

**CPC****COOPERATIVE PATENT CLASSIFICATION****G04B**

**MECHANICALLY-DRIVEN CLOCKS OR WATCHES;  
MECHANICAL PARTS OF CLOCKS OR WATCHES IN GENERAL;  
TIME PIECES USING THE POSITION OF THE SUN, MOON  
OR STARS** (spring- or weight-driven mechanisms in general [F03G](#);  
electromechanical clocks or watches [G04C](#); electromechanical clocks with  
attached or built-in means operating any device at pre-selected times or after  
predetermined time intervals [G04C 23/00](#); clocks or watches with stop devices  
[G04F 7/08](#))

**NOTE**

This subclass covers mechanically-driven clocks or clockwork calendars, and  
the mechanical part of such clocks or calendars.

**Driving mechanisms****G04B 1/00**

**Driving mechanisms** {(driving mechanisms for Turkish time [G04B 19/22](#); driving  
mechanisms in the hands [G04B 45/043](#); driving mechanisms for phonographic  
apparatus [G11B 19/00](#); springs, driving weight engines [F03G](#); driving mechanisms  
for cinematography [G03B 1/00](#); driving mechanisms; driving mechanisms for time  
fuses for missiles [F42C](#); driving mechanisms for toys [A63H 29/00](#))}

## G04B 1/02

- with driving weight

## G04B 1/04

- • Mechanisms in which the clockwork acts as the driving weight

## G04B 1/06

- • with several weights {(winding up several weights simultaneously  
[G04B 3/00](#))}

## G04B 1/08

- • Driving weights; Chains; Chain wheels; Arbors for chain wheels {(wheels and  
spindles in general [F16F](#))}

## G04B 1/10

- with mainspring {(synchronous motors with power reserve [G04C 15/0054](#);  
springs in general [F16F](#))}

## G04B 1/105

- • {having a form other than a helix ([G04B 1/12](#) and [G04B 1/14](#) take  
precedence)}

## G04B 1/12

- • with several mainsprings {(installations with a mainspring and an auxiliary  
spring [G04B 1/225](#); winding-up several mainsprings simultaneously  
[G04B 3/008](#))}

## G04B 1/14

- • Mainsprings; Bridles therefor (mainsprings with bridles [G04B 1/18](#); alloys  
[C22C](#); springs in general [F16F](#) {constructions for compensation of changes  
in the motive power of the mainspring [G04B 1/22](#); construction of the  
hairspring [G04B 17/066](#); arrangements facilitating the removal of the  
mainspring [G04B 33/14](#))}

- G04B 1/145
  - . . . {Composition and manufacture of the springs (compositions and manufacture of components, wheels, spindles, pivots, or the like [G04B 13/026](#); compositions of component escapements [G04B 15/14](#); composition and manufacture of hairsprings [G04B 17/066](#); compensation for the effects of variations of temperature of springs using alloys, especially for hairsprings [G04B 17/227](#); materials for bearings of clockworks [G04B 31/00](#); iron and steel alloys [C22C](#); heat treatment and chemical or mechanical treatment for control of the structure [C21D 8/00](#); non-ferrous alloys [C22C](#) and [B22F](#))}
- G04B 1/16
  - . . Barrels; Arbors; Barrel axles (arrangements facilitating the removal of the mainspring [G04B 33/14](#))
- G04B 1/165
  - . . . {Spring cylinder with friction transmission to the gearing (especially for Roskopf clockworks); (friction clutch between spring and spring cylinder [G04B 1/185](#))}
- G04B 1/18
  - . . Constructions for connecting the ends of the mainsprings with the barrel or the arbor {(mainsprings and bridles therefor [G04B 1/14](#); clamping the hairspring on the regulator [G04B 18/026](#); clamping the hairspring on the arbor [G04B 17/32](#))}
- G04B 1/185
  - . . . {Friction clutch between spring and spring cylinder (friction transmission between spring cylinder and gearing [G04B 1/165](#); other arrangements for protection against rupture or overwinding [G04B 1/20](#))}
- G04B 1/20
  - . . . Protecting arrangements against rupture or overwinding of the mainspring located in the barrel or attached to the barrel (in connection with keys or the like [G04B 3/06](#), [G04B 3/10](#); in connection with automatic winding devices [G04B 5/24](#); {protecting arrangements in which the spring and the spring cylinder are connected by friction [G04B 1/185](#); protecting arrangements [G04B 9/02](#); calibers with arrangements affording protection of the clockwork against damage as a consequence of a rupture of the mainspring [G04B 33/16](#); electric winding arrangements with protection against overwinding of mechanical clockworks [G04C 1/10](#); driving mechanisms for gramophones [G11B 19/22](#), [G11B 19/28](#))}
- G04B 1/205
  - . . . . {Stop-mechanisms}
- G04B 1/22
  - . . Compensation of changes in the motive power of the mainspring (by mechanical shaping of the mainspring [G04B 1/14](#) {automatic regulation of the pendulum [G04B 18/003](#); of the regulator [G04B 19/28](#))}
- G04B 1/225
  - . . . {with the aid of an interposed power-accumulator (secondary spring) which is always tensioned (winding up several mainsprings or driving weights simultaneously [G04B 3/008](#))}
- G04B 1/24
  - . with both mainsprings and driving weights {(winding up several mainsprings or driving weights simultaneously [G04B 3/008](#))}
- G04B 1/26
  - . driven by liquids or gases; Liquid or gaseous drives for mechanically-controlled secondary clocks {(winding up by pneumatic means [G04B 3/12](#); winding up automatically by wind power [G04B 5/203](#); winding up by electro-thermal or electro-pneumatic arrangements [G04C 1/003](#); thermo-electric or thermo-pneumatic driving mechanisms [G04C 3/18](#))}
- G04B 1/265
  - . . {Clockwork systems working therewith (winding up electrical or mechanical clocks [G04C 1/006](#); electrical clockwork installations [G04C 13/00](#))}

**Winding****G04B 3/00**

**Normal winding of clockworks by hand or mechanically; Winding up several mainsprings or driving weights simultaneously** {(automatic winding up [G04B 5/00](#); combined normal and automatic winding up [G04B 7/00](#); Click devices [G04B 11/00](#); winding up the striking mechanism by the clockwork and vice versa [G04B 21/14](#); mechanical devices for setting the time-indication by using the winding means [G04B 27/02](#), [G04B 27/083](#); calibers of which the mainsprings are easily removable [G04B 33/14](#); winding mechanical clocks electrically [G04C 1/00](#); tools for setting springs [G04D 1/04](#); driving mechanisms for gramophones [G11B 19/00](#); driving mechanisms for cinematographs [G03B 1/00](#))}

- G04B 3/001
  - {by push button (crown combined with push button [G04B 3/046](#); construction of push button [G04B 3/048](#); waterproof push buttons [G04B 37/106](#))}
- G04B 3/003
  - {by lever mechanism}
- G04B 3/005
  - {by draw mechanism}
- G04B 3/006
  - {Mechanical winding up; winding up with special equipment (removably-mounted keys [G04B 3/02](#); winding up equipment for clocks with automatic winding up equipment [G04B 5/00](#))}
- G04B 3/008
  - {Winding up several mainsprings or driving weights simultaneously (driving mechanisms with several weights [G04B 1/06](#); driving mechanisms with several mainsprings [G04B 1/12](#); driving mechanisms with a mainspring and a secondary spring [G04B 1/225](#); driving mechanisms with mainsprings and driving weights [G04B 1/24](#); winding up the striking mechanisms with the clockwork and vice versa [G04B 21/14](#))}
- G04B 3/02
  - Removably-mounted keys or the like {(special tools for clockworks with difficult access, universal keys for watches with a small crown [G04B 3/006](#); keys with means preventing overwinding [G04B 3/06](#); protecting means preventing overwinding [G04B 3/10](#))}
- G04B 3/04
  - Rigidly-mounted keys, knobs or crowns {(jointed winding-stem [G04B 37/06](#))}
- G04B 3/041
  - • {Construction of crowns for rotating movement; connection with the winding stem; winding stems}
- G04B 3/043
  - • {Locking of the operating element, also by mounting in a concealed place}
- G04B 3/045
  - • {Storing the operating element, also bringing it out of storage}
- G04B 3/046
  - • {Operation by rotation and axial movement with extra function of axial shift of operating element, e.g. crown combined with push button (winding up by push button [G04B 3/001](#))}
- G04B 3/048
  - • {Operation exclusively by axial movement of a push-button, e.g. for chronographs (winding up by push button [G04B 3/001](#); hermetically sealed push button [G04B 37/106](#))}
- G04B 3/06
  - Keys or the like with means preventing overwinding (protecting devices arranged in, or attached to, the barrel [G04B 1/20](#); in connection with automatic winding devices [G04B 1/24](#) {construction of removably-mounted keys [G04B 3/02](#); means preventing overwinding, including those attached to the case, [G04B 3/10](#); protecting means [G04B 9/02](#); protection against overwinding for electrical winding up arrangements for mechanical clocks [G04C 1/10](#))}
- G04B 3/08
  - by parts of the cases {(setting the time-indicating means by parts of the case [G04B 27/00](#))}

