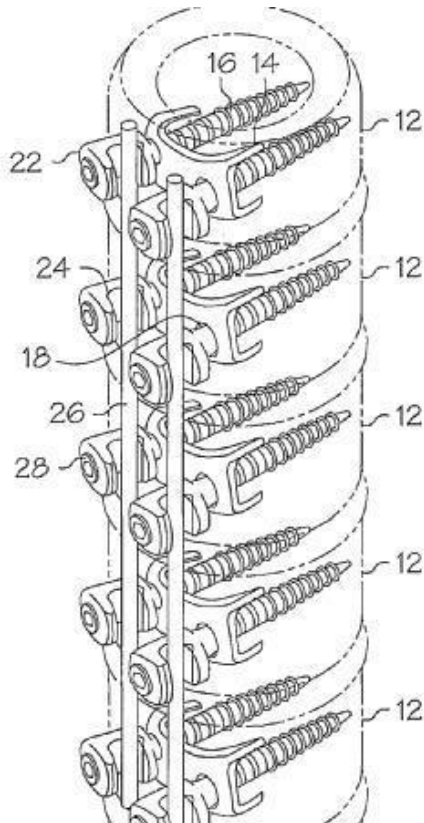
Definition statement

This place covers:

The group contains devices with bone plates, staples or washers mounted to the vertebrae by screws, wherein the rod is mounted to the plates, staples or washers, not to the screws, as in this example:



Also it contains devices where the rod is mounted to the screws as in this example:



A61B 17/7049

{Connectors, not bearing on the vertebrae, for linking longitudinal elements together ([A61B 17/7055](#), [A61B 17/7053](#), [A61B 17/7019](#) take precedence)}

Definition statement

This place covers:

Typically the devices look like this -

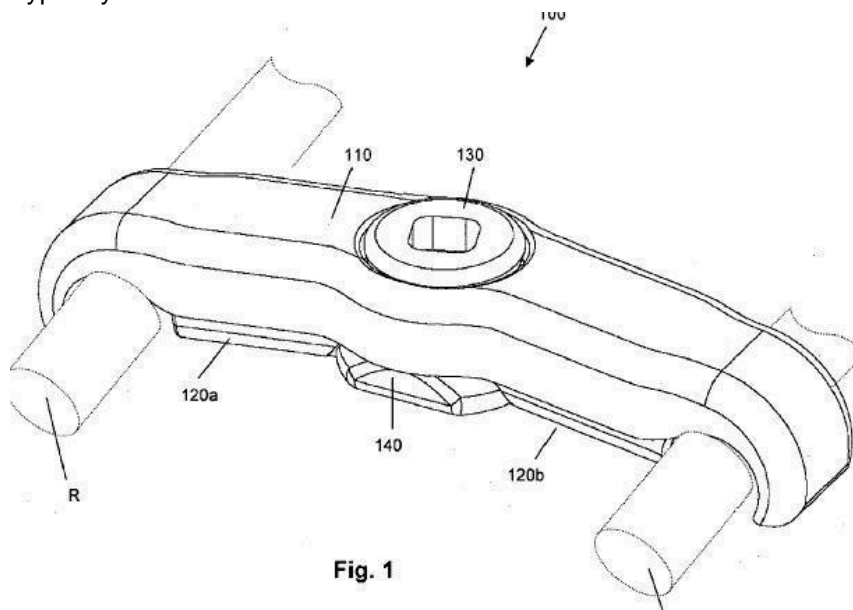
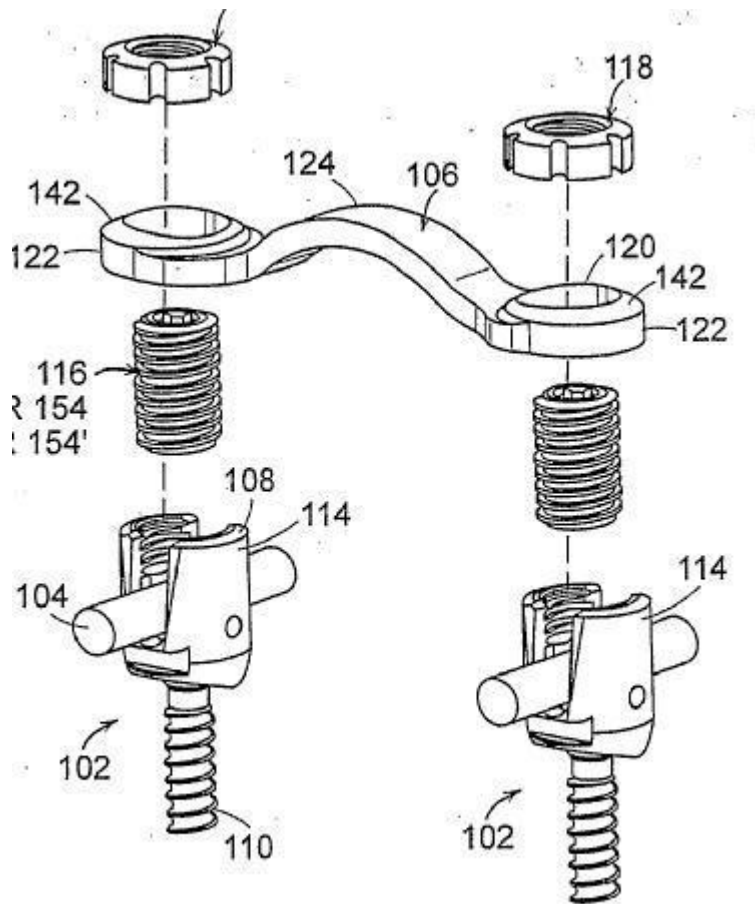
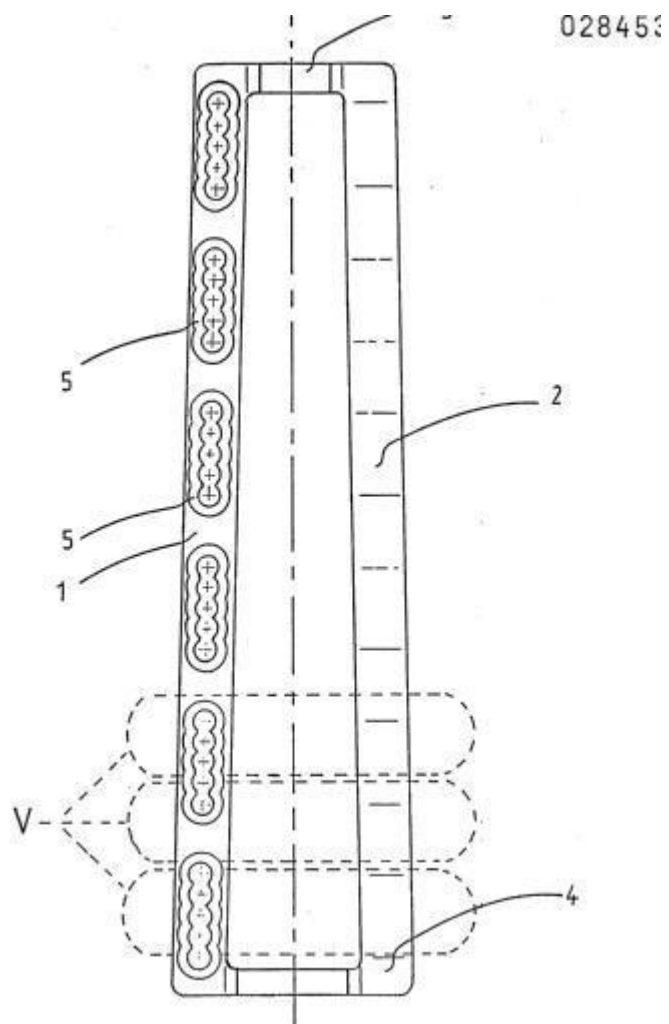


Fig. 1

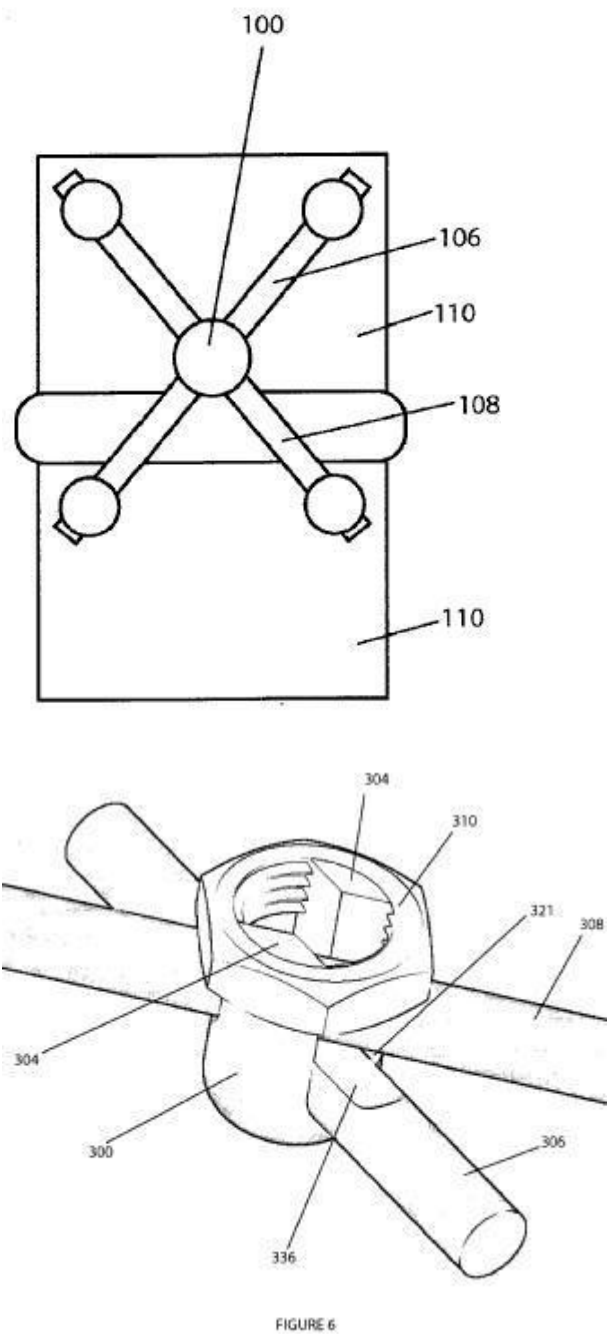
or (an example where connection takes place at the screw heads)



Also classified here are devices where the connectors and longitudinal elements are integral parts of a frame:



And this is an example of a document classified here wherein the longitudinal elements have a crossing at which they are connected (300 is an embodiment of 100):



References

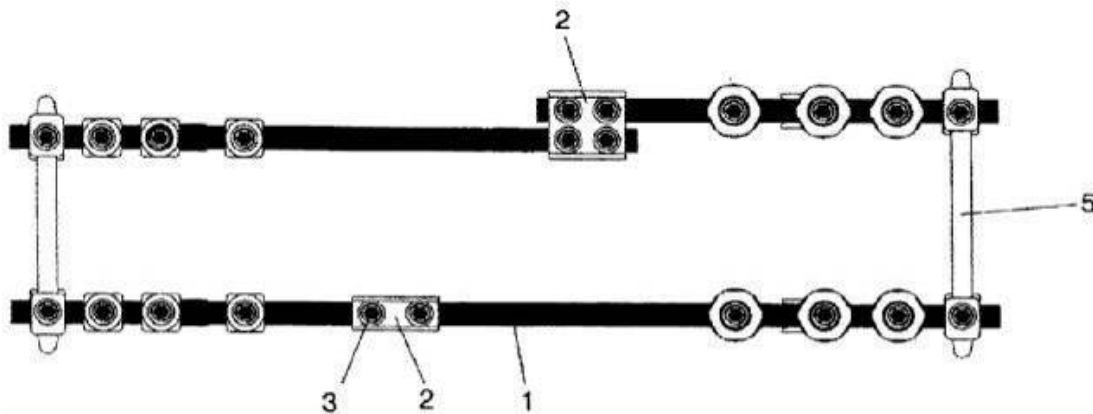
Limiting references

This place does not cover:

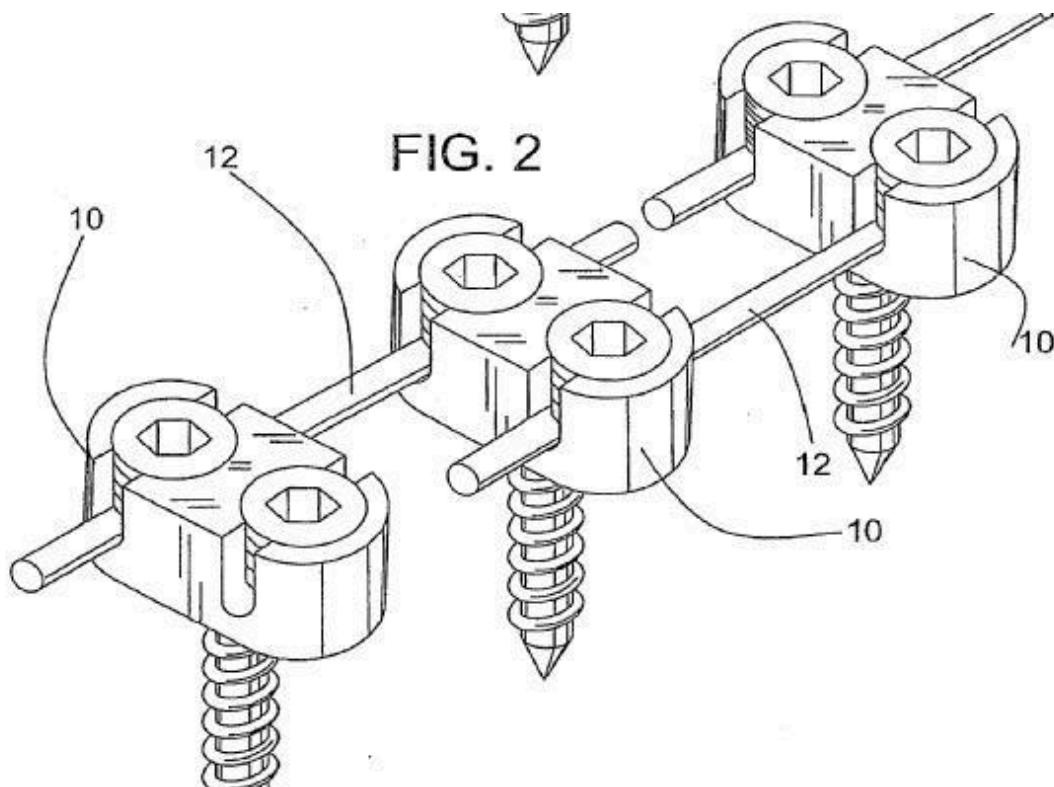
Longitudinal elements connected together such that in use they can move relative to each other	A61B 17/7019
Positioners or stabilisers attached by wires, straps, sutures or cables	A61B 17/7053
Positioners or stabilisers attached to sacrum, pelvis or skull	A61B 17/7055

A61B 17/705**{for linking adjacent ends of longitudinal elements}****Definition statement***This place covers:*

The ends may be aligned (the lower connector in this example) or side-by-side (the upper connector in this example):



Also classified here are arrangements such as the example below, in which bone anchors which can accommodate two rods are shown being used to link two rods near their ends, even though the bone anchors themselves are no different from those which are used with multiple rods extending in parallel the entire length of the device and which are classified in [A61B 17/7001](#) and subgroups:



A61B 17/7052

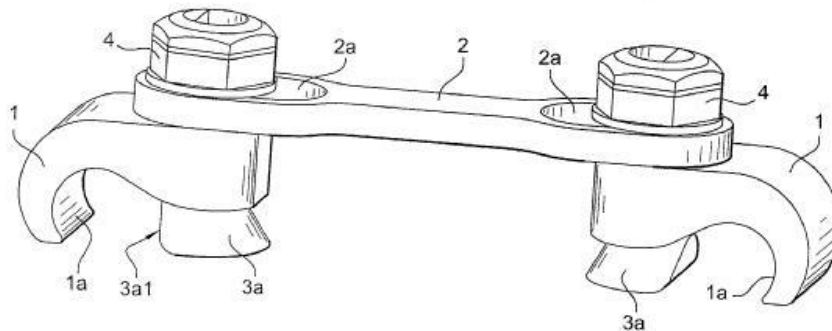
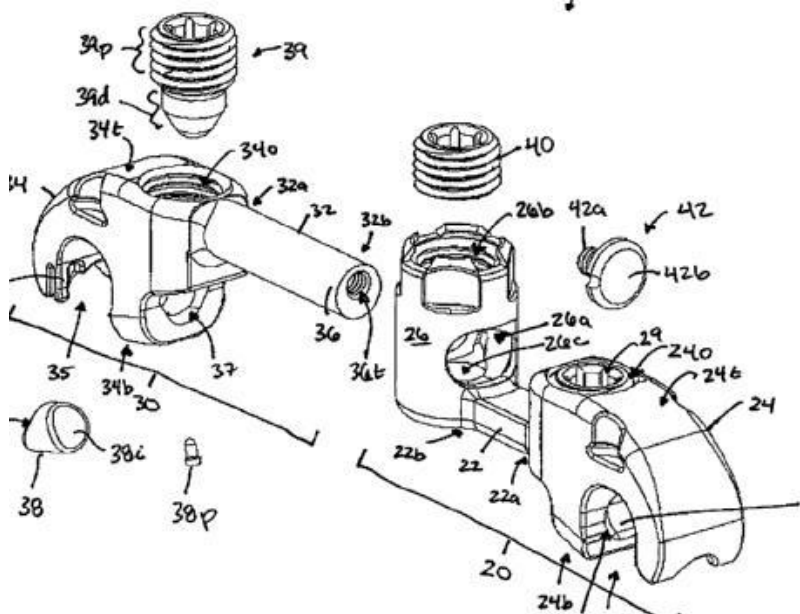
{of variable angle or length}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7052](#)

Examples:



(variable length is provided in the above example by screws 4 being able to translate in elongated holes 2a)

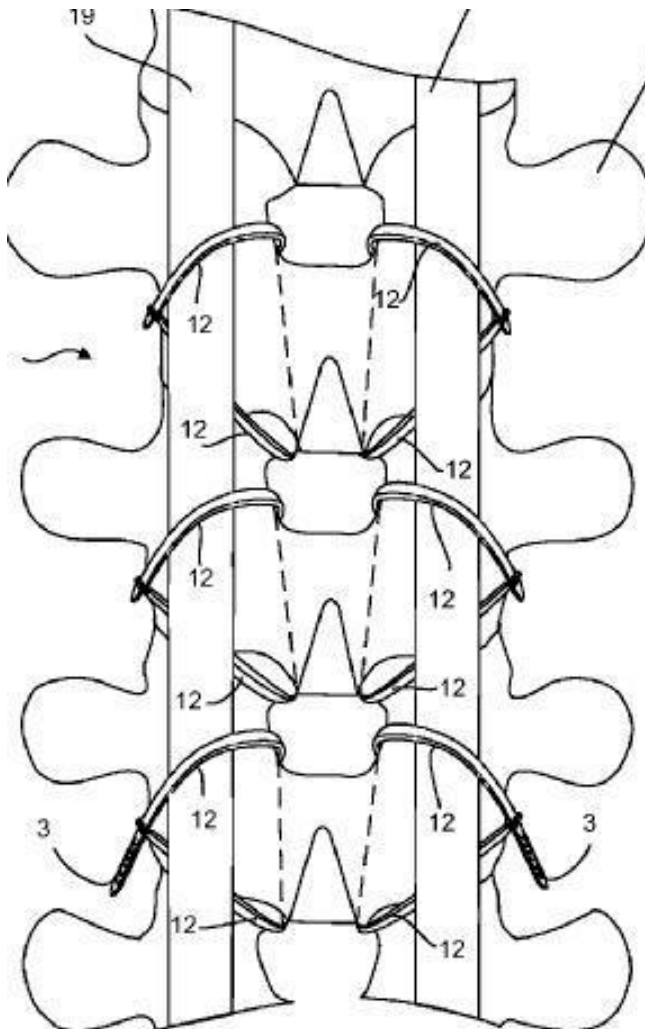
A61B 17/7053

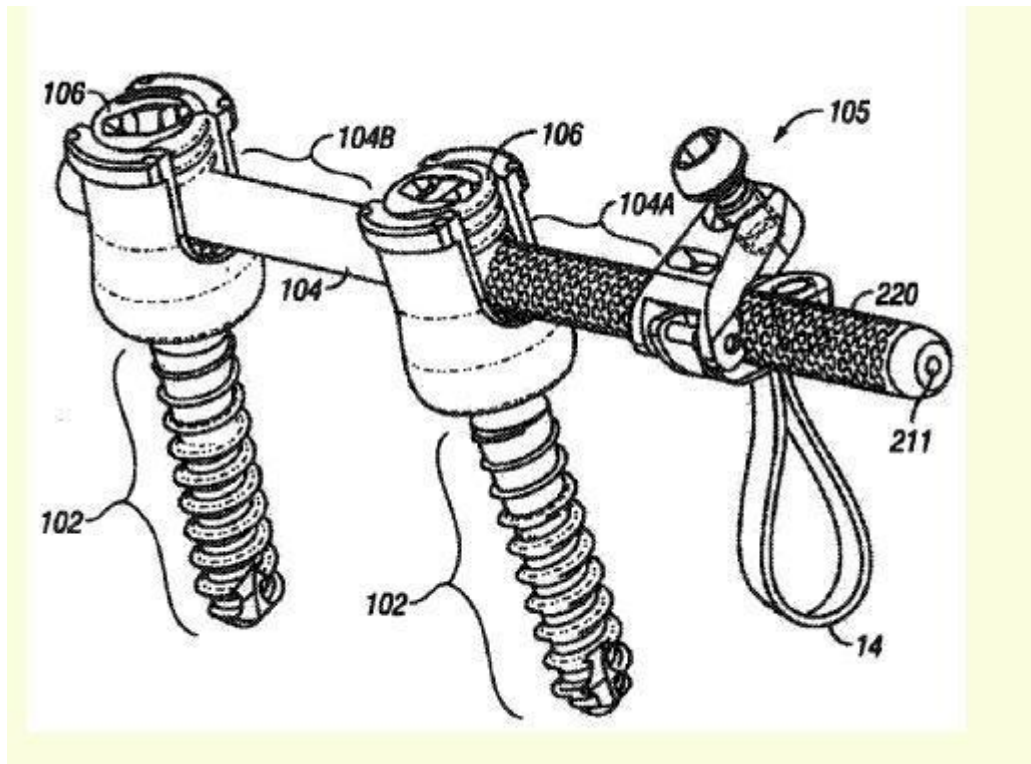
{with parts attached to bones or to each other by flexible wires, straps, sutures or cables}

Definition statement

This place covers:

Examples:





A61B 17/7055

{connected to sacrum, pelvis or skull}

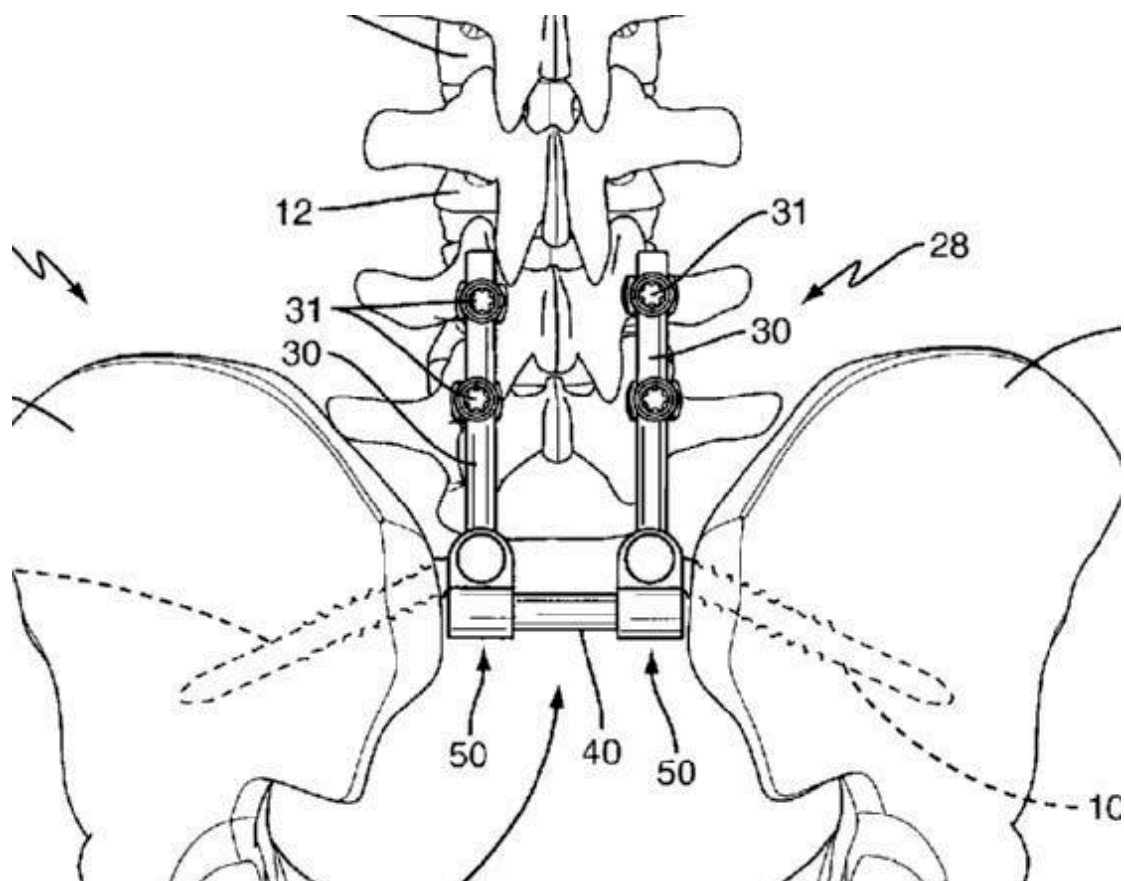
Definition statement

This place covers:

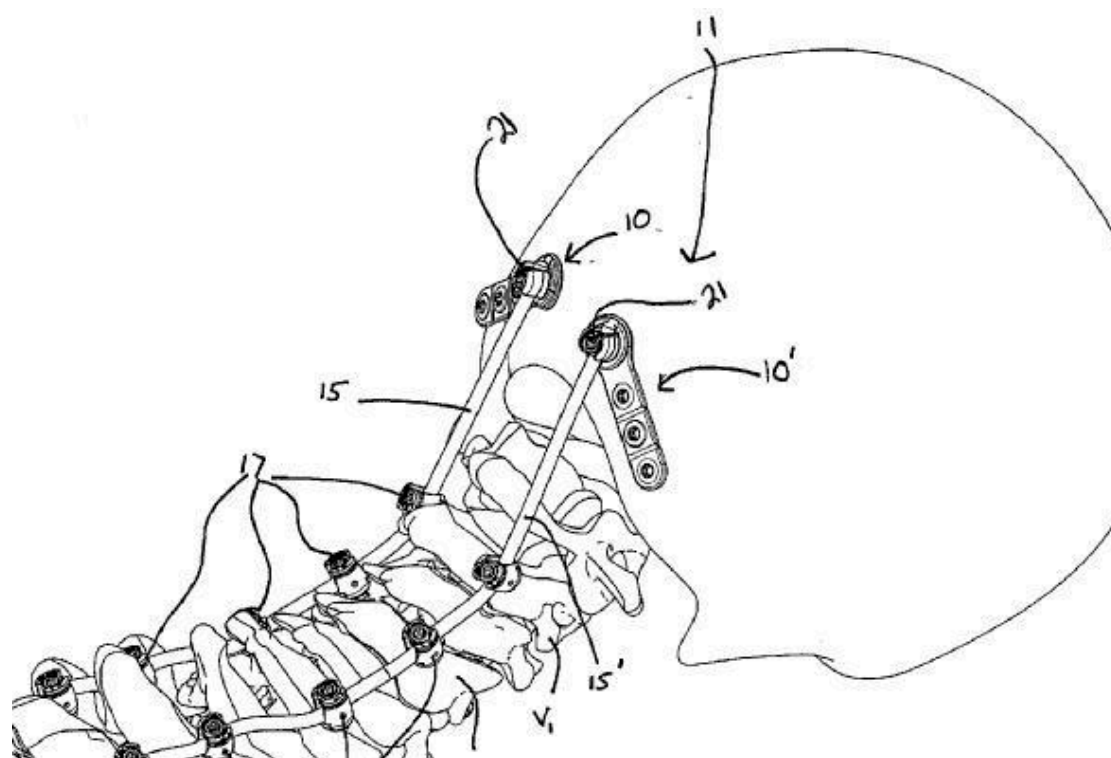
Illustrative example of subject matter classified in [A61B 17/7055](#)

Examples:

- connected to sacrum/pelvis:

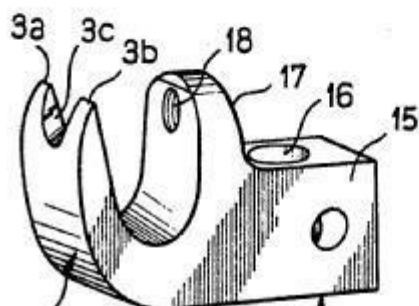
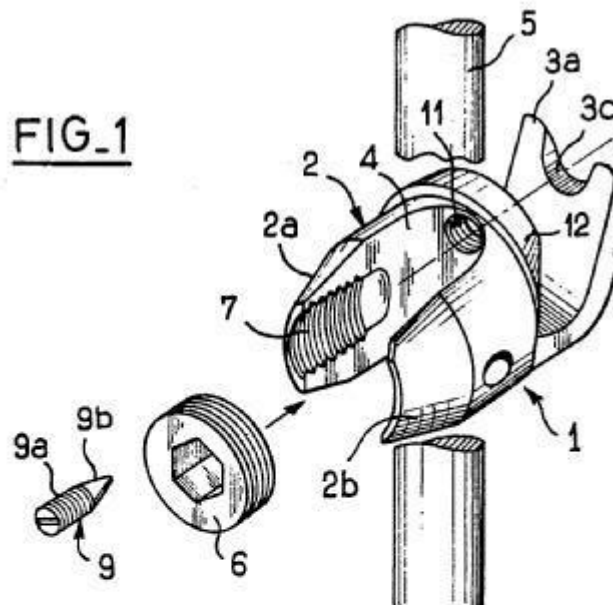


- connected to skull:



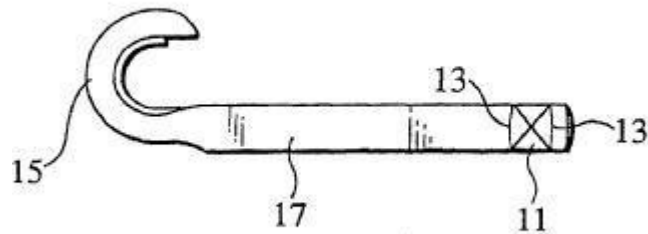
A61B 17/7056**{Hooks with specially-designed bone-contacting part}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/7056](#)

Example (notch 3c is the novel feature of the bone-contacting part, which is the claw-like portion):



Definition statement

Note that "bone-contacting part" is interpreted to mean any part of the hook other than features for clamping it to a longitudinal element.



A61B 17/7058

{Plates mounted on top of bone anchor heads or shoulders}

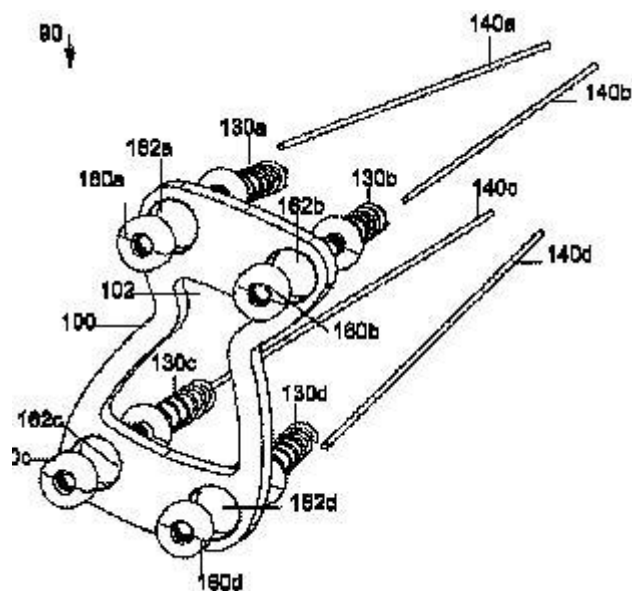
Definition statement

This place covers:

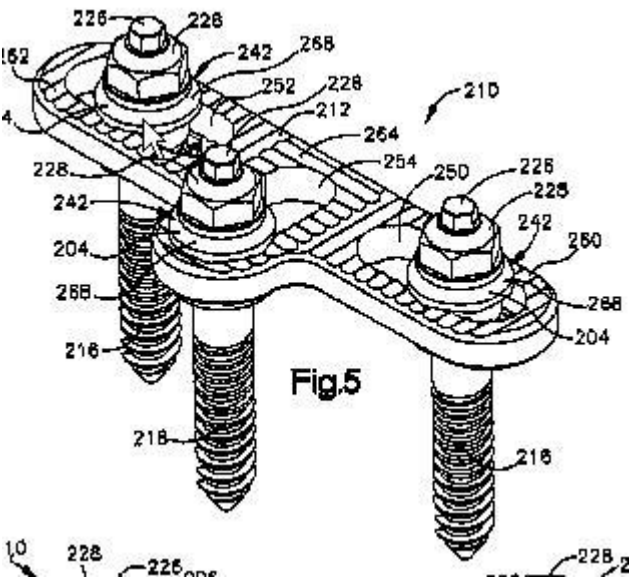
Illustrative example of subject matter classified in [A61B 17/7058](#)

Examples:

WO2007143709



US2002143328



References

Limiting references

This place does not cover:

Plate-like longitudinal elements with a single row of aligned holes, mounted on bone anchor heads or shoulders	A61B 17/7007
Cortical plates i.e. plates bearing directly on bone	A61B 17/7059

A61B 17/7059

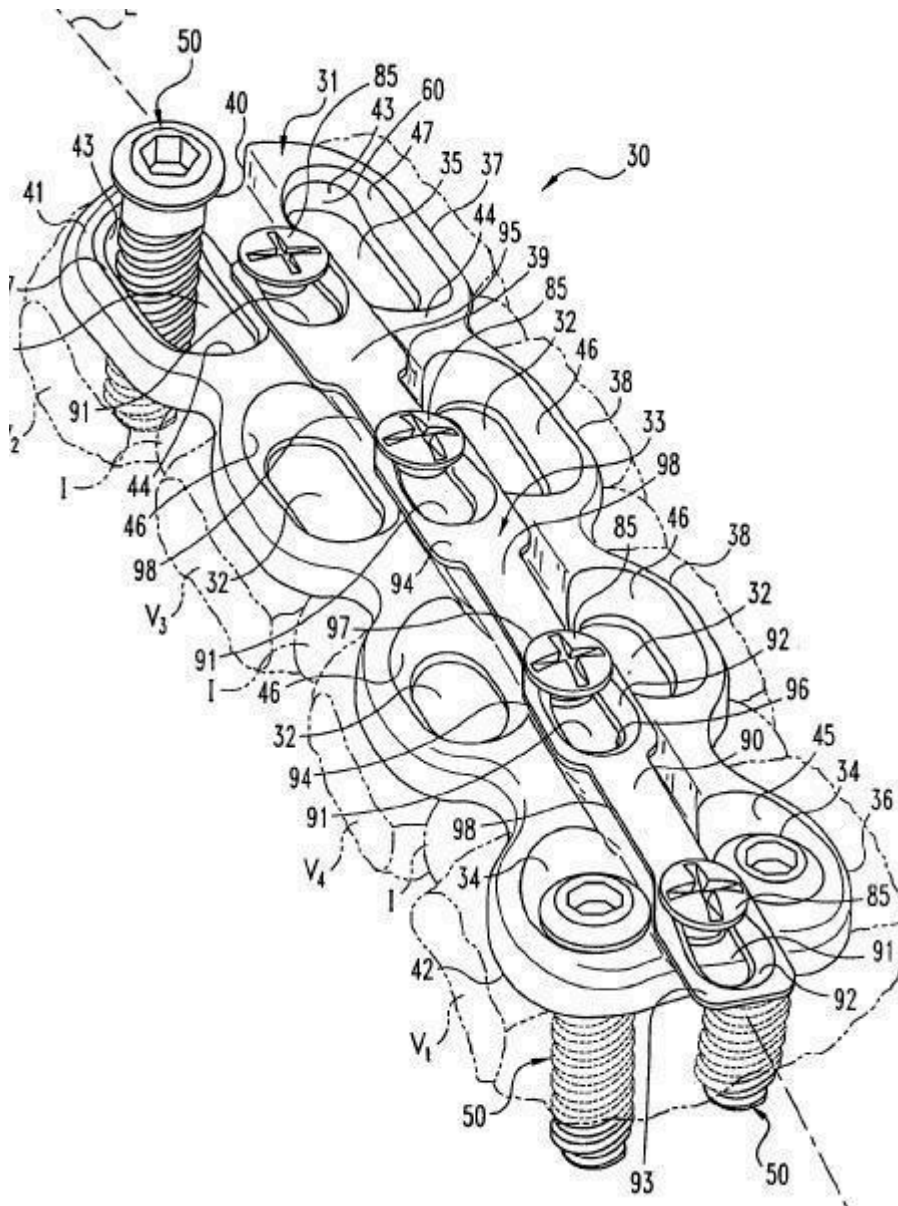
{Cortical plates ([A61B 17/7007](#), [A61B 17/7058](#) take precedence)}

Definition statement

This place covers:

"cortical" means applied to the surface of the bone (the cortex is the dense face layer of bones).

