COOPERATIVE PATENT CLASSIFICATION

H        ELECTRICITY
             (NOTE omitted)

H01       BASIC ELECTRIC ELEMENTS
             (NOTE omitted)

H01B      CABLES; CONDUCTORS; INSULATORS; SELECTION OF MATERIALS FOR THEIR
           CONDUCTIVE, INSULATING OR DIELECTRIC PROPERTIES
               (selection for magnetic properties H01F 1/00; waveguides H01P;
                installations of cables or lines H02G; {printed circuits
                H05K})

NOTE
  Group H01B 12/00 takes precedence over groups H01B 5/00 - H01B 11/00.

WARNING
  In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the
  scheme.

1/00  Conductors or conductive bodies characterised by
       the conductive materials; Selection of materials as
       conductors (resisters H01C; selection of materials for
       superconductivity H01L 39/00)

NOTE
  Groups H01B 1/14 - H01B 1/24 take precedence over groups H01B 1/02 - H01B 1/12

  1/02  . . mainly consisting of metals or alloys
  1/023  . . (Alloys based on aluminium)
  1/026  . . (Alloys based on copper)
  1/04  . . mainly consisting of carbon-silicon compounds, carbon or silicon
  1/06  . . mainly consisting of other non-metallic substances
  1/08  . . oxides
  1/10  . . sulfides
  1/12  . . organic substances {organic macromolecular
                   compounds or compositions C08]}
  1/121  . . [Charge-transfer complexes]
  1/122  . . [Ionic conductors]
  1/124  . . [Intrinsically conductive polymers]
  1/125  . . (comprising aliphatic main chains, e.g.
                   polyactylenes)
  1/127  . . (comprising five-membered aromatic
                   rings in the main chain, e.g. polypyrroles,
                   polythiophenes)
  1/128  . . (comprising six-membered aromatic
                   rings in the main chain, e.g. polyanilines,
                   polyphenylenes)
  1/14  . . Conductive material dispersed in non-conductive
       inorganic material
  1/16  . . the conductive material comprising metals or
       alloys
  1/18  . . the conductive material comprising carbon-silicon
       compounds, carbon or silicon
  1/20  . . Conductive material dispersed in non-conductive
       organic material {organic macromolecular
       compounds or compositions C08]}

1/22  . . the conductive material comprising metals or
      alloys
1/24  . . the conductive material comprising carbon-silicon
      compounds, carbon or silicon

3/00  Insulators or insulating bodies characterised by
       the insulating materials; Selection of materials for
       their insulating or dielectric properties
           (selection of piezo-electric or electrostrictive materials
            H01L 41/00)

  3/002  . . [Inhomogeneous material in general]
  3/004  . . [with conductive additives or conductive layers]
  3/006  . . [Other inhomogeneous material]
  3/008  . . [Other insulating material]
  3/02  . . mainly consisting of inorganic substances
  3/025  . . [Other inorganic material]
  3/04  . . mica
  3/06  . . asbestos
  3/065  . . [Wires with asbestos]
  3/08  . . quartz; glass; glass wool; slag wool; vitreous
       enamels
  3/081  . . [Wires with vitreous enamels]
  3/082  . . [Wires with glass or glass wool]
  3/084  . . [Glass or glass wool in binder]
  3/085  . . [Particles bound with glass]
  3/087  . . [Chemical composition of glass]
  3/088  . . [Shaping of glass or deposition of glass]
  3/10  . . metallic oxides (ceramics H01B 3/12)
  3/105  . . [Wires with oxides]
  3/12  . . ceramics
  3/14  . . cements
  3/16  . . gases
  3/18  . . mainly consisting of organic substances {organic
                   macromolecular compounds or compositions C08]}
  3/185  . . [Substances or derivates of cellulose]
  3/20  . . liquids, e.g. oils (silicone oils H01B 3/46)
  3/22  . . hydrocarbons
  3/24  . . containing halogen in the molecules, e.g.
       halogenated oils
NOTE