- G04B 3/10
  - . Protecting means preventing overwinding (arranged in, or attached to, the barrel [G04B 1/20](#); in connection with keys [G04B 3/06](#); in connection with automatic winding devices [G04B 5/24](#); {protection [G04B 9/02](#); of electrical winding up arrangements for mechanical clocks [G04C 1/10](#)})
- G04B 3/12
  - by mechanical means e.g. pneumatic motor (winding up with electric or electromechanical means [G04C](#) {liquid or gas driving mechanisms [G04B 1/26](#); automatic winding up by wind power [G04B 5/203](#)})
- G04B 5/00**
  - Automatic winding up** {(normal winding up by hand or mechanically [G04B 3/00](#); automatic winding in combination with hand winding [G04B 7/00](#); electrical winding of mechanical clockworks [G04C 1/00](#); advertising by making use of vibrations or shocks of land vehicles [G09F 21/045](#))}
- G04B 5/002
  - {by moving of parts of the clockwork which are not primarily for winding up}
- G04B 5/005
  - {by relative movement between watch bands, case or parts of the case}
- G04B 5/007
  - {Clockworks, which wind up by driving the function e.g. perpetua mobilia (see also [F03G 7/10](#))}
- G04B 5/02
  - by self-winding caused by the movement of the watch {(bearings, suspensions for oscillating weights [G04B 5/18](#); mechanisms for transformation of an oscillating movement into a rotating movement in only one direction [G04B 11/00](#))}
- G04B 5/04
  - . by oscillating weights the movement of which is limited {(setting the time indicating means with the aid of a rocking bar [G04B 27/00](#))}
- G04B 5/06
  - . . acting in one direction only
- G04B 5/08
  - . . acting in both directions
- G04B 5/10
  - . by oscillating weights the movement of which is not limited
- G04B 5/12
  - . . acting in one direction only
- G04B 5/14
  - . . acting in both directions
- G04B 5/16
  - . Construction of the weights
- G04B 5/165
  - . . {Weights consisting of several parts (diverse weights which are movable in more than one plane [G04B 5/187](#))}
- G04B 5/18
  - . Supports, suspensions or guide arrangements, for oscillating weights {(transmission of the movement of the winding up weight to the mainspring [G04B 5/04](#), [G04B 5/10](#); support of the driving weight by protecting means which prevent overwinding e.g. by interposing of a glide clutch [G04B 5/24](#); bearings in general [G04B 33/00](#))}
- G04B 5/181
  - . . {The bearing of the rocking bar is in the centre of rotation combined with a support or guide arrangement}
- G04B 5/182
  - . . {Guide arrangement of the moving weight in a straight course}
- G04B 5/184
  - . . {Guide arrangement of the moving weight in a circular course}
- G04B 5/185
  - . . {Suspension of the moving weight by elastic means ([G04B 5/187](#) takes precedence)}
- G04B 5/187
  - . . {Bearing, guide arrangements or suspension allowing movement in more than one plane, e.g. there is more than one moving weight, or more than one plane in which the weight moves, and it can change place relative to the clockwork}
- G04B 5/188
  - . . {Bearing, guide arrangements or suspension of the movement forming oscillating weight}

- G04B 5/19
  - • • Suspension of the oscillating weight at its centre of rotation
- G04B 5/195
  - • • • {the centre of rotation not being the centre of the clockwork}
- G04B 5/20
  - by movements of other objects, e.g. by opening a hand-bag, by opening a case, by opening a door; Winding up by wind power
- G04B 5/203
  - • {by liquids or gases (driven by liquids or gases [G04B 1/26](#); winding up by pneumatic motor [G04B 3/12](#); winding up by electrothermal or electropneumatic driving means [G04C 1/003](#); driving of the clockwork by such means [G04C 3/18](#))}
- G04B 5/206
  - • {by rotating axles e.g. tachometers (direct drive of the clockwork, e.g. without winding up of a spring or the like by a rotating axle [G04B 7/00](#); combination with measuring instruments in general [G04B 47/06](#))}
- G04B 5/22
  - by thermometric, barometric or like effects or alterations {(by electrothermal or electropneumatic driving means [G04C 1/003](#); driving the clockwork by such means [G04C 3/18](#))}
- G04B 5/24
  - Protecting means preventing overwinding (arranged in, or attached to, the barrel [G04B 1/20](#); in connection with keys or the like [G04B 3/06](#); in connection with parts of the cases [G04B 3/10](#) {support of the moving weight [G04B 5/18](#); protection means [G04B 9/02](#); electrical driving means for mechanical clockworks [G04C 1/10](#)})
- G04B 5/245
  - • {by locking the moving weight}
- G04B 7/00**

**Combined normal and automatic winding up** {(normal winding up by hand or mechanically [G04B 3/00](#); automatic winding up [G04B 5/00](#); electric winding up of mechanical clockworks [G04C 1/003](#))}
- G04B 9/00**

**Supervision of the state of winding, e.g. indicating the amount of winding**
- G04B 9/005
  - {by optical indication of the amount of winding}
- G04B 9/02
  - Devices controlled by such state, e.g. device affording protection means against overwinding (protecting means preventing overwinding arranged in or on the barrel [G04B 1/20](#); protecting means in connection with keys or the like [G04B 3/06](#); in connection with parts of the cases [G04B 3/10](#); in connection with automatic winding devices [G04B 5/24](#) {electric winding up of mechanical clockworks [G04C 1/10](#)})
- G04B 9/025
  - • {Acoustical or electrical indicating means}
- G04B 11/00**

**Click devices; Stop clicks; Clutches** {(mechanisms for winding up by hand [G04B 3/00](#); automatic winding up [G04B 5/00](#); clutches in general, class **111**)}
- G04B 11/001
  - {Clutch mechanism between two rotating members with transfer of movement in both directions, possibly with limitation on the transfer of power}
- G04B 11/003
  - • {with friction member, e.g. with spring action}
- G04B 11/005
  - • {with magnetic elements}
- G04B 11/006
  - {Clutch mechanism between two rotating members with transfer of movement in only one direction (free running devices)}
- G04B 11/008
  - • {with friction members, e.g. click springs or jumper}
- G04B 11/02
  - Devices allowing the motion of a rotatable part in only one direction
- G04B 11/022
  - • {with a ratchet which makes contact with the rotating member by means of teeth}
- G04B 11/024
  - • • {rotatable about a fixed axis by means of spring action}

- G04B 11/026 . . {with clamping member}
- G04B 11/028 . . {with friction member, e.g. click spring}
- G04B 11/04 . . Pawl constructions therefor, e.g. pawl secured to an oscillating member actuating a ratchet

### **Transmission of the driving force on the escape and on the regulation mechanism**

**G04B 13/00** **Gearwork** {(Gearwork for driving the hands [G04B 19/02](#); calibers [G04B 33/00](#); dispositions and components for transmission in general [F16H](#))}

- G04B 13/001 . {with the choice of adjustable or varying transmission ratio}
- G04B 13/002 . {where rotation in one direction is changed into a stepping movement}
- G04B 13/003 . . {with a step for each complete revolution (counters in general [H03K](#))}
- G04B 13/005 . {where a revolution in both directions is changed into a revolution in one direction}
- G04B 13/006 . . {with two free wheel positions}
- G04B 13/007 . {with differential work}
- G04B 13/008 . . {Differentials}
- G04B 13/02 . Wheels; Pinions; Spindles; Pivots (bearings [G04B 31/00](#) {chain wheels, spindles for chain wheels, also chains and driving weights [G04B 1/08](#))}

#### **WARNING**

Groups [G04B 13/021](#)-[G04B 13/028](#) are not complete pending reorganisation, see also [G04B 13/026](#)

- G04B 13/021 . . {elastic fitting with a spindle, axis or shaft}
- G04B 13/022 . . . {with parts made of hard material, e.g. silicon, diamond, sapphire, quartz and the like}
- G04B 13/023 . . . {allowing rotational slipping when a threshold torque is exceeded}
- G04B 13/025 . . {with elastic means between the toothing and the hub of a toothed wheel}
- G04B 13/026 . . {Assembly and manufacture (assembly and manufacture of springs [G04B 1/145](#); machines and tools for the manufacture of chain wheels for clocks [G04D 3/00](#); component parts and manufacture of the escape wheel [G04B 15/14](#); steel alloys [C22C 33/00](#) to [C22C 38/00](#); manufacture of pinions from synthetic material [B29](#); non-ferrous alloys [C22C](#); pinions manufactured by milling and planing [B23F](#))}