Example (one which is also classified in [A61B 17/8042](#), because of its screw anti-backout means):



References

Limiting references

This place does not cover:

Screw or hooks combined with longitudinal elements specially adapted to fit around their heads	A61B 17/7007
Plates mounted on top of bone anchor heads or shoulders	A61B 17/7058

Informative references

Attention is drawn to the following places, which may be of interest for search:

Construction aspects of cortical plates	A61B 17/80
Plates specially adapted for the ribs or sternum	A61B 17/8076

A61B 17/7061

{for stabilising vertebrae or discs by improving the condition of their tissues, e.g. using implanted medication or fluid exchange (intraosseous injection devices [A61B 17/3472](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7061](#)

For example:

- a fluid conduit is provided (101):

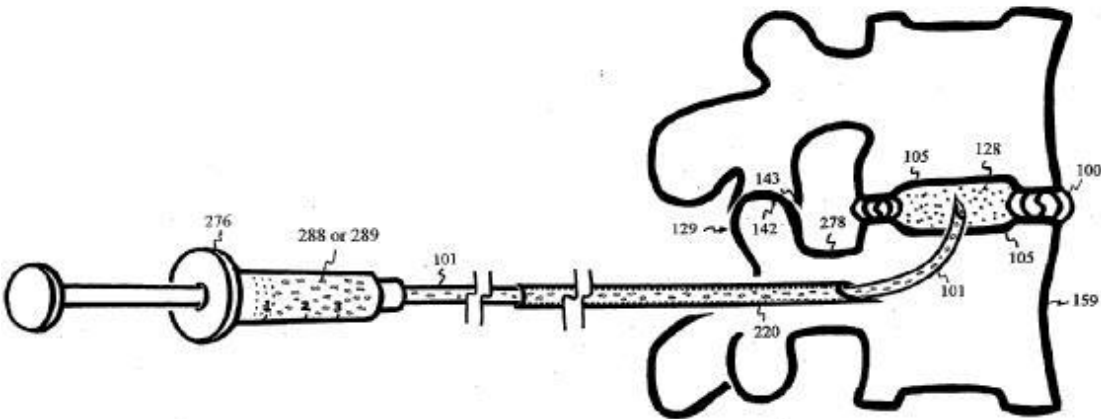


Figure 7

- medication pellets 42 are implanted:

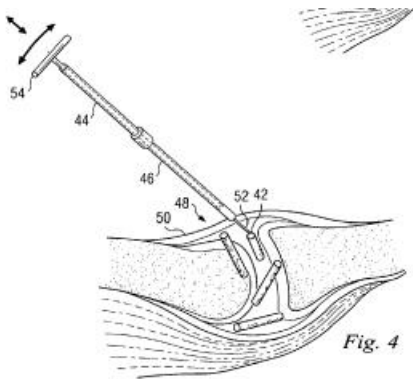


Fig. 4

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Intraosseous injection devices	A61B 17/3472
Prostheses with pharmaceutical reservoir	A61F 2002/3068

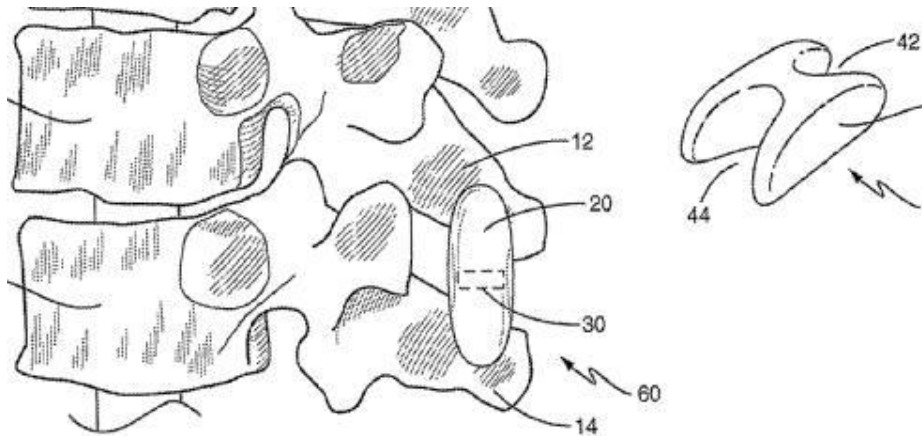
A61B 17/7062

{Devices acting on, attached to, or simulating the effect of, vertebral processes, vertebral facets or ribs (rib fixation devices [A61B 17/8076](#)); Tools for such devices}

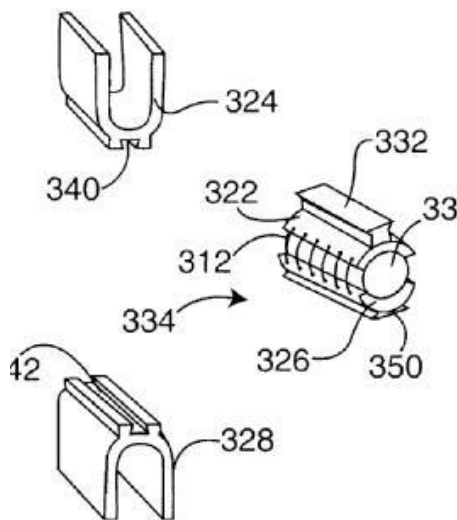
Definition statement

This place covers:

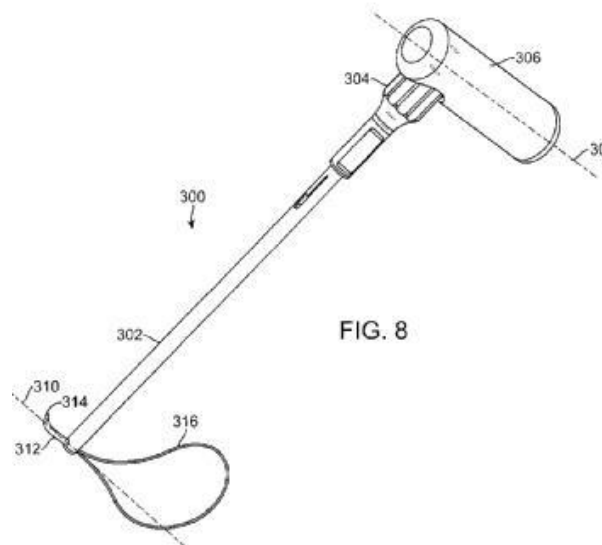
Spinous processes as in this example:



An example where the device is not a simple wedge but two brackets and a hinge:



This shows an example of a tool classified here (it applies suture loop 316 to the spinous processes):



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Rib fixation plates	A61B 17/8076
---------------------	------------------------------

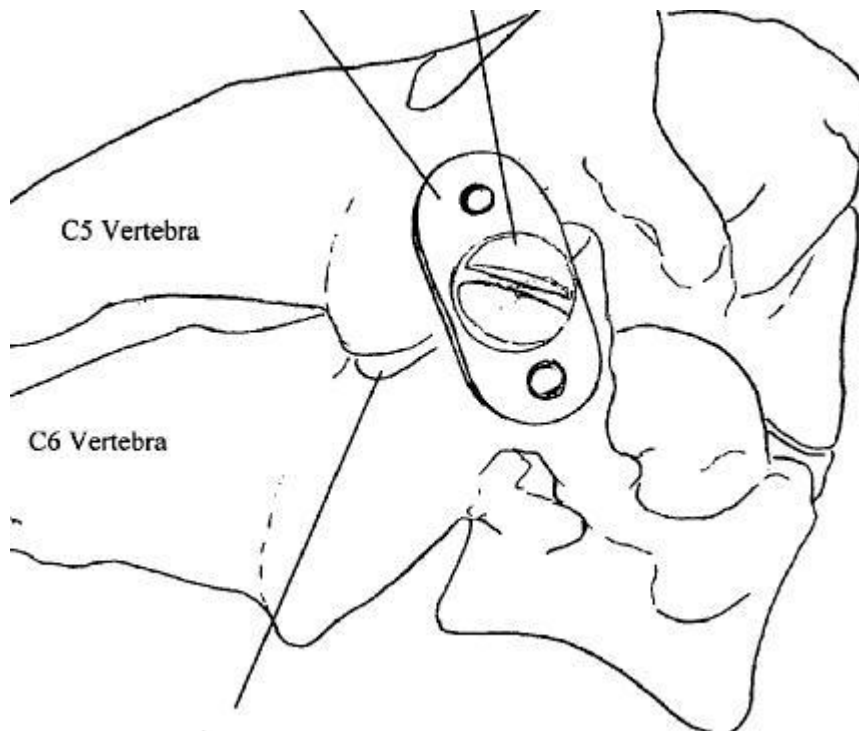
A61B 17/7064

{Devices acting on, attached to, or simulating the effect of, vertebral facets;
Tools therefor}

Definition statement

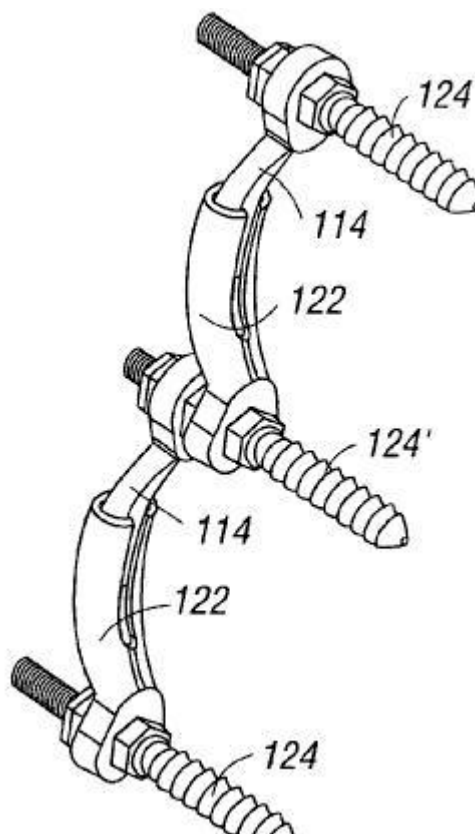
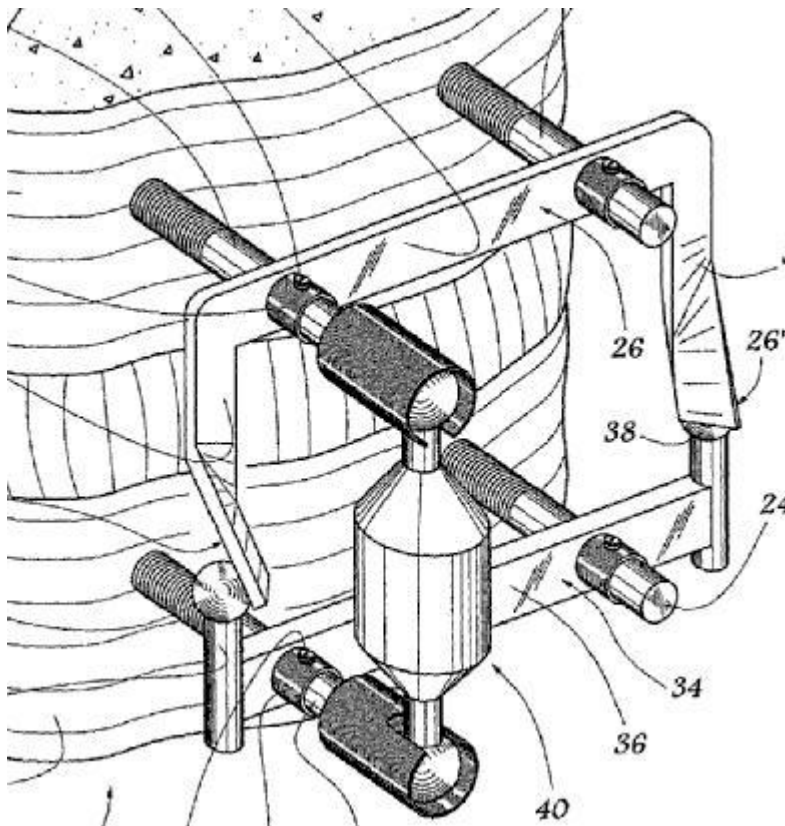
This place covers:

This group comprises two sorts of devices: devices which immobilise the facet joint (also known as the apophyseal or zygapophyseal joint), e.g. simple clamps or screws as in this example -



and devices which attempt to maintain the natural effect of the facet joint on the relative motion of the vertebrae. The documents concerned (examples are shown below) usually call these devices

"prostheses", even when they do not have the form of the natural facet joint and are not mounted near it.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Facet joint prostheses, i.e. implants attached in the location of the natural facet joint surfaces after at least partial removal thereof	A61F 2/4405
---	-----------------------------

A61B 17/7065

{Devices with changeable shape, e.g. collapsible or having retractable arms to aid implantation; Tools therefor}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7065](#)

Example:

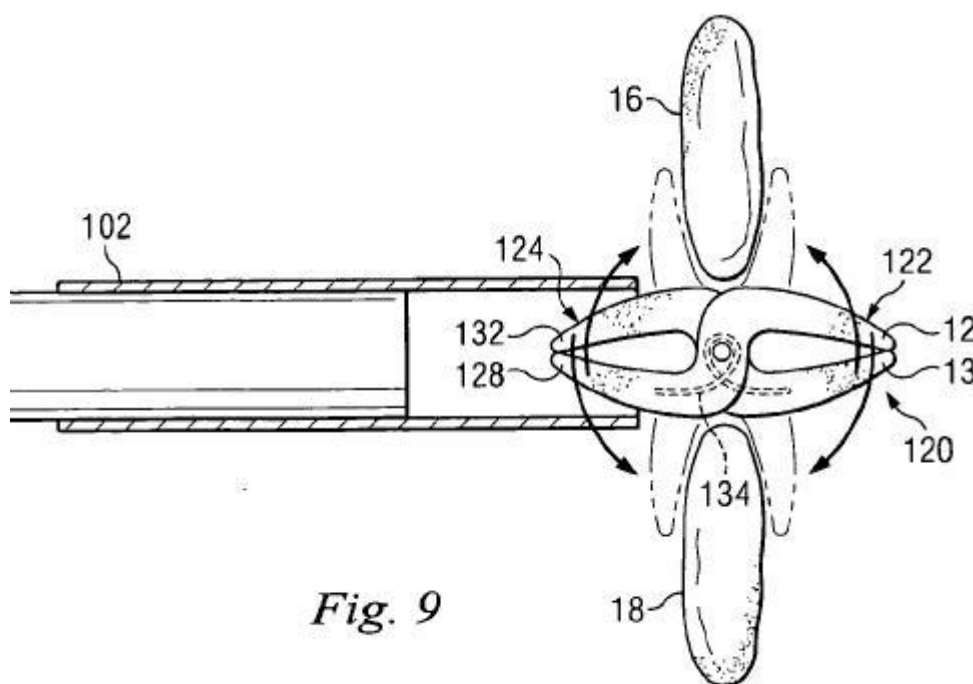


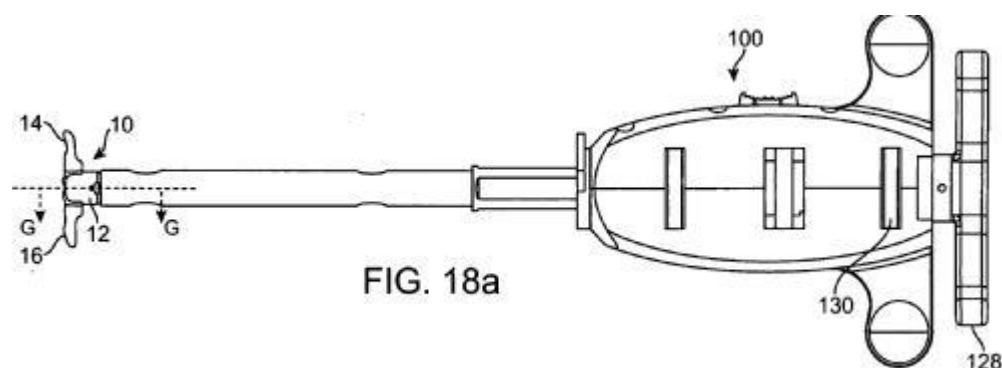
Fig. 9

Inflatable example (WO2009149079):

"The present invention is directed to an inflated interspinous spacer. The interspinous spacer is inserted into the interspinous space between adjacent spinous process in a deflated or unexpanded state, and is inflated or expanded with an injectable filler material. Upon inflation, the spacer preferably distracts the spinous processes and assumes a shape that retains the spacer in position and preferably mechanically locks with the spinous processes. The spacer includes two separate balloons configured to have different compressive modulus so that one balloon is softer and more deformable than the other balloon."

Definition statement

Example of tool for varying the configuration of an implant (10) with movable arms (14), (16), classified here:

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Flexible or articulated longitudinal spinal elements with screws or hooks

A61B 17/7019

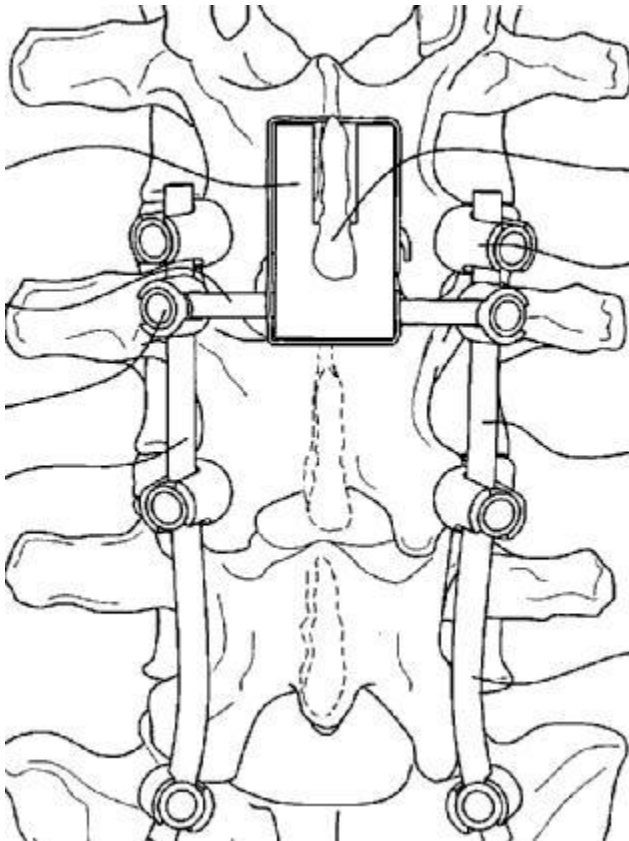
A61B 17/7067

{Devices bearing against one or more spinous processes and also attached to another part of the spine; Tools therefor}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7067](#)



A61B 17/7068

{Devices comprising separate rigid parts, assembled in situ, to bear on each side of spinous processes; Tools therefor}

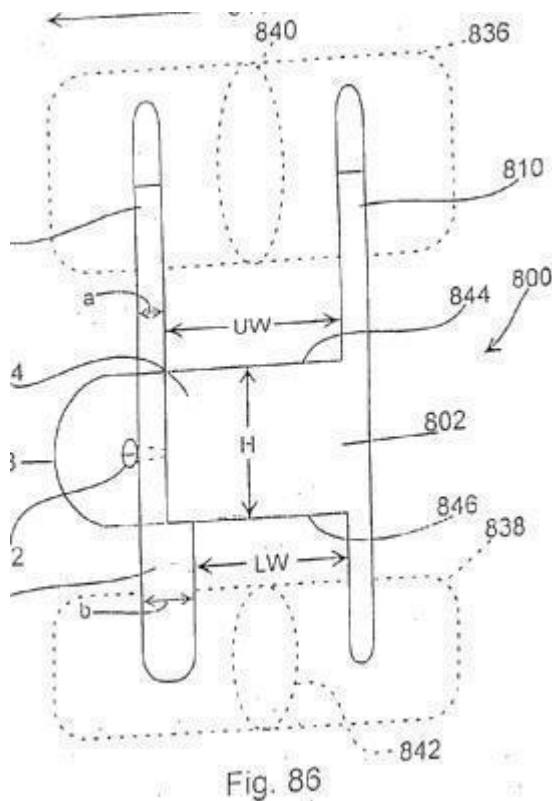
Definition statement

This place covers:

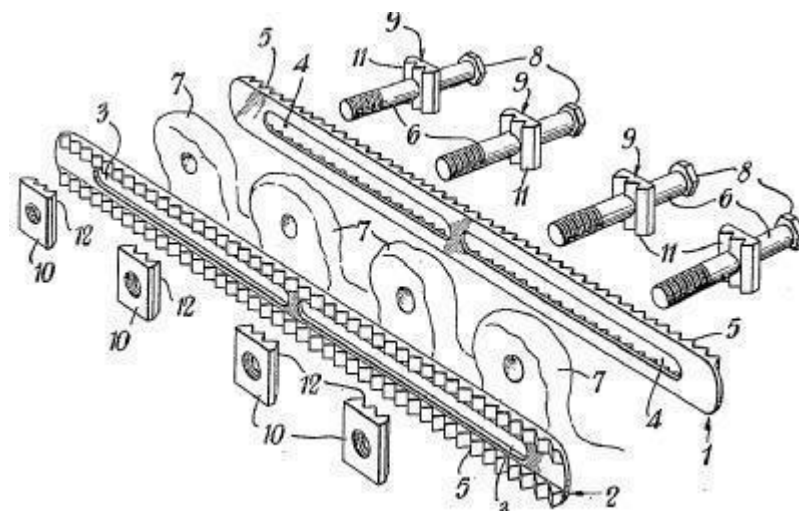
A part of the device intended to bear only on the left side of the processes must be separate from a part intended to bear only on the right side, until they are in position against the processes.

Definition statement

An example where one component includes an inter-process projection (802):



Example comprising plates either side of vertebrae:



A61B 17/707

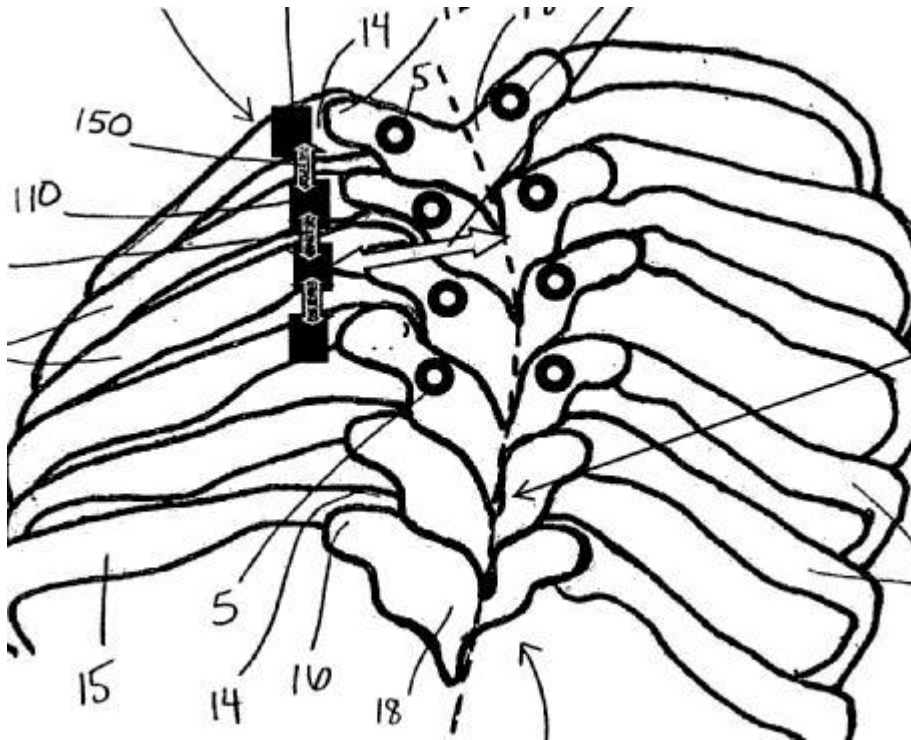
{Devices acting on, or attached to, a transverse process or rib; Tools therefor}

Definition statement

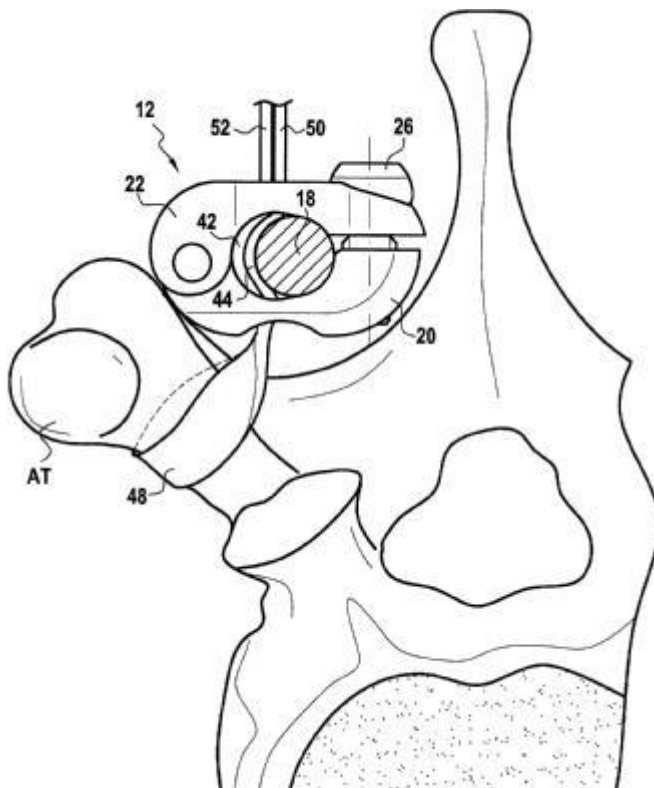
This place covers:

Illustrative example of subject matter classified in [A61B 17/707](#)

Example of device on ribs:



Example of device on transverse processes:



A61B 17/7071

{Implants for expanding or repairing the vertebral arch or wedged between laminae or pedicles; Tools therefor}

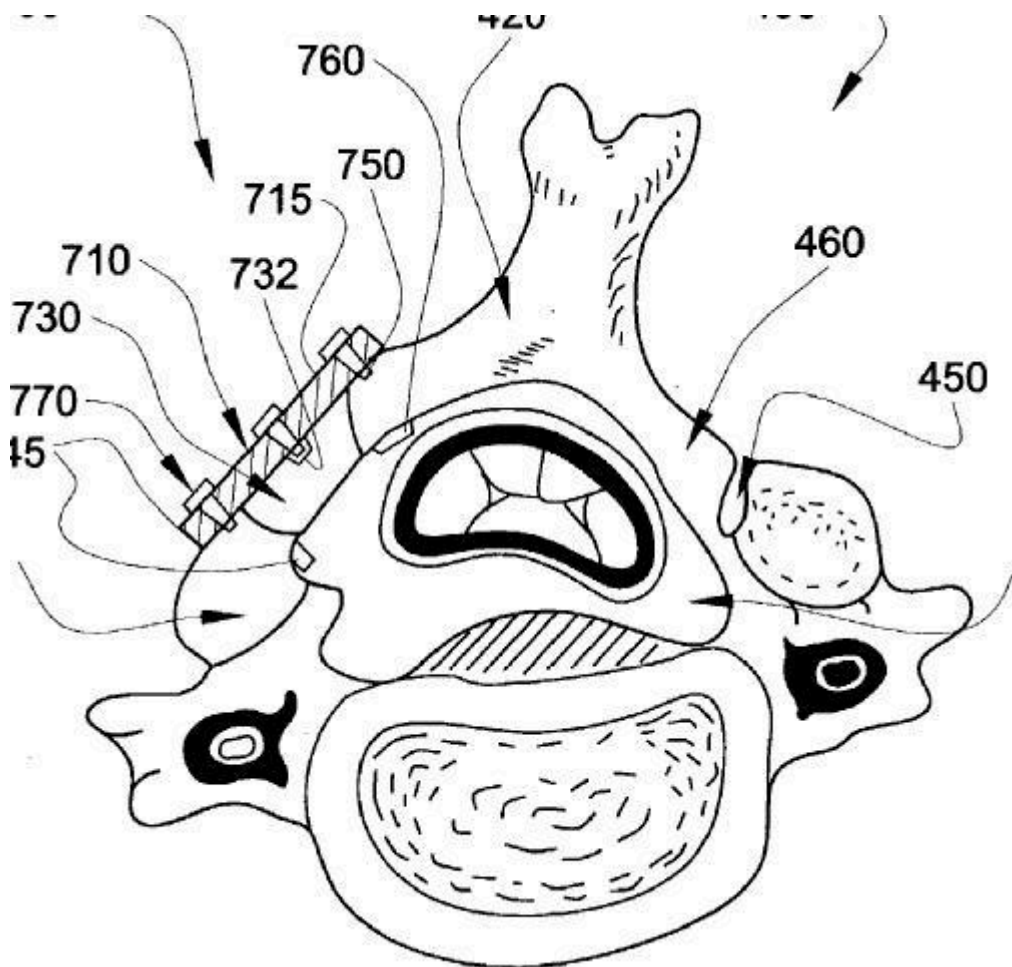
Definition statement

This place covers:

Typically these devices are inserted between the cut ends of a lamina following laminectomy to increase the space available to the spinal cord.

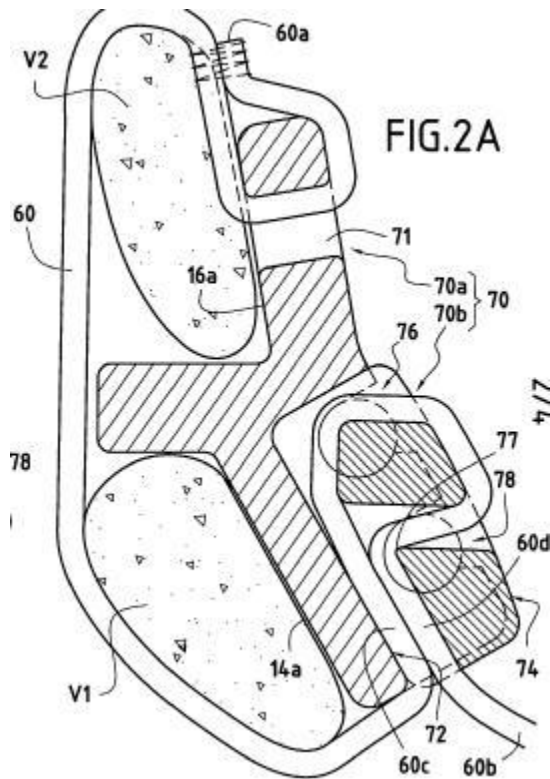
The group covers reconstructing the vertebral arch as well as expanding it.

Example:



Definition statement

The group also covers expansion of the space available to the spinal cord by distracting adjacent vertebrae (V1, V2 in this example showing a vertical section) apart using a wedge between their laminae or pedicles:



Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Both reconstructing the vertebral arch and expanding it are known as laminoplasty.

A61B 17/7074

{Tools specially adapted for spinal fixation operations other than for bone removal or filler handling ([A61B 17/7062](#), [A61B 17/808](#), [A61B 17/8858](#) take precedence; for spinal image producing devices [A61B 90/36](#), [A61B 34/20](#); markers [A61B 90/39](#))}

Definition statement

This place covers:

Examples:

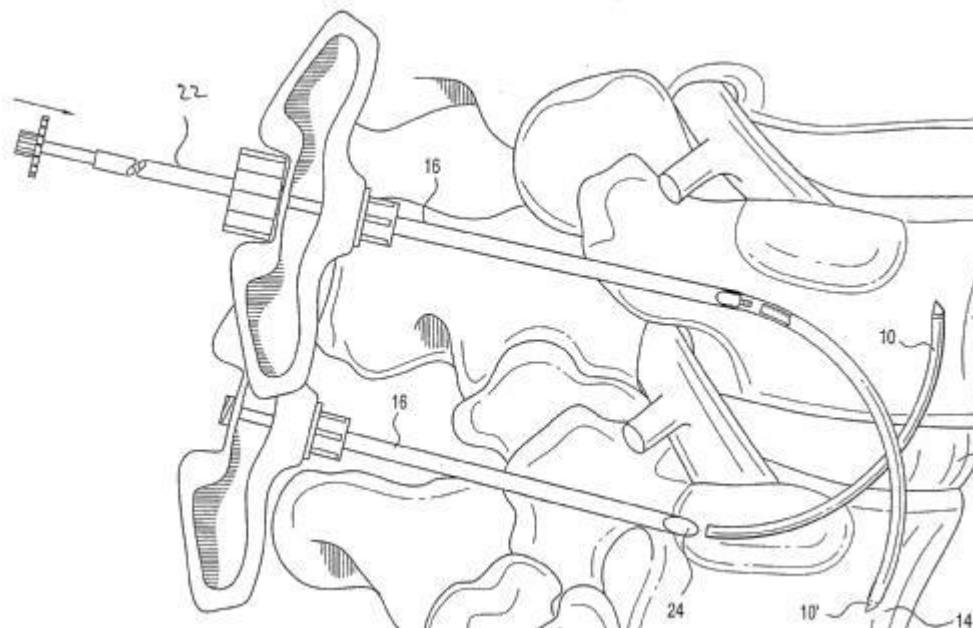
"Methods and apparatus for vascular protection in spinal surgery" (US2007055111)

"Methods for determining pedicle base circumference" (WO2007087381)

"Procedure for visualising and checking the equilibrium of a vertebral column of which a segment is corrected using known instrumentation, comprising determining the positions of the uppermost and lowermost instrumented vertebrae by means of anatomical points or contours identified by radiography, determining as a function of said positions the positions of the vertebrae adjacent to said uppermost and lowermost vertebrae, and visualising the equilibrium or inequilibrium of the vertebral column in a vertical position viewed from the front and from the side" (WO03073946)

Definition statement

An example for which [A61B 17/70](#) was given for the implant (10) as well as [A61B 17/7074](#) for the tool (22) for implanting it:



References

Limiting references

This place does not cover:

Tools for vertebral process or facet devices	A61B 17/7062
Instruments for holding or positioning bone plates, including vertebral plates	A61B 17/808
Tools for expanding or compacting vertebrae or discs	A61B 17/885

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for shaping or cutting osteosynthetic equipment	A61B 17/8863
Image producing devices, including spinal	A61B 90/36 , A61B 34/20
Markers, including spinal	A61B 90/39

A61B 17/7076

{for driving, positioning or assembling spinal clamps or bone anchors specially adapted for spinal fixation}

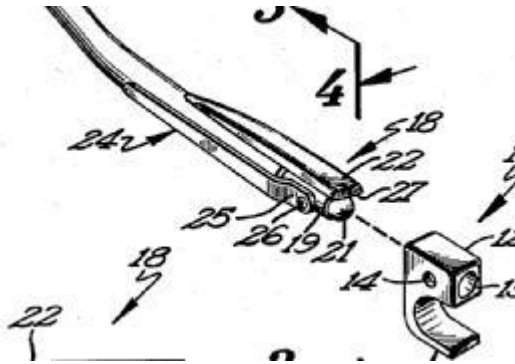
Definition statement

This place covers:

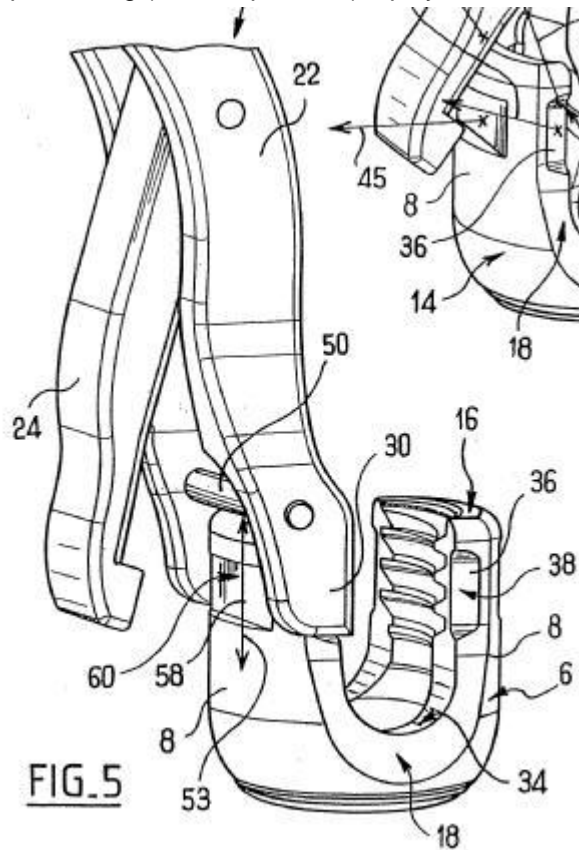
Illustrative example of subject matter classified in [A61B 17/7076](#)

Examples:

