

ECLA**EUROPEAN 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 [G04C23/00](#); clocks or watches with stop devices [G04F7/08](#))

Note

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

Guide heading:**Driving mechanisms****G04B1/00**

Driving mechanisms [N: driving mechanisms for Turkish time [G04B19/22](#); driving mechanisms in the hands [G04B45/04B](#); driving mechanisms for phonographic apparatus [G11B19/00](#); springs, driving weight engines [F03G](#); driving mechanisms for cinematography [G03B1/00](#); driving mechanisms; driving mechanisms for time fuses for missiles [F42C](#); driving mechanisms for toys [A63H11/23](#)]

G04B1/02

- . with driving weight

G04B1/04

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

G04B1/06

- . . with several weights [N: winding up several weights simultaneously [G04B3/00](#)]

G04B1/08

- . . Driving weights; Chains; Chain wheels; Arbors for chain wheels [N: wheels and spindles in general [F16F](#)]

G04B1/10

- . with mainspring [N: (synchronous motors with power reserve [G04C15/00C](#); springs in general [F16F](#))]

G04B1/10B

- . . [N: having a form other than a helix ([G04B1/12](#) and [G04B1/14](#) take precedence)]

G04B1/12

- . . with several mainsprings [N: installations with a mainspring and an auxiliary spring [G04B1/22B](#); winding-up several mainsprings simultaneously [G04B3/00G](#)]

G04B1/14

- . . Mainsprings; Bridles therefor (mainsprings with bridles [G04B1/18](#); alloys [C22C](#); springs in general [F16F](#)) [N: constructions for compensation of changes in the motive power of the mainspring [G04B1/22](#); construction of the hairspring [G04B17/06C](#); arrangements facilitating the removal of the mainspring [G04B33/14](#)]

G04B1/14R

- . . . [N: Composition and manufacture of the springs (compositions and manufacture of components, wheels, spindles, pivots, or the like [G04B13/02R](#); compositions of component escapements [G04B15/14](#); composition and manufacture of hairsprings [G04B17/06C](#); compensation for the effects of variations of temperature of springs using alloys, especially for hairsprings [G04B17/22R](#); materials for bearings of clockworks [G04B31/00](#); iron and steel alloys [C22C](#); heat treatment and chemical or mechanical treatment for control of the structure [C21D8/00](#); non-ferrous alloys [C22C](#) and [B22F](#))]

G04B1/16

- . . Barrels; Arbors; Barrel axles (arrangements facilitating the removal of the mainspring [G04B33/14](#))

- G04B1/16B . . . [N: Spring cylinder with friction transmission to the gearing (especially for Roskopf clockworks); friction clutch between spring and spring cylinder [G04B1/18B](#)]
- G04B1/18 . . . Constructions for connecting the ends of the mainsprings with the barrel or the arbor [N: mainsprings and bridles therefor [G04B1/14](#); clamping the hairspring on the regulator [G04B17/14F](#); clamping the hairspring on the arbor [G04B17/32](#)]
- G04B1/18B . . . [N: Friction clutch between spring and spring cylinder (friction transmission between spring cylinder and gearing [G04B1/16B](#); other arrangements for protection against rupture or overwinding [G04B1/20](#))]
- G04B1/20 . . . 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 [G04B3/06](#), [G04B3/10](#); in connection with automatic winding devices [G04B5/24](#); [N: protecting arrangements in which the spring and the spring cylinder are connected by friction [G04B1/18B](#); protecting arrangements [G04B9/02](#); calibers with arrangements affording protection of the clockwork against damage as a consequence of a rupture of the mainspring [G04B33/16](#); electric winding arrangements with protection against overwinding of mechanical clockworks [G04C1/10](#); driving mechanisms for gramophones [G11B19/22](#), [G11B19/28](#)])
- G04B1/20B [N: Stop-mechanisms]
- G04B1/22 . . . Compensation of changes in the motive power of the mainspring (by mechanical shaping of the mainspring [G04B1/14](#)) [N: automatic regulation of the pendulum [G04B17/12B](#); of the regulator [G04B19/28](#)]
- G04B1/22B [N: with the aid of an interposed power-accumulator (secondary spring) which is always tensioned (winding up several mainsprings or driving weights simultaneously [G04B3/00G](#))]
- G04B1/24 . . . with both mainsprings and driving weights [N: winding up several mainsprings or driving weights simultaneously [G04B3/00G](#)]
- G04B1/26 . . . driven by liquids or gases; Liquid or gaseous drives for mechanically-controlled secondary clocks [N: winding up by pneumatic means [G04B3/12](#); winding up automatically by wind power [G04B5/20D](#); winding up by electro-thermal or electro-pneumatic arrangements [G04C1/00B](#); thermo-electric or thermo-pneumatic driving mechanisms [G04C3/18](#)]
- G04B1/26B . . . [N: Clockwork systems working therewith (winding up electrical or mechanical clocks [G04C1/00F](#); electrical clockwork installations [G04C13/00](#))]