#### **WARNING**

This group is no longer used for the classification of new documents as from March 1, 2011. The backlog of this group is being reclassified to subgroups of [G04B 13/02](#)

- G04B 13/027 . . {planar toothing: shape and design (adjusting the backlash of the arbors [G04B 35/00](#))}
- G04B 13/028 . . {wheels in which the teeth are conic, contrate, etc; also column wheels construction (start-stop mechanisms with column wheels [G04F 7/0847](#))}



**Operating mechanisms**

- G04B 15/00**      **Escapements** {(magnetic [G04C 5/005](#); in striking mechanisms [G04B 21/06](#))}
- [G04B 15/02](#)      . permanently in contact with the regulating mechanism
- [G04B 15/04](#)      . . Cylinder escapements
- [G04B 15/06](#)      . Free escapements
- [G04B 15/08](#)      . . Lever escapements
- [G04B 15/10](#)      . with constant impulses for the regulating mechanism {(electrically driven pendulums with mechanical pulse transmission and constant pulse [G04C 3/022](#); electrically driven pendulums with mechanical pulse transmission and constant pulse [G04C 3/045](#))}
- [G04B 15/12](#)      . Adjusting (tools therefor [G04D 1/02](#)); Restricting the amplitude of the lever or the like {(adjusting the gear train [G04B 35/00](#))}
- [G04B 15/14](#)      . Component parts or constructional details, e.g. construction of the lever or the escape wheel {(assembly and manufacture of the spring [G04B 1/145](#); assembly and manufacture of components, e.g. pinions, spindles [G04B 13/026](#); oils for clockwork bearings in general [G04B 31/08](#); lubrication of clockwork bearings [G04B 31/008](#))}

**Regulating mechanisms**

- G04B 17/00**      **Mechanisms for stabilising frequency** {(for setting frequency [G04B 18/00](#); magnetic [G04C 5/005](#); in striking mechanisms [G04B 21/06](#); stopping and regulating of the running [G04B 23/023](#); electrically driven mechanical regulation [G04C 3/165](#); electrical and thermo-electric regulating mechanisms [G04C 5/00](#))}
- [G04B 17/005](#)      . {Regulating mechanisms where the movement is maintained by pneumatic means (oscillation generation by pneumatic means [G04F 5/12](#))}
- [G04B 17/02](#)      . Oscillators acting by gravity, e.g. pendulum swinging in a plane {(setting the pendulum to the required length [G04B 18/003](#); temperature compensation for pendulums [G04B 17/225](#); bearings in general, e.g. knife-edge [G04B 31/00](#); clocks fitted in pendulums [G04B 45/043](#); imitation pendulums driven by the clock mechanism [G04B 45/0046](#), [G04B 45/0053](#); pendulum ornamentation [G04B 45/0061](#); contacts actuated by a pendulum [G04C 13/065](#); measurement of force with a pendulum [G01V 7/12](#))}
- [G04B 17/025](#)      . . {Composite and multiple pendulums; Synchronisation of mechanical pendulums, e.g. electrical synchronisation [G04C 3/025](#); pendulum systems [G04C 13/028](#)}
- [G04B 17/04](#)      . Oscillators acting by spring tension
- [G04B 17/045](#)      . . {with oscillating blade springs (mechanical oscillations maintained by electro-magnetic means, e.g. tuning forks [G04C 3/10](#))}
- [G04B 17/06](#)      . . Oscillators with hairsprings, e.g. balance {(electrically driven balances [G04C 3/04](#); contacts actuated by a balance [G04C 13/065](#))}
- [G04B 17/063](#)      . . . {Balance construction (balances with frequency adjustment screw [G04B 18/006](#); balances with temperature compensation [G04B 17/222](#); balancing devices [G04B 17/28](#))}

- G04B 17/066 . . . {[Manufacture of the spiral spring](#) (locking of the spiral spring by the regulating lever [G04B 18/026](#); spiral spring with temperature compensation [G04B 17/227](#); fixation of the spiral spring on the collet [G04B 17/32](#); mainspring [G04B 1/14](#))}
- G04B 17/08 . . Oscillators with coil springs stretched and unstretched axially
- G04B 17/10 . . Oscillators with torsion strips or springs acting in the same manner as torsion strips, e.g. weight oscillating in a horizontal plane {(electrically driven torsion pendulum [G04C 3/033](#))}
- G04B 17/20 . Compensation of mechanisms for stabilising frequency
- G04B 17/22 . . for the effect of variations of temperature {(alloys with small expansion coefficient [C21C](#), [C22C](#); adjustment of the regulator dependant on adjustment of the hands [G04B 18/028](#); depending on the difference in time with a comparison clockwork [G04C 11/007](#))}
- G04B 17/222 . . . {with balances (construction of balances [G04B 17/063](#))}
- G04B 17/225 . . . {with pendulums (construction of pendulums [G04B 17/02](#); setting frequency on the pendulum [G04B 18/003](#))}
- G04B 17/227 . . . {composition and manufacture of the material used (composition and manufacture of hairsprings [G04B 17/066](#); of springs [G04B 1/145](#); anti-magnetic alloys [G04B 43/007](#); ferrous alloys [C22C](#); non-ferrous alloys [C22C](#), [B22F](#))}
- G04B 17/24 . . for the effect of variations of atmospheric pressure
- G04B 17/26 . . for the effect of variations of the impulses
- G04B 17/28 . . for the effect of unbalance of the weights, e.g. tourbillon {(construction of the balance [G04B 17/063](#); setting the frequency by adjusting devices fixed on the balance [G04B 18/006](#))}
- G04B 17/285 . . . {Tourbillons or carrousels}
- G04B 17/30 . Rotating governors, e.g. centrifugal governors, fan governors (for striking mechanisms [G04B 21/06](#) {electrically driven [G04C 3/0335](#)})
- G04B 17/32 . Component parts or constructional details, e.g. collet, stud, {virole or piton}
- G04B 17/325 . . {for fastening the hairspring in a fixed position, e.g. using a block}
- G04B 17/34 . . for fastening the hairspring onto the balance
- G04B 17/345 . . . {Details of the spiral roll}
- G04B 18/00** **Mechanisms for setting frequency** {(for stabilising frequency [G04B 17/00](#))}
- G04B 18/003 . {by displacement of devices carried by the pendulum or by adjusting the pendulum length (pendulums and suspension [G04B 17/02](#); self- adjustment of the regulating lever [G04B 18/028](#), [G04B 17/22](#), [G04C 11/007](#); adjusting the stroke of the pendulum [G04B 18/04](#); time indicating by acoustic means [G04B 21/00](#); synchronisation with a standard clock [G04C 11/007](#); metronome with a variable length [G04F 5/027](#))}
- G04B 18/006 . {by adjusting the devices fixed on the balance (construction of the pendulum [G04B 17/063](#); balancing [G04B 17/28](#))}
- G04B 18/02 . Regulator {or adjustment} devices; Indexing devices, {e.g. raquettes}
- G04B 18/021 . . {adjusting the indexing device from the outside}
- G04B 18/023 . . {with means for fine adjustment of the indexing device}
- G04B 18/025 . . {Fixing of the indexing device}



- G04B 18/026 . . {Locking the hair spring in the indexing device, e.g. goupille of the raquette (hairsprings [G04B 17/066](#); locking the mainspring on the axle [G04B 1/18](#))}
- G04B 18/028 . . {Setting the regulator by means coupled to or depending on another device, e.g. by the time indication setting mechanism (automatic adjustment of the pendulum length [G04B 17/225](#), [G04B 18/003](#), [G04C 11/007](#); automatic adjustment of the regulator for temperature compensation [G04B 17/22](#); automatic adjustment of the regulator dependant on the tension of the mainspring [G04B 1/22](#))}
- G04B 18/04 . Adjusting the beat of the pendulum, balance, or the like, e.g. putting into beat
- G04B 18/06 . . by setting the collet or the stud of a hairspring
- G04B 18/08 . Component parts or constructional details {(not used; see group [G04B 17/32](#))}