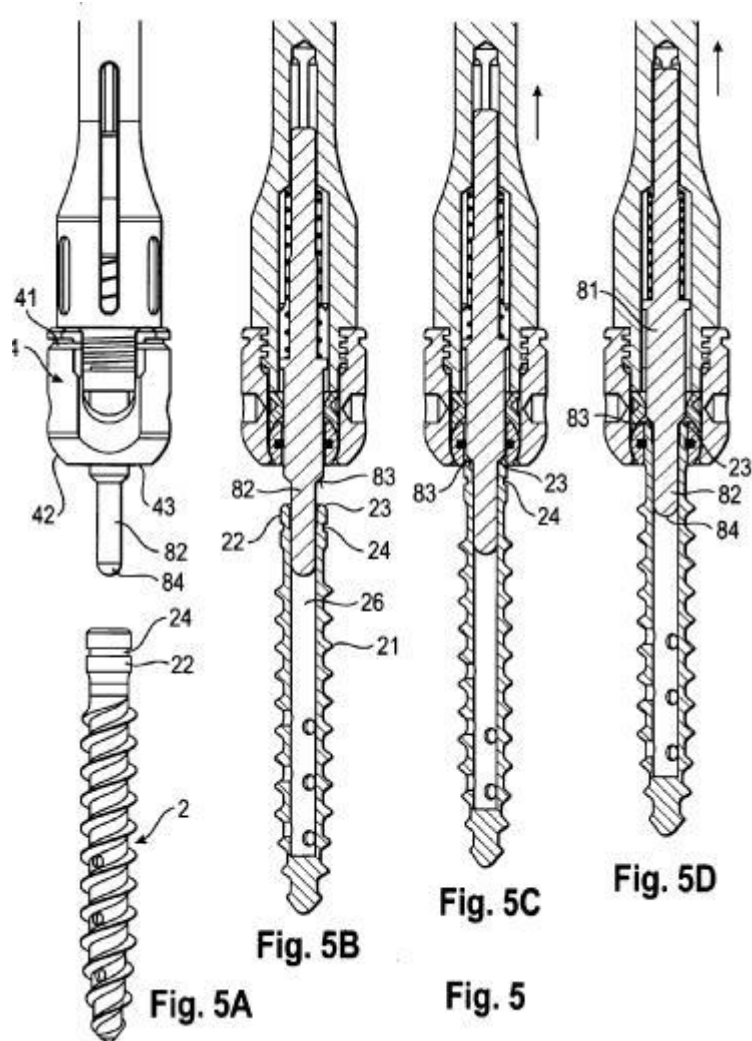
- for positioning a hook:



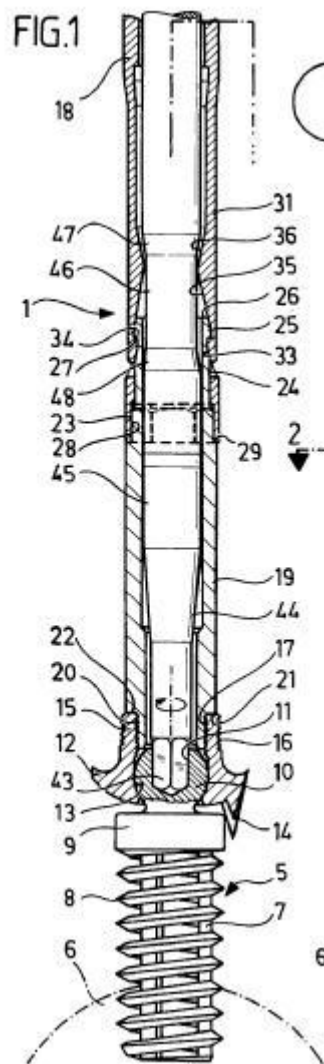
- for positioning (the receptacle of) a polyaxial screw:



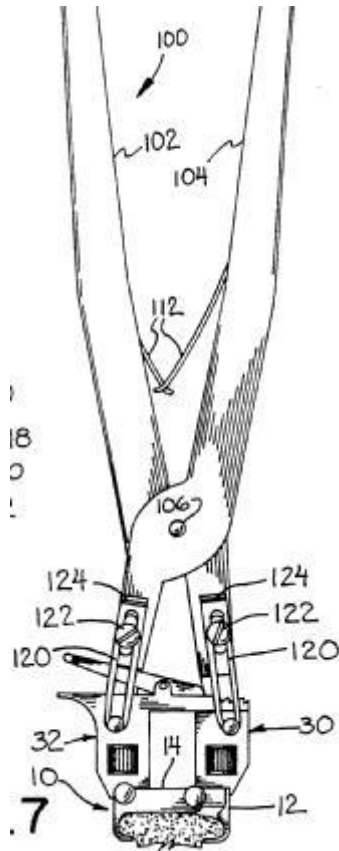
- for assembling a polyaxial screw:



- for inserting a fusion-cage-like threaded anchor (not tapered or pointed and hence not considered as a screw):



- for inserting a vertebral clamp:



A61B 17/7077

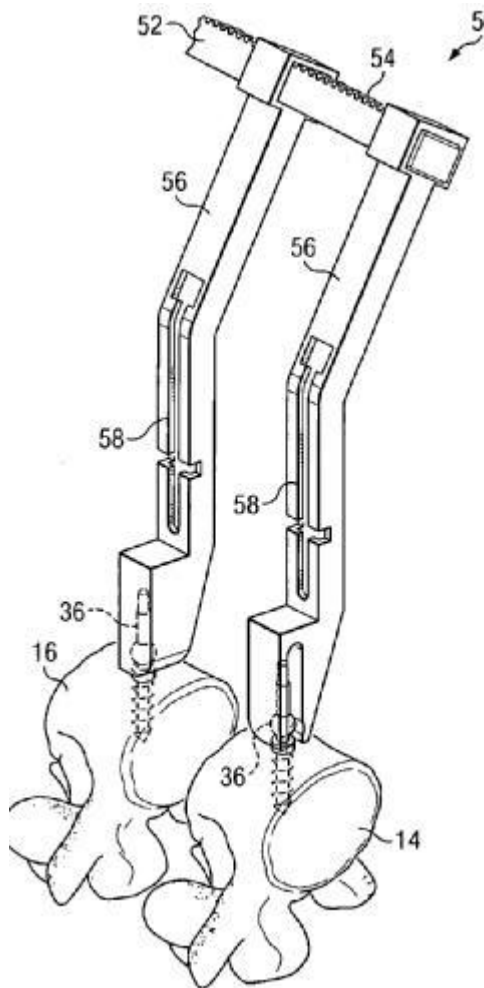
{for moving bone anchors attached to vertebrae, thereby displacing the vertebrae}

Definition statement

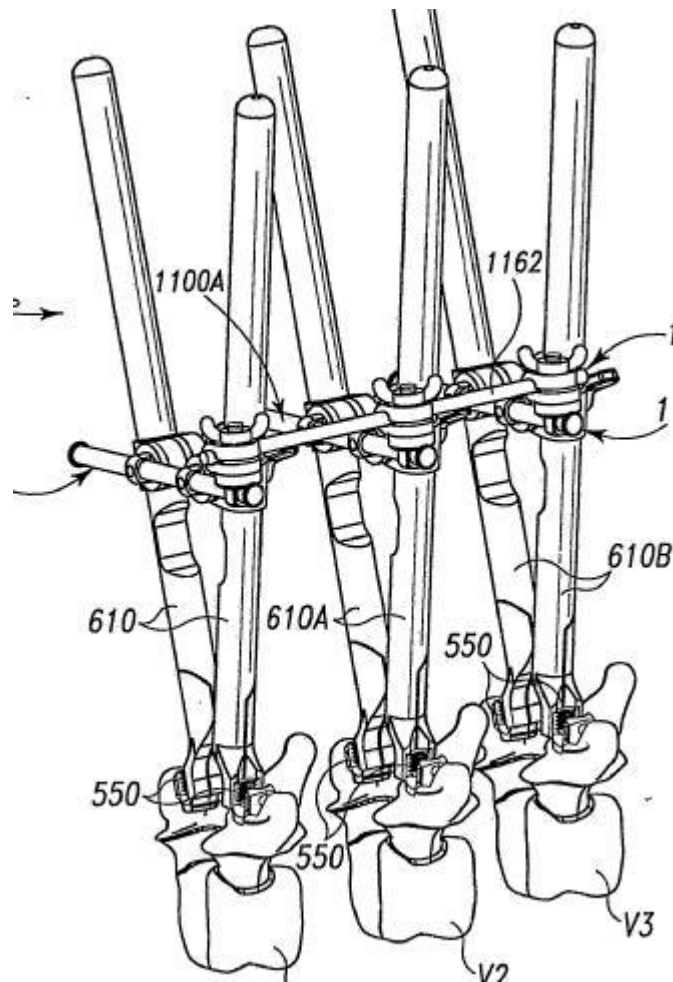
This place covers:

Illustrative example of subject matter classified in [A61B 17/7077](#)

Typical example:

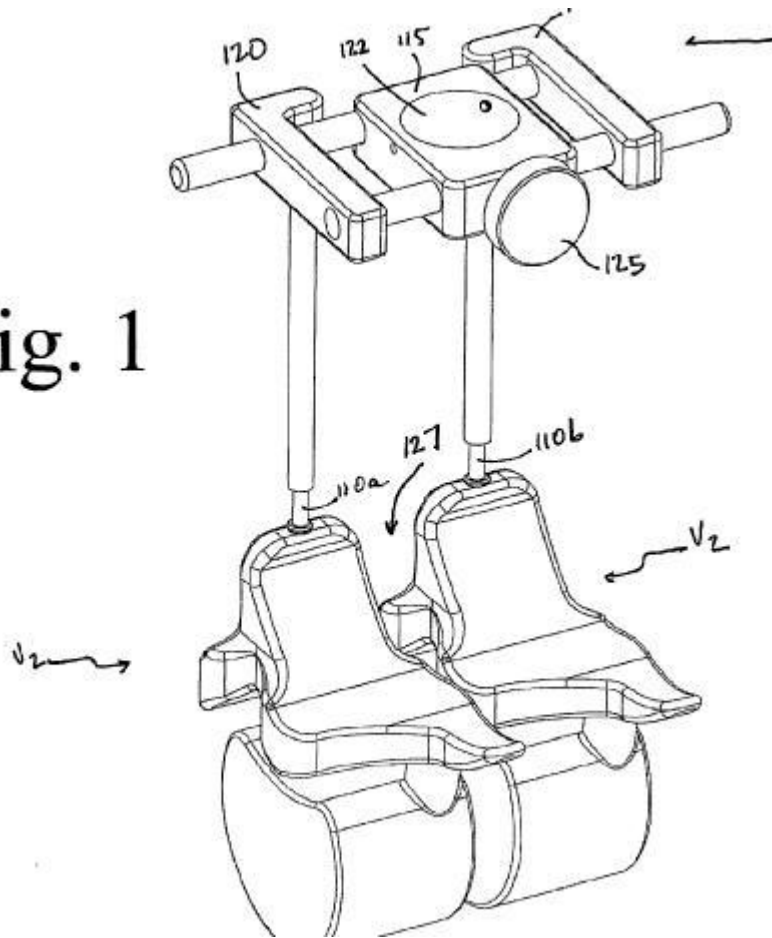


Example of so-called "derotation" devices, usually complex tools, that are classified here:

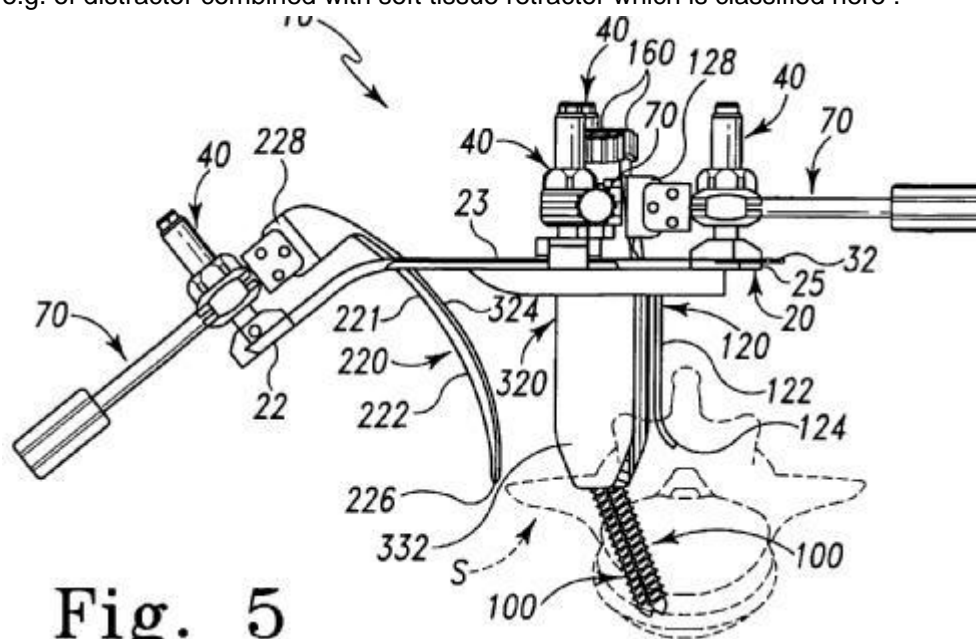


Tool attached to spinous processes classified here (but not adapted for use with an interspinous implant otherwise it would be classified in [A61B 17/7062](#)):

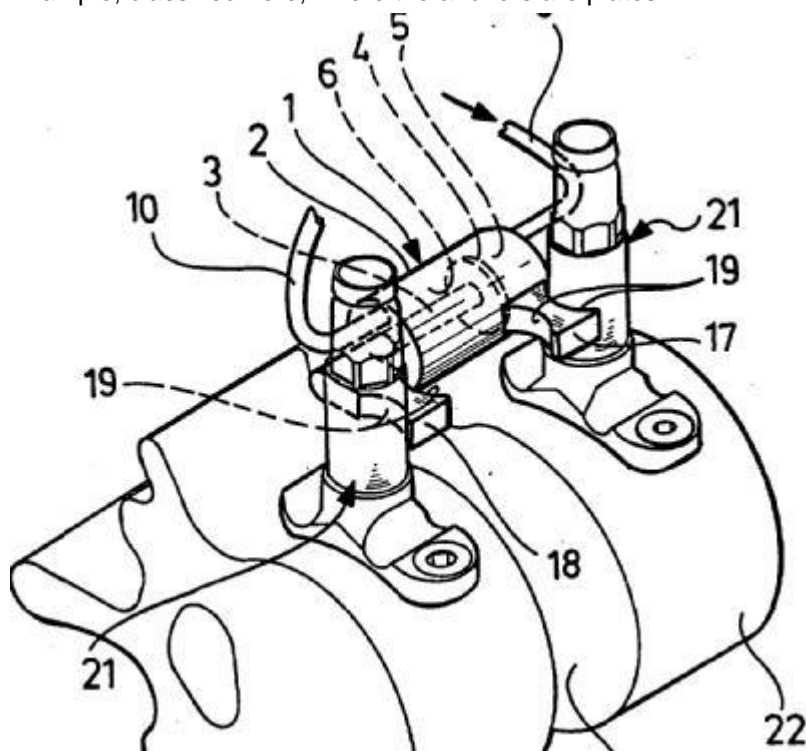
Fig. 1



e.g. of distractor combined with soft tissue retractor which is classified here :



Example, classified here, where the anchors are plates:



6 / 7



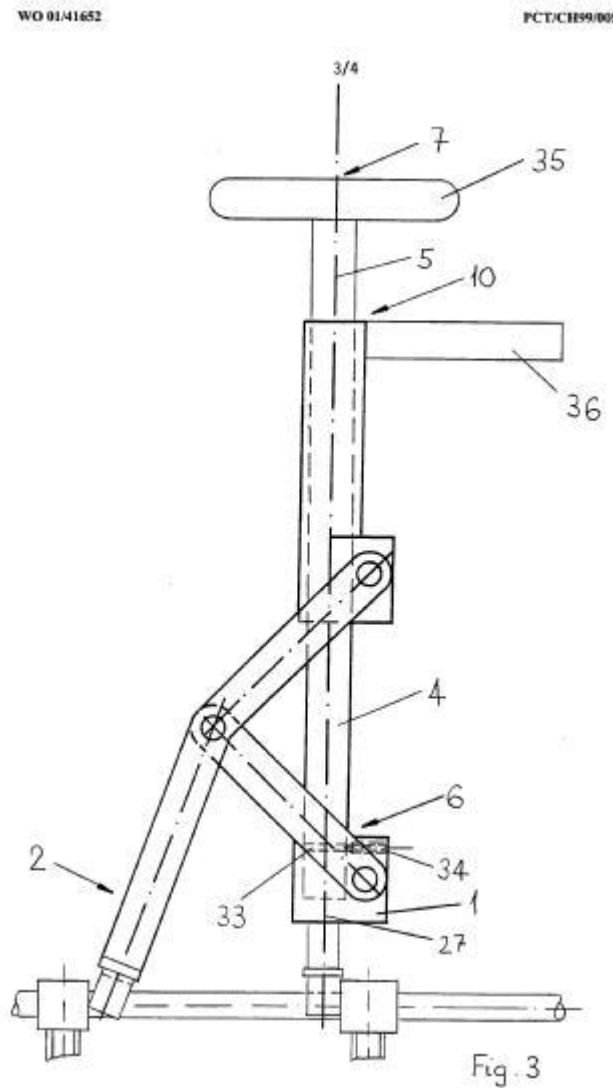
A61B 17/7079

{Tools requiring anchors to be already mounted on an implanted longitudinal or transverse element, e.g. where said element guides the anchor motion}

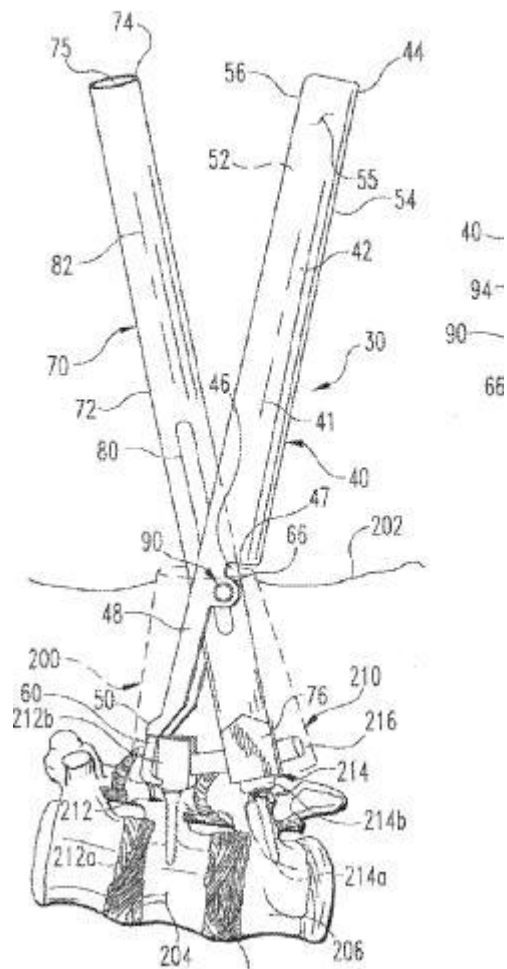
Definition statement

This place covers:

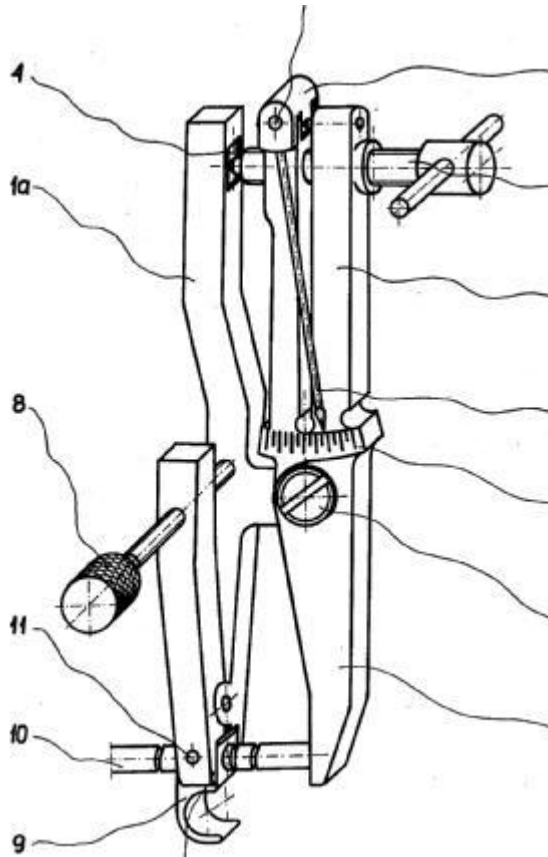
Examples where the tool merely pushes at least one anchor (the left-hand one in the second example) rather than being connected to it, so the longitudinal element is required to guide the motion:



EP 2 184 022



Example acting on a hook and on the rod it is slid along:



Example where anchor movement is perpendicular to the longitudinal element :

U.S. Patent Jul. 21, 1998 Sheet 2 of 12 5,782,831

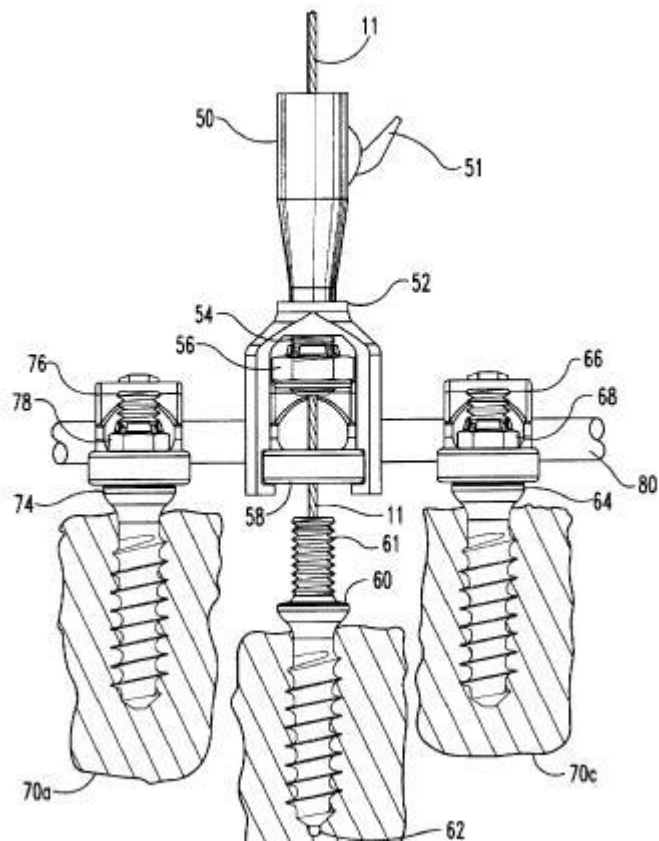


Fig. 13

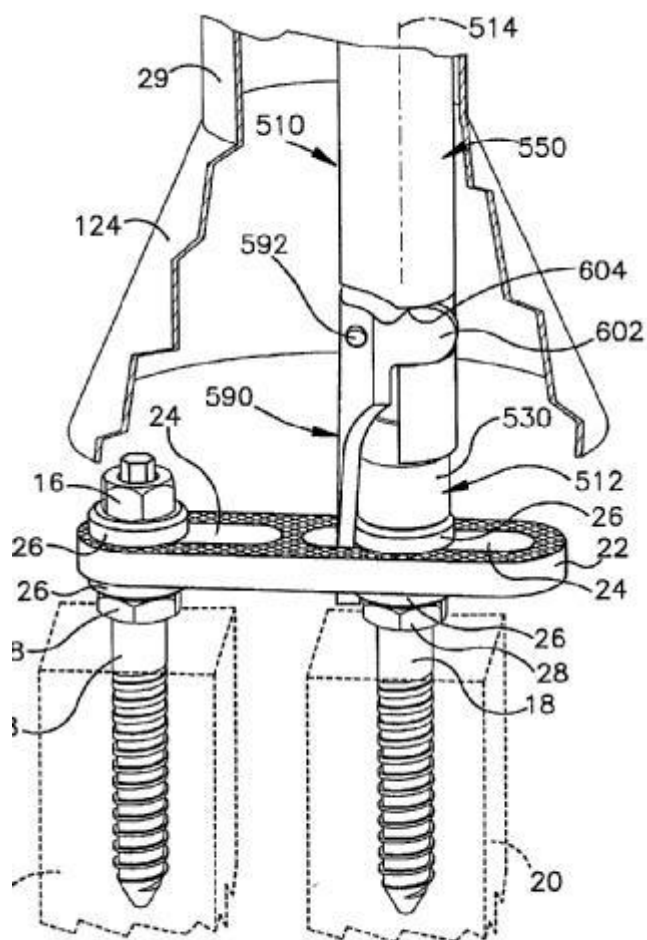
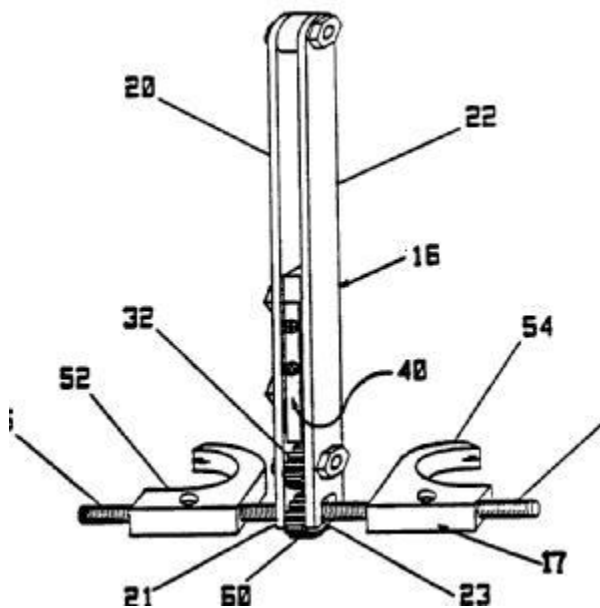


Fig.13

Definition statement

Example where the tool uses the longitudinal element to displace the anchors (the implant itself is classified in [A61B 17/7014](#)):



Example where the tool acts on longitudinal anchor-connecting elements:

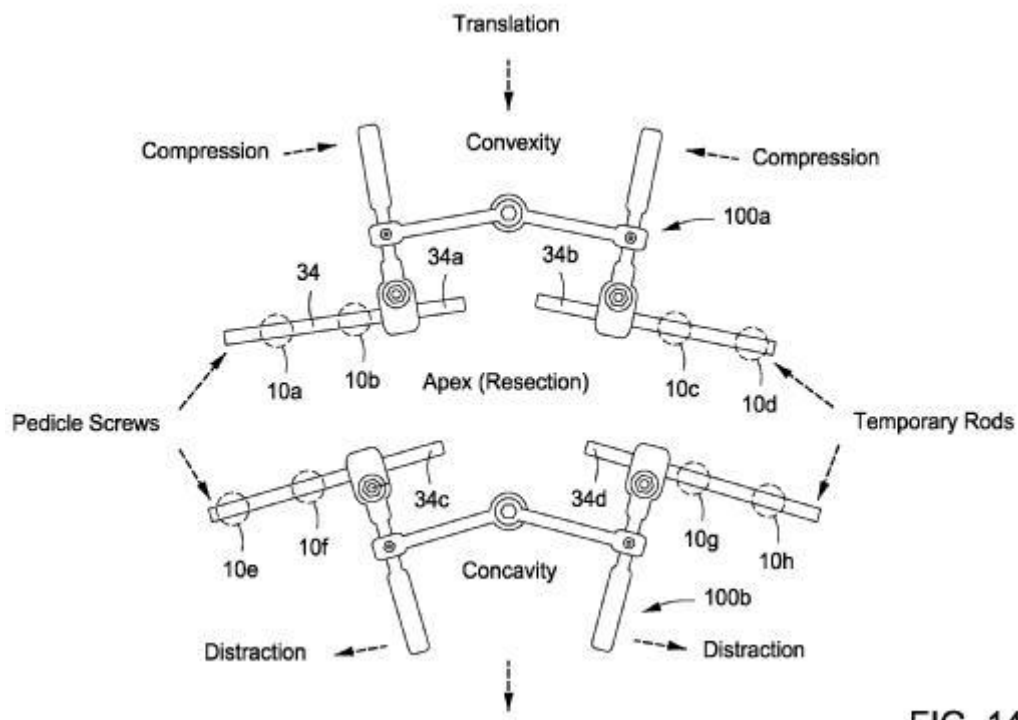


FIG. 11

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Vertebral displacement perpendicular to the spinal axis is known as spondylolisthesis.

A61B 17/708

{with tubular extensions coaxially mounted on the bone anchors}

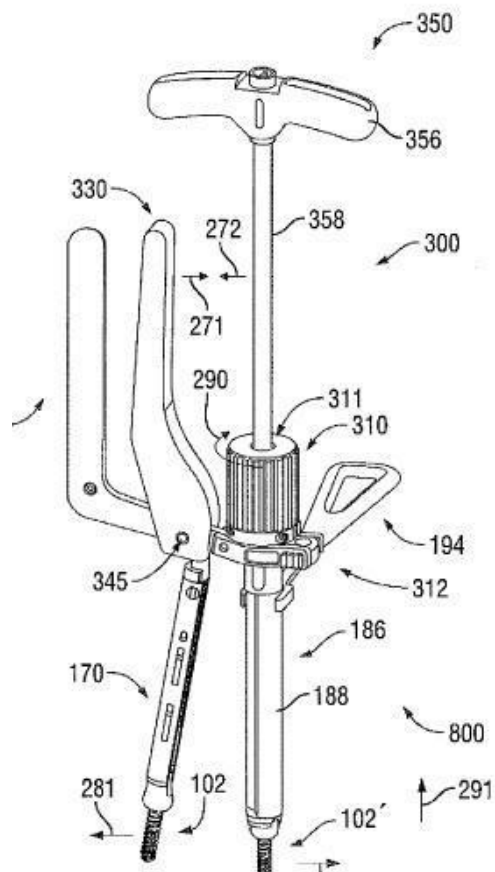
Definition statement

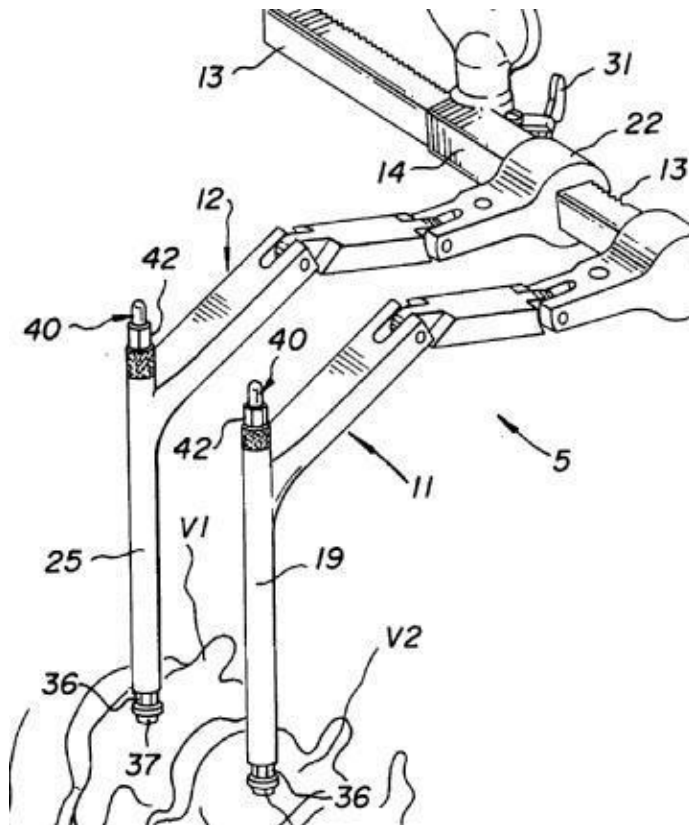
This place covers:

Illustrative example of subject matter classified in [A61B 17/708](#)

Examples:

Publication Feb. 4, 2010 Sheet 10 of 11 US 2010/0024487





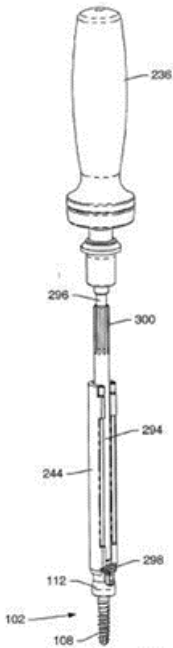
Note the tubular nature of the extensions in the example above (without which it would be classified in [A61B 17/7077](#)). These allow tools to be inserted through them, which permits a minimally invasive procedure.

A61B 17/7082

{for driving, i.e. rotating, screws or screw parts specially adapted for spinal fixation, e.g. for driving polyaxial or tulip-headed screws}

Definition statement

This place covers:
Illustrative example of subject matter classified in this place.