Guide heading: **Winding**

- G04B3/00** **Normal winding of clockworks by hand or mechanically; Winding up several mainsprings or driving weights simultaneously** [N: automatic winding up [G04B5/00](#); combined normal and automatic winding up [G04B7/00](#); Click devices [G04B11/00](#); winding up the striking mechanism by the clockwork and vice versa [G04B21/14](#); mechanical devices for setting the time-indication by using the winding means [G04B27/02](#), [G04B27/08B](#); calibers of which the mainsprings are easily removable [G04B33/14](#); winding mechanical clocks electrically [G04C1/00](#); tools for setting springs [G04D1/04](#); driving mechanisms for gramophones [G11B19/00](#); driving mechanisms for cinematographs [G03B1/00](#)]
- G04B3/00B . . . [N: by push button (crown combined with push button [G04B3/04F](#); construction of push button [G04B3/04G](#); waterproof push buttons [G04B37/10F](#))]
- G04B3/00C . . . [N: by lever mechanism]

- G04B3/00D . [N: by draw mechanism]
- G04B3/00F . [N: Mechanical winding up; winding up with special equipment (removably-mounted keys [G04B3/02](#); winding up equipment for clocks with automatic winding up equipment [G04B5/00](#))]
- G04B3/00G . [N: Winding up several mainsprings or driving weights simultaneously (driving mechanisms with several weights [G04B1/06](#); driving mechanisms with several mainsprings [G04B1/12](#); driving mechanisms with a mainspring and a secondary spring [G04B1/22B](#); driving mechanisms with mainsprings and driving weights [G04B1/24](#); winding up the striking mechanisms with the clockwork and vice versa [G04B21/14](#))]
- G04B3/02 . Removably-mounted keys or the like [N: special tools for clockworks with difficult access, universal keys for watches with a small crown [G04B3/00F](#); keys with means preventing overwinding [G04B3/06](#); protecting means preventing overwinding [G04B3/10](#)]
- G04B3/04 . Rigidly-mounted keys, knobs or crowns [N: jointed winding-stem [G04B37/06](#)]
- G04B3/04B . . [N: Construction of crowns for rotating movement; connection with the winding stem; winding stems]
- G04B3/04C . . [N: Locking of the operating element, also by mounting in a concealed place]
- G04B3/04D . . [N: Storing the operating element, also bringing it out of storage]
- G04B3/04F . . [N: 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 [G04B3/00B](#))]
- G04B3/04G . . [N: Operation exclusively by axial movement of a push-button, e.g. for chronographs (winding up by push button [G04B3/00B](#); hermetically sealed push button [G04B37/10F](#))]
- G04B3/06 . Keys or the like with means preventing overwinding (protecting devices arranged in, or attached to, the barrel [G04B1/20](#); in connection with automatic winding devices [G04B1/24](#)) [N: construction of removably-mounted keys [G04B3/02](#); means preventing overwinding, including those attached to the case, [G04B3/10](#); protecting means [G04B9/02](#); protection against overwinding for electrical winding up arrangements for mechanical clocks [G04C1/10](#)]
- G04B3/08 . by parts of the cases [N: setting the time-indicating means by parts of the case [G04B27/00](#)]
- G04B3/10 . . Protecting means preventing overwinding (arranged in, or attached to, the barrel [G04B1/20](#); in connection with keys [G04B3/06](#); in connection with automatic winding devices [G04B5/24](#); [N: protection [G04B9/02](#); of electrical winding up arrangements for mechanical clocks [G04C1/10](#)])
- G04B3/12 . by mechanical means e.g. pneumatic motor (winding up with electric or electromechanical means [G04C](#)) [N: liquid or gas driving mechanisms [G04B1/26](#); automatic winding up by wind power [G04B5/05D](#)]
- G04B5/00** **Automatic winding up** [N: normal winding up by hand or mechanically [G04B3/00](#); automatic winding in combination with hand winding [G04B7/00](#); electrical winding of mechanical clockworks [G04C1/00](#); advertising by making use of vibrations or shocks of land vehicles [G09F21/04C](#)]
- G04B5/00B . [N: by moving of parts of the clockwork which are not primarily for winding up]