### **Time indicating**

- G04B 19/00** **Indicating the time by visual means** {(indicating the time optically by electric means [G04C 17/00](#), e.g.) by electric lamps [G04C 17/02](#); display arrangements in general [G09F](#))}
- G04B 19/02 . Back-gearing arrangements between gear train and hands {(transmissions in general [G04B 13/00](#))}
- G04B 19/025 . . {for simultaneous indicating on several dials (indicating means allowing simultaneous indication [G04B 19/048](#); with several separate dials [G04B 19/08](#); extra hands for indicating different local apparent times [G04B 19/23](#); with several clockworks [G04B 37/0083](#))}
- G04B 19/04 . Hands; discs with a single mark or the like {(moving indicating arrangements which have scales or numbers with stationary hands or reading means [G04B 19/20](#); optical projection of the position of the hands [G04B 19/34](#))}
- G04B 19/042 . . {Construction and manufacture of the hands; arrangements for increasing reading accuracy (hands with illumination [G04B 19/305](#); specially shaped hands e.g. figures or pictures [G04B 45/0061](#); clockwork in the hands [G04B 45/043](#); invisible drive of the hands [G04B 45/046](#))}
- G04B 19/044 . . {Mounting and setting of the hands on the axle}
- G04B 19/046 . . {Indicating by means of a disc with a mark or window (for simultaneous indicating [G04B 19/048](#))}
- G04B 19/048 . . {having the possibility of indicating on more than one scale, e.g. hands with variable length which work on different scales (simultaneous indicating on several dials [G04B 19/025](#); indicating by discs used as hands [G04B 19/046](#); used as moving scales [G04B 19/202](#); different indications on several scales or dials e.g. for different local apparent times [G04B 19/23](#))}
- G04B 19/06 . Dials {(moving discs [G04B 19/20](#); illuminated dials or hands [G04B 19/30](#); for time-pieces without clockwork [G04B 49/04](#); {machines and arrangements for the manufacture of dials or hands [G04D 3/0048](#))}
- G04B 19/065 . . {with several parts}
- G04B 19/08 . . Geometrical arrangement of the graduations
- G04B 19/082 . . . {varying from the normal closed scale}
- G04B 19/085 . . . {varying from the normal 12 hour arrangement}
- G04B 19/087 . . . {with several separate scales (for indicating the same or different times of the clockwork; indicating devices making several simultaneous indications possible [G04B 19/048](#))}

- G04B 19/10
  - • Ornamental shape of the graduations or the surface of the dial; Attachment of the graduations to the dial {(cases for special purposes, e.g. ring or button watches [G04B 37/12](#); indicating means with special effects [G04B 45/00](#))}
- G04B 19/103
  - • • {attached or inlaid numbers (attaching of jewels or ornaments [G04B 47/042](#); arrangements for attaching bearing jewels, or the like [G04D 3/04](#))}
- G04B 19/106
  - • • {Special number markings}
- G04B 19/12
  - • Selection of materials for dials or graduations {markings}
- G04B 19/14
  - • Fastening the dials to the clock or watch plates {(tools, arrangements and machines for the manufacture of watch plates [G04D 3/0048](#))}
- G04B 19/16
  - • Shiftable dials, e.g. indicating alternately from 1 to 12 and from 13 to 24 {(dials with a scale other than the normal 12 hour scale [G04B 19/085](#))}
- G04B 19/163
  - • • {numbers which are visible alternately from 1 to 12 and from 13 to 24 on the same dial [G04B 19/085](#)}
- G04B 19/166
  - • • {with rotating scales}
- G04B 19/18
  - • Graduations on the crystal or glass, on the bezel, or on the rim
- G04B 19/20
  - Indicating by numbered bands, drums, discs, or sheets {(indicating means without numbers or hands in general [G04B 19/04](#); illuminated [G04B 19/30](#); with optical projection [G04B 19/34](#); gearwork and linking in general [G04B 13/00](#); electrically driven [G04C 19/04](#); counter mechanisms [G06M](#))}
- G04B 19/202
  - • {by means of turning discs (disc-shaped indicating devices with a reference mark or a window [G04B 19/046](#); discs driven by clockwork and producing optical special effects [G04B 45/0007](#); with inscriptions or drawings driven by a clockwork [G04B 45/0023](#); with figures or parts of figures driven by clockwork [G04B 45/0038](#))}
- G04B 19/205
  - • {by means of sheets}
- G04B 19/207
  - • {by means of bands (bands as time indicating means with a reference mark or window [G04B 19/04](#))}
- G04B 19/21
  - • Drums {(drum-shaped or spatial indicating devices [G04B 19/04](#); fixed scales or dials [G04B 19/06](#); scales disposed on a terrestrial globe for indicating local times in different places [G04B 19/22](#); clockwork combined with a lamp with no functional relationship [G04B 47/02](#))}
- G04B 19/22
  - Arrangements for indicating different local apparent times; Universal time pieces {(indicating by means of numbers or signs disposed on moving devices [G04B 19/20](#); illumination of dials or hands [G04B 19/30](#); combination with a terrestrial globe in general [G04B 47/02](#); electronic time-zone watches [G04G 9/0076](#))}
- G04B 19/221
  - • {mechanisms for correcting the hours hand only, i.e. independently for minutes and seconds hands}

**WARNING**

Not complete pending reclassification; see also [G04B 19/22](#)
- G04B 19/223
  - • {with rotary disc, rotary bezel, or rotary dial}

**WARNING**

Not complete pending reclassification; see also [G04B 19/22](#)

- G04B 19/225
  - . . . {driving mechanism for the bezel}
  - WARNING**
  - Not complete pending reclassification; see also [G04B 19/22](#)
- G04B 19/226
  - . . {three-dimensionally shaped, e.g. terrestrial globes, cylinders and the like}
  - WARNING**
  - Not complete pending reclassification; see also [G04B 19/22](#)
- G04B 19/228
  - . . {with linear time graduation}
  - WARNING**
  - Not complete pending reclassification; see also [G04B 19/22](#)
- G04B 19/23
  - . . by means of additional hands or additional pairs of hands {(simultaneous indication on several dials [G04B 19/025](#); indicating devices giving several simultaneous indications [G04B 19/048](#))}
- G04B 19/235
  - . . . {mechanisms for correcting the additional hand or hands (time setting [G04B 27/00](#))}
  - WARNING**
  - Not complete pending reclassification; see also [G04B 19/23](#)
- G04B 19/24
  - . Clocks or watches with date {or week-day} indicators, {i.e. calendar clocks or watches}; Clockwork calendars {(combination of the clockwork with an independently settable calendar [G04B 47/00](#))}
- G04B 19/241
  - . . {the date is indicated by one or more hands}
- G04B 19/243
  - . . characterised by the shape of the date indicator
- G04B 19/24306
  - . . . {combination of different shapes, e.g. bands and discs, discs and drums (for electrically driven timepieces [G04C 17/0041](#))}
- G04B 19/24313
  - . . . . {Independent date indicating devices activated by hand or by clockwork}
- G04B 19/2432
  - . . . . {Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement}
- G04B 19/24326
  - . . . . . {driven or released stepwise by the clockwork movement}
- G04B 19/24333
  - . . . . . {driven or released stepwise by an energy source which is released at determined moments by the clockwork movement}
- G04B 19/2434
  - . . . . . {driven or released by their own energy source which is released at regular time intervals}
- G04B 19/24346
  - . . . {band-shaped ([G04B 19/24306](#) takes precedence; for electrically driven timepieces [G04C 17/0016](#))}
- G04B 19/24353
  - . . . . {Independent date indicating devices activated by hand or by clockwork}
- G04B 19/2436
  - . . . . {Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement}
- G04B 19/24366
  - . . . . . {driven or released stepwise by the clockwork movement}
- G04B 19/24373
  - . . . . . {driven or released stepwise by an energy source which is released at determined moments by the clockwork movement}

G04B 19/2438	. . . . .	{driven or released by their own energy source which is released at regular time intervals}
G04B 19/24386	. . .	{sheet-shaped (G04B 19/24306 takes precedence; flap-shaped for electrically driven timepieces G04C 17/0033)}
G04B 19/24393	. . . . .	{Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement}
G04B 19/247	. . .	disc-shaped {(G04B 19/24306 takes precedence; for electrically driven timepieces G04C 17/0058)}
G04B 19/25	. . . . .	Devices for setting the date indicators manually
G04B 19/253	. . . . .	Driving or releasing mechanisms
G04B 19/25306	. . . . .	{Independent date indicating devices activated by hand or by clockwork, e.g. calendar watches}
G04B 19/25313	. . . . .	{driven or released by a steady movement}
G04B 19/2532	. . . . .	{automatically corrected at the end of months having less than 31 days}
G04B 19/25326	. . . . .	{manually corrected at the end of months having less than 31 days}
G04B 19/25333	. . . . .	{wherein the date indicators are driven or released mechanically by a clockwork movement}
G04B 19/2534	. . . . .	{driven or released continuously by the clockwork movement}
G04B 19/25346	. . . . .	{manually corrected at the end of months having less than 31 days}
G04B 19/25353	. . . . .	{driven or released stepwise by the clockwork movement}
G04B 19/2536	. . . . .	{automatically corrected at the end of months having less than 31 days}
G04B 19/25366	. . . . .	{manually corrected at the end of months having less than 31 days}
G04B 19/25373	. . . . .	{driven or released stepwise by an energy source which is released at determined moments by the clockwork movement}
G04B 19/2538	. . . . .	{automatically corrected at the end of months having less than 31 days}
G04B 19/25386	. . . . .	{manually corrected at the end of months having less than 31 days}
G04B 19/25393	. . . . .	{driven or released by their own energy source which is released at regular time intervals}
G04B 19/257	. . .	drum-shaped {or three-dimensional shaped (G04B 19/24306 takes precedence; for electrically driven timepieces G04C 17/0083)}
G04B 19/2571	. . . . .	{Independent date indicators activated by hand or by clockwork}
G04B 19/2573	. . . . .	{Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement}
G04B 19/2575	. . . . .	{driven or released stepwise by the clockwork movement}
G04B 19/2576	. . . . .	{driven or released stepwise by an energy source which is released at determined moments by the clockwork movement}
G04B 19/2578	. . . . .	{driven or released by their own energy source which is released at regular time intervals}