The Figure illustrates a screwdriver for pedicular, spinal-rod-holding screws.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tools specially adapted for spinal fixation operations other than for bone removal or filler handling for applying, tightening or removing longitudinal element-to-bone anchor locking elements, e.g. caps, set screws, nuts or wedges	A61B 17/7091
Driving non-spinal bone screws	A61B 17/8875

A61B 17/7083

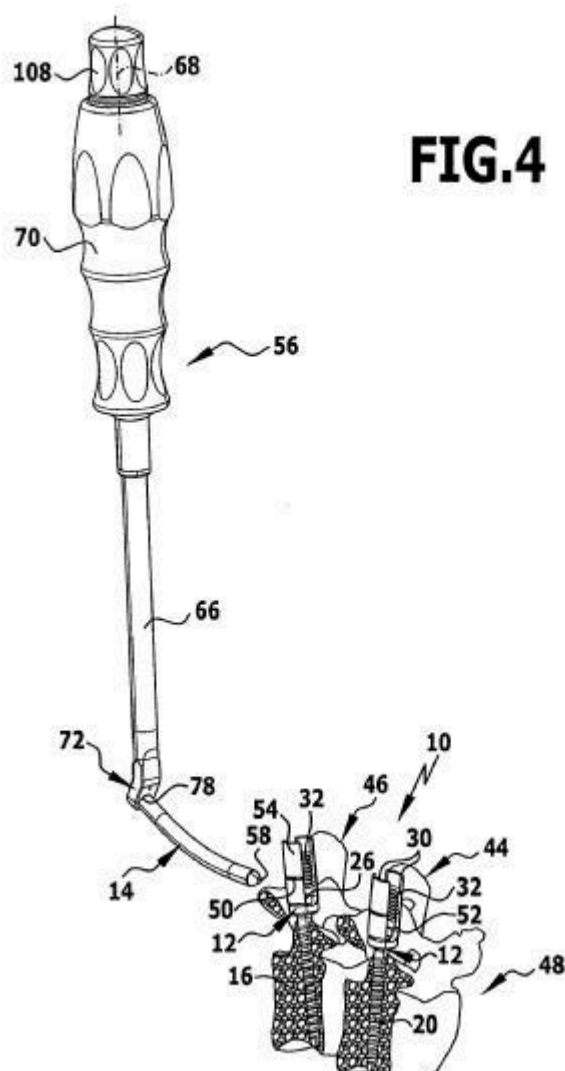
{Tools for guidance or insertion of tethers, rod-to-anchor connectors, rod-to-rod connectors, or longitudinal elements}

Definition statement

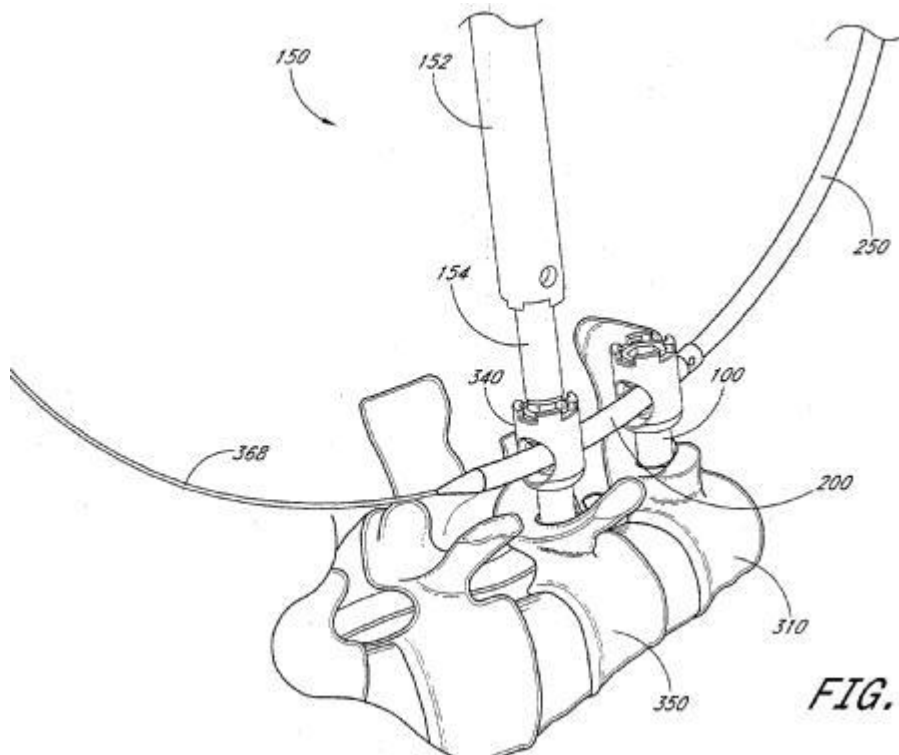
This place covers:
Illustrative example of subject matter classified in [A61B 17/7083](#)

Example rod inserter:

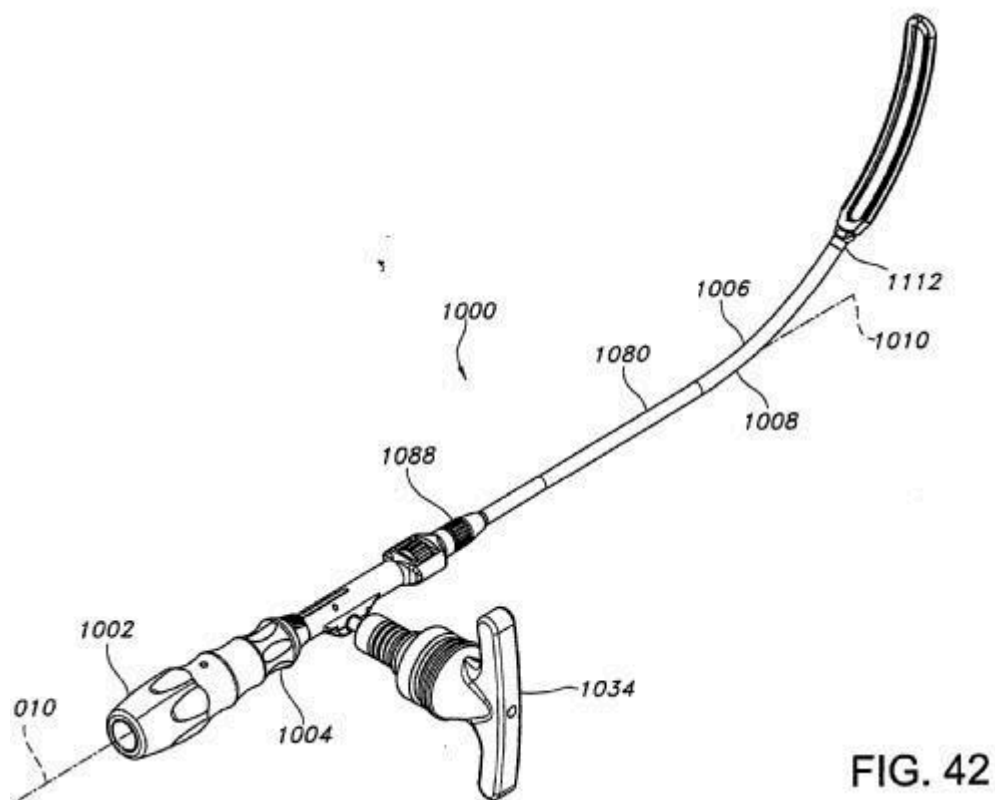
Patent Application Publication Jun. 26, 2008 Sheet 3 of 13 US 2008/0154279 A1



An example where the rod is inserted along a guide wire (NB the wire appears arcuate but this is purely schematic, hence the document is classified here instead of in [A61B 17/7089](#)):

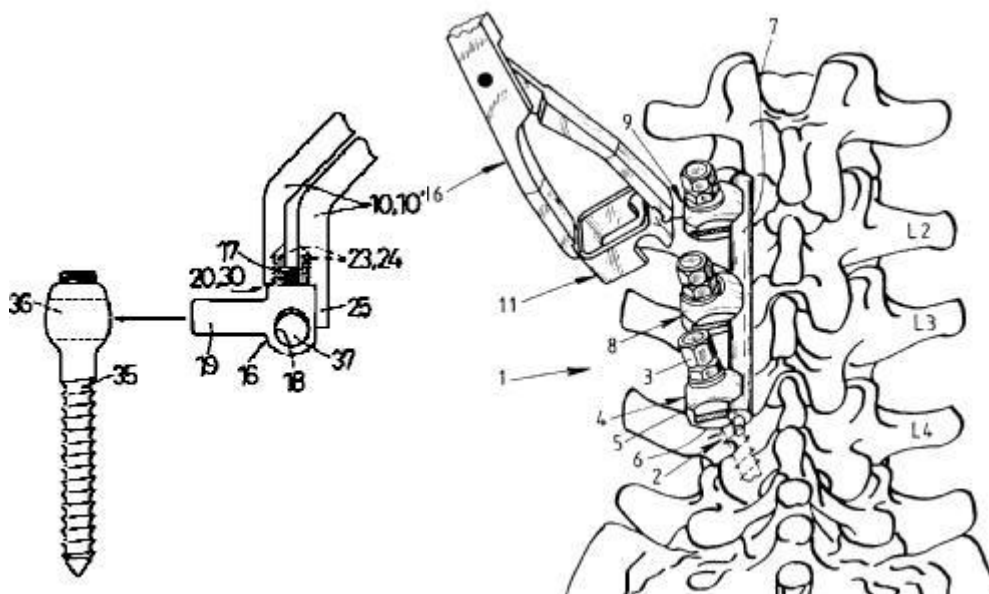


Example where the longitudinal element to be inserted is not a rod:



Definition statement

Examples for inserting rod-to-anchor connectors:



A61B 17/7085

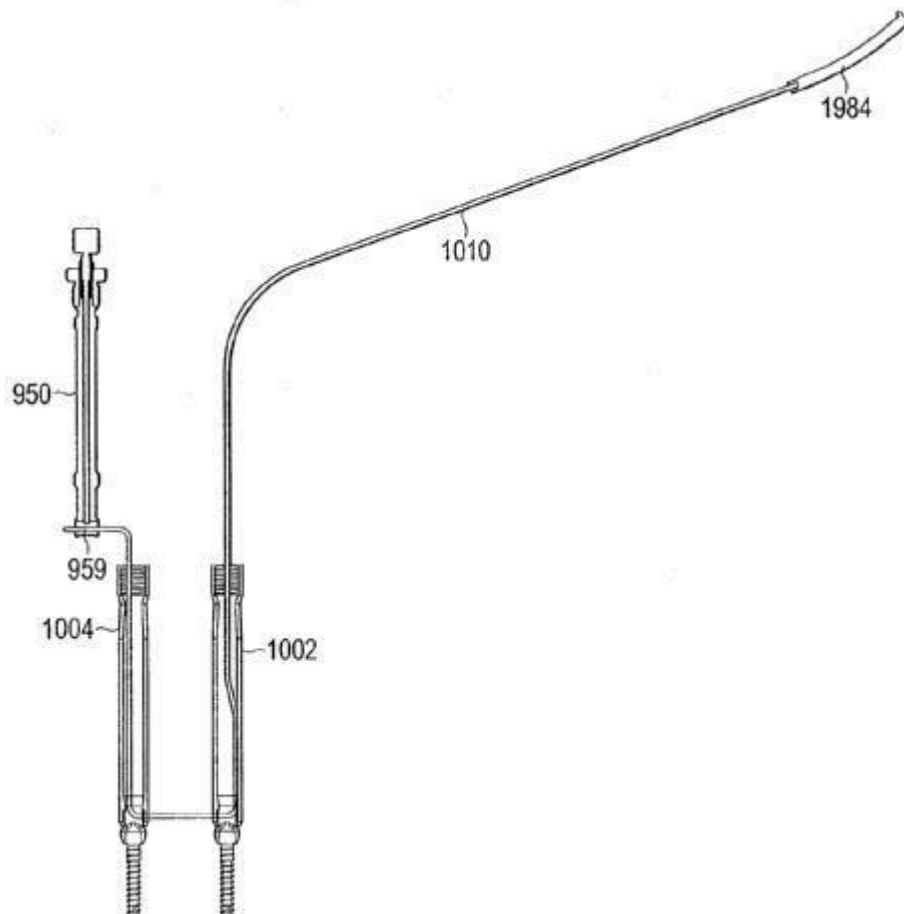
{for insertion of a longitudinal element down one or more hollow screw or hook extensions, i.e. at least a part of the element within an extension has a component of movement parallel to the extension's axis}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7085](#)

Examples:



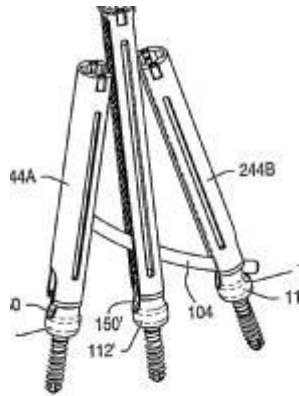
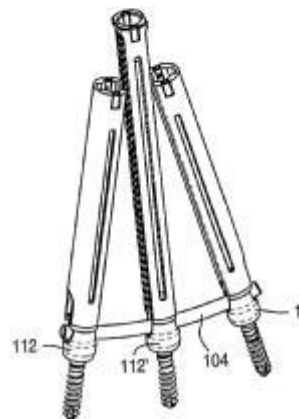
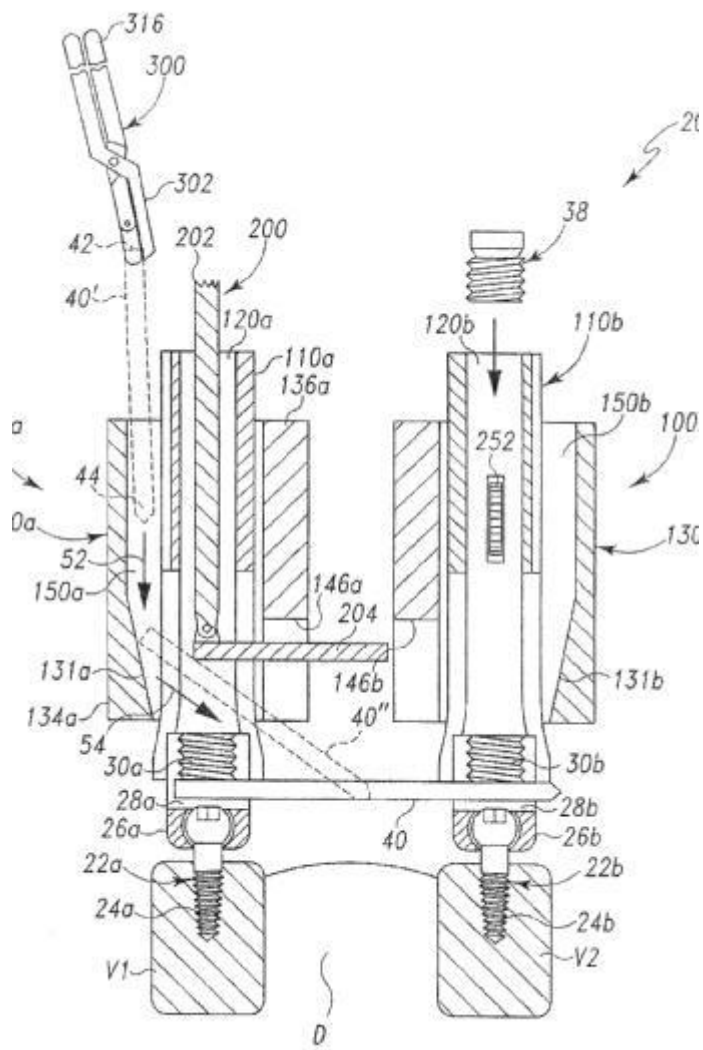
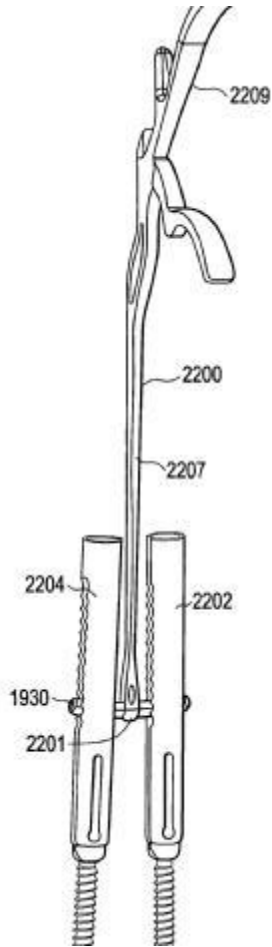
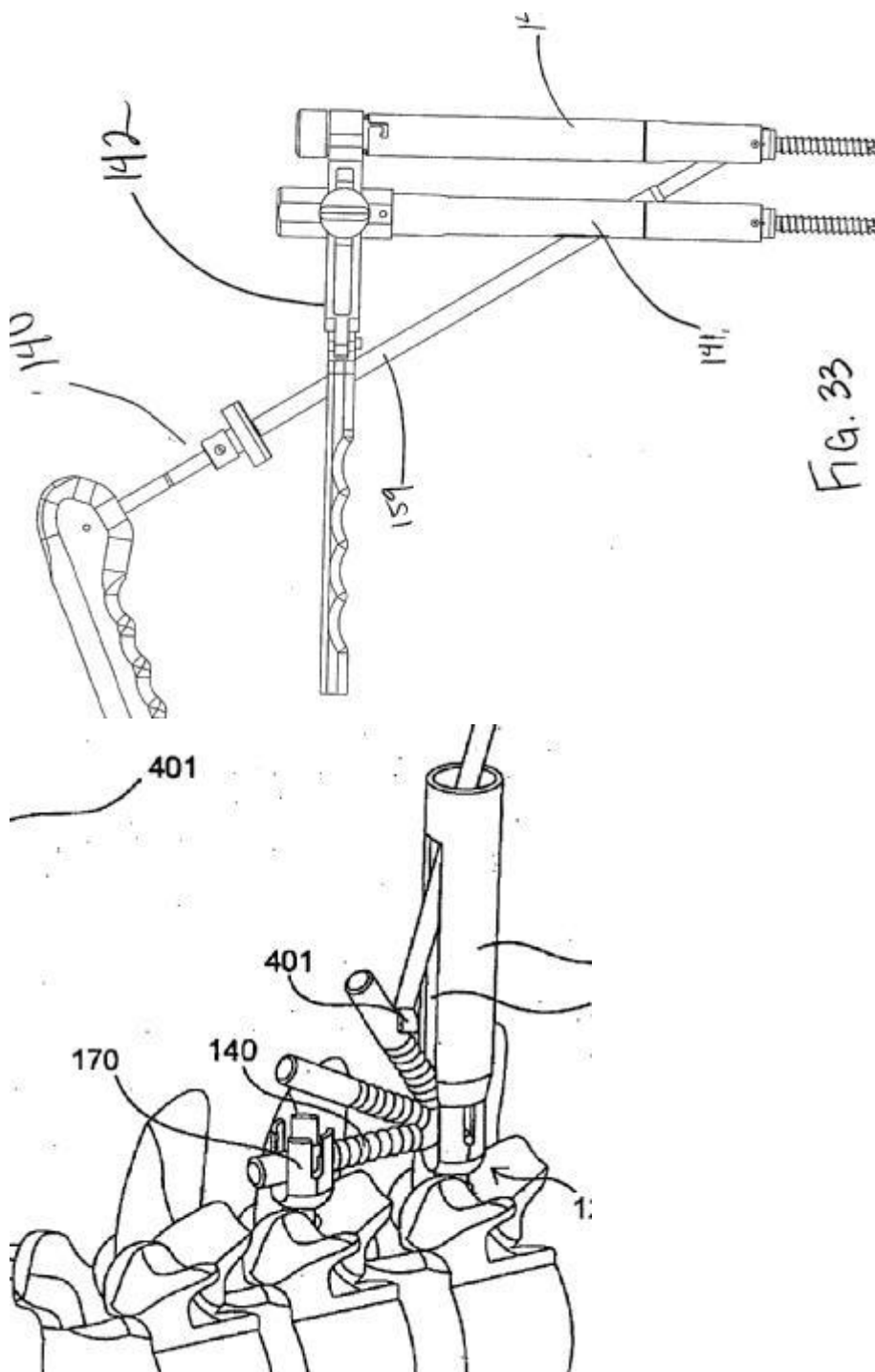


FIG. 79D









A61B 17/7086

{Rod reducers, i.e. devices providing a mechanical advantage to allow a user to force a rod into or onto an anchor head other than by means of a rod-to-bone anchor locking element; rod removers}

Definition statement

This place covers:

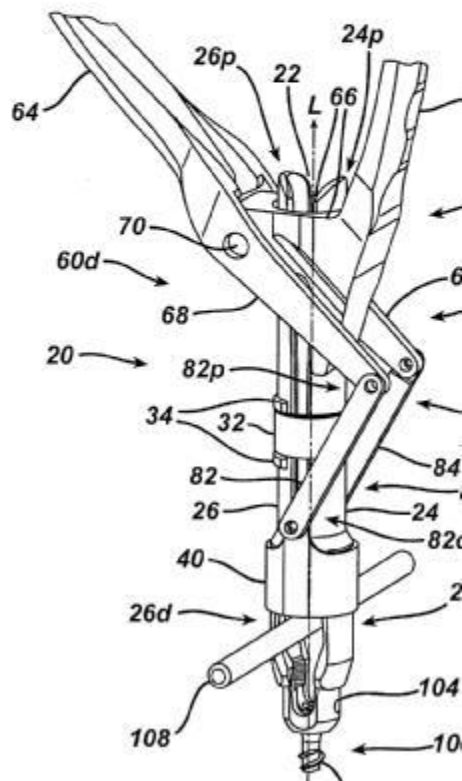
Illustrative example of subject matter classified in [A61B 17/7086](#)

Example:

WO 2009/014856

4/12

FIG. 4



A61B 17/7088

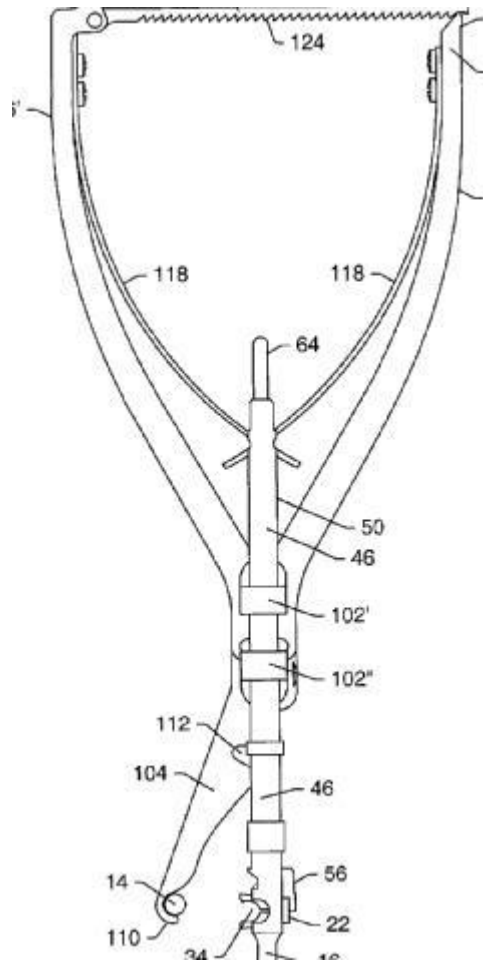
{wherein the rod is moved transverse to the axis of the bone anchor}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7088](#)

Example:



A61B 17/7089

{wherein insertion is along an arcuate path}

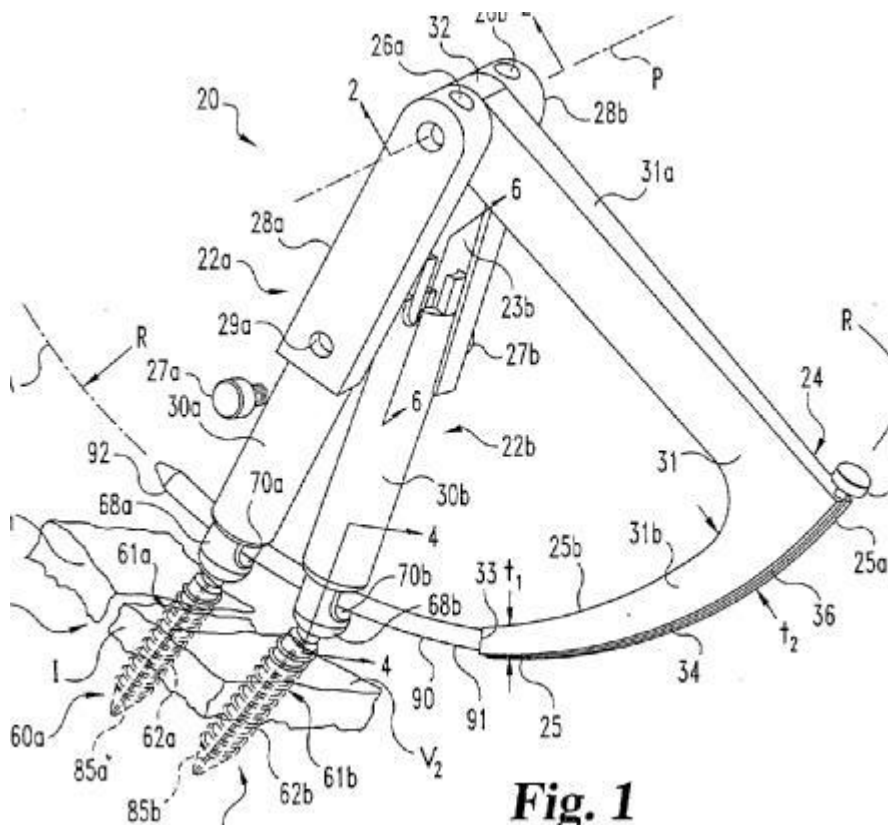
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7089](#)

Definition statement

Example:



A61B 17/7091

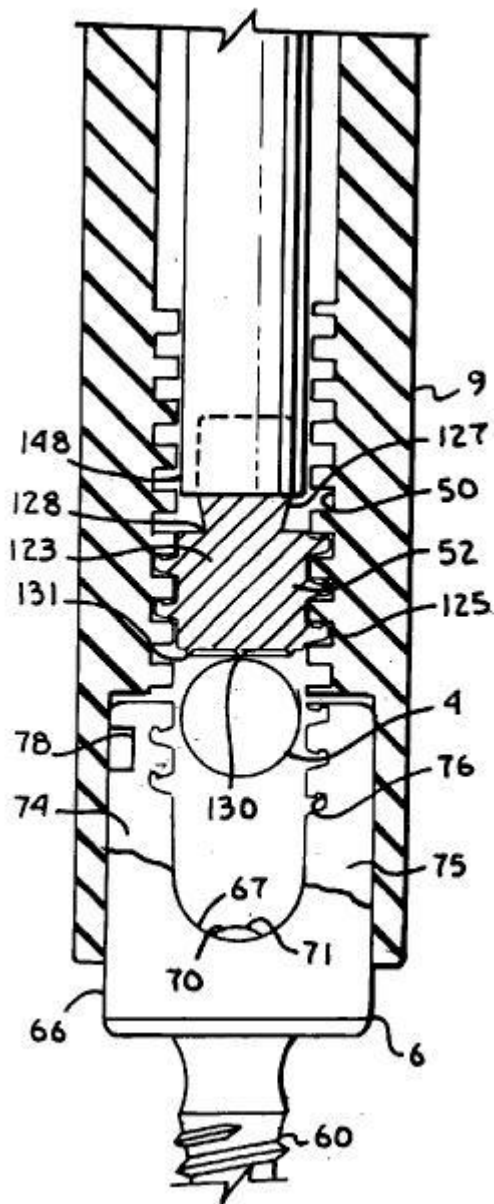
{for applying, tightening or removing longitudinal element-to-bone anchor locking elements, e.g. caps, set screws, nuts or wedges}

Definition statement

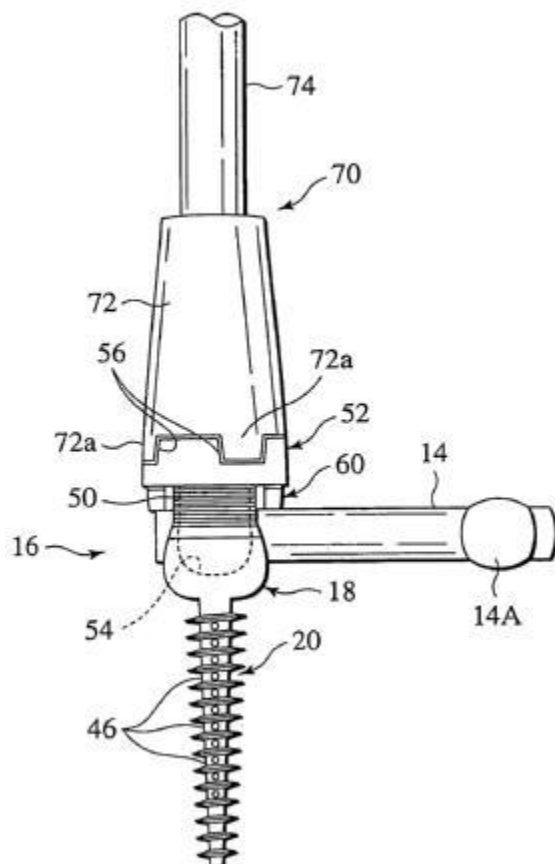
This place covers:

Illustrative example of subject matter classified in [A61B 17/7091](#)

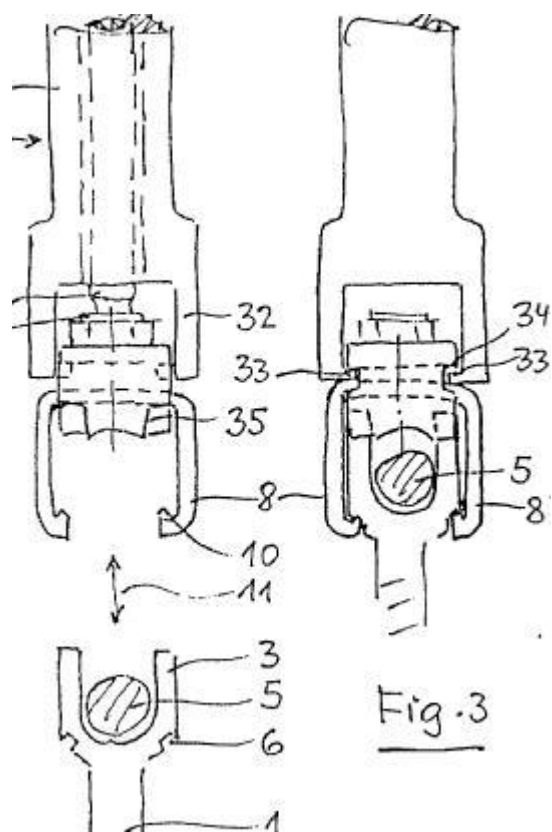
Typically these devices look like this:



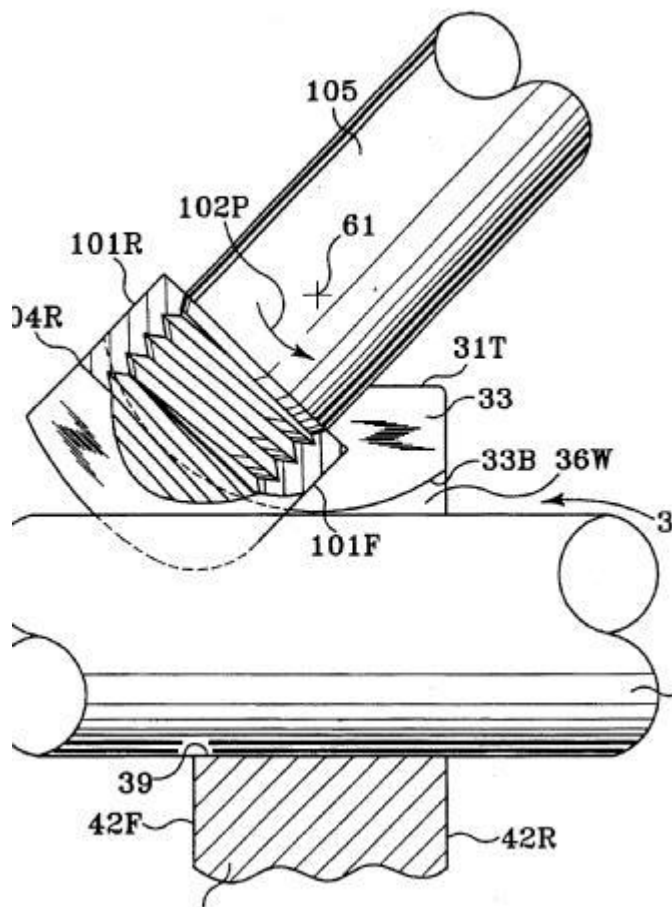
This is an example for a nut (52):



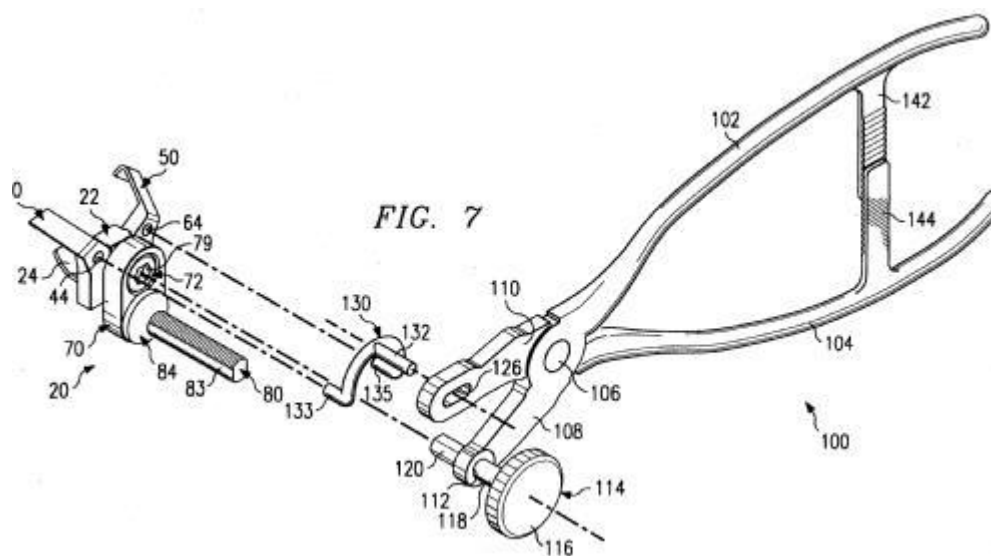
An example for a cap:



An example for a wedge:



An example where the longitudinal element (44, only part shown) is not a rod. (The bone anchors are 50; tool 100 tightens nut 84 and screw 72 and thus locks the assembly.)



A61B 17/7092

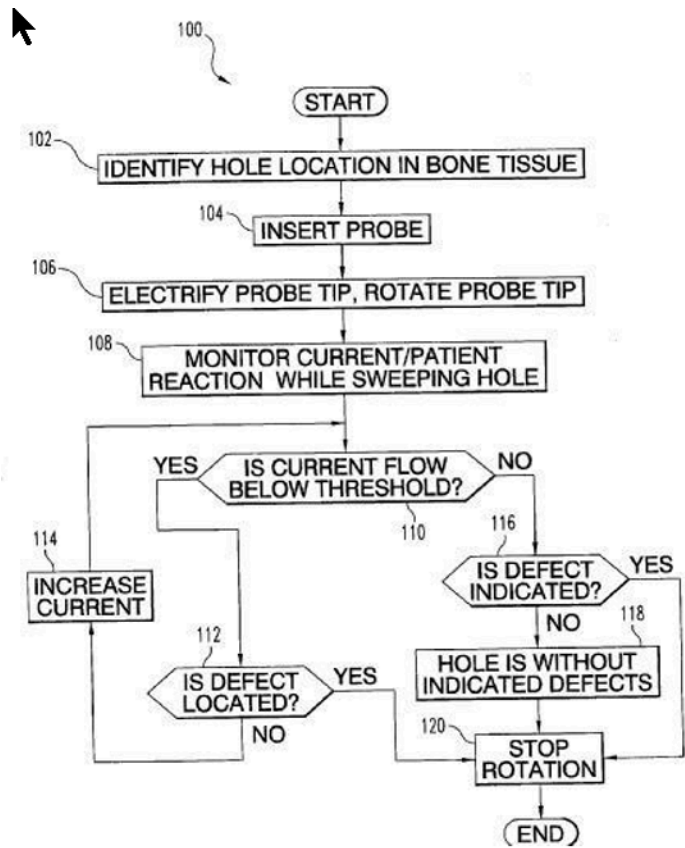
{for checking pedicle hole has correct depth or has an intact wall (pedicle drill depth limiters [A61B 17/1626](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7092](#)

Example:



References

Limiting references

This place does not cover:

Pedicle drill depth limiters	A61B 17/1626
------------------------------	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electromyography for checking screw impingement on nerves	A61B 5/389
Means for controlling the depth to which a pedicle is drilled	A61B 17/1626

A61B 17/7094

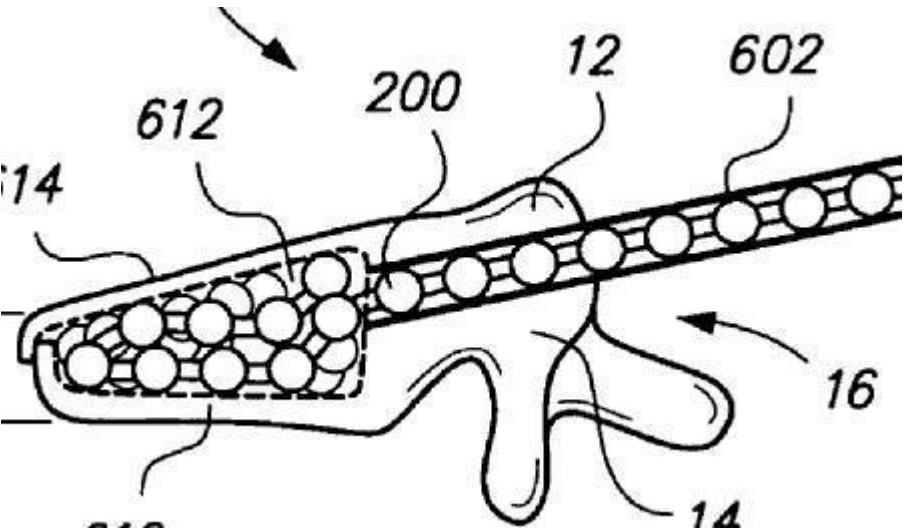
{Solid vertebral fillers; devices for inserting such fillers}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7094](#)

Example:



References

Limiting references

This place does not cover:

Bone-expanding elements which form a mechanism rather than merely being particles joined together	A61B 17/885
---	-----------------------------

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Filler	a material without a fixed shape, although the individual elements which form it may have a fixed shape, e.g. spherical beads
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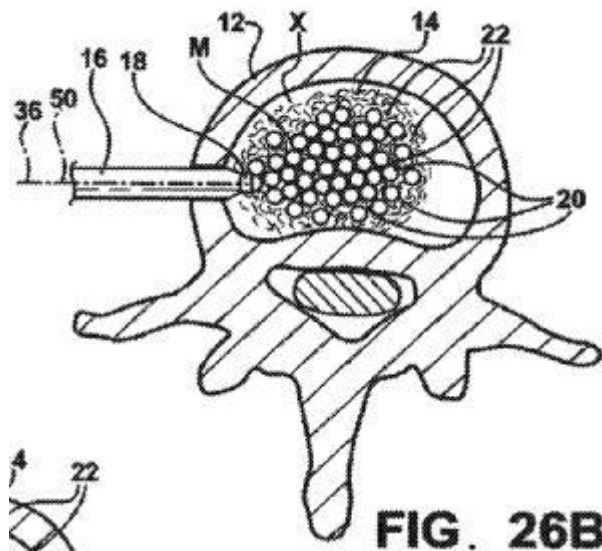
A61B 17/7095

{the filler comprising unlinked macroscopic particles}

Definition statement

This place covers:

Vertebral fillers comprising particles, whether or not embedded in a matrix as in the following example; and devices for insertion thereof:

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Inserting bone graft implants, e.g. particles thereof	A61F 2/4601
---	-----------------------------

A61B 17/7097

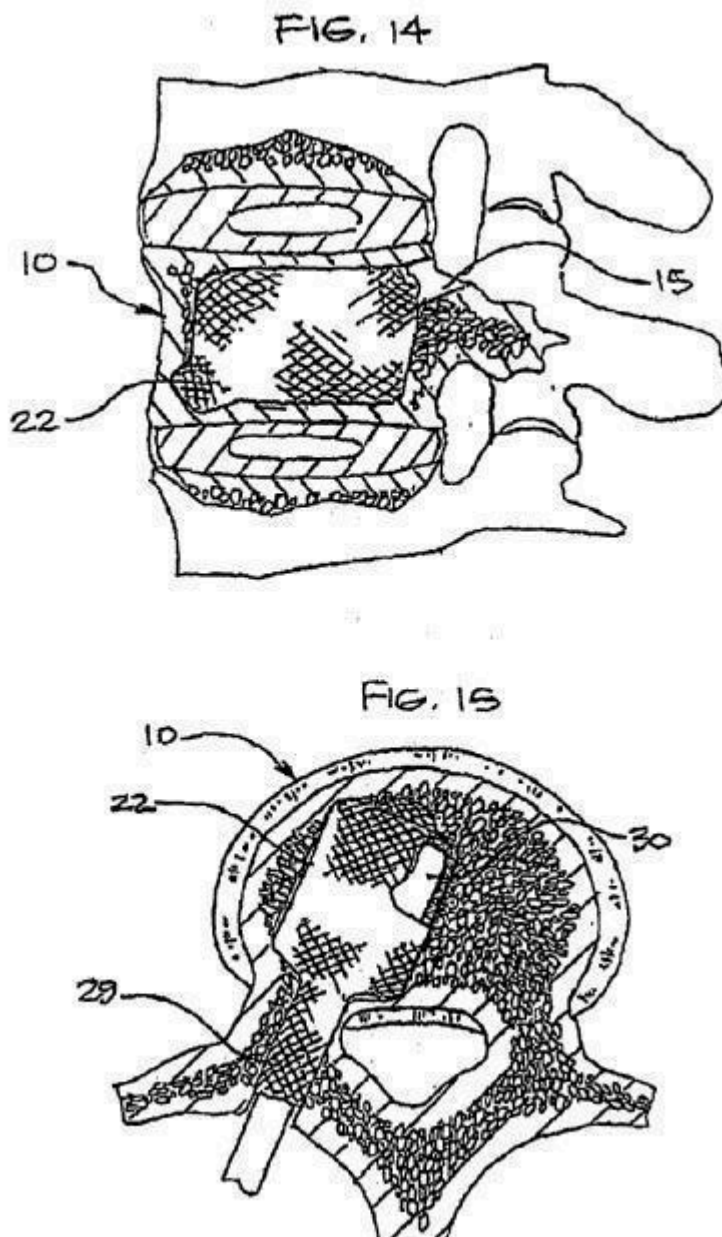
{Stabilisers comprising fluid filler in an implant, e.g. balloon; devices for inserting or filling such implants (disc prostheses made of inflatable chambers or pockets filled with fluid [A61F 2/441](#); replacing the nucleus pulposus [A61F 2002/444](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7097](#)