- G04B5/00C . [N: by relative movement between watch bands, case or parts of the case]
- G04B5/00K . [N: Clockworks, which wind up by driving the function e.g. perpetua mobilia (see also [F03G7/10](#))]
- G04B5/02 . by self-winding caused by the movement of the watch [N: bearings, suspensions for oscillating weights [G04B5/18](#); mechanisms for transformation of an oscillating movement into a rotating movement in only one direction [G04B11/00](#)]
- G04B5/04 . . by oscillating weights the movement of which is limited [N: setting the time indicating means with the aid of a rocking bar [G04B27/00](#)]
- G04B5/06 . . . acting in one direction only
- G04B5/08 . . . acting in both directions
- G04B5/10 . . by oscillating weights the movement of which is not limited
- G04B5/12 . . . acting in one direction only
- G04B5/14 . . . acting in both directions
- G04B5/16 . . Construction of the weights
- G04B5/16B . . . [N: Weights consisting of several parts (diverse weights which are movable in more than one plane [G04B5/18K](#))]
- G04B5/18 . . Supports, suspensions or guide arrangements, for oscillating weights [N: transmission of the movement of the winding up weight to the mainspring [G04B5/04](#), [G04B5/10](#); support of the driving weight by protecting means which prevent overwinding e.g. by interposing of a glide clutch [G04B5/24](#); bearings in general [G04B33/00](#)]
- G04B5/18C . . . [N: The bearing of the rocking bar is in the centre of rotation combined with a support or guide arrangement]
- G04B5/18D . . . [N: Guide arrangement of the moving weight in a straight course]
- G04B5/18F . . . [N: Guide arrangement of the moving weight in a circular course]
- G04B5/18G . . . [N: Suspension of the moving weight by elastic means ([G04B5/18K](#) takes precedence)]
- G04B5/18K . . . [N: 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]
- G04B5/18M . . . [N: Bearing, guide arrangements or suspension of the movement forming oscillating weight]
- G04B5/19 . . . Suspension of the oscillating weight at its centre of rotation [N0410]
- G04B5/19B [N: the centre of rotation not being the centre of the clockwork] [N0410]
- G04B5/20 . 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
- G04B5/20D . . [N: by liquids or gases (driven by liquids or gases [G04B1/26](#); winding up by pneumatic motor [G04B3/12](#); winding up by electrothermal or electropneumatic driving means [G04C1/00B](#); driving of the clockwork by such means [G04C3/18](#))]
- G04B5/20F . . [N: 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 [G04B7/00](#); combination with measuring instruments in general [G04B47/06](#))]
- G04B5/22 . by thermometric, barometric or like effects or alterations [N: by electrothermal or electropneumatic driving means [G04C1/00B](#); driving the clockwork by such means [G04C3/18](#)]

- G04B5/24
 - Protecting means preventing overwinding (arranged in, or attached to, the barrel [G04B1/20](#); in connection with keys or the like [G04B3/06](#); in connection with parts of the cases [G04B3/10](#)) [N: support of the moving weight [G04B5/18](#); protection means [G04B9/02](#); electrical driving means for mechanical clockworks [G04C1/10](#)]
- G04B5/24B
 - . [N: by locking the moving weight]
- G04B7/00**