Group H01B 3/47 takes precedence over groups H01B 3/32 - H01B 3/46

3/301 . . . [Macromolecular compounds obtained by reactions forming a linkage containing sulfur with or without nitrogen, oxygen or carbon in the main chain of the macromolecule, not provided for in group H01B 3/302]
3/302 . . . [Polyurethanes or polythioureas; Polyurea or polythiourea]
3/303 . . . [Macromolecular compounds obtained by reactions forming a linkage containing nitrogen with or without oxygen or carbon in the main chain of the macromolecule, not provided for in groups H01B 3/38 or H01B 3/302]
3/305 . . . . [Polyamides or polyestamides]
3/306 . . . [Polyimides or polyestimides]
3/307 . . . [Other macromolecular compounds]
3/308 . . . [Wires with resins]
3/32 . . . natural resins
3/34 . . . Waxes (silicone waxes H01B 3/46)
3/36 . . . condensation products of phenols with aldehydes or ketones
3/38 . . . condensation products of aldehydes with amines or amides
3/40 . . . epoxy resins
3/42 . . . polyesters; polyethers; polyacetsals
3/421 . . . [Polyesters]
3/422 . . . . [Linear saturated polyesters derived from dicarboxylic acids and dialdxyo compounds]
3/423 . . . . [Linear aromatic polyesters]
3/425 . . . . [Non-saturated polyesters derived from polycarboxylic acids and polyhydroxy compounds, in which at least one of the two components contains aliphatic unsaturation]
3/426 . . . . [Polycarbonates]
3/427 . . . . [Polymers]
3/428 . . . . [Polycetals]
3/44 . . . vinyl resins; acrylic resins (silicones H01B 3/46)
3/441 . . . . [from alkenes]
3/442 . . . . [from aromatic vinyl compounds]
3/443 . . . . [from vinylhalogenides or other halogenoethylenic compounds]
3/445 . . . . . [from vinylfluorides or other fluoroethylenic compounds]
3/446 . . . . [from vinylacetals]
3/447 . . . . [from acrylic compounds]
3/448 . . . . [from other vinyl compounds]
3/46 . . . silicones
3/465 . . . . [Silicone oils]
3/47 . . . fibre-reinforced plastics, e.g. glass-reinforced plastics
3/48 . . . fibrous materials (fibre-reinforced plastics H01B 3/47)
3/485 . . . [Other fibrous materials fabric]
3/50 . . . fabric
3/52 . . . wood; paper; press board
3/54 . . . hard paper; hard fabrics
3/545 . . . . [Hard fabrics]
3/56 . . . gases

7/00 Insulated conductors or cables characterised by their form

7/009 . . . (Details relating to the conductive cores)
7/018 . . . (Strip or foil conductors (H01B 7/08 takes precedence))
7/027 . . . (Liquid conductors)
7/036 . . . (Alkali metal conductors)
7/045 . . . (Cable-harnesses)
7/054 . . . (Cables with incorporated electric resistances)
7/063 . . . (Ignition cables)
7/072 . . . (Electrical cables comprising fluid supply conductors)
7/081 . . . (Cables of rigid construction (rigid-tube cables H01B 7/16))
7/09 . . . (Cables with built-in connecting points or with predetermined areas for making deviations)
7/02 . . . (Disposition of insulation (materials H01B 3/00; insulators H01B 17/00))
7/0208 . . . (Cables with several layers of insulating material)
7/0216 . . . . (Two layers)
7/0225 . . . . (Three or more layers)
7/0233 . . . . [Cables with a predominant gas dielectric]
7/0241 . . . . (comprising one or more helical wrapped layers of insulation)
Flexible cables, conductors, or cords, e.g. trailing cables

Extensible conductors or cables, e.g. self-coiling cords (arrangements for storing and repeatedly paying-out and re-storing lengths of conductors or cables B65H 75/34)

Flat or ribbon cables

Two conductor or cable

Covered with gluten for wall-fixing

Parallel wires, incorporated in a flat insulating profile

Parallel wires, incorporated in a fabric

Parallel wires, sandwiched between two insulating layers

Parallel wires, fixed upon a support layer

Juxta posed parallel wires, fixed to each other without a support layer

Comprising one or more screens

Comprising one or more armouring, tensile- or compression-resistant elements

Comprising twisted pairs

Comprising connection wire loops

Incorporated in a cable of non-flat configuration

Contact cables, i.e. having conductors which may be brought into contact by distortion of the cable