Example (fig. 15 shows filling of container 22, fig.14 shows it left in the vertebra as an implant):



References

Limiting references

This place does not cover:

Filler introducer tips comprising containers which are removed from bone after filler has been introduced into them, leaving the filler in place	A61B 17/8811
--	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Disc prostheses made of inflatable chambers or pockets filled with fluid	A61F 2/441
Replacing the nucleus pulposus	A61F 2002/444

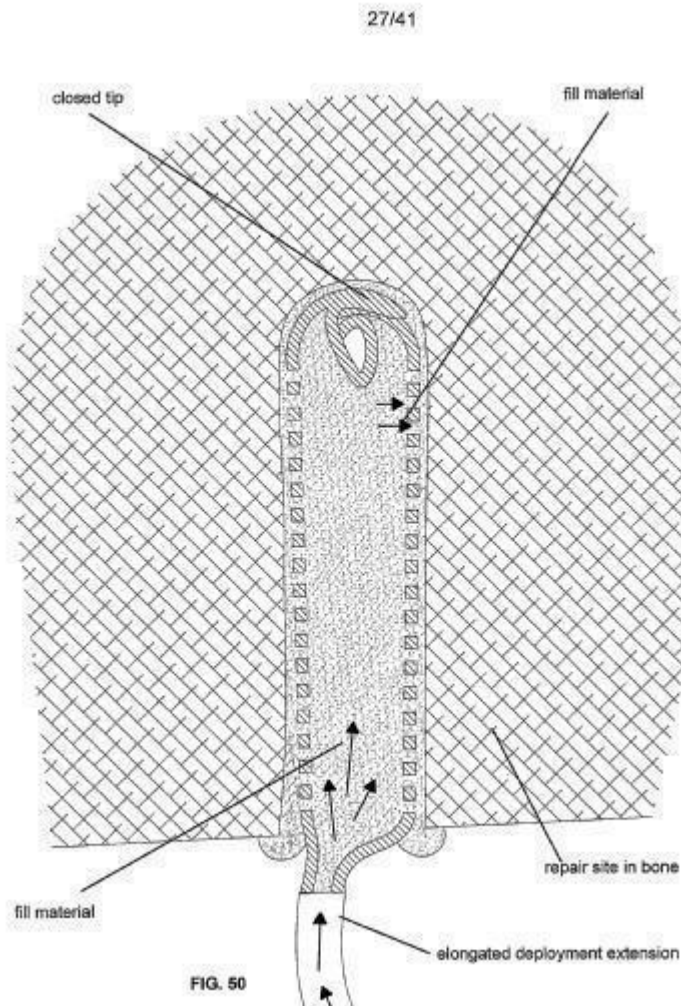
A61B 17/7098

{wherein the implant is permeable or has openings, e.g. fenestrated screw (hollow surgical screws [A61B 17/864](#))}

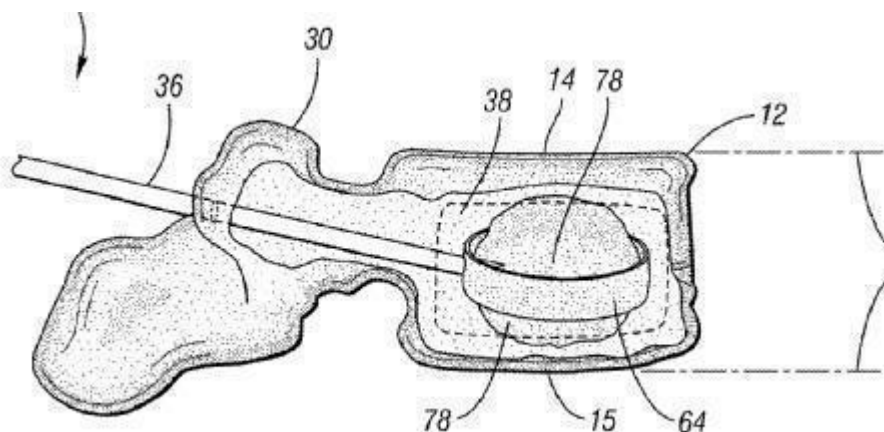
Special rules of classification

Illustrative example of subject matter classified in [A61B 17/7098](#)

Porous example:

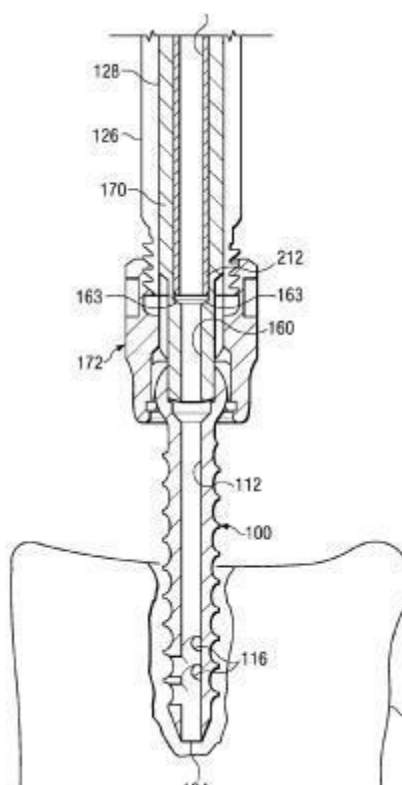


Example where the implant is an annulus surrounding the filler:



Example of injection through cannulated screw

(US2009264895):



A61B 17/72

Intramedullary devices, e.g. pins or nails

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for the head, neck or trochanter of the femur, including IM pins or the like	A61B 17/744
--	-----------------------------

A61B 17/7216

{for bone lengthening or compression ([A61B 17/7258](#) takes precedence)}

References**Limiting references**

This place does not cover:

IM nails with laterally expanding parts	A61B 17/7258
---	------------------------------

A61B 17/7233

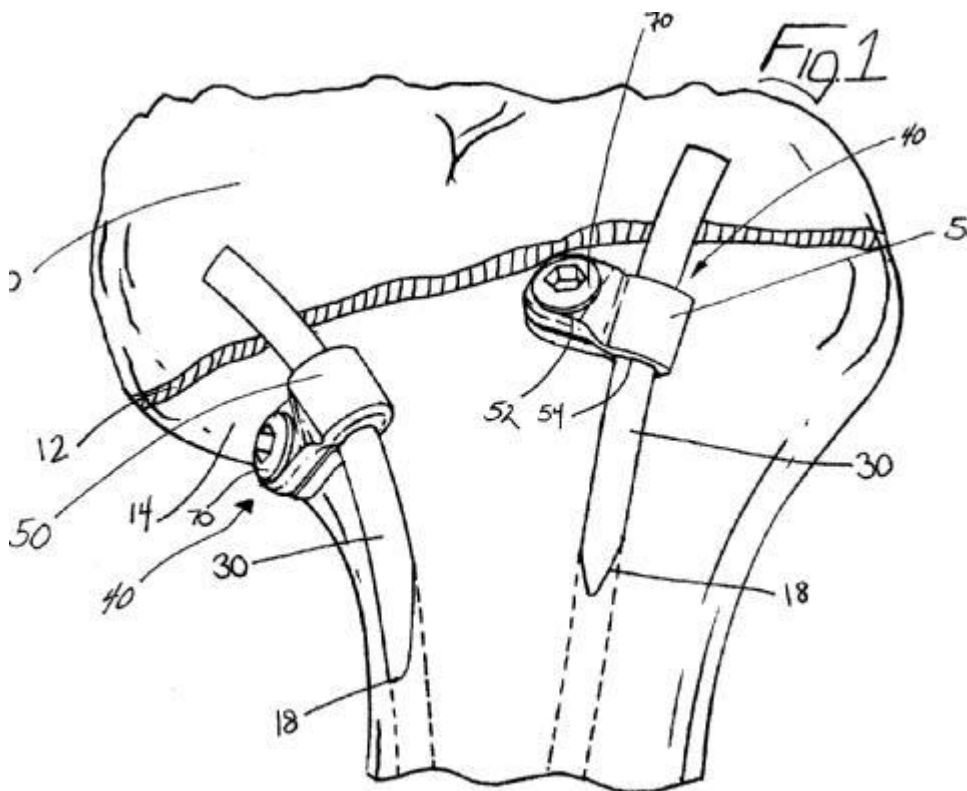
{with special means of locking the nail to the bone}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/7053](#)

Includes, for example, nails with special means comprising a plate-like end, or a connector like (50) shown here:

**A61B 17/725**

{with locking pins or screws of special form}

Definition statement

This place covers:

Nails with locking pins or screws which are adapted, or particularly suited, for use with nails.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for the head, neck or trochanter of the femur	A61B 17/74
---	----------------------------

A61B 17/74

Devices for the head {or neck or trochanter} of the femur {(trochanteric devices connected to the proximal part of an endoprosthetic femoral shaft [A61F 2/30739](#); endoprosthetic internal fixation devices for the head or neck of the femur [A61F 2/3601](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Trochanteric devices connected to the proximal part of an endoprosthetic femoral shaft	A61F 2/30739
Endoprosthetic devices for the head or neck of the femur	A61F 2/3601

A61B 17/80

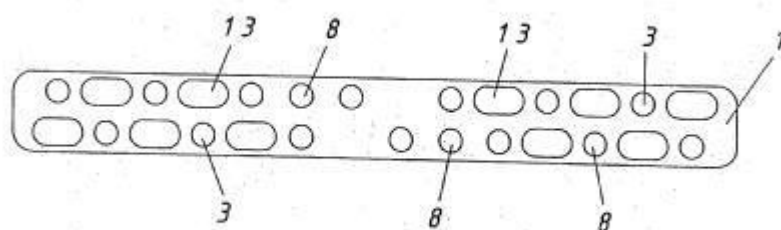
Cortical plates {, i.e. bone plates; Instruments for holding or positioning cortical plates, or for compressing bones attached to cortical plates}

Definition statement

This place covers:

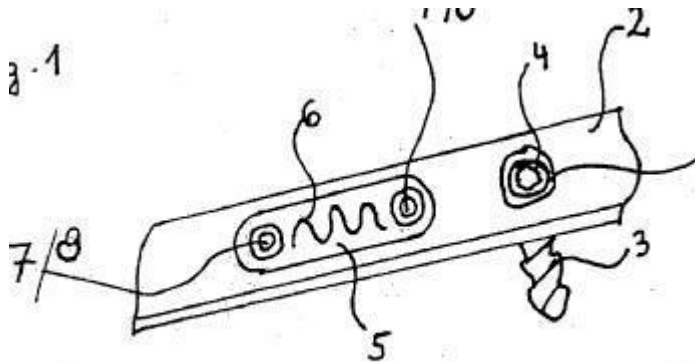
Cortical plates classified in this group as opposed to its subgroups include for example those with a particular form unrelated to a particular bone such as:

Fig. 1



Definition statement

or having a particular material; a particular manufacturing processes; or with functions in addition to fixing bone, for instance this one with a strain gauge:



References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Cortical plates used as spinal positioners or stabilisers	A61B 17/7059
---	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Plates to support bone grafts	A61F 2/2846
Plate-like wound dressings	A61F 13/00

Special rules of classification

Cortical plates including a ratchet are classified in [A61B 17/8009](#) even when the cortical plate is not explicitly used for compression or distraction of the bones.

A61B 17/8004

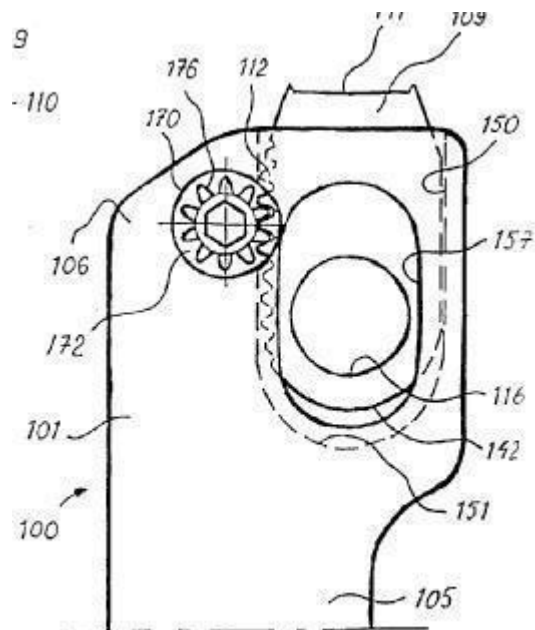
{with means for distracting or compressing the bone or bones}

Definition statement

This place covers:

Bones or fragments of bone must be compressed against each other in this group. The definition does not refer to plates that simply press against the surface of the bone when their screws are tightened, something ordinary cortical bone plates do and as a result of which such plates are occasionally called "compression plates".

Example of a compression mechanism classified here:



Example of a plate classified here because it has a property that can be used to achieve compression/distraction, e.g. made of shape memory or, as in this case, plastically deformable to clamp bone fragments together (the deformed outline is shown dashed)

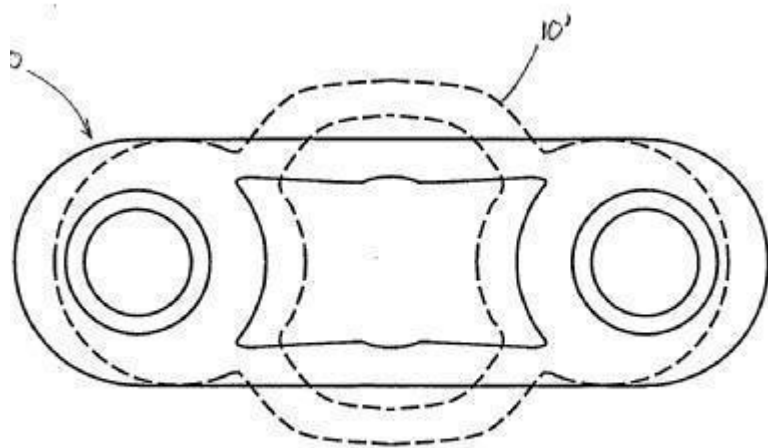
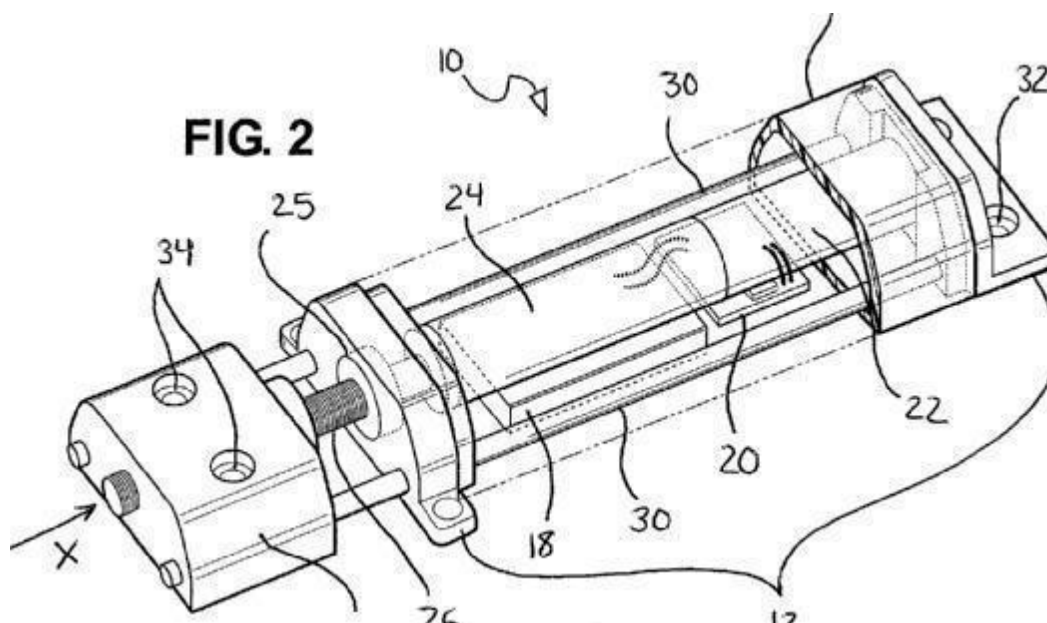


FIGURE 3

It would be difficult to draw a dividing line between distraction/compression plates and other subcutaneous distraction/compression devices mounted on the bone surface, so "plate" has been generously interpreted, e.g. this is classified in [A61B 17/8004](#):



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Alignment, compression or distraction mechanisms with parts external to the body, including those which are mainly implanted but have percutaneous means of operation	A61B 17/663
---	-----------------------------

Special rules of classification

Plates which allow compression or distraction due to relative movement of parts of these plates, e.g. dynamic plates or static compression plates, and which are not "locked in" by a device such as a ratchet, should be classified also in [A61B 17/8023](#).

A61B 17/8009

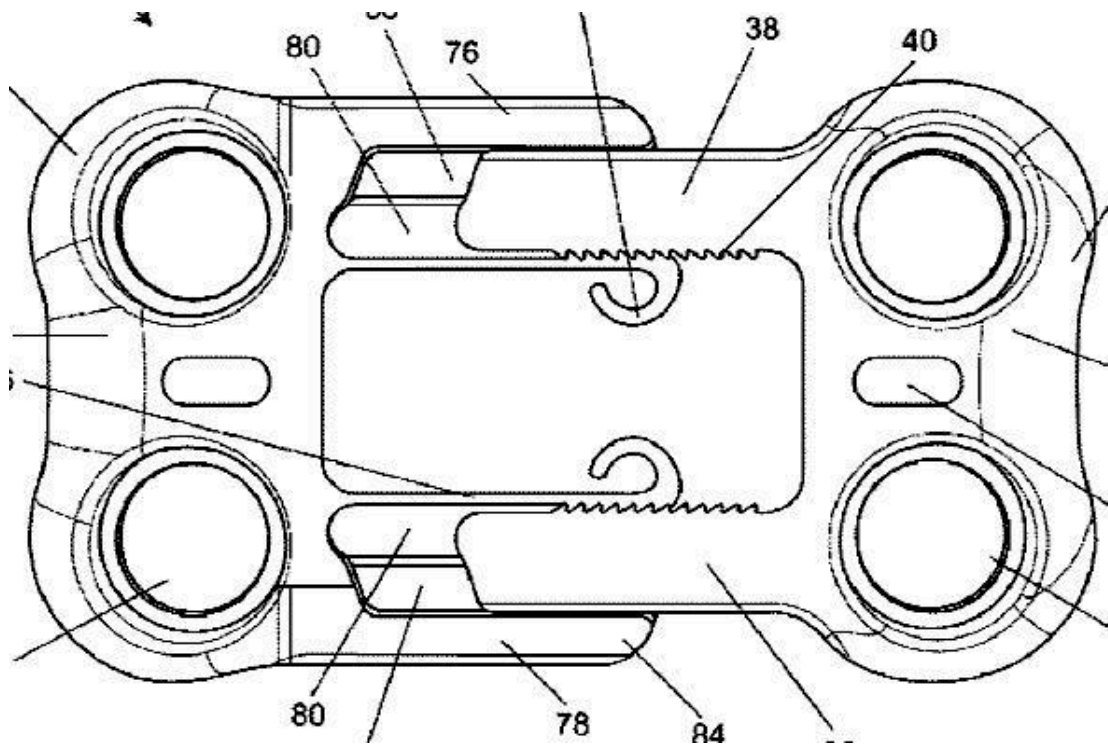
{the plate having a ratchet}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8009](#)

Example:



Thanks to the ratchet the plate halves can only move relative to each other in one direction, so due to movement in the implanted state either compression or distraction of the bone will develop.

A61B 17/8014

{the extension or compression force being caused by interaction of the plate hole and the screws}

Definition statement

This place covers:

Most commonly, as here, the ramped form of the bone screw holes forces the screw heads laterally, and hence displaces the bone fragments to which the screws are attached:

Fig.1

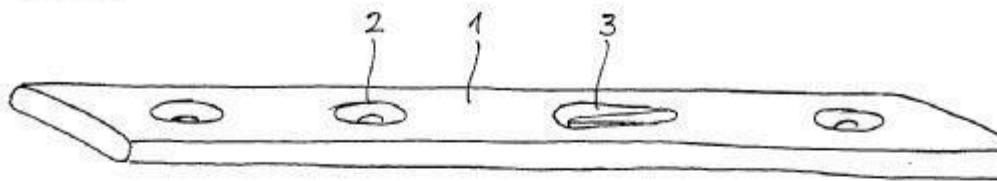


Fig.2

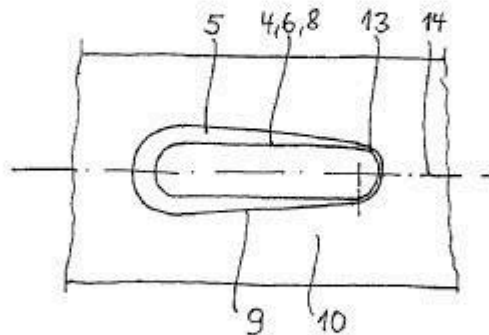
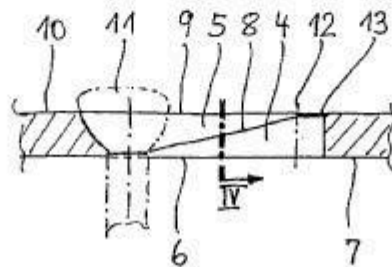


Fig.3



A61B 17/8019

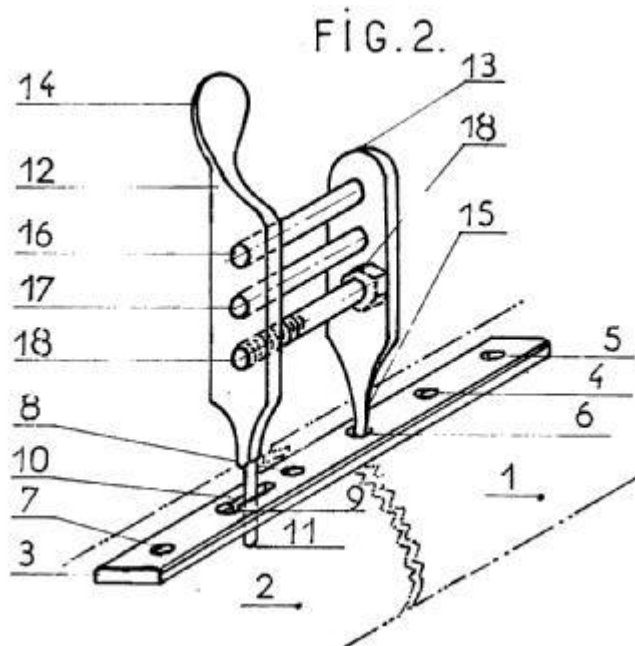
{where the means are a separate tool rather than being part of the plate}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8019](#)

e.g. (tool 13 is removed once the plate is fixed):

**A61B 17/8023**

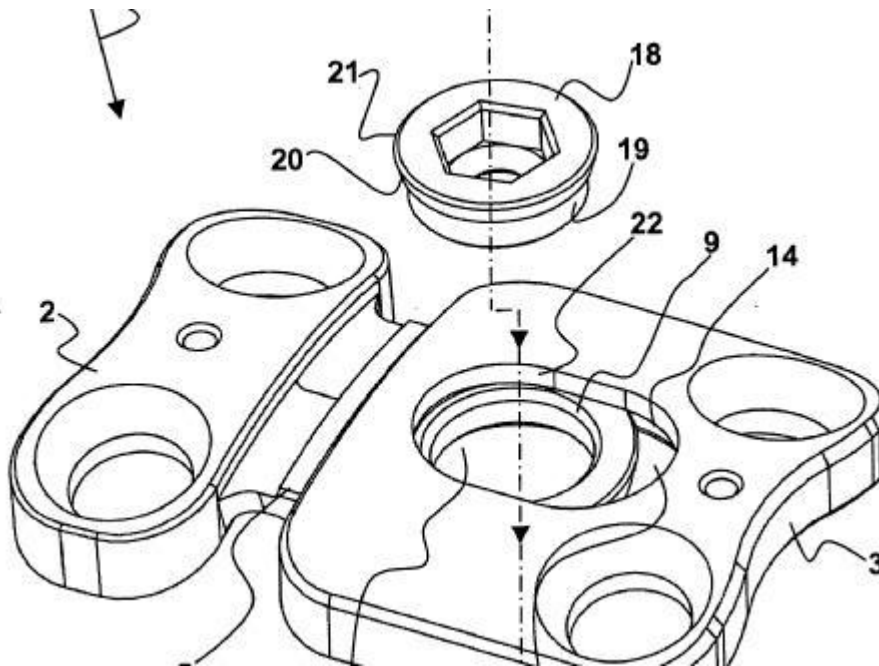
{Variable length plates adjustable in both directions}

Definition statement

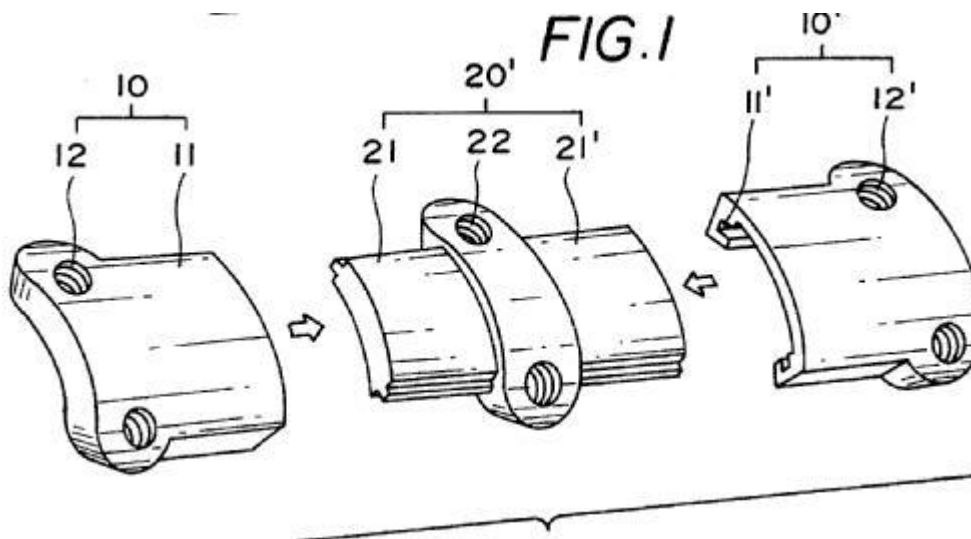
This place covers:

Plates whose length can be changed in both directions, i.e. it must be possible both to lengthen and to shorten any plate classified in this group.

Either the length may be adjusted and then fixed (here using screw 21):



or the parts may be left free to move in the implanted state:



Definition statement

As with [A61B 17/8004](#), the term "plate" is generously interpreted, e.g. the device below comprising two blocks which can slide relative to each other guided by mating projections in bores is classified in [A61B 17/8023](#):

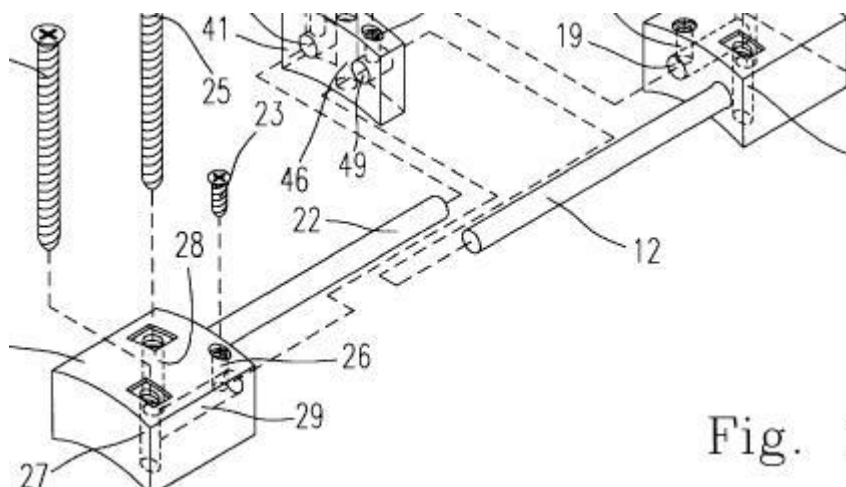


Fig. 1

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Plates having a ratchet	A61B 17/8009
-------------------------	------------------------------

A61B 17/8028

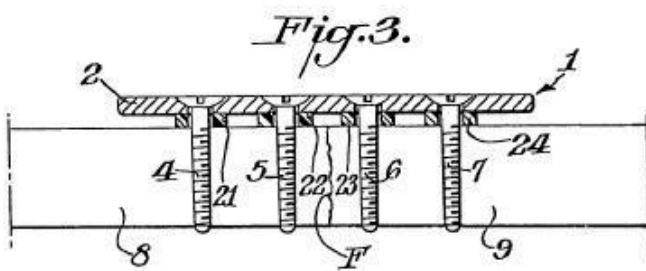
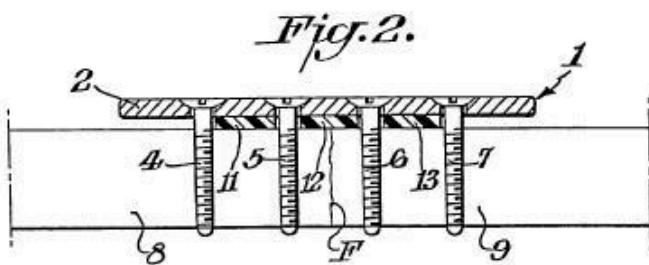
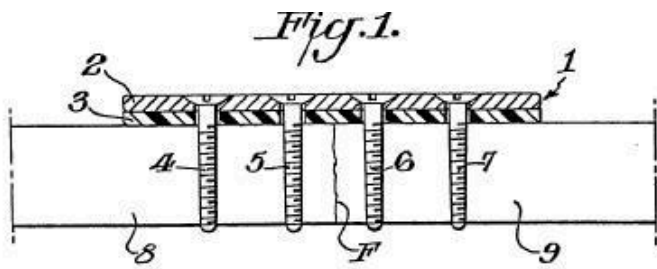
{Cushions, i.e. elements forming interface between bone plate and bone}

Definition statement

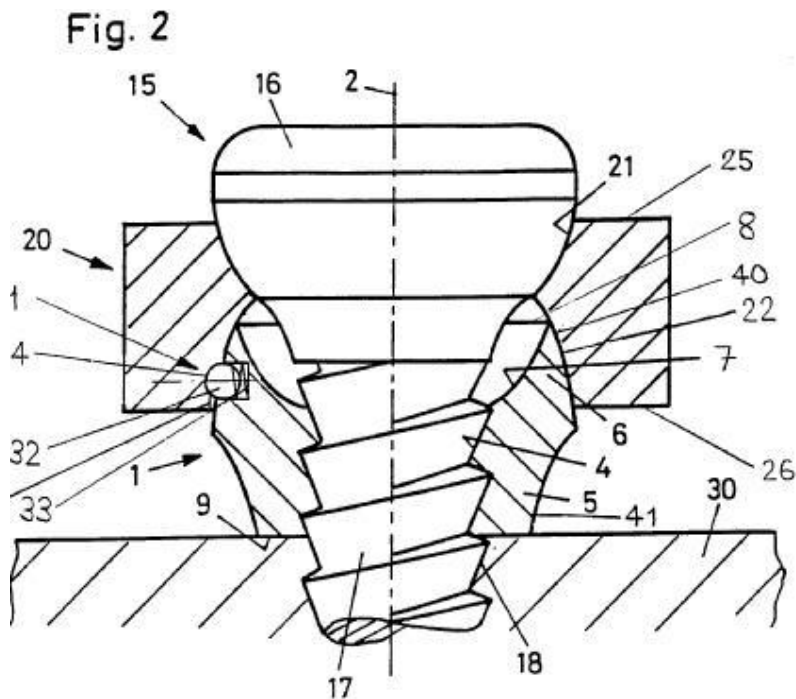
This place covers:

Illustrative example of subject matter classified in [A61B 17/8028](#)

For example, here the cushions are 3, 11-13 and 21-24:



Here the cushion is 5:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Washers, i.e. pads placed around screws or bolts	A61B 17/8695
--	------------------------------

A61B 17/8033

{having indirect contact with screw heads, or having contact with screw heads maintained with the aid of additional components, e.g. nuts, wedges or head covers}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8033](#)

Another example is

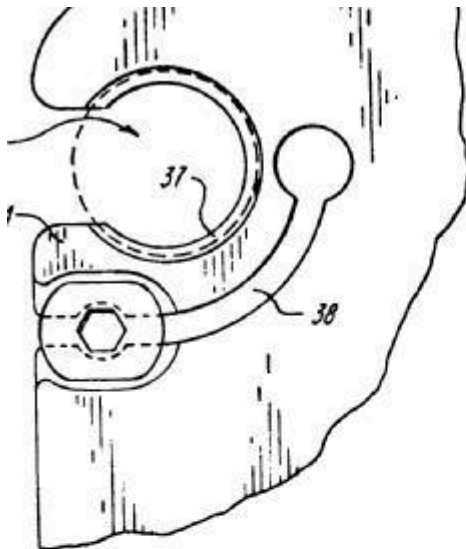
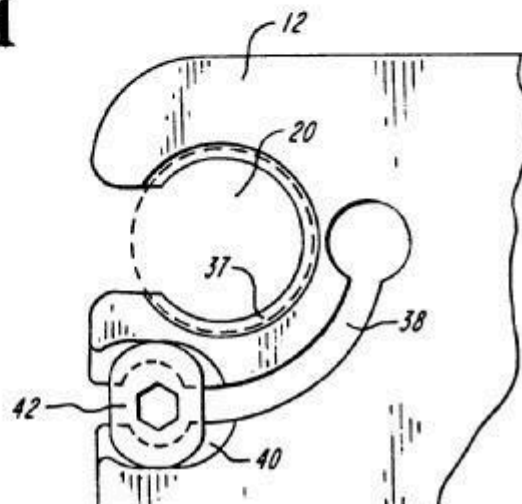


FIG. 7A



where the additional component is cam 42 which deforms the plate so as to clamp the screw head.