Combined normal and automatic winding up [N: normal winding up by hand or mechanically [G04B3/00](#); automatic winding up [G04B5/00](#); electric winding up of mechanical clockworks [G04C1/00B](#)]
- G04B9/00**

Supervision of the state of winding, e.g. indicating the amount of winding
- G04B9/00B
 - [N: by optical indication of the amount of winding]
- G04B9/02
 - Devices controlled by such state, e.g. device affording protection means against overwinding (protecting means preventing overwinding arranged in or on the barrel [G04B1/20](#); protecting means in connection with keys or the like [G04B3/06](#); in connection with parts of the cases [G04B3/10](#); in connection with automatic winding devices [G04B5/24](#)) [N: electric winding up of mechanical clockworks [G04C1/10](#)]
- G04B9/02B
 - . [N: Acoustical or electrical indicating means]
- G04B11/00**

Click devices; Stop clicks; Clutches [N: mechanisms for winding up by hand [G04B3/00](#); automatic winding up [G04B5/00](#); clutches in general, class 111]
- G04B11/00D
 - [N: Clutch mechanism between two rotating members with transfer of movement in both directions, possibly with limitation on the transfer of power]
- G04B11/00D4
 - . [N: with friction member, e.g. with spring action]
- G04B11/00D5
 - . [N: with magnetic elements]
- G04B11/00F
 - [N: Clutch mechanism between two rotating members with transfer of movement in only one direction (free running devices)]
- G04B11/00F4
 - . [N: with friction members, e.g. click springs or jumper] [C0410]
- G04B11/02
 - Devices allowing the motion of a rotatable part in only one direction [N0410]
- G04B11/02B
 - . [N: with a ratchet which makes contact with the rotating member by means of teeth] [N0410]
- G04B11/02B2
 - . . [N: rotatable about a fixed axis by means of spring action] [N0410]
- G04B11/02C
 - . [N: with clamping member] [N0410]
- G04B11/02D
 - . [N: with friction member, e.g. click spring] [N0410]
- G04B11/04
 - Pawl constructions therefor, e.g. pawl secured to an oscillating member actuating a ratchet [N0410]
- Guide heading:**

Transmission of the driving force on the escape and on the regulation mechanism
- G04B13/00**

Gearwork [N: Gearwork for driving the hands [G04B19/02](#); calibers [G04B33/00](#); dispositions and components for transmission in general [F16H](#)]

- G04B13/00B . [N: with the choice of adjustable or varying transmission ratio]
- G04B13/00C . [N: where rotation in one direction is changed into a stepping movement]
- G04B13/00C2 . . [N: with a step for each complete revolution (counters in general [H03K](#))]
- G04B13/00D . [N: where a revolution in both directions is changed into a revolution in one direction]
- G04B13/00D2 . . [N: with two free wheel positions]
- G04B13/00G . [N: with differential work]
- G04B13/00G2 . . [N: Differentials]
- G04B13/02 . Wheels; Pinions; Spindles; Pivots (bearings [G04B31/00](#)) [N: chain wheels, spindles for chain wheels, also chains and driving weights [G04B1/08](#)]

[N: **WARNING** [N1102]
Groups [G04B13/02E](#)-[G04B13/02T](#) are not complete pending reorganisation, see also [G04B13/02R](#)]
- G04B13/02E . . [N: elastic fitting with a spindle, axis or shaft] [N1102]
- G04B13/02E2 . . . [N: with parts made of hard material, e.g. silicon, diamond, sapphire, quartz and the like] [N1102]
- G04B13/02E4 . . . [N: allowing rotational slipping when a threshold torque is exceeded] [N1102]
- G04B13/02F . . [N: with elastic means between the toothing and the hub of a toothed wheel] [N1102]
- G04B13/02R . . [N: Assembly and manufacture (assembly and manufacture of springs [G04B1/14R](#); machines and tools for the manufacture of chain wheels for clocks [G04D3/00](#); component parts and manufacture of the escape wheel [G04B15/14](#); steel alloys [C22C33/00](#) to [C22C38/00](#); manufacture of pinions from synthetic material B29; non-ferrous alloys C22C; pinions manufactured by milling and planing B23F)]