Responsive to heat

Responsive to pressure

Comprising concentric conductors

Comprising parallel conductors

Floating cables (installations of cables supported on or from floats H02G 9/12)

Submarine cables

Associated with hydrodynamic bodies

Rigid-tube cables (heating elements of similar construction H05B)

Protection against damage caused by external factors, e.g. sheaths or armouring (power cables with screens H01B 9/02; communication cables with screens H01B 11/06; continuously-loaded cables H01B 11/14; installation of conduits H02G)

Protection against damage caused by wear, mechanical force or pressure; (sheaths; armouring)

Protection not provided for in groups H01B 7/182 - H01B 7/26

Composed of beads or rings

Composed of longitudinal inserts

Comprising synthetic filaments

Forming part of a high tensile strength core

Forming part of an outer sheath

Sheaths comprising abrasive charges

Sheaths comprising grooves, ribs or other projections

Sheaths comprising perforations

Sheaths comprising internal cavities or channels

Sheaths comprising helical wrapped non-metallic layers

Sheaths comprising longitudinal lapped non-metallic layers

Sheaths comprising braided non-metallic layers

Sheaths comprising extruded non-metallic layers

Multi-layer sheaths

Inter-layer adherence promoting means

Inter-layer adherence preventing means

Radial force absorbing layers providing a cushioning effect (H01B 7/185 takes precedence)

Internal space filling-up means

Metal tubes, e.g. lead sheaths

Extruded metal tubes

Longitudinal lapped metal tubes

Composed of lead

Composed of aluminium

Composed of iron or steel

Composed of composite laminated metals

Metal wires or tapes, e.g. made of steel

Longitudinally placed metal wires or tapes

Forming part of a high tensile strength core

Forming part of an outer sheath

Helicoidally wound metal wires or tapes

Metal braid

Devices affording localised protection against mechanical force or pressure

Reduction of losses in sheaths or armouring

Protection against damage caused by moisture, corrosion, chemical attack or weather (sheaths, armouring H01B 7/183)

Protection against damage caused by corrosion

Protection against damage caused by electrical, chemical or water tree deterioration

Preventing penetration of fluid, e.g. water or humidity, into conductor or cable (insulators or insulating bodies with surfaces specially treated for preserving insulating properties, e.g. for protection against moisture, dirt, or the like, H01B 17/50)

Using a water impermeable sheath
by completely or partially filling interstices in the cable
[using foamed plastic]

Protection against damage caused by extremes of temperature or by flame \[[heat dissipation or conduction \textbf{H01B 7/42}]\]

[using material resistant to heat]

[material resistant to flame]

with arrangements for reducing conductor losses when carrying alternating current, e.g. due to skin effect

[Conductors comprising interwire insulation]

[Transposed conductors]

with arrangements for indicating defects, e.g. breaks, leaks, \{(locating defects by measuring \textbf{G01})\}

[comprising humidity sensing means]

[comprising temperature sensing means]

[comprising pressure sensing means]

[comprising violation sensing means]

with distinguishing or length marks

[being the colour of the insulation or conductor]

[being the form of the insulation or conductor]

[being indicia imposed on the insulation or conductor]

[being a tape, thread or wire extending the full length of the conductor or cable]

[being a sleeve, ferrule, tag, clip, label or short length strip]

[with arrangements for facilitating removal of insulation]

[comprising a rip cord or wire]

[with arrangements for facilitating mounting or securing]

[with arrangements for heat dissipation or conduction \{insulators or insulating bodies having heating or cooling devices \textbf{H01B 17/54}\}]

[for heat dissipation]

[using a cooling fluid]

[the construction being bendable]

[using cooling fins, ribs]

[Heat conduction]

\textbf{H01B}

\textbf{9/00} Power cables

\textbf{9/001} [Power supply cables for the electrodes of electric-welding apparatus or electric-arc furnaces]

[including electrical control or communication wires]

[including optical transmission elements]

[Constructional features relating to the conductors]

[for overhead application]

[with screens or conductive layers, e.g. for avoiding large potential gradients]

[Features relating to screening tape \textit{per se}]

[composed of longitudinal lapped tape-conductors]

[composed of helicoidally wound tape-conductors]

[composed of braided metal wire]