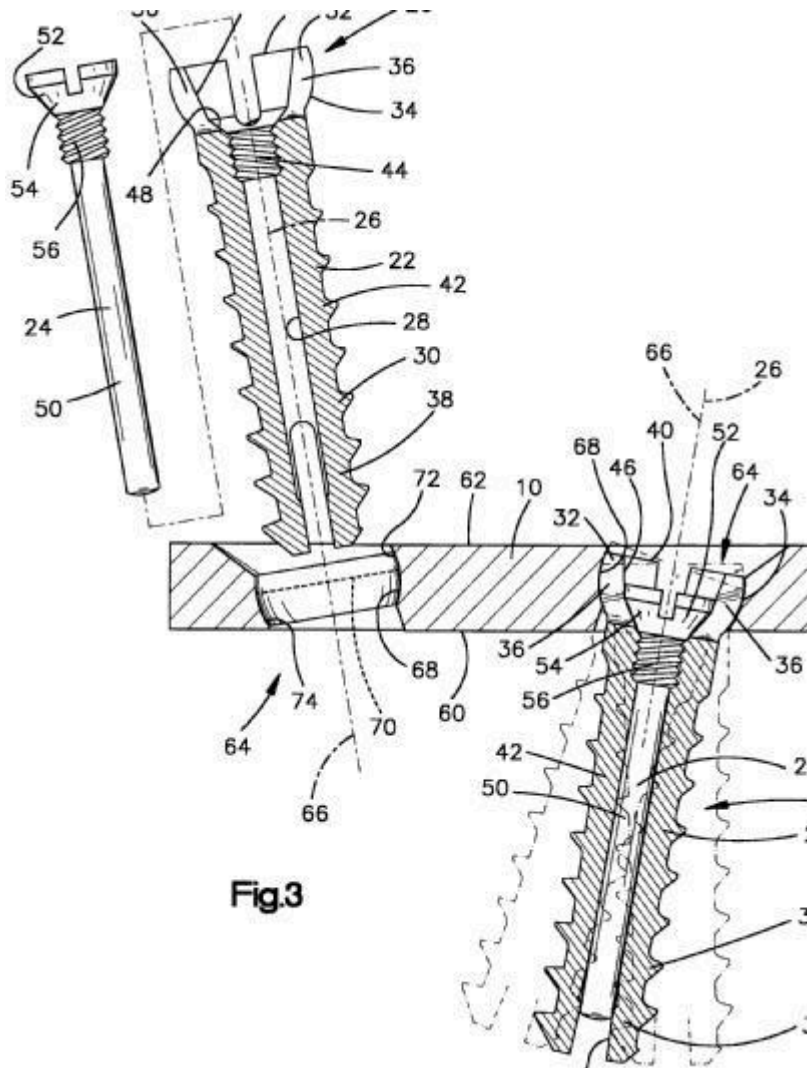
A61B 17/8038

{the additional component being inserted in the screw head}

Definition statement

This place covers:

Typically the inserted component expands the screw head so that it cannot escape from the plate hole, although occasionally, as indicated here dashed in the lower figure, the expansion is not so great that the screw can no longer pivot in the screw hole:



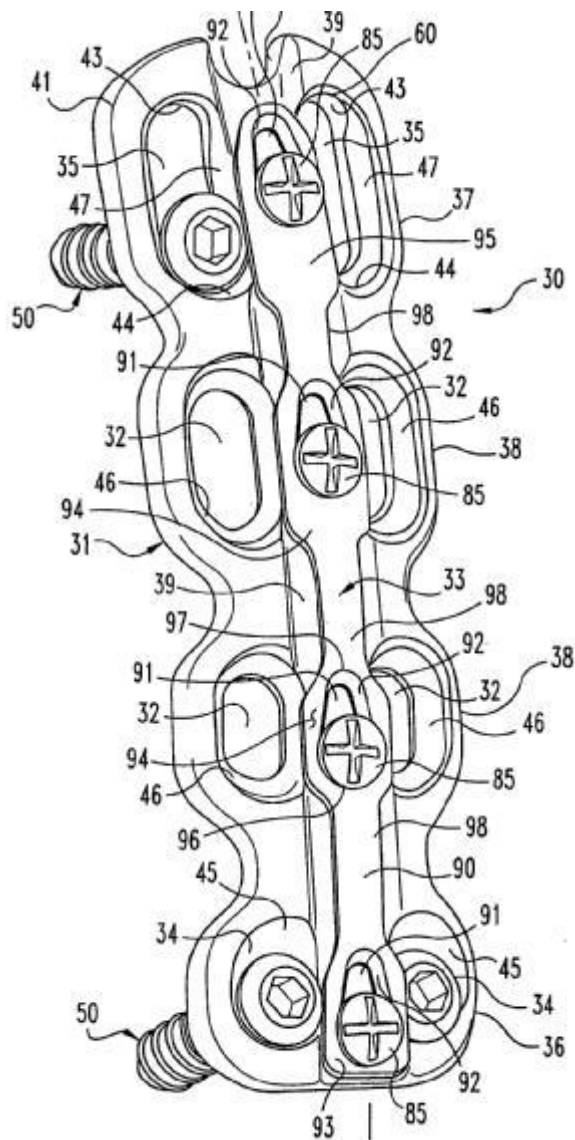
A61B 17/8042

{the additional component being a cover over the screw head}

Definition statement

This place covers:

There may be one cover (here, sliding cover 98) for many screws:



A technical drawing of a mechanical assembly, likely a valve or actuator, shown in a cross-sectional view. The drawing includes several numbered components: 1 is a vertical shaft or rod; 2 is a nut or cap nut at the top of the shaft; 3 is a seal or O-ring; 4 is a spring or coiled wire; 5 is a vertical plate or flange; 6 is a horizontal rod or pin; 7 is a vertical plate or flange. The drawing is a line drawing with hatching used to indicate different materials or sections.

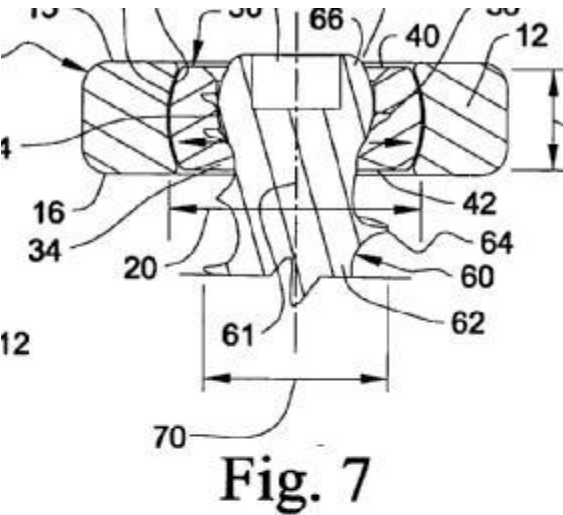
A61B 17/8047

{wherein the additional element surrounds the screw head in the plate hole
([A61B 17/8052](#) takes precedence)}

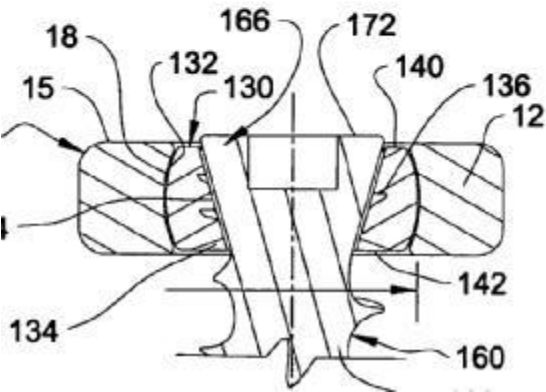
Definition statement

This place covers:

Most commonly in this group the screw head expands the additional element, either so that the head is merely trapped in the plate hole but can still rotate (upper figure in this example), or so that plate, screw and additional element are locked relative to each other by friction (lower figure):



52



References

Limiting references

This place does not cover:

Plates with fixed inserts or inlays	A61B 17/8052
-------------------------------------	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Washers, i.e. pads placed around screws or bolts	A61B 17/8695
--	------------------------------

A61B 17/8052

{immobilised relative to screws by interlocking form of the heads and plate holes, e.g. conical or threaded}

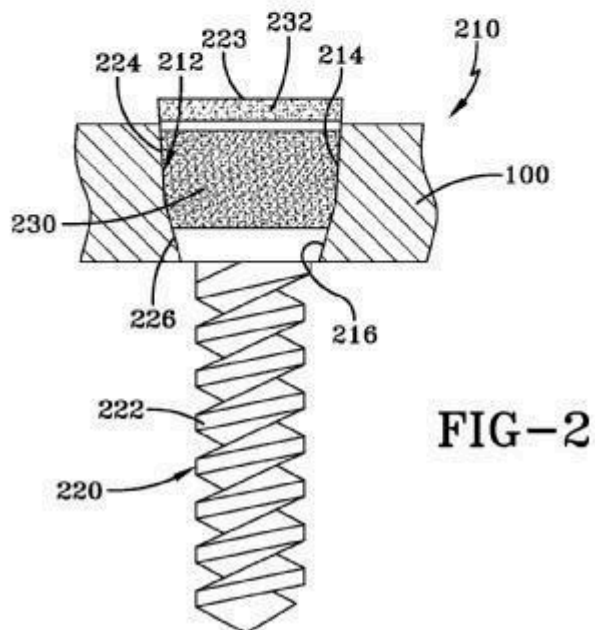
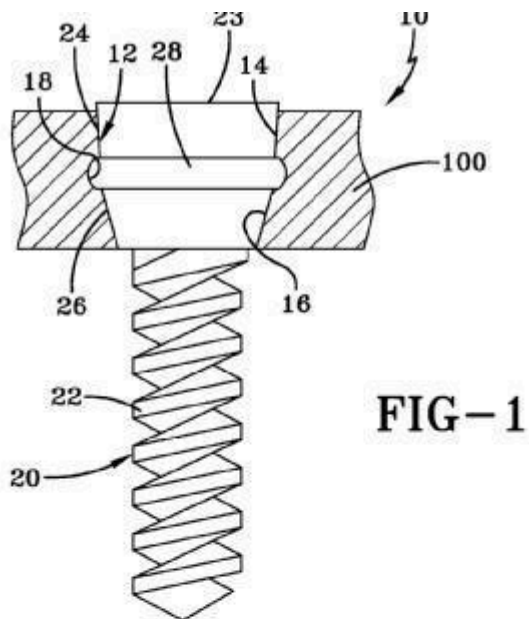
Definition statement

This place covers:

Possibilities include for example threading, a Morse-tapered head and hole, deformation of the material of the head or hole material as the former is screwed into the latter, high friction (sometimes

Definition statement

referred to as "textured") surfaces (lower figure in this example), and snap-fitting (upper figure in this example):



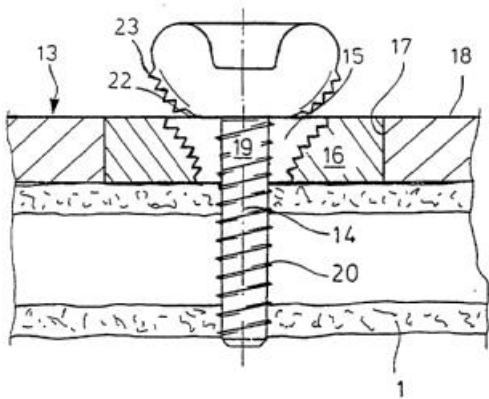
A61B 17/8057

{the interlocking form comprising a thread}

Definition statement

This place covers:

Plates wherein the thread is either in the body of the plate or, as in this example (DE19629011), in a fixed insert:



A61B 17/8061

{specially adapted for particular bones ([A61B 17/70](#) and [A61B 17/74](#) take precedence)}

References

Limiting references

This place does not cover:

Spinal cortical plates	A61B 17/70
Devices for the head, neck or trochanter of the femur	A61B 17/74

A61B 17/8066

{for pelvic reconstruction}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Partial acetabular cups	A61F 2002/3487
-------------------------	--------------------------------

A61B 17/8071

{for the jaw}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Mandibular prostheses	A61F 2/2803
-----------------------	-----------------------------

A61B 17/808

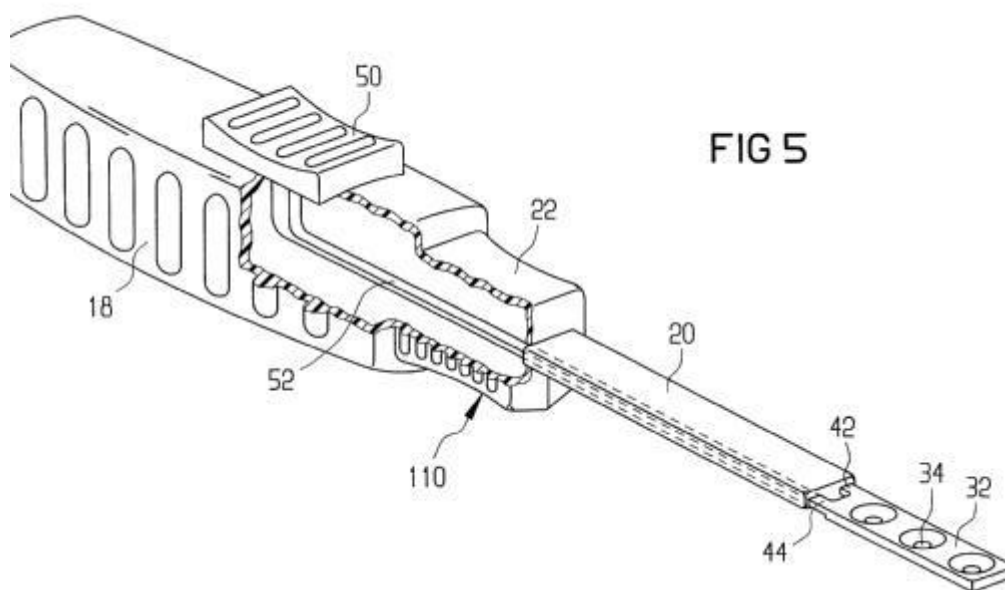
{Instruments for holding or positioning bone plates, or for adjusting screw-to-plate locking mechanisms}

Definition statement

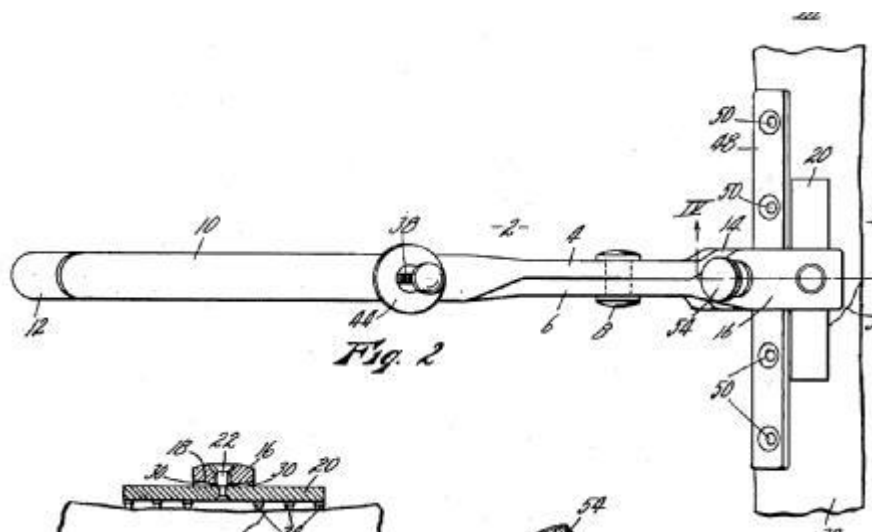
This place covers:

Illustrative example of subject matter classified in [A61B 17/808](#)

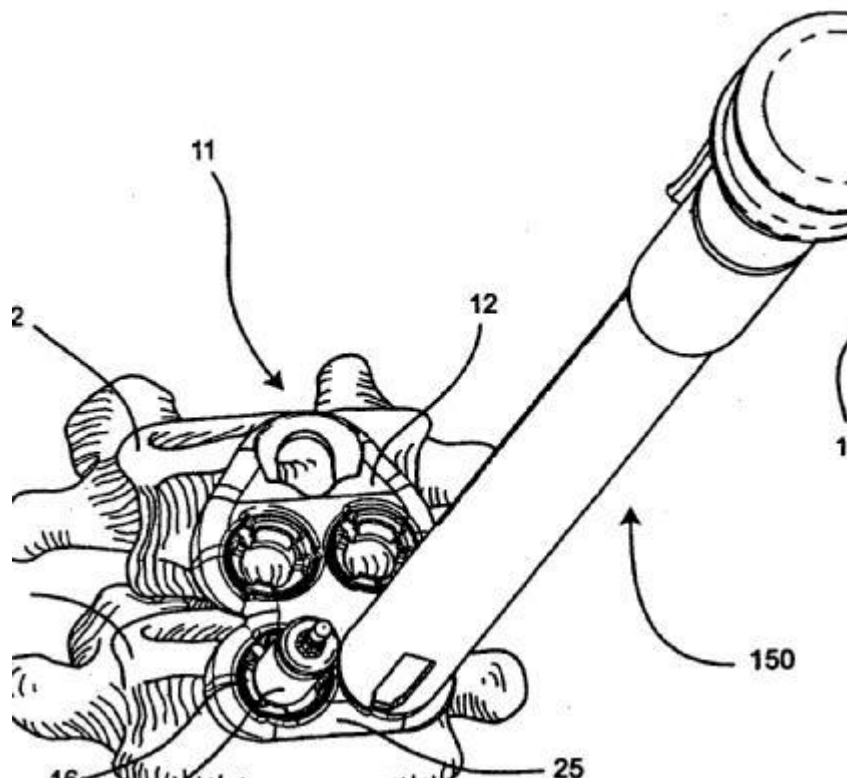
Example plate positioning tool:



Example plate holding tool:



Example screw locking mechanism adjuster:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tools for use with a plate to extend or compress bone	A61B 17/8019
---	------------------------------

A61B 17/8085

{with pliable or malleable elements or having a mesh-like structure, e.g. small strips ([A61B 17/8071](#), [A61B 17/8076](#) take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8085](#)

Examples:

Plates that can be easily bent due to their material, without or (as in this case, using heater 4,4') with, application of heat:

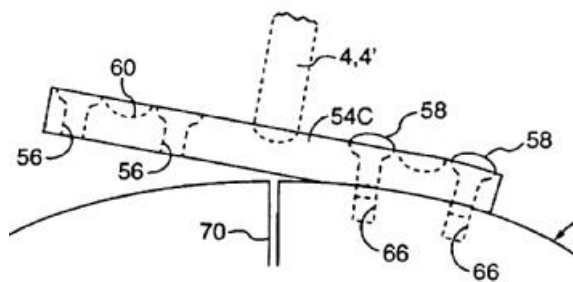
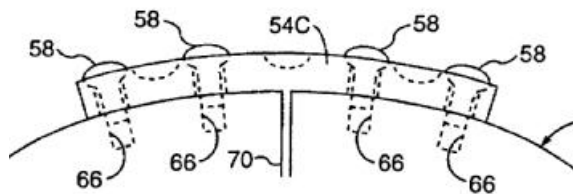


FIG. 7B



- due to their structure (on the left a wire mesh, on the right a textile):

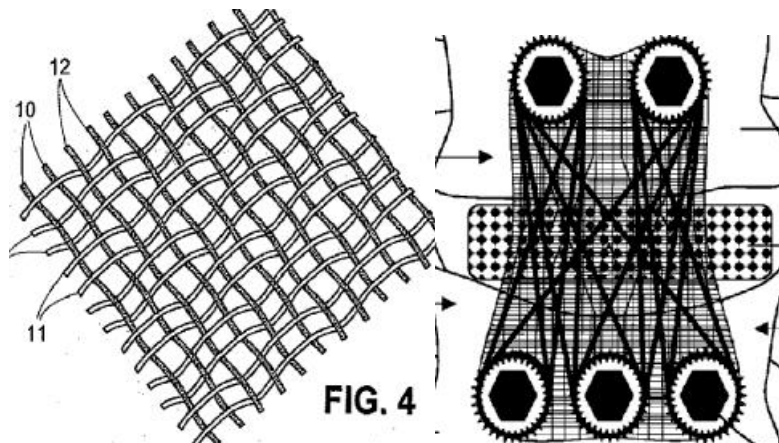
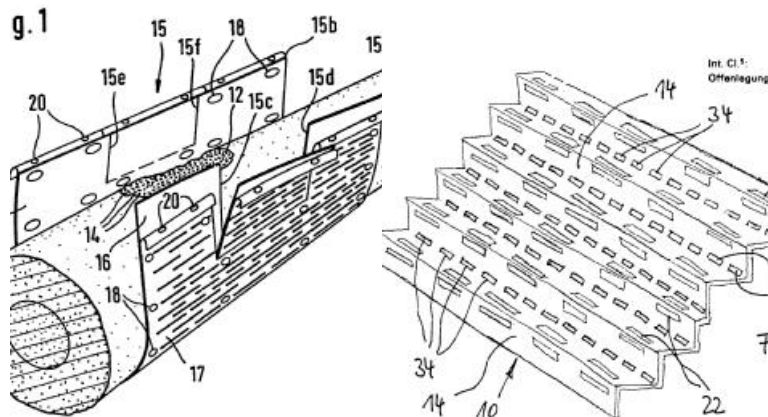


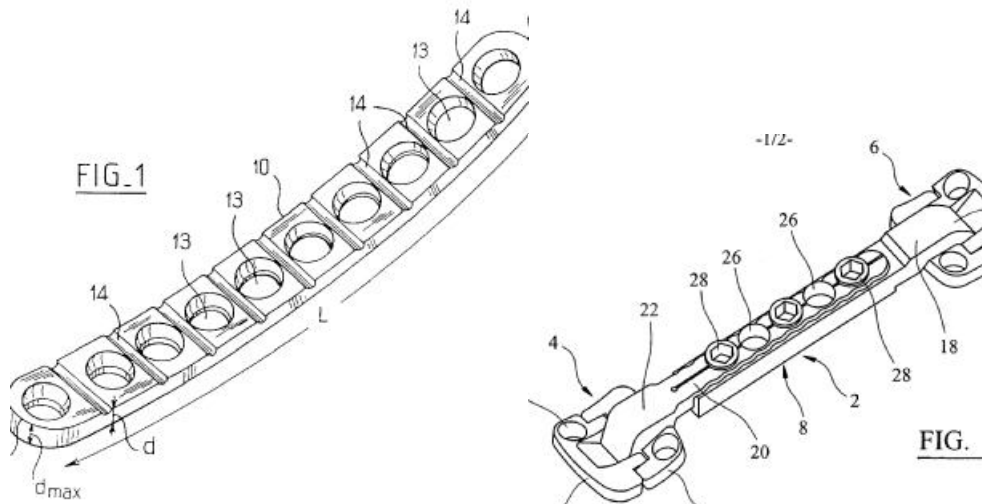
FIG. 4

Definition statement

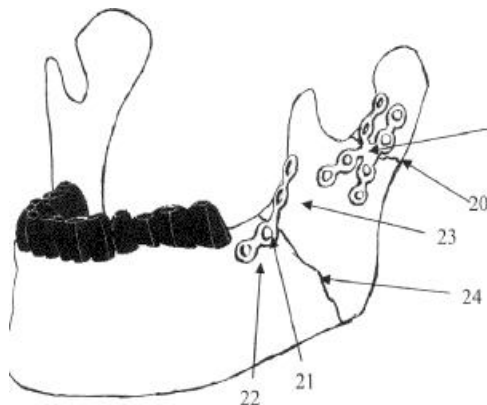
Due to thinness (on the left) or folds (on the right):



- due to areas of reduced cross-section (upper below) or hinges (lower below):



Because the craniofacial (head) bones have such complicated shapes, plates for them usually comprise small strips so that they can be bent to fit by the surgeon. Hence almost all plates for the head are also classified here e.g.



References

Limiting references

This place does not cover:

Plates specially adapted for the jaw	A61B 17/8071
Plates specially adapted for the ribs or sternum	A61B 17/8076

Informative references

Attention is drawn to the following places, which may be of interest for search:

Connecting prostheses with the body	A61F 2/30749
-------------------------------------	------------------------------

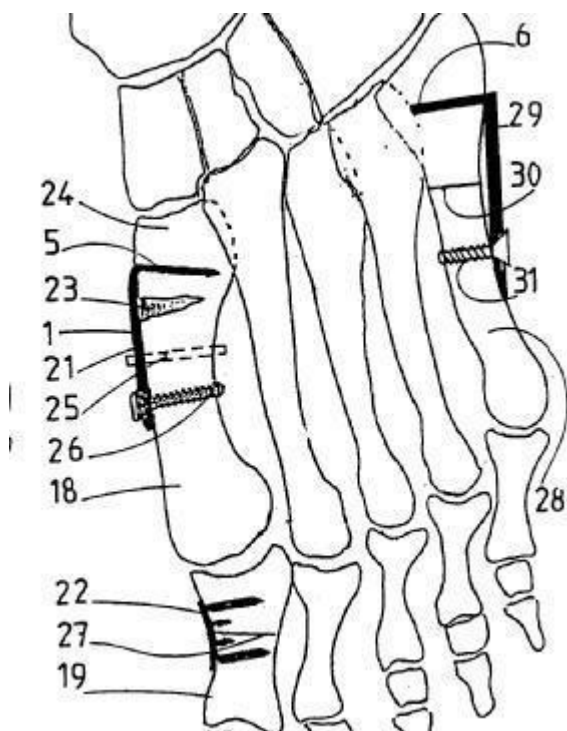
A61B 17/809

{with bone-penetrating elements, e.g. blades or prongs (bone staples [A61B 17/0642](#); intramedullary nails with a plate at an end [A61B 17/7233](#))}

Definition statement

This place covers:

Example of subject matter classified in [A61B 17/809](#) (the projections are bent into perpendicular spikes by the surgeon):



Also, very plate-like devices like this with an integral nail for the femoral head are classified here as well as in [A61B 17/74](#):

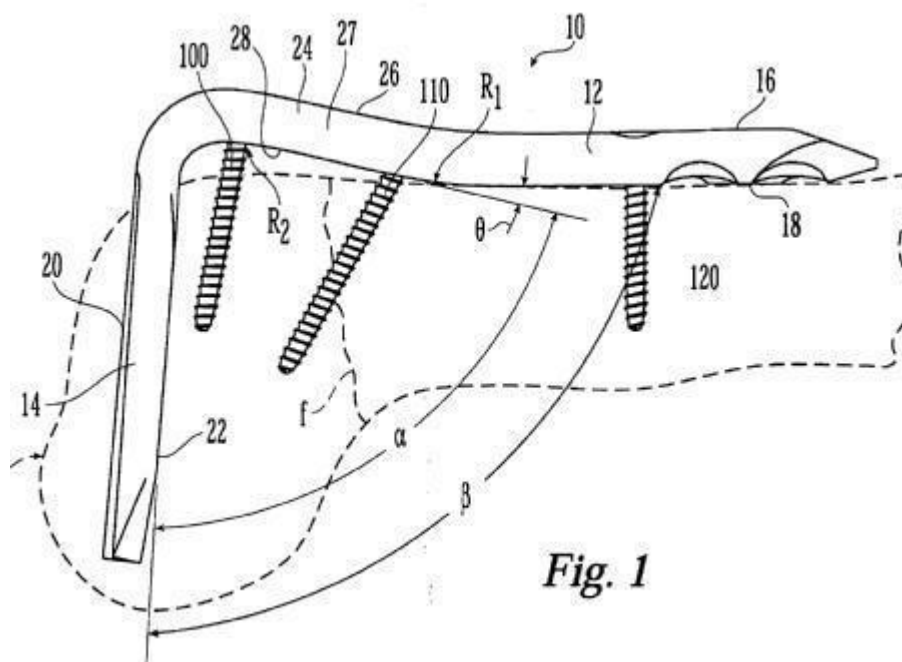


Fig. 1

References

Limiting references

This place does not cover:

Bone staples i.e. spiked plate-like devices so small they do not have screw holes	A61B 17/0642
Intramedullary nails with a plate at an end	A61B 17/7233

Glossary of terms

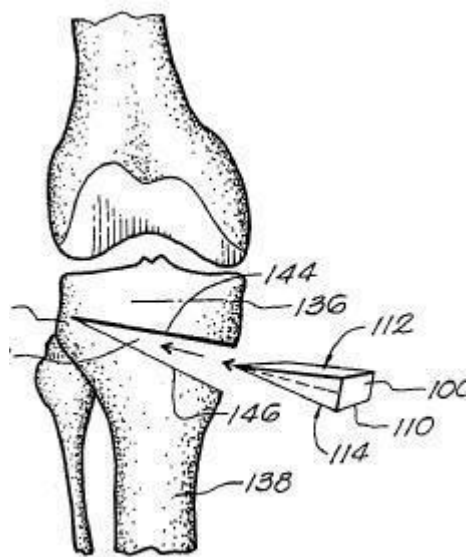
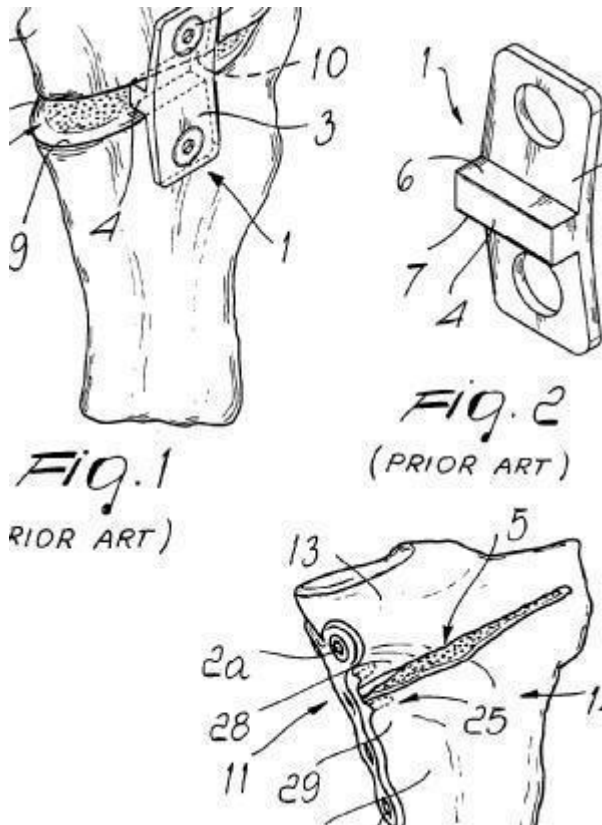
In this place, the following terms or expressions are used with the meaning indicated:

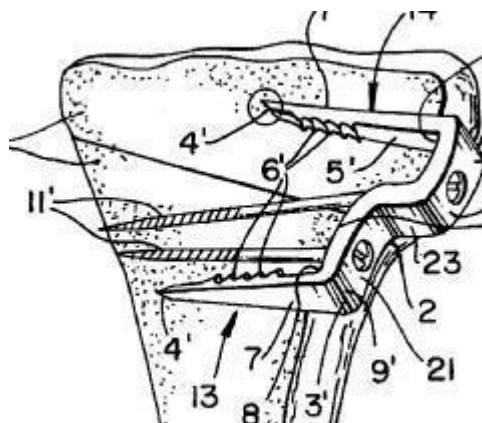
Spiked plate	plaque-agrafe in French
IM nails with an end plate	clou-plaque in French and Nagelplatte in German.

A61B 17/8095**{Wedge osteotomy devices}****Definition statement**

This place covers:

All devices for fixing an opening-wedge osteotomy (as in the first four figures) or a closing-wedge osteotomy (as in the last figure):

**FIG. 2C**



A61B 17/82

for bone cerclage {(apparatus for manipulating wires or straps [A61B 17/8861](#); wires, bands or straps other than cerclage [A61B 17/842](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wires, bands or straps other than for cerclage	A61B 17/842
Apparatus for manipulating flexible wires or straps	A61B 17/8861

A61B 17/823

{for the sternum}

Definition statement

This place covers:

All devices for osteosynthesis of the sternum.

A61B 17/842

{Flexible wires, bands or straps ([A61B 17/72](#), [A61B 17/82](#), [A61B 17/86](#) take precedence)}

References

Limiting references

This place does not cover:

Intramedullary devices	A61B 17/72
Cerclage devices	A61B 17/82
Threaded wires, pins or screws	A61B 17/86

A61B 17/846

{Nails or pins, i.e. anchors without movable parts, holding by friction only, with or without structured surface ([A61B 17/72](#), [A61B 17/86](#) take precedence)}

References**Limiting references**

This place does not cover:

Intramedullary devices	A61B 17/72
Threaded wires, pins or screws	A61B 17/86

Informative references

Attention is drawn to the following places, which may be of interest for search:

Nails, staples	F16B 15/00
----------------	----------------------------

A61B 17/86

Pins or screws {or threaded wires; nuts therefor ([A61B 17/72](#) take precedence)}

Definition statement

This place covers:

Threaded wires, threaded pins and screws, for fastening internal fixators to bone, cartilage or intervertebral disc; and nuts, washers and packaging therefor.

References**Limiting references**

This place does not cover:

Intramedullary nails	A61B 17/72
----------------------	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pins for external fixators	A61B 17/60
Devices for the head, neck or trochanter of the femur	A61B 17/74
Fasteners using screw-thread	F16B 25/00 – F16B 35/00

A61B 17/8605**{Heads, i.e. proximal ends projecting from bone}****References****Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Spinal positioners or stabilisers with screws or hooks combined with longitudinal elements which do not contact vertebrae	A61B 17/7001
---	------------------------------

A61B 17/8625**{Shanks, i.e. parts contacting bone tissue}****References****Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Screw-in dental implants	A61C 8/0018
--------------------------	-----------------------------

A61B 17/865**{Packages or dispensers for bone screws or threaded wires}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Racks for surgical articles	A61B 50/22
Packaging for dental implants	A61C 8/0087
Packaging for prostheses	A61F 2/0095
Kinds or types of packages	B65D

A61B 17/8665**{Nuts}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Nuts for connecting prosthetic parts	A61F 2002/30433
Nuts or like thread-engaging members	F16B 37/00

A61B 17/8695

{Washers (surrounding screw head in plate hole [A61B 17/8047](#), between bone plate and bone [A61B 17/8028](#))}

References**Limiting references**

This place does not cover:

Cushions between bone plate and bone	A61B 17/8028
Annuli surrounding screw heads in plate holes	A61B 17/8047

A61B 17/88

{Osteosynthesis instruments;} Methods or means for implanting or extracting internal {or external} fixation devices {([A61B 17/7074](#) takes precedence)}

References**Limiting references**

This place does not cover:

Tools specially adapted for spinal fixation operations	A61B 17/7074
--	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Special tools or methods for implanting or extracting artificial joints, accessories, bone grafts or substitutes, or particular adaptations therefor	A61F 2/46
--	---------------------------

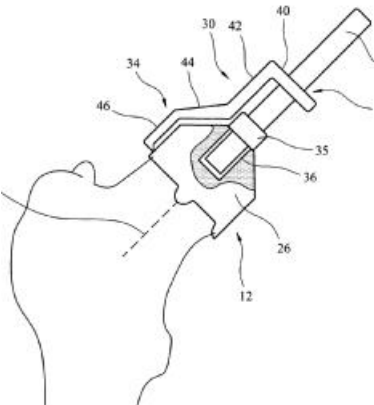
A61B 17/8802

{Equipment for handling bone cement or other fluid fillers}

Definition statement

This place covers:

An example of a device in this group - in this example the cement is applied on, rather than in, the bone:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cement for adhering prosthetic parts	A61F 2002/30448
Plugs or restrictors for bone cement	A61F 2/30723
Tools for filling disc chambers with fluid	A61F 2/441
Tools for introducing bone graft	A61F 2/4601
Tools for insertion of spinal prostheses	A61F 2/4611
Prostheses with coating of bone cement	A61F 2310/00952
Bone graft materials	A61L 27/3608
Syringes	A61M

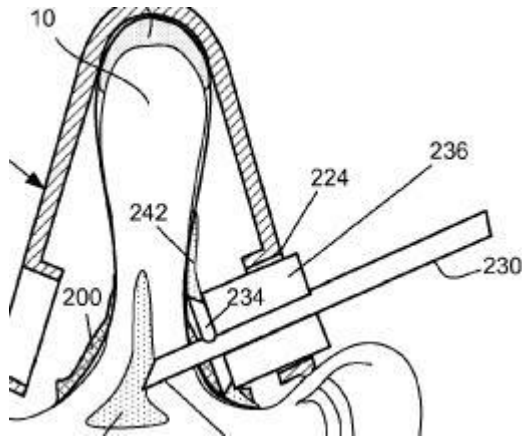
A61B 17/8805

{for introducing fluid filler into bone or extracting it ([A61B 17/7097](#), [A61B 17/8833](#) take precedence)}

Definition statement

This place covers:

Contains miscellaneous documents concerning introducing or removing fillers into or from bone, e.g:



which concerns guiding apparatus for the filler injector (230)

References

Limiting references

This place does not cover:

Stabilisers comprising fluid filler in an implant, e.g. balloon; devices for inserting or filling such implants	A61B 17/7097
Preparing or supplying cement or other fluid fillers	A61B 17/8833

Informative references

Attention is drawn to the following places, which may be of interest for search:

Glue applicators	A61B 17/00491
Trochars for intraosseous injections	A61B 17/3472
Injecting graft material	A61F 2/4601

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Injection of cement into the vertebra without prior creation of a cavity in it is called "vertebroplasty". If there is prior preparation of a cavity the procedure is "kyphoplasty".