[N: **WARNING** [N1102]
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 [G04B13/02](#)]
- G04B13/02S . . [N: planar toothing: shape and design (adjusting the backlash of the arbors [G04B35/00](#))] [N1102]
- G04B13/02T . . [N: wheels in which the teeth are conic, contrate, etc; also column wheels construction (start-stop mechanisms with column wheels [G04F7/08D2](#))] [N1102]

Guide heading: **Operating mechanisms**

- G04B15/00** **Escapements** [N: magentic [G04C5/00B](#); in striking mechanisms [G04B21/06](#); in alarm clocks [G04B23/06D](#)]
- G04B15/02 . permanently in contact with the regulating mechanism
- G04B15/04 . . Cylinder escapements
- G04B15/06 . Free escapements
- G04B15/08 . . Lever escapements

- G04B15/10
 - with constant impulses for the regulating mechanism [N: electrically driven pendulums with mechanical pulse transmission and constant pulse [G04C3/02B2](#); electrically driven pendulums with mechanical pulse transmission and constant pulse [G04C3/04B2](#)]
- G04B15/12
 - Adjusting (tools therefor [G04D1/02](#)); Restricting the amplitude of the lever or the like [N: adjusting the gear train [G04B35/00](#)]
- G04B15/14
 - Component parts or constructional details, e.g. construction of the lever or the escape wheel [N: (assembly and manufacture of the spring [G04B1/14R](#); assembly and manufacture of components, e.g. pinions, spindles [G04B13/02R](#); oils for clockwork bearings in general [G04B31/00T](#); lubrication of clockwork bearings [G04B31/008](#))] [C0501]

Guide heading: **Regulating mechanisms**

- G04B17/00

Mechanisms for stabilising frequency [N: (for setting frequency [G04B18/00](#); magnetic [G04C5/00B](#); in striking mechanisms [G04B21/06](#); stopping and regulating of the running [G04B23/02D](#); electrically driven mechanical regulation [G04B3/16](#); electrical and thermo-electric regulating mechanisms [G04C5/00](#))] [C0410]
- G04B17/00B
 - [N: Regulating mechanisms where the movement is maintained by pneumatic means (oscillation generation by pneumatic means [G04F5/12](#))]
- G04B17/02
 - Oscillators acting by gravity, e.g. pendulum swinging in a plane [N: (setting the pendulum to the required length [G04B18/00B](#); temperature compensation for pendulums [G04B17/22C](#); bearings in general, e.g. knife-edge [G04B31/00](#); clocks fitted in pendulums [G04B45/04B](#); imitation pendulums driven by the clock mechanism [G04B45/00H2](#), [G04B45/00H3](#); pendulum ornamentation [G04B45/00H4](#); contacts actuated by a pendulum [G04C13/06B](#); measurement of force with a pendulum [G01V7/12](#))] [M1108]
- G04B17/02B
 - [N: Composite and multiple pendulums; Synchronisation of mechanical pendulums, e.g. electrical synchronisation [G03C3/02K](#); pendulum systems [G04C13/02K](#)]
- G04B17/04
 - Oscillators acting by spring tension
- G04B17/04B
 - [N: with oscillating blade springs (mechanical oscillations maintained by electro-magnetic means, e.g. tuning forks [G04C3/10](#))]
- G04B17/06
 - Oscillators with hairsprings, e.g. balance [N: electrically driven balances [G04C3/04](#); contacts actuated by a balance [G04C13/06B](#)]
- G04B17/06B
 - [N: Balance construction (balances with frequency adjustment screw [G04B18/00C](#); balances with temperature compensation [G04B17/22B](#); balancing devices [G04B17/28](#))] [M1108]
- G04B17/06C
 - [N: Manufacture of the spiral spring (locking of the spiral spring by the regulating lever [G04B18/02F](#); spiral spring with temperature compensation [G04B17/22R](#); fixation of the spiral spring on the collet [G04B17/32](#); mainspring [G04B1/14](#))] [M1108]
- G04B17/08
 - Oscillators with coil springs stretched and unstretched axially
- G04B17/10
 - Oscillators with torsion strips or springs acting in the same manner as torsion strips, e.g. weight oscillating in a horizontal plane [N: electrically driven torsion pendulum [G04C3/033](#)]
- G04B17/20
 - Compensation of mechanisms for stabilising frequency