- G04B 19/26
  - Clocks or watches with indicators for tides, for the phases of the moon, or the like {(planetaria [G09B 27/00](#) to [G09B 27/06](#); arrangements for table reference e.g. menstrual tables [G06C 3/00](#))}
- G04B 19/262
  - • {with indicators for astrological informations}
- G04B 19/264
  - • {with indicators for biological cycles}
- G04B 19/266
  - • {with indicators for tides}
- G04B 19/268
  - • {with indicators for the phases of the moon}
- G04B 19/28
  - Adjustable guide marks or pointers for indicating determined points of time {(inscriptions or pictures moved by hand [G04B 45/003](#))}
- G04B 19/283
  - • {on rotatable rings, i.e. bezel (for graduations on the bezels [G04B 19/18](#))}
- G04B 19/286
  - • • {with locking means to prevent undesired rotations in both directions}

### **WARNING**

Not complete pending reclassification; see also [G04B 19/283](#)

- G04B 19/30
  - Illumination of dials or hands {(dials in general [G04B 19/06](#); moving indicating means with numbers or hands, in general [G04B 19/20](#); arrangements for indicating different local apparent times by means of a globe illuminated from inside [G04B 19/22](#); continuous indication of the time by non-electric light sources [G04B 25/00](#); e.g. by electric lamps [G04C 17/02](#); illumination by electric lamps which function at fixed times or periodically [G04C 19/02](#); illuminated panels [G09F 13/00](#))}
- G04B 19/305
  - • {the hands carrying the light source (hands and manufacture thereof [G04B 19/042](#); projection of hands or dials [G04B 19/34](#); illumination of scales and/or hands on moving scales [H03J 1/02](#); on compasses [G01C 17/24](#); on weighing apparatus [G01G 23/18](#); on measuring instruments [G01D 11/28](#))}
- G04B 19/32
  - • by luminescent substances {(disc or drum shaped indicating means with marks or windows [G04B 19/04](#); with numbers or number-marks [G04B 19/20](#); cases for housing the electrical parts [G04G 17/00](#); projection of hands and/or scales on weighing apparatus [G01G 19/00](#); on measuring instruments [G01D 5/262](#); for advertising [G09F 19/18](#))}
- G04B 19/34
  - Position of the hands projected optically {(for advertising [G09F 19/18](#); indicating by discs or drums with mark or window [G04B 19/04](#), with figures or signs [G04B 19/20](#); illumination of dials or hands [G04B 19/30](#), case for electrical components [G04C 3/008](#); Optical projection of a pointer and/or scale for weighing apparatus [G01G 23/32](#); for measuring instruments [G01D 5/262](#))}
- G04B 21/00**

**Indicating the time by acoustic means** (at preselected times [G04B 23/00](#); by electro-acoustic means [G04C 21/04](#); {indicating the time by means other than acoustically, or by combined means [G04B 25/00](#); indicating the time by visual means [G04B 19/00](#), [G04C 17/00](#); acoustic signalling arrangements [G08B 3/00](#))}
- G04B 21/005
  - {Periodical acoustic signalling arrangements ([G04B 21/02](#) takes precedence); (adjustment of the frequency by setting the length of the pendulum [G04B 18/003](#); metronomes [G04F 5/02](#))}
- G04B 21/02
  - Regular striking mechanisms giving the full hour, half hour or quarter hour {(electrically operating striking mechanism [G04C 21/06](#))}
- G04B 21/022
  - • {with saw mechanism (with electric drive [G04C 21/08](#))}
- G04B 21/025
  - • • {with silent saw action}
- G04B 21/027
  - • {with locking wheel (electrically driven [G04C 21/10](#))}

- G04B 21/04 . . Hour wheels; Racks or rakes; Snails or similar control mechanisms
- G04B 21/06 . . Details of striking mechanisms, e.g. hammer, fan governor {(escapements in general [G04B 15/00](#); mechanisms for stabilising frequency [G04B 17/00](#); resistance regulators [G05D 13/00](#); mechanical toys [A63H](#))}
- G04B 21/08 . . Sounding bodies; Whistles; Musical apparatus (with electro-acoustical transmitters [G04C 21/00](#), {[G04B 23/08](#); sounding arrangements in alarm clocks [G04B 23/028](#); cases with arrangements for enhancing sound production [G04B 37/0075](#); carillons and sounding boards [G10F 1/08](#), [G04B 1/10](#), [G10D 13/08](#))}
- G04B 21/10 . . Releasing or locking the regular stroke, e.g. for silence during the night
- G04B 21/12 . . Reiterating watches or clocks
- G04B 21/14 . . Winding-up the striking mechanism by the clockwork; winding up the clockwork by the striking mechanism {(winding up by hand or mechanically [G04B 3/00](#))}
- G04B 23/00** **Arrangements producing acoustic signals at preselected times** {(indicating the time by optical means [G04B 19/00](#), [G04C 17/00](#); indicating the time by acoustic means [G04B 21/00](#); indicating the time by means other than acoustic or optical, or by a combination of means [G04B 25/00](#); acoustic time signals produced electrically [G04C 21/00](#); coin-freed alarm clocks [G07F 17/0007](#); acoustic signalling means [G08B 3/00](#))}
- G04B 23/005 . {by starting up musical boxes or other musical recordings (starting up and stopping of phonographs by means of clockwork apparatus [G11B 33/06](#))}
- G04B 23/02 . Alarm clocks (electrically released alarm signals [G04C 21/00](#) {waking up by electric lamps [G04C 19/02](#); by other means [G04B 25/005](#); alarm clocks with electric contacts [G04C 23/06](#))}
- G04B 23/021 . . {Controls (winding up the alarm; adjusting and indicating the waking time)}
- G04B 23/023 . . {Driving, e.g. by springs or common drive with the clockwork; gears; escapements (escapements in general [G04B 15/00](#); regulating means for clockworks in general [G04B 17/00](#))}
- G04B 23/025 . . {Signal triggering (in alarm clocks which deliver also or only non-acoustic signals [G04B 25/005](#))}
- G04B 23/026 . . {Hammer driving; hammers; devices with several hammers or sounding bodies; vibrators}
- G04B 23/028 . . {Sounding bodies; boxes used as sounding cases; fixation on or in the case (sounding bodies [G04B 21/08](#); case enhancing transmission of sound waves [G04B 37/0075](#))}
- G04B 23/03 . . Alarm signal stop arrangements
- G04B 23/04 . . with coarse and fine setting of the preselected times
- G04B 23/06 . . adjustable for several preselected times with automatic stopping of the signal
- G04B 23/08 . . operating on successive days without resetting; operating only once in each 24 hours
- G04B 23/10 . . with pre-signal; with repeated signal; with changeable intensity of sound
- G04B 23/12 . . Alarm watches to be worn in pockets or on the wrist (giving signals by stimulating the skin [G04B 25/04](#))



**G04B 25/00**

**Indicating the time by other means or by combined means** (electric or electromechanical indicating [G04C](#); {illumination of dials or hands [G04B 19/30](#); indicating the time by acoustic means [G04B 21/00](#); arrangements producing acoustic signals at preselected times [G04B 23/00](#); continuously indicating the time optically by electric means [G04C 19/00](#); producing acoustic time signals by electrical means [G04C 21/00](#); devices for cooking eggs [A47J 29/00](#))

G04B 25/005

- {in alarm clocks ([G04B 25/04](#) takes precedence)}

G04B 25/02

- by feeling; Clocks or watches for blind persons

G04B 25/04

- . Alarm clocks or watches with devices stimulating the skin {(normal pocket or wrist alarm clocks [G04B 23/12](#))}