[composed of helicoidally wound wire-conductors]

[composed of longitudinally posed wire-conductors]

\textbf{9/027} [composed of semi-conducting layers]

\textbf{9/028} [with screen grounding means, e.g. drain wires]

\textbf{9/029} [Screen interconnecting circuits]

\textbf{9/04} Concentric cables

\textbf{9/06} Gas-pressure cables; Oil-pressure cables; Cables for use in conduits under fluid pressure

\textbf{9/0605} [Gas-pressure cables with enclosed conduits]

\textbf{9/0611} [Oil-pressure cables]

\textbf{9/0616} [Oil-pressure cables with enclosed conduits]

\textbf{9/0622} [Cables for use in conduits under gas-pressure]

\textbf{9/0627} [Cables for use in conduits under oil-pressure]

\textbf{9/0633} [Expansion-absorbing apparatus, enclosed within the cable]

\textbf{9/0638} [Features relating to the conductors of gas-pressure cables]

\textbf{9/0644} [Features relating to the dielectric of gas-pressure cables]

\textbf{9/065} [Tubular insulation]

\textbf{9/0655} [Helically wrapped insulation]

\textbf{9/0661} [Longitudinally wrapped insulation]

\textbf{9/0666} [Discontinuous insulation]

\textbf{9/0672} [having the shape of a disc]

\textbf{9/0677} [Features relating to the enclosing sheath of gas-pressure cables]

\textbf{9/0683} [Features relating to the conductors of oil-pressure cables]

\textbf{9/0688} [Features relating to the dielectric of oil-pressure cables]

\textbf{9/0694} [Features relating to the enclosing sheath of oil-pressure cables]

\textbf{11/00} Communication cables or conductors (waveguides \textbf{H01P})

\textbf{11/002} [Pair constructions]

\textbf{11/005} [Quad constructions]

\textbf{11/007} [for overhead application]

\textbf{11/02} Cables with twisted pairs or quads (transposing, crossing or twisting at joints \textbf{H04B}; balancing of earth capacitance \textbf{H04B})

\textbf{11/04} with pairs or quads mutually positioned to reduce cross-talk (balancing by making use of additional capacitors or coils \textbf{H04B})

\textbf{11/06} with means for reducing effects of electromagnetic or electrostatic disturbances, e.g. screen \{(screening in general \textbf{H05K 9/00})\}

\textbf{11/08} Screens specially adapted for reducing cross-talk

\textbf{11/085} [composed of longitudinal tape conductors]

\textbf{11/10} Screens specially adapted for reducing interference from external sources

\textbf{11/1008} [Features relating to screening tape \textit{per se}]

\textbf{11/1016} [composed of a longitudinal lapped tape-conductor]

\textbf{11/1025} [composed of a helicoidally wound tape-conductor]

\textbf{11/1033} [composed of a wire-braided conductor]

\textbf{11/1041} [composed of a helicoidally wound wire-conductor]

\textbf{11/105} [composed of a longitudinally posed wire-conductor]

\textbf{11/1058} [using a coating, e.g. a loaded polymer, ink or print]

\textbf{11/1066} [the coating containing conductive or semiconductive material]
Coaxial cables; Analogous cables having more than one inner conductor within a common outer conductor

NOTE
If suitable for handling frequencies considerably beyond the audio range and if typical HF-features of coaxial cables are disclosed, e.g. propagation of non-TEM modes, multimoding, oversized coaxial cables, particular cross-section adapted for HF-propagation, classification is made in H01B 13/02.


12/00 Superconductive or hyperconductive conductors, cables, or transmission lines (details or devices using superconductivity or hyperconductivity characterised by the material H01L 39/12)

NOTE
Group H01B 12/12 takes precedence over groups H01B 12/04 - H01B 12/10.