- G04B17/22 . . for the effect of variations of temperature [N: alloys with small expansion coefficient C21C, C22C; adjustment of the regulator dependant on adjustment of the hands [G04B18/02K](#); depending on the difference in time with a comparison clockwork [G04C11/00H](#)] [M1108]
- G04B17/22B . . . [N: with balances (construction of balances [G04B17/06B](#))]
- G04B17/22C . . . [N: with pendulums (construction of pendulums [G04B17/02](#); setting frequency on the pendulum [G04B18/00B](#))] [M1108]
- G04B17/22R . . . [N: composition and manufacture of the material used (composition and manufacture of hairsprings [G04B17/06C](#); of springs [G04B1/14R](#); anti-magnetic alloys [G04B43/00R](#); ferrous alloys [C22C](#); non-ferrous alloys [C22C](#), [B22F](#))]
- G04B17/24 . . for the effect of variations of atmospheric pressure
- G04B17/26 . . for the effect of variations of the impulses
- G04B17/28 . . for the effect of unbalance of the weights, e.g. tourbillon [N: construction of the balance [G04B17/06B](#); setting the frequency by adjusting devices fixed on the balance [G04B18/00C](#)] [M1108]
- G04B17/28B . . . [N: Tourbillons or carrousels] [C0410]
- G04B17/30 . Rotating governors, e.g. centrifugal governors, fan governors (for striking mechanisms [G04B21/06](#)) [N: electrically driven [G04C3/033B](#)]
- G04B17/32 . Component parts or constructional details, e.g. collet, stud, [N: virole or piton] [C0410]
- G04B17/32C . . [N: for fastening the hairspring in a fixed position, e.g. using a block] [C0410]
- G04B17/34 . . for fastening the hairspring onto the balance [N0410]
- G04B17/34B . . . [N: Details of the spiral roll] [N0410]
- G04B18/00 Mechanisms for setting frequency** [N: (for stabilising frequency [G04B17/00](#))] [N0410]
- G04B18/00B . [N: by displacement of devices carried by the pendulum or by adjusting the pendulum length (pendulums and suspension [G04B17/02](#); self- adjustment of the regulating lever [G04B18/02K](#), [G04B17/22](#), [G04C11/00H](#); adjusting the stroke of the pendulum [G04B18/04](#); time indicating by acoustic means [G04B21/00](#); synchronisation with a standard clock [G04C11/00H](#); metronome with a variable length [G04F5/02D](#))] [N0410] [M1108]
- G04B18/00C . [N: by adjusting the devices fixed on the balance (construction of the pendulum [G04B17/06B](#); balancing [G04B17/28](#))] [N0410]
- G04B18/02 . Regulator [N: or adjustment] devices; Indexing devices, [N: e.g. raquettes] [N0410]
- G04B18/02B . . [N: adjusting the indexing device from the outside] [N0410]
- G04B18/02C . . [N: with means for fine adjustment of the indexing device] [N0410]
- G04B18/02D . . [N: Fixing of the indexing device] [N0410]
- G04B18/02F . . [N: Locking the hair spring in the indexing device, e.g. goupille of the raquette (hairsprings [G04B17/06C](#); locking the mainspring on the axle [G04B1/18](#))] [N0410]
- G04B18/02K . . [N: 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 [G04B17/22C](#), [G04B18/00B](#), [G04C11/00H](#); automatic adjustment of the regulator for temperature compensation [G04B17/22](#); automatic adjustment of the regulator dependant on the tension of the mainspring [G04B1/22](#))] [N0410]
- G04B18/04 . Adjusting the beat of the pendulum, balance, or the like, e.g. putting into beat [N0410]