G04B 25/06

- by moving figures, e.g. cuckoo clocks, trumpet clocks {(figures or part of figures set in motion by the clockwork and creating an optical special effect [G04B 45/0007](#); figures or parts of figures not used to indicate time [G04B 45/0038](#); clockworks driving inscriptions or figures [G04B 45/0023](#); time indication by means of plates or bands driven electrically [G04C 19/04](#))}

**G04B 27/00**

**Mechanical devices for setting the time indicating means**

G04B 27/001

- {Internal gear therefor, e.g. for setting the second hand or for setting several clockworks}

G04B 27/002

- {The setting apparatus being crown shaped ([G04B 27/02](#) takes precedence)}

G04B 27/004

- {having several simultaneous functions, e.g. stopping or starting the clockwork or the hands ([G04B 27/02](#) takes precedence)}

G04B 27/005

- {stepwise or on determined values ([G04B 27/02](#) takes precedence)}

G04B 27/007

- {otherwise than manually ([G04B 27/02](#) takes precedence; oscillator weights in general [G04B 5/04](#))}

G04B 27/008

- {with parts which are put together with the winding parts, but are functionally separate from them}

G04B 27/02

- by making use of the winding means {(winding by hand or mechanically [G04B 3/00](#))}

G04B 27/023

- . {changing of the winding position to the setting position and vice versa is done with an independant part of the winding or setting mechanism ([G04B 27/045](#) and [G04B 27/065](#) take precedence; by part of the case [G04B 27/086](#))}

G04B 27/026

- . {for several clockworks or pairs of hands and/or supplementary functions}

G04B 27/04

- . with clutch wheel {(support and displacement of the winding stem through the case, means for preventing the stem from going too far, fixation [G04B 37/06](#))}

G04B 27/045

- . . {Changing the winding position to the setting position and vice versa is done with an independant part of the winding or setting mechanism}

G04B 27/06

- . with rocking bar {(support and displacement of the winding stem through the case, means preventing the stem from going too far, fixation [G04B 37/06](#))}

G04B 27/065

- . . {Changing the winding position to the setting position and vice versa is done with an independant part of the winding or setting mechanism}

G04B 27/08

- by using parts of the case {(winding by using parts of the case [G04B 3/08](#))}

G04B 27/083

- . {which may be used for winding when changed form the normal position}

- G04B 27/086
  - . . {which, after displacing a supplementary part, may be used for winding (similar devices [G04B 27/023](#); in mechanisms with coupled pinions [G04B 27/045](#); in rocking mechanisms [G04B 27/065](#))}

**Frameworks, supports, or arrangements of the clockwork parts in relation to each other, so called "calibers"**

**G04B 29/00**

**Frameworks**

- G04B 29/02
  - . Plates; Bridges; Cocks
- G04B 29/022
  - . . {Bridges}
- G04B 29/025
  - . . {Cocks}
- G04B 29/027
  - . . {Materials and manufacturing (alloys, in general [C22C](#))}
- G04B 29/04
  - . Connecting or supporting parts

**G04B 31/00**

**Bearings; Point suspensions or counter-point suspensions; Pivot bearings; Single parts therefor** (bearings in general [F16C](#); {manufacture and composition of springs [G04B 1/145](#); suspension of oscillating weights [G04B 5/18](#); suspension of a pendulum [G04B 17/02](#); bearings for electrical measurement apparatus [G01R 1/10](#), [G01R 1/12](#), [G01R 11/12](#), [G01R 11/14](#); inserting jewels [A44C 17/04](#); inserting cutting diamonds [B23P 5/00](#); devices for fixation of bearing jewels, bearing sleeves, or the like [G04D 3/04](#))

- G04B 31/004
  - . characterised by the material used
- G04B 31/008
  - . . Jewel bearings ([G04B 31/04](#) takes precedence)
- G04B 31/0082
  - . . . {with jewel hole and cap jewel (shock damping bearings with jewel hole and cap jewel [G04B 31/04](#))}
- G04B 31/0085
  - . . . {with cap jewel only}
- G04B 31/0087
  - . . . {with jewel hole only}
- G04B 31/012
  - . . Metallic bearings
- G04B 31/0123
  - . . . {with metallic ball bearings and metallic roller bearings}
- G04B 31/0126
  - . . . {Metallic step-bearings}
- G04B 31/016
  - . . Plastic bearings
- G04B 31/02
  - . Shock-damping bearings {(shock damping in the case [G04B 37/052](#), [G04B 37/055](#), [G04B 37/0418](#))}
- G04B 31/04
  - . . with jewel hole and cap jewel {(jewel bearings with jewel hole and cap jewel [G04B 31/0082](#); tools for inserting jewel bearings [G04D 3/042](#))}
- G04B 31/06
  - . Manufacture or mounting processes
- G04B 31/08
  - . Lubrication {(self-lubricated plastic bearings [G04B 31/016](#); lubrication of the escape wheel [G04B 15/14](#); lubrication of synchronous clockworks [G04C 15/009](#); lubrication devices and lubricant containers [G04D 5/00](#))}

**G04B 33/00**

**Calibers** {(disposition of components of the automatic winding mechanism in relation to the clockwork [G04B 5/18](#))}

- G04B 33/02
  - . Circular calibers
- G04B 33/04
  - . Non-circular calibers
- G04B 33/06
  - . of extremely flat shape

- G04B 33/08 . in which the gear train is arranged in different planes, e.g. parallel or inclined to each other ([G04B 33/10](#) takes precedence {case for special purposes, e.g. button or ring clockworks [G04B 37/12](#)})
- G04B 33/10 . with seconds hand arranged in the centre of the dial
- G04B 33/12 . for extremely long running times
- G04B 33/14 . Calibers of which the mainsprings or barrels are easily removable ([mainsprings G04B 1/14](#); barrels, arbors [G04B 1/16](#) {normal or mechanical winding [G04B 3/00](#)})
- G04B 33/16 . with arrangements affording protection of the clockwork against damage as a consequence of a rupture of the mainspring {(protection devices against the rupture of the mainspring or its over-tension, placed in the spring-drum or fixed on it against rupture if the mainspring is wound too far [G04B 1/20](#))}
- G04B 35/00** **Adjusting the gear train, e.g. the backlash of the arbors, depth of meshing of the gears** {(adjusting the escapement [G04B 15/12](#))}

### **Protection of the clockwork against damage from the outside**

- G04B 37/00** **Cases** {(Cases with a special shape [G04B 45/0069](#); ornamentation of the case [G04B 47/04](#); cartridges [A45C 11/00](#) to [A45C 11/38](#))}
- G04B 37/0008 . {for pocket watches and wrist watches}
- G04B 37/0016 . . {with folding cover or folding bottom (hinge without spring)}
- G04B 37/0025 . . {with cover or bottom with a spring (savonette) bench watches opening or closing with spring action [G04B 37/0463](#)}
- G04B 37/0033 . . {with cover or bottom which can slide or turn (without a spring action)}
- G04B 37/0041 . . {the cover or the bottom can slide or turn with a spring action}
- G04B 37/005 . . {with cover or protection device which can be completely removed, either by lifting off or by sliding, or by turning (protection covers, protection cases also against humidity)}
- G04B 37/0058 . . {for shaped watches}
- G04B 37/0066 . {for wall clocks and balances (feet and stands for clocks [G04B 37/1473](#))}
- G04B 37/0075 . {with means to enhance sound transmission (sonorous means for chimes [G04B 21/08](#); for alarm clocks [G04B 23/028](#); clockworks combined with musical devices [G04B 47/025](#))}
- G04B 37/0083 . {for more than one clockwork}
- G04B 37/0091 . {for clock parts, e.g. for the escapement or the electric motor (protection cases and air tight vacuum means for clockwork parts [G04B 37/088](#))}
- G04B 37/02 . Evacuated cases; Cases filled with gas or liquids; Cases containing substances for absorbing or binding moisture or dust
- G04B 37/04 . Mounting the clockwork in the case; Shock absorbing mountings
- G04B 37/0409 . . {Fixed mounting relating to wall clocks and pendulums}
- G04B 37/0418 . . . {with shock damping means (shock damping bearings [G04B 31/02](#); protection against shocks with shields [G04B 43/002](#))}