A61B 17/8811

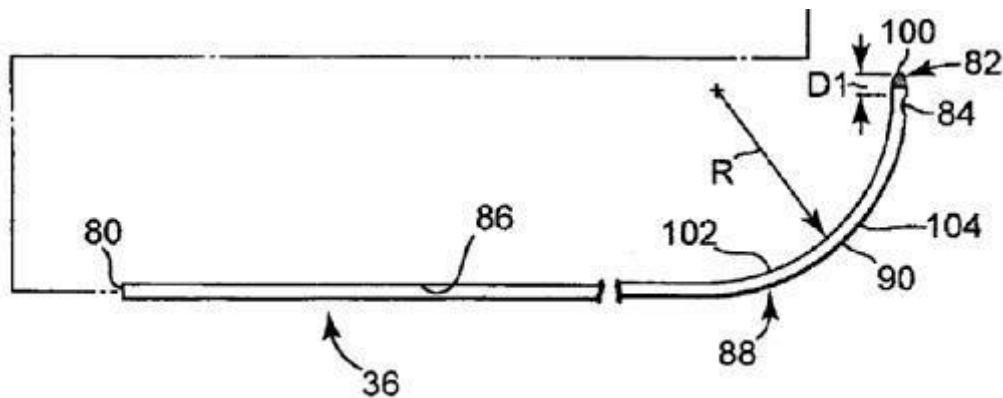
{characterised by the introducer tip, i.e. the part inserted into or onto the bone}

Definition statement

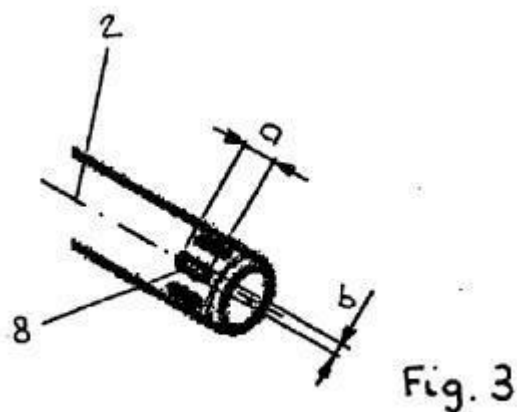
This place covers:

Illustrative example of subject matter classified in [A61B 17/8811](#)

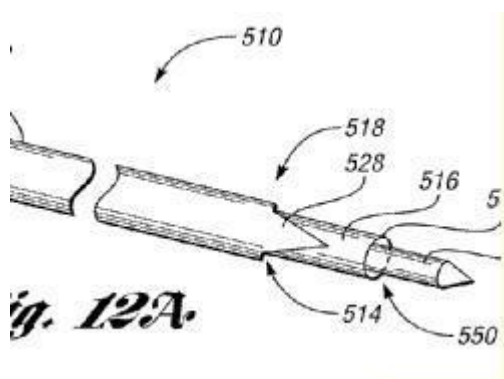
e.g. US2010121336:



US2010145277:

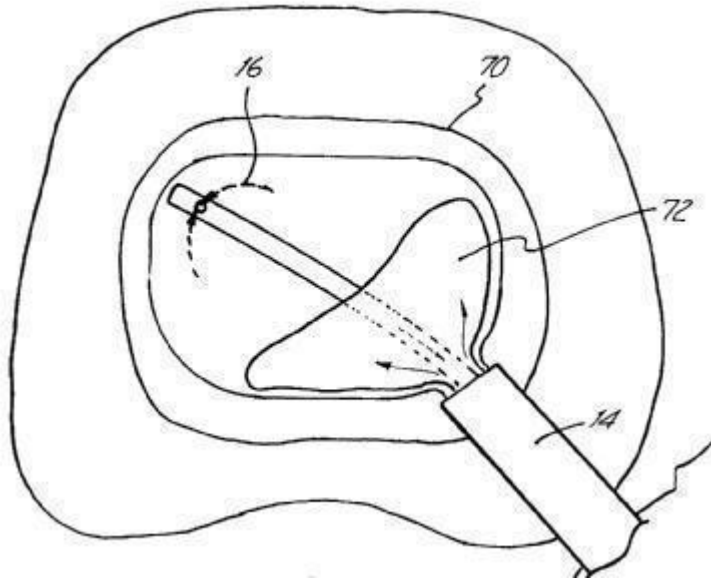


US2009163872:



Definition statement

In this example the tip is a container into which fluid is injected; the container can be opened or ruptured and then removed (which is why the document is not in [A61B 17/7097](#)) leaving the filler in place:

**A61B 17/8816**

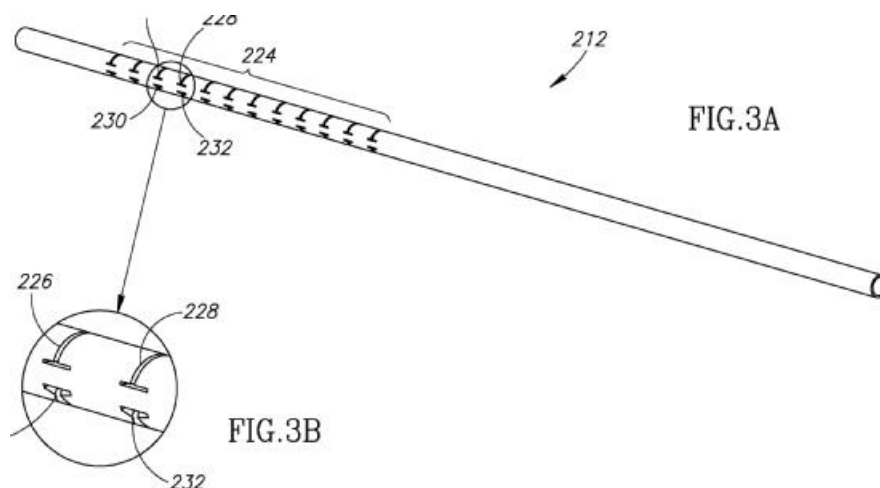
{characterised by the conduit, e.g. tube, along which fluid flows into the body or by conduit connections}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8816](#)

e.g. WO2007036815:



e.g (of connectors) CN201150561Y : T1 - Bone cement injection syringe AB - The utility model relates to a bone cement injector, which relates to an injector, and particularly relates to a bone cement injector for vertebral injection. The utility model provides a bone cement injector which has the advantages of convenient and swift operation, simple structure, low production cost and pollution prevention, which comprises an injection tube, a spiral push rod, an injection tube connector, a

Definition statement

connecting flexible pipe, a connecting flexible pipe joint and an injection needle, wherein the rear end of the injection tube is provided with a handle with an internal screw hole, the handle is connected with the spiral push rod through screw threads, the front end of the injection tube is connected with the injection tube connector through screw threads, the front portion of the spiral push rod is arranged in the injection tube, which forms relative rotation and piston-type sliding engagement with the inner cavity of the injection tube, the rear end of the spiral push rod is provided with a handle, one end of the connecting flexible pipe is connected with the injection tube connector, and the other end of the connecting flexible tube is connected with the connecting flexible pipe joint, and the connecting flexible pipe joint is connected with the injection needle.

A61B 17/8819

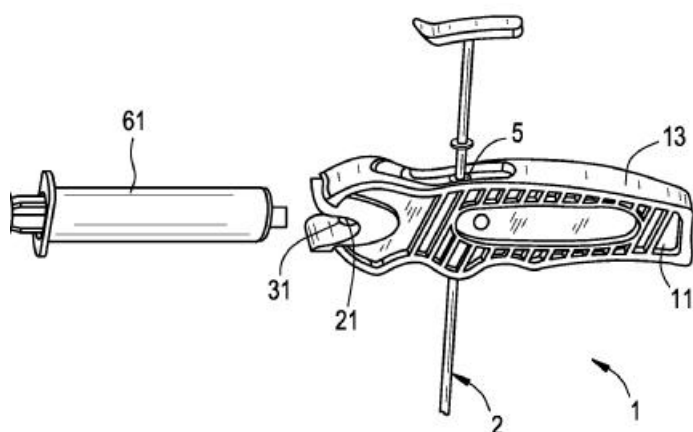
{characterised by the introducer proximal part, e.g. cannula handle, or by parts which are inserted inside each other, e.g. stylet and cannula ([A61B 17/8825](#) takes precedence)}

Definition statement

This place covers:

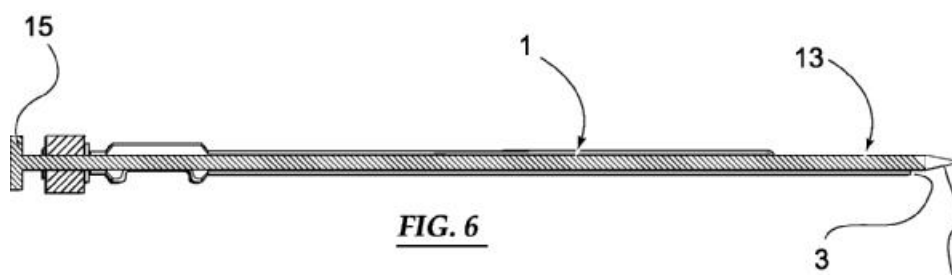
Illustrative example of subject matter classified in [A61B 17/8819](#)

e.g. (WO2008140519):

FIG. 3B

e.g. of nesting (WO2008011262):

An outer cannula (1) has a wall, an open end, an open distal end suitable for insertion into intraosseous cavity (27) of a spinal vertebra (26). A lumen extends between the proximal and distal ends. Wall has a side-port (5) situated near the distal end such that a lumen is fluidly coupled with the cavity. An inner cannula is received inside the outer cannula. Inner cannula has a second wall, an open proximal end, a closed distal end and a second lumen. Second wall has a side-port that aligns to outer cannula side-port for discharged of bone cement from within the second lumen into the cavity.



References

Limiting references

This place does not cover:

Equipment for introducing fluid filler characterised by syringe details	A61B 17/8825
---	------------------------------

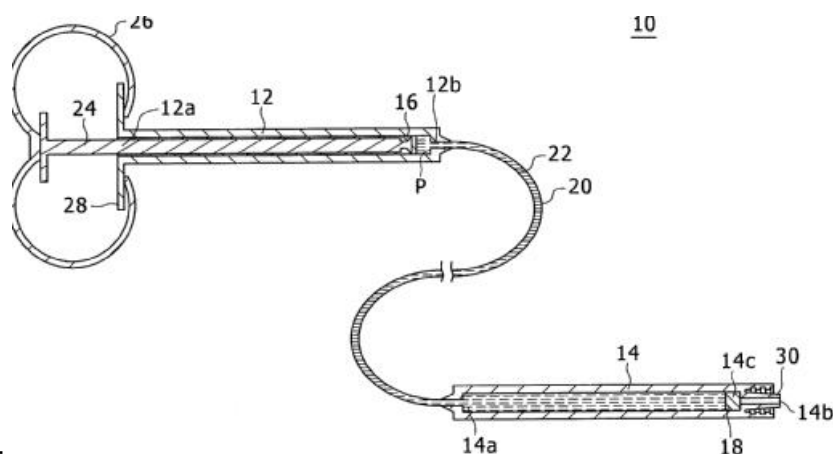
A61B 17/8822

{characterised by means facilitating expulsion of fluid from the introducer, e.g. a screw pump plunger, hydraulic force transmissions, application of vibrations or a vacuum}

Definition statement

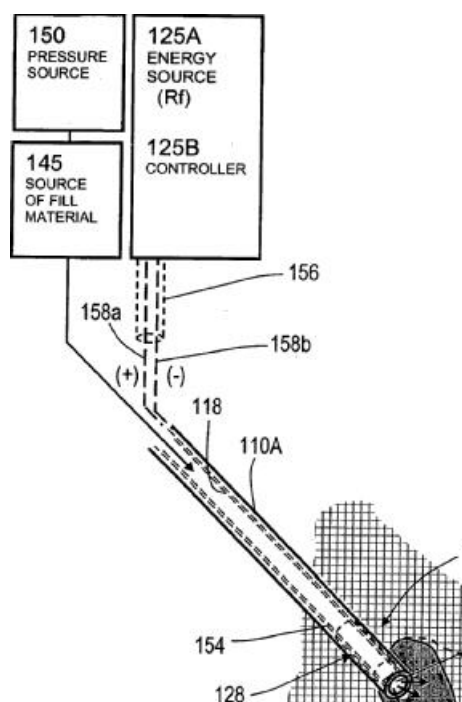
This place covers:

Illustrative example of subject matter classified in [A61B 17/8822](#)

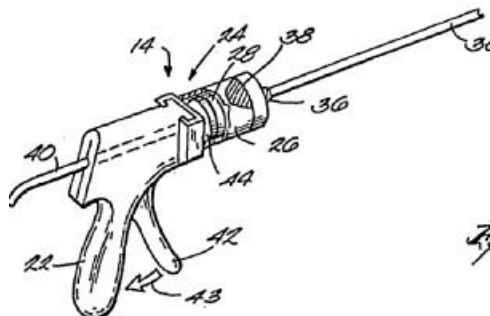


EP2269541:

US2006122625:



WO0200143:



A61B 17/8825

{characterised by syringe details ([A61B 17/8822](#), [A61B 17/8827](#) take precedence)}

References

Limiting references

This place does not cover:

Fluid filler introducers with means facilitating fluid expulsion	A61B 17/8822
Fluid filler introducers with filtering, degassing, venting or pressure relief means	A61B 17/8827

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tools for preparing fluid fillers e.g. bone cement	A61B 17/8833
Equipment for mixing cement or other fluid fillers for bones	A61B 2017/8838 , B01F 2101/20

A61B 17/8827

{with filtering, degassing, venting or pressure relief means}

Definition statement

This place covers:

e.g. EP0470393 (air vent), US2007255287 (pressure relief)

A61B 17/8833

{Osteosynthesis tools specially adapted for handling bone cement or fluid fillers; Means for supplying bone cement or fluid fillers to introducing tools, e.g. cartridge handling means}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Mixing devices	B01F
----------------	----------------------

A61B 17/8836

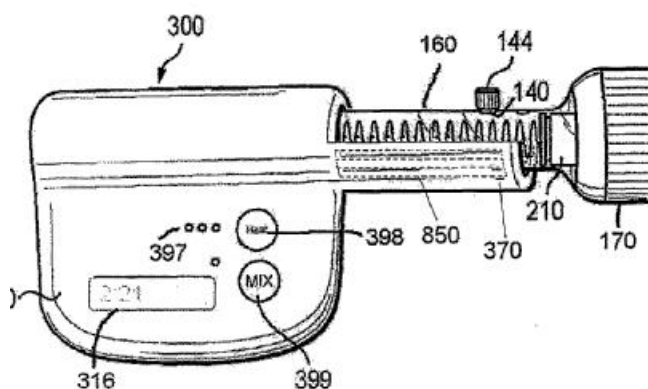
{for heating, cooling or curing of bone cement or fluid fillers}

Definition statement

This place covers:

Curing: EP16880979 The invention is based on the use of polyisobutylmethacrylate instead of PMMA as an adhesive or spinal fill material for treating diseases of the spine. Polyisobutylmethacrylate has several advantages over PMMA, mainly less heat is developed during the in situ polymerization process. When using any spinal adhesive or fill material that is light activated, a tube can be used to transmit activating light to the light-activated adhesive or spinal polymerizable fill material at the surgical site. In addition, a mesh bag comprising optical fibers or similar light transmitting material can be employed to receive the injected light-activated fill, with the mesh bag, irradiated externally, for directing the light via the bag to the polymerizable fill.

Heater (WO2010008814):

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hardening surgical adhesives	A61B 2017/005
------------------------------	-------------------------------

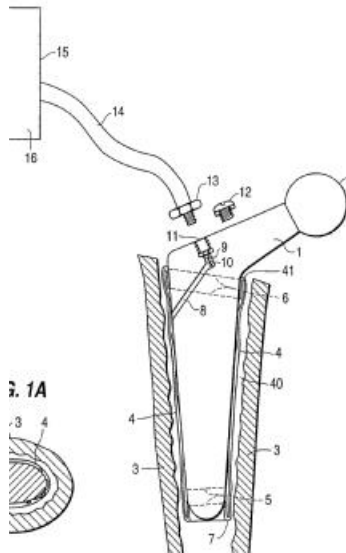
A61B 17/8841

{Tools specially adapted to engage a prosthesis}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8841](#)



A61B 17/885

{Tools for expanding or compacting bones or discs or cavities therein
([A61B 17/8805](#), [A61B 17/7097](#) take precedence)}

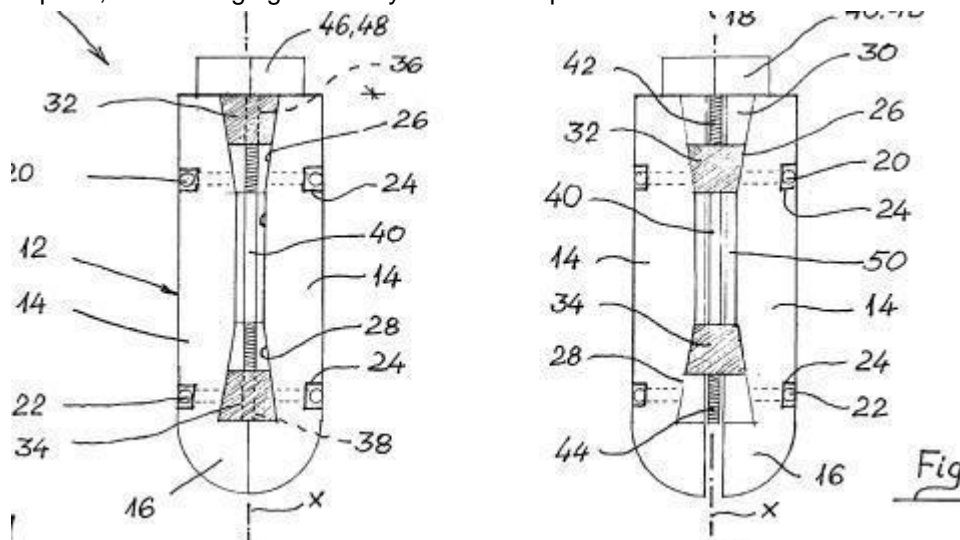
Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/885](#)

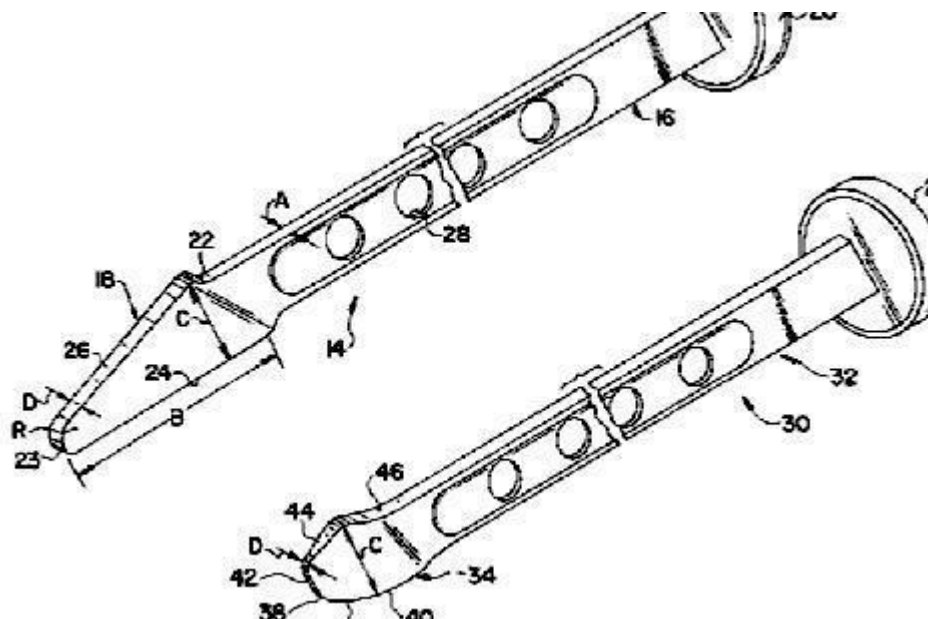
Example documents in this group:

- for the jaw: movement of wedges 32 causes the device to expand, thus enlarging the cavity for a dental prosthesis:

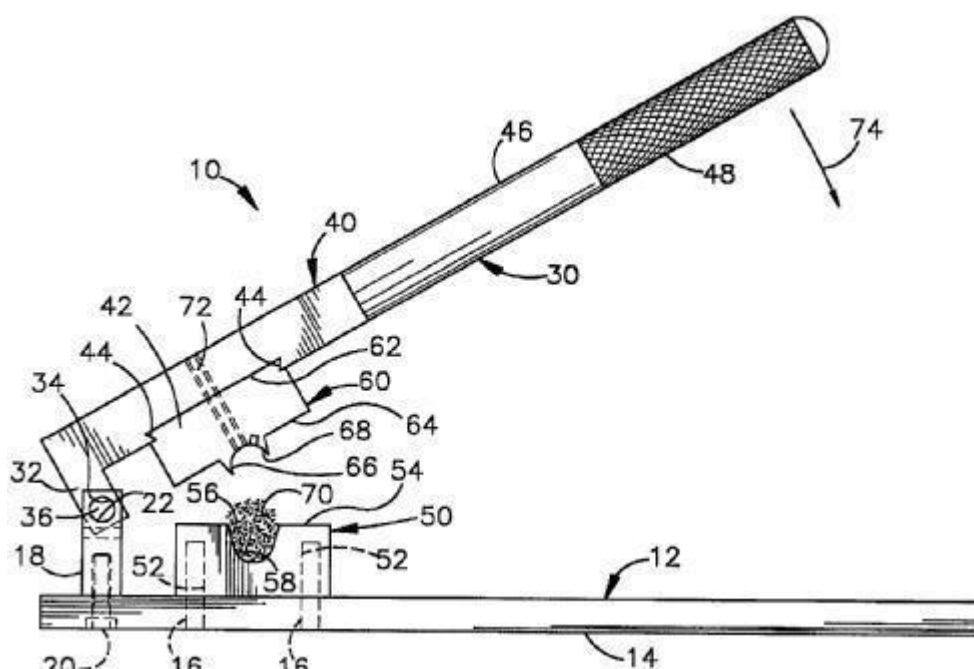


Definition statement

- blunt broaches for enlarging the intramedullary canal for hip prosthesis insertion:



- compacting bone graft to form implants



References

Limiting references

This place does not cover:

Stabilisers comprising fluid filler in an implant, e.g. balloon; devices for inserting or filling such implants	A61B 17/7097
Equipment for introducing fluid filler into bone or extracting it	A61B 17/8805

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compacting bone graft or substitute in the body	A61F 2/4601
Preparation of bone graft, bone plugs or bone dowels, e.g. grinding or milling bone material	A61F 2/4644

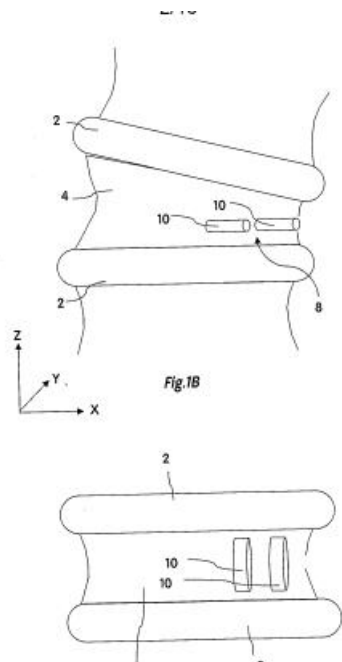
A61B 17/8852

{capable of being assembled or enlarged, or changing shape, inside the bone or disc}

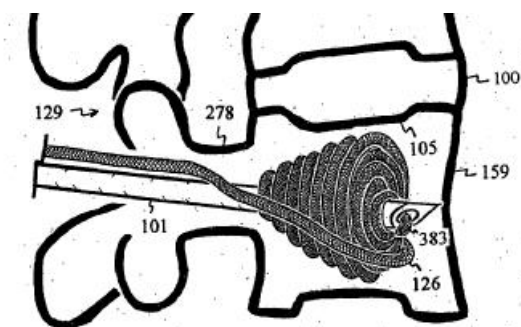
Definition statement

This place covers:

A device using shape memory effect:



Winding a coil to expand a vertebra:



A non-spinal example: a device for expanding a crushed long bone

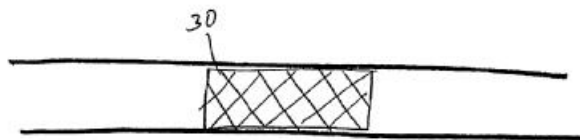
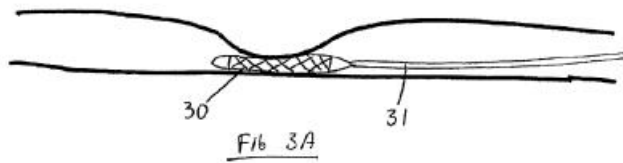
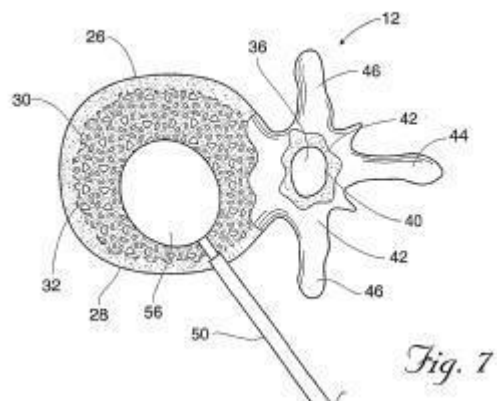
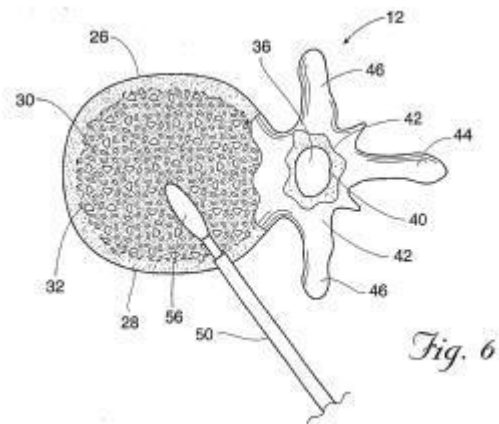


FIG 3B

Glossary of terms

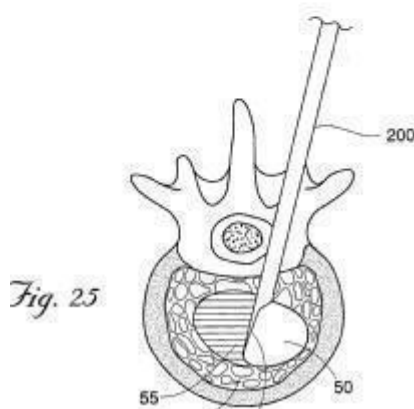
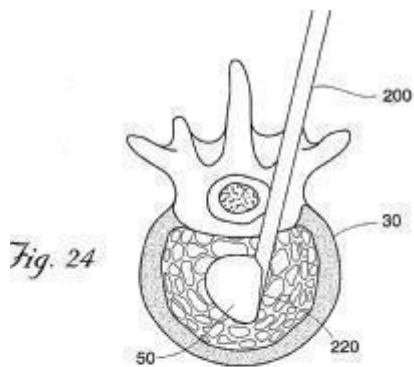
In this place, the following terms or expressions are used with the meaning indicated:

Kyphoplasty	Creating a vertebral cavity to be filled with reinforcing cement, typically by expanding a balloon
-------------	--

A61B 17/8855**{inflatable, e.g. kyphoplasty balloons}****Definition statement***This place covers:*Illustrative example of subject matter classified in [A61B 17/8855](#)

Definition statement

In this example fig.25 shows the balloon creating a second cavity after the first has been filled with material 55:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Balloon catheters	A61M 25/10
-------------------	----------------------------

A61B 17/8858

{laterally or radially expansible (inflatable [A61B 17/8855](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 17/8858](#)

Illustrative examples:

FIG. 15F

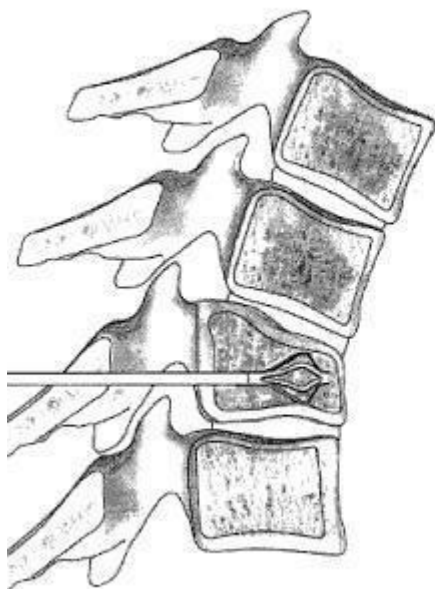


FIG. 15G

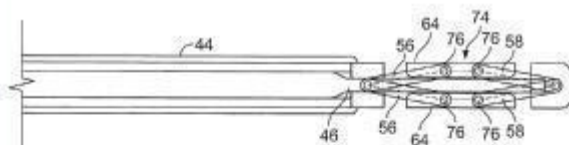
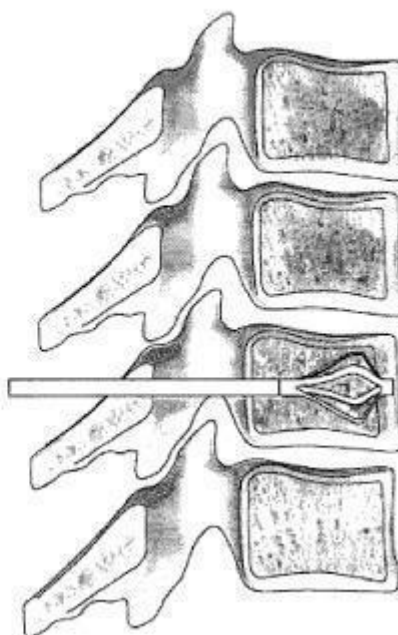


FIG. 7A

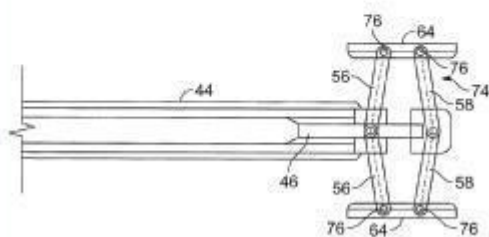
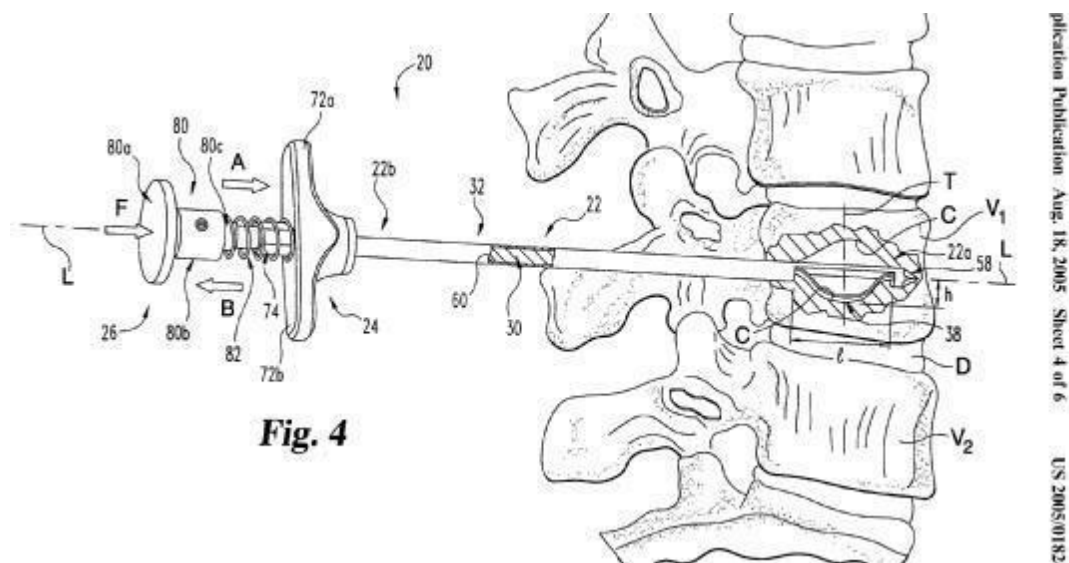
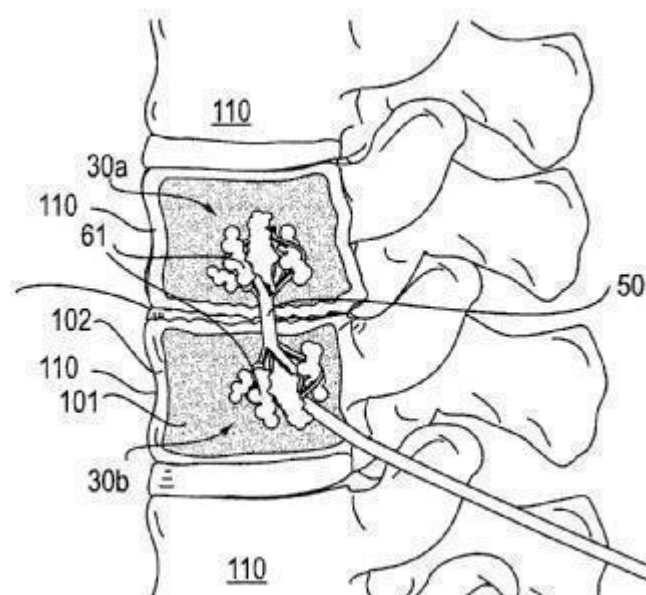


FIG. 7B



Sometimes a mechanically expandable device is left in place; there is no special class for this (unlike [A61B 17/7097](#) for containers left in place), so even though in this case the device is as much an implant as an instrument, nonetheless it is classified in [A61B 17/8858](#) (besides, unlike with containers, there is little or no difference between the structure and materials of mechanical expansion devices which are removed after use, and those which are left in place). Here is an example:



References

Limiting references

This place does not cover:

Inflatable bone expanders/compacters	A61B 17/8855
--------------------------------------	------------------------------

A61B 17/8861

{Apparatus for manipulating flexible wires or straps (devices for inserting Kirschner wires [A61B 17/1697](#))}

Definition statement

This place covers:

As well as devices explicitly for wires or straps, this group covers devices intended to manipulate cables or plastically deformable sutures.

References**Limiting references**

This place does not cover:

Devices for inserting Kirschner wires	A61B 17/1697
---------------------------------------	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bone cerclage	A61B 17/82
Wire working	B21F

A61B 17/8863

{Apparatus for shaping or cutting osteosynthesis equipment by medical personnel}

Definition statement

This place covers:

Apparatus for shaping or cutting by medical personnel.

Tools for breaking or fracturing osteosynthetic equipment.

Tools for adjusting the length of orthopaedic equipment.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Apparatus for manufacturing osteosynthetic equipment	A61B 2017/00526
Hand tools	B25B , B26B

A61B 17/8866

{for gripping or pushing bones, e.g. approximators (joint distractors
[A61B 17/025](#))}

References**Limiting references**

This place does not cover:

Distractors which pull bones apart other than via elements embedded in the bones	A61B 17/025
--	-----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Expanding bones to restore their shape using devices inserted in the bone	A61B 17/885
---	-----------------------------

A61B 17/8872

{Instruments for putting said fixation devices against or away from the bone
([A61B 17/7074](#), [A61B 17/808](#) take precedence)}

References**Limiting references**

This place does not cover:

Tools specially adapted for spinal fixation operations	A61B 17/7074
Instruments for holding or positioning bone plates	A61B 17/808

A61B 17/8897

{Guide wires or guide pins}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Guide wires for catheters	A61M 25/09
---------------------------	----------------------------

A61B 17/92

Impactors or extractors, e.g. for removing intramedullary devices {(insertion or extraction of artificial joints [A61F 2/4603](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Insertion or extraction of artificial joints	A61F 2/4603
--	-----------------------------

A61B 18/00

Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body (eye surgery [A61F 9/007](#); ear surgery [A61F 11/00](#))

Definition statement

This place covers:

Surgery, i.e. destruction, modification or removal of tissue, by non-mechanical forms of energy, mainly by heating or cooling the tissue beyond the temperature for irreversible tissue damage.

References**Limiting references**

This place does not cover:

Eye surgery (including lasers therefor)	A61F 9/007
Ear surgery	A61F 11/20

Informative references

Attention is drawn to the following places, which may be of interest for search:

Instruments for medical examination in the interior of the body, e.g. endoscopes	A61B 1/00
Instruments for examination of the eyes	A61B 3/00
Detecting, measuring or recording for diagnostic purposes	A61B 5/00
Apparatus for radiation diagnosis	A61B 6/00
Apparatus for ultrasound diagnosis	A61B 8/00
Ultrasonic mechanical disintegration of calculi etc.	A61B 17/22004
Implements for extracorporeal shock wave lithotripsy [ESWL], e.g. by using ultrasonic waves	A61B 17/225
Cutting with an ultrasonic vibrating blade	A61B 17/320068
Accessories for surgery or diagnosis	A61B 90/00
Lasers for dentistry	A61C 1/0046
Therapy by heating or cooling	A61F 7/00
Lasers in eye surgery	A61F 9/008

Involving or responsive to electricity, magnetism or acoustic waves; Galenical aspects of sonophoresis, iontophoresis, electroporation or electroosmosis	A61K 9/0009
Electrically-conducting adhesives	A61K 9/02
Suction or pumping for medical purposes	A61M 1/00
Mechanical or structural details of catheters	A61M 25/00
Details of catheter tip steering	A61M 25/0133
Electrotherapy	A61N 1/00
Magnetotherapy	A61N 2/00
Radiation therapy	A61N 5/00
Ultrasound therapy (including ultrasonic thermal destruction of tissue)	A61N 7/00
Working by laser beam	B23K 26/00
Materials for the production of heat or cold by chemical reaction	C09K 5/00
Light guides	G02B 6/00
Lasers in general	H01S 3/00
Generation of oscillations, AC generators	H03B 1/00

Special rules of classification

Control aspects for surgery not covered by [A61B 2018/00636](#) should be indexed using CPC codes [A61B 2017/00017](#) - [A61B 2017/00225](#). Additional features or accessories for surgery not covered by [A61B 18/00](#) should be classified in [A61B 90/00](#) or [A61B 34/00](#).

The use of the CPC indexing codes (2000-series symbols which include both breakdown and orthogonal symbols) is mandatory in this field. The breakdown and the orthogonal symbols of [A61B 17/00](#) are also used for documents classified in the main trunk of [A61B 18/00](#) to index relevant aspects for which no suitable symbol is available under [A61B 18/00](#), [A61B 2018/00005](#) or [A61B 2218/00](#).

The area relating to the body part being treated is classified in [A61B 2018/00315](#) - [A61B 2018/00565](#).

A61B 2018/00005

{Cooling or heating of the probe or tissue immediately surrounding the probe}

Definition statement

This place covers:

Cooling or heating an instrument or tissue NOT to be treated. The cooling or heating has no therapeutic or surgical effect, it just serves to maintain a normal thermal status which would be changed by the thermal therapeutic energy.

A61B 2018/00315

{for treatment of particular body parts}

Definition statement

This place covers:

The subgroups define various surgical applications or body areas which are treated.