- G04B18/06
 - . by setting the collet or the stud of a hairspring [N0410]
- G04B18/08
 - Component parts or constructional details [N: (not used; see group [G04B17/32](#)) [N0410]
- Guide heading:** **Time indicating**
- G04B19/00** **Indicating the time by visual means** ([N: indicating the time optically by electric means [G04C17/00](#), e.g.] by electric lamps [G04C17/02](#); display arrangements in general G09F) [C0410]
- G04B19/02
 - Back-gearing arrangements between gear train and hands [N: transmissions in general [G04B13/00](#)]
- G04B19/02B
 - . [N: for simultaneous indicating on several dials (indicating means allowing simultaneous indication [G04B19/04F](#); with several separate dials [G04B19/08](#); extra hands for indicating different local apparent times [G04B19/22B](#); with several clockworks [G04B37/00K](#)) [C0410]
- G04B19/04
 - Hands; discs with a single mark or the like [N: moving indicating arrangements which have scales or numbers with stationary hands or reading means [G04B19/20](#); optical projection of the position of the hands [G04B19/34](#)]
- G04B19/04B
 - . [N: Construction and manufacture of the hands; arrangements for increasing reading accuracy (hands with illumination [G04B19/30B](#); specially shaped hands e.g. figures or pictures [G04B45/00H4](#); clockwork in the hands [G04B45/04B](#); invisible drive of the hands [G04B45/04C](#))]
- G04B19/04C
 - . [N: Mounting and setting of the hands on the axle]
- G04B19/04D
 - . [N: Indicating by means of a disc with a mark or window (for simultaneous indicating [G04B19/04F](#))]
- G04B19/04F
 - . [N: 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 [G04B19/02B](#); indicating by discs used as hands [G04B19/64D](#); used as moving scales [G04B19/20B](#); different indications on several scales or dials e.g. for different local apparent times [G04B19/22B](#))]
- G04B19/06
 - Dials ([N: moving discs [G04B19/20](#); illuminated dials or hands [G04B19/30](#)]; for time-pieces without clockwork [G04B49/04](#); [N: machines and arrangements for the manufacture of dials or hands [G04D3/00F](#)]) [C0304]
- G04B19/06B
 - . [N: with several parts]
- G04B19/08
 - . Geometrical arrangement of the graduations
- G04B19/08B
 - . . [N: varying from the normal closed scale]
- G04B19/08D
 - . . [N: varying from the normal 12 hour arrangement]
- G04B19/08F
 - . . [N: with several separate scales (for indicating the same or different times of the clockwork; indicating devices making several simultaneous indications possible [G04B19/04F](#))]
- G04B19/10
 - . Ornamental shape of the graduations or the surface of the dial; Attachment of the graduations to the dial [N: (cases for special purposes, e.g. ring or button watches [G04B37/12](#); indicating means with special effects [G04B45/00](#))]
- G04B19/10B
 - . . [N: attached or inlaid numbers (attaching of jewels or ornaments [G04B47/04B](#); arrangements for attaching bearing jewels, or the like [G04D3/04](#))]
- G04B19/10K
 - . . Special number markings

- G04B19/12 . . Selection of materials for dials or graduations [N: markings]
- G04B19/14 . . Fastening the dials to the clock or watch plates [N: (tools, arrangements and machines for the manufacture of watch plates [G04D3/00F](#))]
- G04B19/16 . . Shiftable dials, e.g. indicating alternately from 1 to 12 and from 13 to 24 [N: (dials with a scale other than the normal 12 hour scale [G04B19/08D](#))]
- G04B19/16B . . . [N: numbers which are visible alternately from 1 to 12 and from 13 to 24 on the same dial [G04B19/08D](#)]
- G04B19/16C . . . [N: with rotating scales]
- G04B19/18 . . Graduations on the crystal or glass, on the bezel, or on the rim

- G04B19/20 . Indicating by numbered bands, drums, discs, or sheets [N: indicating means without numbers or hands in general [G04B19/04](#); illuminated [G04B19/30](#); with optical projection [G04B19/34](#); gearwork and linking in general [G04B13/00](#); electrically driven [G04C19/04](#); counter mechanisms [G06M](#)]
- G04B19/20B . . [N: by means of turning discs (disc-shaped indicating devices with a reference mark or a window [G04B19/04D](#); discs driven by clockwork and producing optical special effects [G04B45/00B](#); with inscriptions or drawings driven by a clockwork [G04B45/00D](#); with figures or parts of figures driven by clockwork [G04B45/00H](#))]
- G04B19/20D . . [N: by means of sheets]
- G04B19/20F . . [N: by means of bands (bands as time indicating means with a reference mark or window [G04B19/04](#))]
- G04B19/21 . . Drums [N: (drum-shaped or spatial indicating devices [G04B19/04](#); fixed scales or dials [G04B19/06](#); scales disposed on a terrestrial globe for indicating local times in different places [G04B19/22](#); clockwork combined with a lamp with no functional relationship [G04B47/02](#))] [N0410]