- G04B 37/0427 . . {Mountings relative to pocket and wrist watches allowing a rocking movement about a hinge or any other movement (covers and protective cases which may be removed completely either by direct removal or by sliding or turning [G04B 37/005](#); ornamentation and interchangeable parts of cases, modifying the external appearance of the clockwork [G04B 47/046](#))}
- G04B 37/0436 . . . {Clockwork movements coming out without springs, for allowing time reading or winding}
- G04B 37/0445 . . . {Clockwork movements which come out by spring action for time reading and winding}
- G04B 37/0454 . . . {Free standing watches (montre chevalet)}
- G04B 37/0463 . . . {Free standing watches where the clockwork, on opening or closing the case, is ejected or returned by spring action, or possibly with a spring for opening or closing the case (cases with spring action cover [G04B 37/0025](#); wrist watches or pocket watches which can be used as free standing watches with the aid of certain parts of the case [G04B 37/148](#))}
- G04B 37/0472 . . . {Rocking mounting of the clockwork}
- G04B 37/0481 . . {Mountings relative to wall-clockworks and to pendulums allowing certain movements}
- G04B 37/049 . . {Mountings for sound-damping}
- G04B 37/05 . . Fixed mountings for pocket or wrist watches
- G04B 37/052 . . . {with shock damping means not related to the winding stem (shock damping bearings [G04B 31/02](#); shock protection [G04B 43/002](#))}
- G04B 37/055 . . . {with shock damping means including the winding stem (shock damping bearings [G04B 31/02](#); shock protection [G04B 43/002](#))}
- G04B 37/057 . . . {for shaped watches}
- G04B 37/06 . . Forming the passage for the winding stem through the case; Divided winding stems {(watertight protection means for the winding stem [G04B 37/10](#); fixing the knob to the case [G04B 37/1466](#); winding and setting the hands with the winding stem with clutch wheel [G04B 27/04](#), with rocking bar [G04B 27/06](#))}
- G04B 37/062 . . {Means for preventing the winding stem from being pulled out too far}
- G04B 37/064 . . . {by a tirette}
- G04B 37/066 . . {Divided stem (tige brisee) (normal winding stems [G04B 3/041](#))}
- G04B 37/068 . . {Stem passage not being part of the layout of the clockwork}
- G04B 37/08 . . Hermetic sealing of openings, joints, passages or slits {(covers or protecting devices which can be directly removed, or by sliding or turning [G04B 37/005](#); hermetic sealing of watch or crystal with special pieces [G04B 39/02](#); hermetically-sealed electrical switches [H01H 23/06](#))}
- G04B 37/081 . . {Complete encasings for wrist or pocket watches also comprising means for hermetic sealing of the winding stem and crown (hermetic sealing of the stem or crown [G04B 37/10](#))}
- G04B 37/082 . . . {without special hermetic sealing pieces}
- G04B 37/083 . . . {for shaped watches}
- G04B 37/084 . . {Complete encasings for wrist or pocket watches without means for hermetic sealing of winding stem or crown}
- G04B 37/085 . . . {without special hermetic sealing pieces}
- G04B 37/086 . . . {for shaped watches}

- G04B 37/087 . . {Protection of wrist or pocket watch cases against dust}
- G04B 37/088 . . {Means affording hermetic sealing inside the case, e.g. protective case for the clockwork against dust, the escapement being in a hermetically sealed case (case for watch pieces [G04B 37/0091](#); synchronous motor lubrication [G04C 15/009](#))}
- G04B 37/10 . . of winding stems {(construction of winding crowns [G04B 3/041](#); in combination with hermetic sealing [G04B 37/081](#))}
- G04B 37/103 . . . {by screwing the crown onto the case}
- G04B 37/106 . . . {of push buttons (winding up by push button [G04B 3/001](#); crown in the form of push button [G04B 3/046](#); construction of push buttons [G04B 3/048](#))}
- G04B 37/11 . . of the back cover of pocket or wrist watches
- G04B 37/113 . . . {without special hermetic sealing pieces}
- G04B 37/116 . . . {for shaped watches}
- G04B 37/12 . Cases for special purposes, e.g. watch combined with ring, watch combined with button (watch guards or protectors [A45C 11/10](#), [A45C 11/12](#); watches combined with cosmetic powder containers [A45D 33/30](#) {domed dial [G04B 19/10](#); calibers in which the clockwork is disposed on different planes [G04B 33/08](#); means for fixing watches on items of clothing [G04B 37/1433](#); cases having means for fixing onto a normal bracelet [G04B 37/1486](#); cases giving special affects due to their particular shape [G04B 45/0069](#); watches combined with various objects and therefore having a specially shaped case [G04B 47/00](#))}
- G04B 37/122 . . {used as a mirror}
- G04B 37/125 . . {allowing note taking (cases with means for holding sheets of note-paper [G04B 37/127](#); adjustable guide marks or pointers for indicating determined points of time [G04B 19/28](#); changeable indicators [G04B 45/0092](#))}
- G04B 37/127 . . {used as containers or cartridges (means for incorporating a battery in the case [G04G 17/00](#))}
- G04B 37/14 . Suspending devices, supports or stands for time-pieces insofar as they form part of the case {(wrist watch straps, fastening means therefor [A44C 5/00](#))}
- G04B 37/1406 . . {Means for fixing the clockwork pieces on other objects (possibly on walls)}
- G04B 37/1413 . . . {Separable means}
- G04B 37/142 . . . {Means which can be adjusted as a function of the clockwork piece}
- G04B 37/1426 . . . {Means whereby the clockwork piece may move with regard to its suspension device}
- G04B 37/1433 . . . {Fixation on items of clothing e.g. with clips (button watches [G04B 37/12](#); brooches, or the like [A44C 1/00](#); other similar fixation means, in general [A45F 5/02](#))}
- G04B 37/144 . . . {Fixation on flat support, e.g. on dashboard}
- G04B 37/1446 . . {Means for suspending pocket-, or other types of watches, e.g. on small chains (bracelet fixings [G04B 37/1486](#))}
- G04B 37/1453 . . . {Construction and manufacture of case crown and clip}
- G04B 37/146 . . . {with the case crown and a clip}
- G04B 37/1466 . . . {Fixing the case crown onto the case}
- G04B 37/1473 . . {Supports and feet for supporting the clockwork (cases for standing clockworks in general [G04B 37/0066](#))}

- G04B 37/148 . . . {formed by parts of the case (standing watches by bringing them out of the case or purse [G04B 37/0463](#))}
  - G04B 37/1486 . . {Arrangements for fixing to a bracelet (building watches into bracelets (montre marquise) [G04B 37/12](#); arrangements for hanging pocket- or other watches on chains [G04B 37/1446](#))}
  - G04B 37/1493 . . . {by means of a feather spring (Barette á ressort)}
  - G04B 37/16 . . Fastening the case to the bracelet {(not used; see provisionally [G04B 37/00](#))}
  - G04B 37/18 . for pocket or wrist watches ([G04B 37/02](#) to [G04B 37/16](#) takes precedence {not used; see provisionally [G04B 37/00](#)})
  - G04B 37/20 . . with hinged covers or backs {(not used; see provisionally [G04B 37/00](#))}
  - G04B 37/22 . Materials or processes of manufacturing pocket watch or wrist watch cases {(machines or tools for the manufacture of clockwork cases [G04D 3/0064](#), [G04D 3/0097](#), [G04D 3/029](#); decoration or tools therefor [G04B 45/0076](#))}
  - G04B 37/221 . . {Wear resistant cases}
- WARNING**
- This group is no longer used for the classification of new documents as from March 1, 2011. The backlog of this group is being reclassified to other subgroups of [G04B 37/22](#)
- G04B 37/223 . . {metallic cases coated with a nonmetallic layer}
- WARNING**
- Not complete pending reclassification; see also [G04B 37/22](#)
- G04B 37/225 . . {Non-metallic cases}
  - G04B 37/226 . . . {coated with a metallic layer}
  - G04B 37/228 . . . {Wooden cases}
- G04B 39/00**      **Watch crystals; Fastening or sealing of crystals; Clock glasses**
- G04B 39/002 . {made of glass}
  - G04B 39/004 . {from a material other than glass}
  - G04B 39/006 . . {out of wear resistant material, e.g. sapphire}
  - G04B 39/008 . {with means for magnified reading (combinations with a magnifying glass in general [G04B 47/00](#))}
  - G04B 39/02 . Sealing crystals or glasses {(sealing the case and the winding stem [G04B 37/08](#))}
  - G04B 39/025 . . {without special sealing parts}
- G04B 41/00**      **Locking or holding devices for pendulums, chimes, or the like, for use during transport**
- G04B 41/005 . {holding and locking of the pendulum only}
- G04B 43/00**      **Protecting clockworks by shields or other means against external influences, e.g. magnetic fields {(demagnetising apparatus [G04D 9/00](#))}**



- G04B 43/002      . {Component shock protection arrangements (shock damping bearings [G04B 31/02](#); shock-damping in the case [G04B 37/04](#); protection of the pendulum or chime during transport [G04B 41/00](#))}
- G04B 43/005      . {Protection against temperature influences}
- G04B 43/007      . {Antimagnetic alloys (antimagnetic alloys with temperature compensation [G04B 17/227](#); apparatus for antimagnetising [G04D 9/00](#); alloys in general [C22C](#))}