Special rules of classification

Groups not used for invention information. Headgroup [A61B 2018/00315](#) not to be used for classification.

A61B 2018/00571

{for achieving a particular surgical effect}

Definition statement

This place covers:

The subgroups define various surgical effects achieved by the thermal energy.

Special rules of classification

Headgroup [A61B 2018/00571](#) not used for classification.

A61B 2018/00613

{Irreversible electroporation}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Applying electric currents for enhancing the absorption properties of tissue, e.g. by electroporation	A61N 1/327
---	----------------------------

A61B 2018/00636

{Sensing and controlling the application of energy}

Definition statement

This place covers:

The subgroups define various control aspects during thermal surgery.

Special rules of classification

Headgroup [A61B 2018/00636](#) not to be used for classification.

A61B 18/02

by cooling, e.g. cryogenic techniques

Definition statement

This place covers:

Cooling, i.e. cryogenic surgery.

Tissue destroyed by freezing.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cooling of probe heat treatment probe, reheating of cryoprobe and cooling or heating of non-target tissue surrounding thermally treated target tissue	A61B 2018/00005
Cooling for non-destructive therapy	A61F 7/10
Devices for cooling specific reflex points of the body within cell-life limits	A61H 39/06

A61B 18/04

by heating (by applying electromagnetic radiation [A61B 18/18](#))

Definition statement

This place covers:

Heating for tissue destruction in general. Specific energies used therefor in subgroups.

References

Limiting references

This place does not cover:

Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body by applying electromagnetic radiation	A61B 18/18
--	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for heating specific reflex points of the body within cell-life limits	A61H 39/06
Hyperthermia using electric or magnetic fields, radiation or ultrasound	A61N

A61B 18/042

{using additional gas becoming plasma}

Definition statement

This place covers:

The subgroups define various mechanical features of the treatment devices.

Special rules of classification

Headgroup [A61B 18/042](#) not to be used for classification.

A61B 18/06**caused by chemical reaction {, e.g. moxaburners}****Definition statement***This place covers:*

Using heat caused by chemical reaction, e.g. moxibustion.

A61B 18/08**by means of electrically-heated probes****Definition statement***This place covers:*

Using electrically heated probes. No current is guided through the tissue. Part of the probe itself is heated by current passing through it, e.g. due to its resistivity.

A61B 18/10**Power sources therefor****Definition statement***This place covers:*

Power sources for the electrically heated probes defined above.

A61B 18/12**by passing a current through the tissue to be heated, e.g. high-frequency current****Definition statement***This place covers:*Heating by passing electrical current through tissue to be heated, e.g. with RF frequencies. Electrodes themselves do not (substantially) heat up. Generators therefore in [A61B 18/1206](#).**A61B 18/14****Probes or electrodes therefor****Definition statement***This place covers:*

(Active) Electrodes and probes carrying those for passing current through tissue to be heated.

A61B 18/1445**{at the distal end of a shaft, e.g. forceps or scissors at the end of a rigid rod}****Special rules of classification**Indexing codes [A61B 2017/2901](#) – [A61B 2017/2948](#) are used to index specific structural features of forceps-type probes or electrodes.

A61B 18/16**Indifferent or passive electrodes for grounding****Definition statement**

This place covers:

Passive (indifferent, return, ground) electrodes for grounding the patient. Usually large surface electrodes to be attached to the patient to collect current emitted by the active electrode(s). No surgical effect intended under these passive electrodes.

A61B 18/18**by applying electromagnetic radiation, e.g. microwaves****Definition statement**

This place covers:

using electromagnetic radiation, e.g. light other than laser or microwaves ([A61B 18/1815](#)).

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Devices for therapy with light or microwaves	A61N 5/00 .
--	-----------------------------

A61B 18/20**using laser****Definition statement**

This place covers:

Using laser. Lasers for eye surgery to be classified in [A61F 9/008](#) and subgroups.

A61B 2018/2065**{Multiwave; Wavelength mixing, e.g. using four or more wavelengths}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Surgical instruments with a pilot laser	A61B 2018/2025
---	--------------------------------

A61B 18/22

the beam being directed along or through a flexible conduit, e.g. an optical fibre; {Couplings or} hand-pieces therefor

Definition statement

This place covers:

The laser beam being guided through a flexible conduit, e.g. optical fiber.

A61B 18/24

with a catheter ([A61B 18/26](#), [A61B 18/28](#) take precedence)

Definition statement

This place covers:

The laser beam being guided through a catheter or needle like introducer.

References**Limiting references**

This place does not cover:

for producing a shock wave, e.g. laser lithotripsy	A61B 18/26 .
for heating a thermal probe or absorber	A61B 18/28

A61B 18/26

for producing a shock wave, e.g. laser lithotripsy

Definition statement

This place covers:

The laser light producing a mechanical shock wave in a liquid or part of the device.

A61B 18/28

for heating a thermal probe or absorber

Definition statement

This place covers:

The laser heating a thermal probe or an absorber which transfers the heat to the tissue to be treated.

A61B 34/10

Computer-aided planning, simulation or modelling of surgical operations

Definition statement

This place covers:

Determination of a treatment plan for surgery.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

(non virtual) simulation	G05B 17/00
CAD computer aided design with virtual models	G06F 30/00
Image analysis	G06T 7/00
Healthcare informatics	G16H
ICT specially adapted for the handling or processing of patient-related medical or healthcare data	G16H 10/00

A61B 2034/105

{Modelling of the patient, e.g. for ligaments or bones}

Definition statement

This place covers:

also if model representation of body part is adapted / specifically registered;

software data model, e.g. after segmentation or mapping, pointing, surface reconstruction after scanning;

also determination of anatomic character lines (e.g. femoral axis determination, special planes), ligament tension.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Movement of an organ (i.e. brain shift)	A61B 2017/00694
Optical scanners, Terahertz scanners	A61B 2090/373

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Cleaning of dental devices	A61C 19/002
Cleaning of fluid or tube connectors	A61M 39/16
Endoscopes with cleaning features	A61B 1/121
Cleaning by methods involving presence of liquid or steam	B08B 3/00

Typical soft tissue models: mass spring model, FEM, mass tensor model

A61B 2034/108

{Computer aided selection or customisation of medical implants or cutting guides}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

For selection of endoprosthetic joints or for pre-operative planning	A61F 2002/4633
--	--------------------------------

A61B 34/20

Surgical navigation systems; Devices for tracking or guiding surgical instruments, e.g. for frameless stereotaxis

Definition statement

This place covers:

A system which measures just a relative position of, e.g. a tip of a certain instrument relative to, e.g. a wall of a blood vessel is not to be understood as a tracking system.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Detecting foreign bodies:	A61B 5/06
Position detection in general	G01S 1/00

A61B 2034/2046

{Tracking techniques}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Optical coordinate determination	G01B 11/005
----------------------------------	-----------------------------

Special rules of classification

For tracking based on tissue impedance combine with [A61B 2017/00026](#).

A61B 2034/2051**{Electromagnetic tracking systems}****Definition statement**

This place covers:

Includes MR-tracking if the electromagnetic signal of the apparatus is used, i.e. by an antenna on the tool, receiving an induced signal

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Endoscope positioning internal sensor	A61B 1/00158
Systems using NMR or MRI	A61B 2090/374
Coordinate measuring machines	G01B 7/008

Special rules of classification

If only the image is used with the tool visible on the image, classify in [A61B 90/37](#) and [A61B 2090/374](#)

A61B 2034/2059**{Mechanical position encoders}****Definition statement**

This place covers:

Not by marker but by relative movement of mechanical parts, i.e. rotation of potentiometer, registering of a moving strip pattern change of capacity.

Also position decoder in robotic arms.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Forward kinematics to calculate/estimate position of robot arm:	A61B 2034/102
---	-------------------------------

A61B 2034/2065**{Tracking using image or pattern recognition}****Definition statement**

This place covers:

Tracking by image analysis (automatic)

Special rules of classification

If tracking is by image analysis only, classify in [A61B 34/20](#) instead of in [A61B 34/20](#) together, e.g. with [A61B 2090/376](#), e.g. in case of a fluoroscopic image being analyzed.

[A61B 34/20](#) alone means the surgeon looks at the screen and acts accordingly.

[A61B 34/20](#) together with [A61B 2034/2065](#) means the system analyses the image, detects the location of the tool (e.g. in a video image) and then displays the tool, e.g. in a previously taken MRI image

A61B 2034/207

{Divots for calibration}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Calibration	A61B 2017/00725 , G01B 21/042 , G01B 21/045
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A61B 2034/2072

{Reference field transducer attached to an instrument or patient}

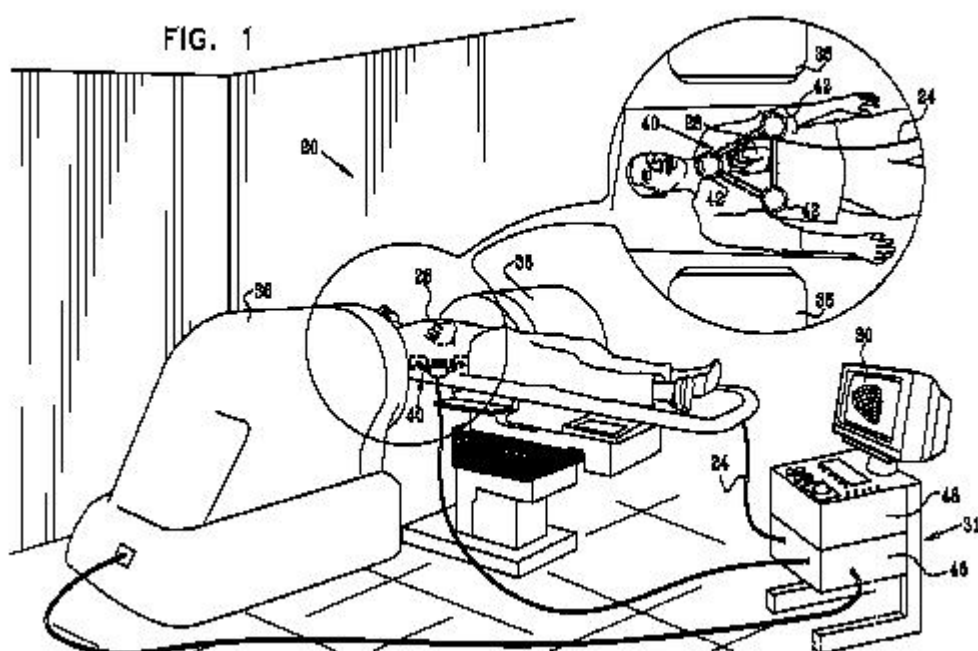
Definition statement

This place covers:

External field generators for triggering the position trackers having special features.

Reference units (to detect the emitted position signals) on moveable arms to be put close to the patient.

Not restricted to electromagnetic transducers



A61B 34/25**{User interfaces for surgical systems}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

User/computer interaction	G06F 3/048
---------------------------	----------------------------

A61B 2034/252**{indicating steps of a surgical procedure}****Definition statement***This place covers:*

The computer system indicating the surgeon what to do next (i.e. by prompting on the screen for a specific action to be taken).

A61B 2034/256**{having a database of accessory information, e.g. including context sensitive help or scientific articles}****Definition statement***This place covers:*

Including communication to hospital server/ other unit via network, e.g. patient information, preferences of a surgeon etc.

A61B 34/30**Surgical robots****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Mechanical encoders for the position of the robot arm	A61B 2034/2059
Steering catheters	A61M 25/0133
Robots in general	B25J 9/00
Robotic wrist joints	B25J 17/02

A61B 2034/301

{for introducing or steering flexible instruments inserted into the body, e.g. catheters or endoscopes}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Self propelled catheter	A61M 25/0105
Control is internal to a catheter	A61M 25/0116

A61B 2034/302

{specifically adapted for manipulations within body cavities, e.g. within abdominal or thoracic cavities}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Connected to the body wall	A61B 2017/00283
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A61B 2034/305

{Details of wrist mechanisms at distal ends of robotic arms}

Definition statement

This place covers:

proximal of the actual instrument held by the arm

A61B 34/37

Leader-follower robots ([A61B 34/35](#) takes precedence)

Definition statement

This place covers:

Robots with a separate console.

References**Limiting references**

This place does not cover:

Robots for telesurgery	A61B 34/35
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A61B 34/71**{Manipulators operated by drive cable mechanisms}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Steerable by drive cable or rod	A61B 2017/00323
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A61B 34/73**{Manipulators for magnetic surgery}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Capsule endoscopes	A61B 1/041
Magnets on catheters for steering	A61M 25/0127

A61B 34/74**{Manipulators with manual electric input means}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Hand gesture control.	A61B 2017/00207
Details of input devices	G06F 3/00

A61B 34/76**{Manipulators having means for providing feel, e.g. force or tactile feedback}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Input arrangements with force or tactile feedback	G06F 3/016
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A61B 42/00

Surgical gloves; Finger-stalls specially adapted for surgery; Devices for handling or treatment thereof

References**Limiting references**

This place does not cover:

Glove-boxes for manipulating, gloves therefor	B25J 21/02
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A61B 42/30

Devices for detecting perforations, leaks or tears

References**Limiting references**

This place does not cover:

Gloves in general	A41D 19/00
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A61B 46/00

Surgical drapes

References**Limiting references**

This place does not cover:

Bandages, dressings or absorbent pads	A61F 13/00
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A61B 46/10

specially adapted for instruments{, e.g. microscopes}

References**Limiting references**

This place does not cover:

For part of endoscope entering the body	A61B 1/00142
For dental instruments	A61C 1/16

Informative references

Attention is drawn to the following places, which may be of interest for search:

For part of an endoscope entering the body	A61B 1/00142
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A61B 2046/201**{for extremities, e.g. having collection pouch}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Tubular drapes, e.g. for arm or legs	A61B 46/27
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A61B 46/23**with means to retain or hold surgical implements****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Holders for articles	A61B 50/20
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A61B 46/27**tubular, e.g. for arms or legs ([A61B 46/13](#) takes precedence)****References****Limiting references***This place does not cover:*

Surgery through the lower body openings, e.g. urology, gynaecology	A61B 46/30
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A61B 50/00**Containers, covers, furniture or holders specially adapted for surgical or diagnostic appliances or instruments, e.g. sterile covers (drapes specially adapted for instruments [A61B 46/10](#))****References****Limiting references***This place does not cover:*

Instrument-protective drapes	A61B 46/10
Apparatus for preservation of excised living parts of the human or animal body	A01N 1/142

Informative references*Attention is drawn to the following places, which may be of interest for search:*

Cleaning devices for surgical instruments	A61B 90/70
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For preservation of living parts of the human or animal body	A01N 1/10
Disinfection or sterilisation of materials or objects, in general; Accessories therefor	A61L 2/00
For cleaning for sterilising hypodermic or infusion needles or syringes	A61M 5/001

A61B 2050/0067

{Types of closures or fasteners}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Having adhesives means	A61B 2050/002
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A61B 2050/007

{Locking clamps}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Toggle latches or clamps	A61B 2050/0074
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A61B 2050/0071

{Draw-strings}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ties	A61B 2050/0073
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A61B 2050/0073

{Ties}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Draw-strings	A61B 2050/0071
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A61B 2050/0074**{Toggle latches or clamps}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Locking clamps	A61B 2050/007
Swingable wire bails	A61B 2050/0075

A61B 2050/0075**{Swingable wire bails or handles}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Toggle latches or clamps	A61B 2050/0074
Carrying handles	A61B 2050/3011

A61B 2050/0076**{having additional locking means}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Permanent closure means	A61B 2050/0089
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A61B 50/10**Furniture specially adapted for surgical or diagnostic appliances or instruments****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Supports for surgeons	A61B 90/60
Medicine cabinets	A47B 67/00
Accommodation for nursing	A61G 12/00

A61B 50/13**Trolleys{, e.g. carts}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Other holding stands	A61B 50/24
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A61B 50/20

Holders specially adapted for surgical or diagnostic appliances or instruments (drapes with means to hold surgical instruments [A61B 46/23](#); for catheters [A61M 25/02](#))

References**Limiting references***This place does not cover:*

Holders for suture needles or materials	A61B 17/06061
Drapes with means to hold surgical instruments	A61B 46/23
Supports as part of surgical instruments	A61B 90/50
Hangers for particular articles	A47F 7/00
For tooth drills	A61C 3/04
For receptacles and tubing attached to beds	A61G 7/0503
For pharmaceutical containers	A61J 1/16
For irrigation devices	A61M 3/0266
Racks for syringes or for hypodermic or infusion needles	A61M 5/008
For infusion devices	A61M 5/1414
For catheters	A61M 25/02
Holding devices for laboratory apparatus	B01L 9/00
Racks for work tools	B25H 3/04

A61B 50/24**Stands (Mayo stands [A61B 50/15](#))****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Mayo stands	A61B 2050/155
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A61B 50/30

Containers specially adapted for packaging, protecting, dispensing, collecting or disposing of surgical or diagnostic appliances or instruments (for wound clamps [A61B 17/10](#); for ligaturing clips [A61B 17/122](#); packages or dispensers for surgical gloves or finger-stalls [A61B 42/40](#))

References

Limiting references

This place does not cover:

For endoscopes	A61B 1/00142
For test samples	A61B 10/0096
For surgical needles or sutures	A61B 17/06114
For ligaturing clips	A61B 17/1222
For gloves or finger-stalls	A61B 42/40
For dental floss	A61C 15/043
For dental instruments	A61C 19/02
For prostheses	A61F 2/0095
For contraceptive devices	A61F 6/005
For bandages or the like	A61F 15/001
For pharmaceutical products	A61J 1/00
Kits for diabetics	A61M 5/002
For catheters	A61M 25/002
In general	B65D
- e.g. with dispensing means	B65D 83/00
- e.g. for ampoules	B65D 85/42
Clinical contact thermometers for use with humans or animals	G01K 13/20
For optical fibres	G02B 6/444
For X-ray films	G03C 3/003

Informative references

Attention is drawn to the following places, which may be of interest for search:

For MIS instruments	A61B 2017/00362
For suture anchors	A61B 2017/0416
For MIS suturing instruments	A61B 2017/0479
For surgical stapler	A61B 2017/0688
For bone screw or threaded wires	A61B 17/865

A61B 50/3001

{for sharps}

References**Limiting references***This place does not cover:*

For suture needles	A61B 17/06114
For wound clamps	A61B 17/105
For scalpel-blades	A61B 17/3215
For used sharps	A61B 50/362
For syringes or for hypodermic or infusion needles	A61M 5/002 , A61M 5/1626 , A61M 5/3202
Packages for needles in general	B65D 85/24

A61B 2050/3002

{including foam blocks for retaining sharps}

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

For retaining suture needles or sutures	A61B 2017/06147
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A61B 2050/3005

{containing a preservative liquid, e.g. an antiseptic liquid}

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Bactericidal products in casings for used articles	A61B 50/39
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A61B 2050/3008

{having multiple compartments}

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Flexible multi-pouches	A61B 2050/318
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A61B 2050/3011**{having carrying handles}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Swingable locking handles	A61B 2050/0075
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A61B 2050/3014**{waterproof}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

For prostheses	A61F 2250/0076
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A61B 2050/3015**{transparent}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

For surgical instruments or accessories	A61B 2017/00902
For prostheses	A61F 2250/0091

A61B 50/31**Carrying cases or bags, e.g. doctors' bags****References****Limiting references***This place does not cover:*

Bags for midwives	A61B 17/48
Bags in general	A45C
First-aid kits	A61F 17/00

A61B 50/312**{Doctors' or nurses' bags}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Carried on clothing or back	A61B 2050/301
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A61B 50/33**Trays****References****Limiting references***This place does not cover:*

Serving trays	A47G 23/06
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A61B 50/36**for collecting or disposing of used articles****References****Limiting references***This place does not cover:*

For sutures	A61B 17/06161
Accessories for operating tables, e.g. for collecting body wastes	A61G 13/10
Combustible sputum cups	A61J 19/06
Sterilising refuse	A61L 11/00
For destroying hypodermic or infusion needles or syringes	A61M 5/3278
Disposal of medical waste by destroying it or transforming it into something useful or harmless	B09B 3/00
For domestic refuse or the like	B65F

Informative references*Attention is drawn to the following places, which may be of interest for search:*

Refuse receptacles in general	B65F 1/00 and B65F 2210/00
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A61B 50/362**{for sharps}****References*****Limiting references****This place does not cover:*

For suture needles	A61B 17/06161
For scalpel-blades	A61B 17/3217
For syringes or for hypodermic or infusion needles	A61M 5/3205

A61B 2050/364**{having additional means for destroying used sharps}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

For destroying used hypodermic needles or infusion needles or syringes	A61M 5/3278
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A61B 50/37**for absorbent articles, e.g. bandages, garments, swabs or towels****References*****Limiting references****This place does not cover:*

Devices for determining blood loss	A61B 5/02042
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A61B 2050/375**{for sponges}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Counting means	A61B 2090/0804
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A61B 50/39

the containers containing antimicrobial, antiviral or disinfectant agents

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Preservative liquid in packages or dispensers	A61B 2050/3005
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A61B 90/00

Instruments, implements or accessories specially adapted for surgery or diagnosis and not covered by any of the groups [A61B 1/00](#) - [A61B 50/00](#), e.g. for luxation treatment or for protecting wound edges

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Protective face masks	A41D 13/11
Surgeons' or patients' gowns or dresses	A41D 13/12
Devices for carrying-off, for treatment of, or carrying-over, body liquids	A61M 1/00

Special rules of classification

The breakdown indexing codes and orthogonal indexing codes are to be used for classifying the invention information (in addition to the invention symbols) in case the invention is insufficiently classified by an invention information symbol. They are also to be used for classifying the additional information.

A61B 90/02

{Devices for expanding tissue, e.g. skin tissue (implements for holding wounds open, surgical tractors [A61B 17/02](#); implantable mammary prosthesis [A61F 2/12](#); dilators [A61M 29/00](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Surgical tractors	A61B 17/02
Implantable mammary prosthesis	A61F 2/12
Dilators	A61M 29/00

A61B 2090/031**{torque limiting}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Dental torque limiters	A61C 1/186
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A61B 2090/037**{with a frangible part, e.g. by reduced diameter}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

For implantable prosthetic joints	A61F 2002/30561
For prostheses	A61F 2250/0071

A61B 90/04**{Protection of tissue around surgical sites against effects of non-mechanical surgery, e.g. laser surgery (protection of eyes against laser radiation [A61F 9/022](#))}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Protection of eyes against laser radiation	A61F 9/022
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A61B 90/05**{Splash shields for protection of the surgeon, e.g. splash guards connected to the apparatus}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Garments with built-in harnesses	A41D 13/0007
Protective face masks	A41D 13/11

A61B 90/06**{Measuring instruments not otherwise provided for}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring/detecting at the treatment site for control purposes	A61B 2017/00022
For implanting artificial joints	A61F 2/4657
For non-implantable prostheses	A61F 2002/7615

A61B 2090/061**{for measuring dimensions, e.g. length}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Measuring penetration depth	A61B 2090/062
Measuring of cardiac valve or valve annulus	A61F 2/2472

A61B 2090/0801**{Prevention of accidental cutting or pricking}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Protective suturing devices	A61B 17/0493
Blunt suture needles	A61B 2017/06085
Blunt dissectors	A61B 2017/320044
For trocars	A61B 17/3496
Means for protection against accidental injuries by used needles	A61M 5/321

A61B 2090/0811**{for the position of a particular part of an instrument with respect to the rest of the instrument, e.g. position of the anvil of a stapling instrument}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Orientation indicators for gripping	A61B 2017/00455
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A61B 2090/0813**{Accessories designed for easy sterilising, i.e. re-usable}****Definition statement***This place covers:*

Also used for tools having design features for easy sterilising such as features for taking a tool apart easily.

A61B 2090/0815**{Implantable devices for insertion in between organs or other soft tissues}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Plugging wall openings	A61B 17/0057
Retractors	A61B 17/02
Bone joint inserts	A61B 17/562
Tissue expanders	A61B 90/02
Implantable mesh grafts	A61F 2/0063

A61B 2090/0817**{Spatulas or spatula like extensions}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Endoscopes with cleaning features	A61B 1/121
For vein removal:	A61B 17/00008
For ultrasonic devices:	A61B 2017/320078
Cleaning of dental devices	A61C 19/002
Cleaning of fluid or tube connectors	A61M 39/16
Cleaning by methods involving presence of liquid or steam	B08B 3/00

A61B 90/10**for stereotaxic surgery, e.g. frame-based stereotaxis****Definition statement***This place covers:*

for surgery of small targets, mainly inside the brain but also in the breast or other soft tissue.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Radio-opaque marker	A61B 90/39
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A61B 2090/103

{Cranial plugs for access to brain}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Access ports for other organs	A61B 17/3423
Access sites for bone	A61M 2039/025

A61B 90/11

with guides for needles or instruments, e.g. arcuate slides or ball joints

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Needle guiding or locating	A61B 17/3403
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A61B 90/14

Fixators for body parts, e.g. skull clamps; Constructional details of fixators, e.g. pins

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tables with compression means for mammography	A61B 6/0414
Tables with patient immobilising means for radiation diagnosis	A61B 6/0421
Bone screws or pins	A61B 17/86

A61B 90/17**for soft tissue, e.g. breast-holding devices****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Breast surgery	A61B 2017/00796
Breast tissue markers	A61B 2090/3908

A61B 90/20**Surgical microscopes characterised by non-optical aspects****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Ophthalmoscopes:	A61B 3/13
Surgical microscopes	G02B 21/0012

Special rules of classification

If the invention is more linked to surgical aspects or in combination with other surgical devices it should be classified in [A61B 90/20](#). If it deals mainly with technical aspects concerning for instance the optics, it should be classified in [G02B 21/0012](#).

A61B 90/30**Devices for illuminating a surgical field, the devices having an interrelation with other surgical devices or with a surgical procedure****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Endoscopes for respiratory tract with illuminating arrangements	A61B 1/267
Bronchoscopes with illuminating arrangements	A61B 1/2676
Instruments for performing medical examinations of vagina with illuminating arrangements	A61B 1/303
Wall mounted illumination of surgical working place	F21S 8/033
Lighting operating theatres	F21W 2131/205

A61B 2090/306

{using optical fibres}

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Light guides	G02B 6/00
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A61B 2090/308

{Lamp handles}

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Hand grips for operation or dentist lamps	F21V 21/403
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A61B 90/361

{Image-producing devices, e.g. surgical cameras}

References**Limiting references***This place does not cover:*

Surgical microscopes:	A61B 90/20
Systems with images on a monitor:	A61B 90/37

Informative references*Attention is drawn to the following places, which may be of interest for search:*

Capsule endoscopes	A61B 1/041
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A61B 2090/364

{Correlation of different images or relation of image positions in respect to the body}

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Detecting body movement for diagnosis	A61B 5/11
Modelling using patient body	A61B 2034/105

A61B 2090/365

{augmented reality, i.e. correlating a live optical image with another image}

Special rules of classification

If only a trajectory is overlaid on the image, classify in [A61B 2034/107](#) only;

If only the tool i.e. a representation of the tool is overlaid, this is not enough to classify with this code.

If only virtual haptic boundary is present: classify in [A61B 34/76](#).

A61B 2090/371

{with simultaneous use of two cameras}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Stereo radiography	A61B 6/022
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A61B 2090/372

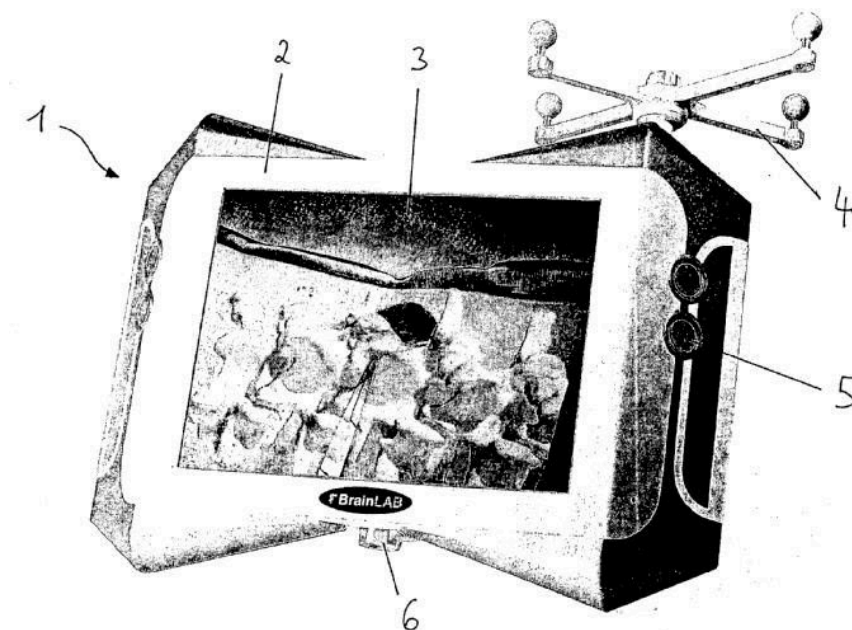
{Details of monitor hardware}

Definition statement

This place covers:

Hardware details of viewing device, e.g. viewing sensor; determining that a viewer is viewing.

Illustrative example of subject matter classified in this group:



A61B 2090/373**{using light, e.g. by using optical scanners}****Definition statement***This place covers:*

Includes laser scanners i.e. for surface registration.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Surface scanners in dental field	A61C 9/004 , A61C 9/0053
Projecting of images/ contour detection	G01B 11/24 , G01B 11/25
Scanning devices in general	G01B 11/24

Special rules of classificationIf a model is built upon the information, [A61B 2034/105](#) should also be given.**A61B 2090/374****{NMR or MRI}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Instruments specially adapted for MRI	A61B 2017/00911
Surgical navigation systems; Devices for tracking or guiding surgical instruments, e.g. for frameless stereotaxis	A61B 34/20
Tracking using the electric effect of the MRI RF coils on a coil by evaluating the induced system:	A61B 2034/2051
Automatic image recognition used for the tracking	A61B 2034/2065
Invasive instruments for MRI	G01R 33/285

A61B 2090/3762**{using computed tomography systems [CT]}****Definition statement***This place covers:*

including multislice CT

A61B 2090/378**{using ultrasound}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Needle guides with ultrasound guidance	A61B 2017/3413
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A61B 90/39**{Markers, e.g. radio-opaque or breast lesions markers}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Mechanical markers for eye keratotomy	A61F 9/0136
Markers in surgical tampons or sponges	A61F 13/44
Sponges/dressings with markers	A61F 13/44
Markers for catheters	A61M 25/0108
Calibration of imaging systems, e.g. using test probes	G01R 33/58
Testing of X-ray installation, e.g. by phantoms	G06F 3/0488

A61B 2090/392**{Radioactive markers}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Radium seeds	A61N 5/1001
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A61B 2090/3937**{Visible markers}****Definition statement***This place covers:*

Includes laser marks e.g. a laser point guiding for a laparoscope.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Identification means coded with symbols	A61B 90/94
Visible markers on catheters	A61M 2025/0008
Optical identification markers of media introduction devices	A61M 2205/6063

A61B 2090/3954

{magnetic, e.g. NMR or MRI}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Magnetic markers on catheters	A61M 25/0127
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A61B 2090/3966

{Radiopaque markers visible in an X-ray image}

Definition statement

This place covers:

Radiopaque, having particular properties, not just leaving a shadow on the x-ray.

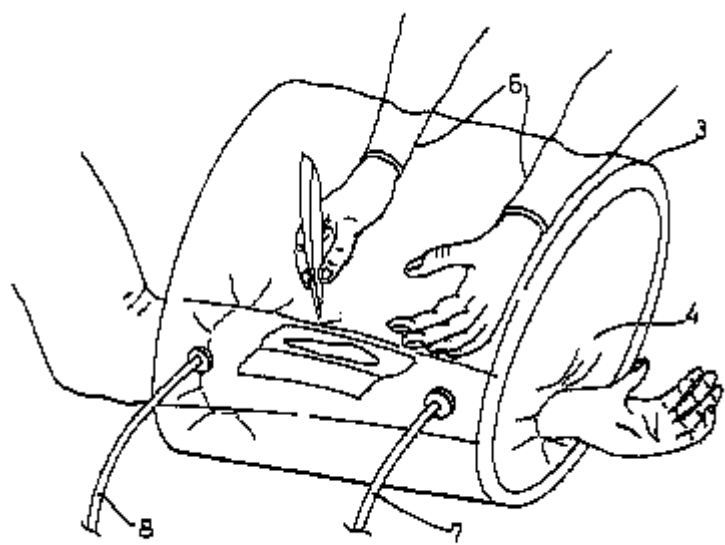
A61B 90/40

Apparatus fixed or close to patients specially adapted for providing an aseptic surgical environment

Definition statement

This place covers:

Illustrative example of subject matter classified in [A61B 90/40](#)



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Drapes	A61B 46/00
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A61B 90/50

Supports for surgical instruments, e.g. articulated arms

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscope positioning articulated arms	A61B 1/00149
Surgical manipulators	A61B 34/70
Holders for articles	A61B 50/20
Accessories for operation tables	A61G 13/10
Stands as supports for apparatus or articles in general	F16M 11/00

Stands with ball joints	F16M 11/14
Supports for lighting	F21V 21/00
Supports for optical elements	G02B 7/001

A61B 2090/5025

{with a counter-balancing mechanism}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Counterbalancing structure (e.g. surgical microscope)	G02B 7/001
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A61B 2090/508

{with releasable brake mechanisms}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Lockable arms (mostly of the tension cable lock-type) are common in cardiac retractors:	A61B 2017/0237
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A61B 90/60

Supports for surgeons, e.g. chairs or hand supports (seats for dentists or surgeons associated with dental chairs or operating chairs [A61G 15/08](#))

References

Limiting references

This place does not cover:

Seats for dentists or surgeons associated with dental chairs or operating chairs	A61G 15/08
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Wrist support platforms	A47B 21/0371
Chairs in general	A47C
Ergonomic chairs	A47C 9/002

A61B 90/70**Cleaning devices specially adapted for surgical instruments****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Endoscopes with cleaning features	A61B 1/121
Cleaning of dental devices	A61C 19/002
Disinfection or sterilisation of materials or objects, in general; Accessories therefor	A61L 2/00
Cleaning of fluid or tube connectors	A61M 39/16
Cleaning in General	B08B
Cleaning by methods involving presence of liquid or steam	B08B 3/00

A61B 2090/701

{for flexible tubular instruments, e.g. endoscopes}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

For cleaning features on endoscopes	A61B 1/121
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A61B 2090/702

{Devices for testing the cleaning process, e.g. test soils}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Devices for testing the effectiveness or completeness of sterilisation or disinfection, e.g. indicators which change colour	A61L 2/28
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A61B 90/80**Implements for cleaning or washing the skin of surgeons or patients****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hand held absorbent pads containing cleaning liquid	A61M 35/006
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A61B 90/90**Identification means for patients or instruments, e.g. tags****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

For scanning devices	G06K 7/00
RFID tags	G06K 19/07

A61B 90/98**using electromagnetic means, e.g. transponders****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Arrangements for sensing record carrier	G06K 7/00
RFID tags	G06K 7/00

A61B 2503/00**Evaluating a particular growth phase or type of persons or animals****Definition statement***This place covers:*Particular types of patients or of subject under examination using apparatus and methods according to [A61B 5/00](#)**A61B 2503/02****Foetus****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Transmission of foetal data	A61B 5/0011
Measuring heart rate of foetus	A61B 5/02411
Pregnancy / labour monitoring	A61B 5/4343
Sensor adapted to attachment to the uterus	A61B 5/6875

A61B 2503/04

Babies, e.g. for SIDS detection

Definition statement

This place covers:

Infants up to around 1 year old

A61B 2503/06

Children, e.g. for attention deficit diagnosis

Definition statement

This place covers:

Older children

A61B 2503/10

Athletes

Definition statement

This place covers:

Evaluation of subjects, usually healthy, while practicing sports.

A61B 2503/12

Healthy persons not otherwise provided for, e.g. subjects of a marketing survey

Definition statement

This place covers:

E.g., evaluate responses of the public to stimuli such as advertisements for marketing purposes

A61B 2503/20

Workers

Definition statement

This place covers:

Evaluation of subjects while working

A61B 2503/22

Motor vehicles operators, e.g. drivers, pilots, captains

Definition statement

This place covers:

Evaluation of subjects while conducting means of transport

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluate vehicle drivers, e.g. for sleepiness	A61B 5/18
Sensors mounted on cars	A61B 5/6893

A61B 2503/42

for laboratory research

Definition statement

This place covers:

E.g., testing drugs

A61B 2562/0209

Special features of electrodes classified in [A61B 5/24](#), [A61B 5/25](#), [A61B 5/283](#), [A61B 5/291](#), [A61B 5/296](#), [A61B 5/053](#)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electrodes for electrosurgery	A61B 18/14
Electrodes for stimulation	A61N 1/04

A61B 2562/0295

Strip shaped analyte sensors for apparatus classified in [A61B 5/145](#) or [A61B 5/157](#)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Disposable laminated or multilayered electrodes	G01N 27/307
Details of handling test elements	G01N 33/4875

A61B 2576/00

Medical imaging apparatus involving image processing or analysis
([A61B 1/00009](#), [A61B 6/52](#) and [A61B 8/52](#) take precedence)

References***Informative references***

Attention is drawn to the following places, which may be of interest for search:

Biomedical image inspection	G06T 7/0012
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