13/00 Apparatus or processes specially adapted for manufacturing conductors or cables


13/0235 . . . (by a twisting device situated between a pay-off device and a take-up device)
13/0242 . . . (being an accumulator)
13/025 . . . (of tubular construction)
13/0257 . . . (being a perforated disc)
13/0264 . . . (being rollers, pulleys, drums or belts (H01B 13/242 takes precedence))
13/0271 . . . (Alternate stranding processes)
13/0278 . . . (Stranding machines comprising a transposing mechanism)
13/0285 . . . (Pretreatment)
13/0292 . . . (After-treatment)
13/04 . . . Mutually positioning pairs or quads to reduce cross-talk
13/06 . . . Insulating conductors or cables (H01B 13/32 takes precedence)
13/062 . . . (by pulling on an insulating sleeve)
13/065 . . . (Insulating conductors with lacquers or enamels)
13/067 . . . (Insulating coaxial cables (H01B 13/20 takes precedence))
13/08 . . . by winding
13/0808 . . . (Hand-held devices)
13/0816 . . . (Apparatus having a coaxial rotation of the supply reels about the conductor or cable)
13/0825 . . . (Apparatus having a planetary rotation of the supply reels around the conductor or cable)
13/0833 . . . (the supply reel axis being arranged parallel to the conductor or cable axis)
13/0841 . . . (the supply reel axis being arranged perpendicular to the conductor or cable axis)
13/085 . . . (Apparatus having the supply reels in a fixed position, the conductor or cable rotating about its own axis)
13/0858 . . . (Details of winding apparatus; Auxiliary devices)
13/0866 . . . (Brakes or tension regulating means)
13/0875 . . . (Detecting breakage or run-out of winding material)
13/0883 . . . (Pretreatment)
13/0891 . . . (After-treatment)
13/10 . . . by longitudinal lapping
13/103 . . . (combined with pressing of plastic material around the conductors)
13/106 . . . (the conductor having a rectangular cross-section)
13/12 . . . by applying loose fibres
13/14 . . . by extrusion (extrusion in general B29C 48/00)
13/141 . . . (of two or more insulating layers)
13/142 . . . (of cellular material)
13/143 . . . (with a special opening of the extrusion head)
13/144 . . . (Heads for simultaneous extrusion on two or more conductors)
13/145 . . . (Pretreatment or after-treatment)
13/146 . . . (Controlling the extrusion apparatus dependent on the capacitance or the thickness of the insulating material (measuring thickness G01B: testing during manufacturing G01R 31/59))
13/147 . . . (Feeding of the insulating material)
13/148 . . . (Selection of the insulating material therefor)
13/16 . . . by passing through or dipping in a liquid bath; by spraying
13/165 . . . (by spraying)
13/18 . . . Applying discontinuous insulation, e.g. discs, beads
13/185 . . . (by periodically constricting an insulating sleeve)
13/20 . . . (for concentric or coaxial cables)
13/202 . . . (by molding spacers)
13/204 . . . (by punching spacers)
13/206 . . . (by forming a helical web)
13/208 . . . (by mechanically removing parts of a continuous insulation)
13/22 . . . Sheathing; Armouroing; Screening; Applying other protective layers (H01B 13/32 takes precedence)
13/221 . . . (filling-up interstices)
13/222 . . . (by electro-plating)
13/224 . . . (by drawing a cable core into an oversized tube by means of a tow line)
13/225 . . . (Screening coaxial cables)
13/227 . . . (Pretreatment)
13/228 . . . (After-treatment)
13/224 . . . (by extrusion (extrusion of cables with plastic material in general B29C 48/15))
13/245 . . . (of metal layers)
13/26 . . . by winding, braiding, or longitudinal lapping (winding in general B65H)
13/2606 . . . (by braiding)
13/2613 . . . (by longitudinal lapping)
13/262 . . . (of an outer metallic screen)
13/2626 . . . (of a coaxial cable outer conductor)
13/2633 . . . (Bending and welding of a metallic screen)
13/264 . . . (Details of the welding stage)
13/2646 . . . (Bending and soldering of a metallic screen)
13/2653 . . . (Details of the soldering stage)
13/266 . . . (Bending and adhesively bonding of a metallic screen)
13/2666 . . . (Details of the bonding stage)
13/2673 . . . (of a compartment separating metallic screen)
13/268 . . . (of a non-metallic sheet)
13/2686 . . . (Pretreatment)
13/2693 . . . (After-treatment)
13/28 . . . Applying continuous inductive loading, e.g. Krarup loading
13/282 . . . (by winding)
13/285 . . . (by extrusion)
13/287 . . . (by passing through a coating bath)
13/30 . . . Drying; (in general E26B): Impregnating (H01B 13/32 takes precedence; impregnating of fibres D06B 3/00; D06B 5/00; H01G 4/00; H01G 4/06; drying and impregnating of wood or the like B27K; impregnation of stones, basic materials therefor C04B 20/10 - C04B 20/12; C04B 41/45 - C04B 41/521)
13/32 . . . Filling or coating with impervious material (for cable installations H02G 15/00)
13/321 . . . (the material being a powder)
13/322 . . . (the material being a liquid, jelly-like or viscous substance)
13/323 . . . (using a filling or coating head)
13/324 . . . (in combination with a vacuum chamber)
13/325 . . . (in combination with vibration generating means)
13/326 . . . (Material preparing or feeding devices)
13/327 . . . (using a filling or coating cone or die)
Insulators or insulating bodies characterised by their form (section insulators for electric traction B60M 1/18; insulating rail-joints E01B 11/54)  