### **Clocks with unusual features**

- G04B 45/00**      **Time pieces of which the indicating means or cases provoke special effects, e.g. aesthetic effects** (ornamental shaping of dials [G04B 19/10](#) ) {(lubrication of clockwork bearings [G04B 31/008](#); special effects and pictures in general [B44F](#))}
- G04B 45/0007      . {Light-, colour-, line-, or spot-effects caused by parts or pictures moved by the clockwork (disc-shaped indicating parts [G04B 19/046](#), [G04B 19/202](#); figures or parts thereof for indicating the time, moved by the clockwork [G04B 25/06](#))}
- G04B 45/0015      . {Light-, colour-, line- or spot-effects caused by or on stationary parts (change of appearance by exchangeable case parts [G04B 47/046](#))}
- G04B 45/0023      . {Inscriptions or pictures moved by the clockwork, e.g. for advertising (clocks with abrupt time indication [G04B 13/00](#); disc-shaped indicating elements [G04B 19/046](#), [G04B 19/202](#); advertising in general [G09F](#))}
- G04B 45/003      . {Inscriptions and pictures moved by hand (clockworks with abrupt time indication [G04B 13/00](#); adjustable hands or mechanisms [G04B 19/28](#); combination of clockwork with counter, e.g. for sports results [G04B 47/00](#); movable ornaments and decorations [G04B 47/044](#))}
- G04B 45/0038      . {Figures or parts thereof moved by the clockwork (disc-shaped indicating means [G04B 19/046](#), [G04B 19/202](#); time indicating by moving figures [G04B 25/06](#); normal moving parts of the clockwork visible through a window, e.g. the escapement [G04B 45/02](#))}
- G04B 45/0046      . . {with oscillating motion, in pocket- or wrist watches}
- G04B 45/0053      . . {with oscillating motion in hanging or standing clockworks such as imitation of a real pendulum}
- G04B 45/0061      . . {Moving parts of the clockwork, e.g. pendulum, hands in special form, mostly constructed as a figure (cases and non moving parts of the clockwork in various forms [G04B 45/0069](#); decoration and manufacturing methods therefor, also for moving parts [G04B 45/0076](#); construction of normal pendulums [G04B 17/02](#); construction of normal hands [G04B 19/042](#))}
- G04B 45/0069      . {Cases and fixed parts with a special shape (movable parts with a special shape [G04B 45/0061](#); decoration in general, and methods of manufacture thereof [G04B 45/0076](#); cases in general [G04B 37/00](#); combination with genuine utensils or mounting therein [G04B 47/00](#))}
- G04B 45/0076      . {Decoration of the case and of parts thereof e.g. as a method of manufacture thereof (specially shaped [G04B 45/0061](#), [G04B 45/0069](#); decoration with inscriptions and pictures [G04B 45/0084](#); construction of the hands [G04B 19/042](#); decoration by adding extra pieces to the clockwork [G04B 47/04](#); colouring by treatment of the surface, e.g. by oxidation [C25D](#))}
- G04B 45/0084      . {Pictures or inscriptions on the case or parts thereof, attaching complete pictures (decoration and manufacture thereof [G04B 45/0076](#); special decorative parts which are attached to the case or other parts [G04B 47/04](#))}

- G04B 45/0092
  - • {Changeable parts (cases or clockworks with holders or as holders [G04B 37/127](#))}
- G04B 45/02
  - Time pieces of which the clockwork is visible partly or wholly {(figures or parts thereof moved by the clockwork [G04B 45/0038](#))}
- G04B 45/04
  - Time pieces with invisible drive, e.g. with hands attached to a rotating glass disc {(for advertising [G09F 23/00](#); disc-shaped hands with marks or notches [G04B 19/046](#))}
- G04B 45/043
  - • {the clockwork being positioned in the hands or pendulum (gearwork [G04B 1/00](#); pendulums [G04B 17/02](#); construction of the hands [G04B 19/042](#))}
- G04B 45/046
  - • {the driving mechanism of the hands being invisible because of special shielding (construction of the hands [G04B 19/042](#))}
- G04B 47/00**

**Time-pieces combined with other articles which do not interfere with the running or the time-keeping of the time-piece** {(clockwork cases for special purposes [G04B 37/12](#); clocks with magnifying glass built in the face [G04B 39/00](#); time-pieces in which parts or cases produce special effects, e.g. aesthetic effects, [G04B 45/00](#), particularly with inscriptions or pictures moved by hand [G04B 45/003](#), with specially shaped cases or parts [G04B 45/0069](#); combination of) writing or drawing implements with devices for indicating time [B43K 29/087](#); combined with cameras, projectors, or photographic printing apparatus [G03B 29/00](#)}
- G04B 47/001
  - {Mounting or fixing to the steering wheel of a vehicle}
- G04B 47/003
  - {Mounting in and combined with adjustable indicating means, e.g. date indicating means adjustable by hand, marks or counters (calendar clocks [G04B 19/24](#))}
- G04B 47/005
  - {combined with a key}
- G04B 47/006
  - {combined with a lighter}
- G04B 47/008
  - {combined with a thermometer}
- G04B 47/02
  - Installations within mirrors, pictures, furniture or other household articles {(clock-lamps, globe-clocks with a fixed dial, [G04B 19/04](#); clock in the form of a lamp with a dial mounted upon it, moved by the clockwork [G04B 19/21](#); clockwork in the form of a globe for indicating different local apparent times [G04B 19/22](#); illumination of the dial and the hands [G04B 19/30](#); clock-lamps with the lamp switched on and off by the clockwork mechanism [G04C 19/02](#), within keys [G04B 47/005](#), within lighters [G04B 47/006](#), within pens [B43K 29/087](#))}
- G04B 47/025
  - • {in musical instruments or loudspeakers (sounding bodies with chimes [G04B 21/08](#); in alarm clocks [G04B 23/028](#); cases with arrangements for enhancing the sound production [G04B 37/0075](#))}
- G04B 47/04
  - with attached ornaments or amusement apparatus {(decorated cases see [G04B 45/00](#))}
- G04B 47/042
  - • {Fastening of jewels and the like (set on or into numbers [G04B 19/103](#); jewel bearings [G04B 31/008](#); setting of jewels and tools therefor [A44C](#); devices for setting jewel bearings [G04D 3/04](#))}
- G04B 47/044
  - • {Movable decorations and parts thereof (inscriptions and pictures moved by hand [G04B 45/003](#))}

- G04B 47/046
  - . . {Changeable decorations and parts thereof, decorations for the case which change the external appearance of the clockwork (clip-on -, sliding - or tilting protective lids or covers [G04B 37/005](#); with a clockwork which can be mounted on different cases for changing its external appearance [G04B 37/0427](#); clockworks which can be mounted in different cases for changing their purpose [G04B 37/14](#); decoration of the case or parts thereof [G04B 45/0076](#); changeable pictures or inscriptions [G04B 45/0092](#))}
- G04B 47/048
  - . . {Clockwork combined with toys (devices for teaching clock reading [G09B 19/12](#); indicating play time [G07C 1/28](#))}
- G04B 47/06
  - . with attached measuring instruments, e.g. pedometer, barometer, thermometer or compass {(in combination with a tachometer which winds up the clockwork [G04B 5/206](#))}
- G04B 47/061
  - . . {calculating scales for indicating relationship between quantity and time (indicating or recording of quantity-time ratios [G01D](#); meters for measuring average speed, measuring speed by chronograph [G01P](#); slide rules and calculating wheels [G06G](#))}
- G04B 47/063
  - . . {measuring physiological quantities, e.g. pedometers, heart-rate sensors, blood pressure gauges and the like}

**WARNING**

Not complete pending reclassification; see also [G04B 47/06](#) and [G04B 47/061](#)

- G04B 47/065
  - . . {with a compass (compasses [G01C 17/00](#))}
- G04B 47/066
  - . . {with a pressure sensor}

**WARNING**

Not complete pending reclassification; see also [G04B 47/06](#) and [G04B 47/061](#)

- G04B 47/068
  - . . {with a thermometer}

**WARNING**

Not complete pending reclassification; see also [G04B 47/06](#) and [G04B 47/061](#)

**G04B 49/00**      **Time-pieces using the position of the sun, moon or stars** {(devices for fixing the place and time by astronomical observations [G01C 21/00](#))}

- G04B 49/02
  - . Sundials {(normal dials [G04B 19/06](#))}
- G04B 49/04
  - . . Graduation or shaping of dials

**G04B 99/00**      **Subject matter not provided for in other groups of this subclass**