- Insulators structurally associated with built-in electrical equipment  
- Suspension insulators; Strain insulators  
- Chains; Multiple chains  
- Fastening of insulator to support, to conductor, or to adjoining insulator  
- by cap-and-bolt  
- by intermediate link  
- Special features of strain insulators (devices for relieving mechanical tension of electric lines or cables H02G 7/04)  
- Supporting insulators (pin insulators H01B 17/20; apertured insulators H01B 17/24)  
- Insulators, poles, handles, or the like in electric fences  
- Fastening of insulators to support, to conductor, or to adjoining insulator  
- for very heavy conductors, e.g. bus-bars, rails  
- Pin insulators  
- Fastening of conductors to insulator  
- Insulators apertured for fixing by nail, screw, wire, or bar, e.g. diabolo, bobbin  
- Lead-in insulators; Lead-through insulators  
- (Fastening of insulators to support H01B 17/301 takes precedence)  
- Capacitor type (capacitors H01G)  
- Sealing (packings in general F16I)  
- Sealing of insulators to support  
- (Sealing of leads to lead-through insulators)  
- (by embedding in glass or ceramic material)  
- (by embedding in material other than glass or ceramics)  
- (by compressing packing material)  
- Single insulators consisting of two or more dissimilar insulating bodies  
- (comprising a fibre-reinforced insulating core member)  
- Insulators containing liquid, e.g. oil  

Apparatus or processes for salvaging material from cables (for removing insulation from conductors H02G 1/12)  

- [by cooling down]  
- [by heating up]  
- [by cutting]  
- (Making a longitudinal cut)  
- [by crushing]  

Apparatus or processes specially adapted for manufacturing insulators or insulating bodies (manufacture of porcelain for electric insulation C04B 33/26)  

- Drying (in general F26B); Impregnating  
- Treating the surfaces, e.g. applying coatings  

- Insulators having evacuated or gas-filled spaces  
- Fittings, e.g. caps; Fastenings therefor  
- Cementless fittings  
- Means for obtaining improved distribution of voltage (capacitor-type lead-through insulators H01B 17/28); Protection against arc discharges  
- Structural association of insulators with corona rings (corona rings H01T 19/02)  
- Means for providing an external arc-discharge path (spark-gap arresters H01T)  
- over chains or other serially-arranged insulators  
- with surfaces specially treated for preserving insulating properties, e.g. for protection against moisture, dirt, or the like  
- having cleaning devices (H01B 17/54 takes precedence)  
- (Self-cleaning, e.g. by shape or disposition of screens)  
- having heating or cooling devices  
- Insulating bodies (insulators H01B 17/2 - H01B 17/54)  
- Tubes, sleeves, beads, or bobbins through which the conductor passes (protective tubings for the installation of lines or cables in buildings H02G 3/04)  
- [Grommets; Bushings]  
- [with strain relief arrangements]  
- Composite insulating bodies (cables or conductors H01B 7/00, H01B 9/00; resistors H01C; capacitors H01G)  
- Insulating-layers or insulating films on metal bodies (conductive layers or films on insulating-bodies H01B 5/14)  
- with conductive admixtures, inserts, or layers  
- (conductive bodies comprising conductive material dispersed in insulating material H01B 5/16)  
- Joining insulating bodies together, e.g. by bonding