- G04B19/22 . Arrangements for indicating different local apparent times; Universal time pieces [N: (indicating by means of numbers or signs disposed on moving devices [G04B19/20](#); illumination of dials or hands [G04B19/30](#); combination with a terrestrial globe in general [G04B47/02](#); electronic time-zone watches [G04G9/00G](#))] [C0410]
- G04B19/22C . . [N: mechanisms for correcting the hours hand only, i.e. independently for minutes and seconds hands] [N1102]
 [N: **WARNING** [N1102]
 Not complete pending reclassification; see also [G04B19/22](#)
]
- G04B19/22D . . [N: with rotary disc, rotary bezel, or rotary dial] [N1102]
 [N: **WARNING** [N1102]
 Not complete pending reclassification; see also [G04B19/22](#)
]
- G04B19/22D2 . . . [N: driving mechanism for the bezel] [N1102]
 [N: **WARNING** [N1102]
 Not complete pending reclassification; see also [G04B19/22](#)
]
- G04B19/22G . . [N: three-dimensionally shaped, e.g. terrestrial globes, cylinders and the like] [N1102]
 [N: **WARNING** [N1102]
 Not complete pending reclassification; see also [G04B19/22](#)
]
- G04B19/22L . . [N: with linear time graduation] [N1102]

[N: **WARNING** [N1102]

Not complete pending reclassification; see also [G04B19/22](#)
]

G04B19/23 . . by means of additional hands or additional pairs of hands [N: (simultaneous indication on several dials [G04B19/02B](#); indicating devices giving several simultaneous indications [G04B19/04F](#))] [N0410]

G04B19/23C . . . [N: mechanisms for correcting the additional hand or hands (time setting [G04B27](#))] [N1102]

[N: **WARNING** [N1102]

Not complete pending reclassification; see also [G04B19/23](#)
]

G04B19/24 . Clocks or watches with date [N: or week-day] indicators, [N: i.e. calendar clocks or watches]; Clockwork calendars [N: (combination of the clockwork with an independently settable calendar [G04B47/00](#))] [C0410] [C0507]

G04B19/24H . . [N: the date is indicated by one or more hands]

G04B19/243 . . characterised by the shape of the date indicator [N0506]

G04B19/243A . . . [N: combination of different shapes, e.g. bands and discs, discs and drums (for electrically driven timepieces [G04C17/00K](#))] [N0506]

G04B19/243A5 [N: Independent date indicating devices activated by hand or by clockwork] [N0506]

G04B19/243A7 [N: Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement] [N0506]

G04B19/243A7D [N: driven or released stepwise by the clockwork movement] [N0506]

G04B19/243A7F [N: driven or released stepwise by an energy source which is released at determined moments by the clockwork movement] [N0506]

G04B19/243A7G [N: driven or released by their own energy source which is released at regular time intervals] [N0506]

G04B19/243B . . . [N: band-shaped ([G04B19/243A](#) takes precedence; for electrically driven timepieces [G04C17/00B2](#))] [N0506]

G04B19/243B5 [N: Independent date indicating devices activated by hand or by clockwork] [N0506]

G04B19/243B7 [N: Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement] [N0506]

G04B19/243B7D [N: driven or released stepwise by the clockwork movement] [N0506]

G04B19/243B7F [N: driven or released stepwise by an energy source which is released at determined moments by the clockwork movement] [N0506]

G04B19/243B7G [N: driven or released by their own energy source which is released at regular time intervals] [N0506]

G04B19/243F . . . [N: sheet-shaped ([G04B19/243A](#) takes precedence; flap-shaped for electrically driven timepieces [G04C17/00F2](#))] [N0506]

G04B19/243F7 [N: Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement] [N0506]

G04B19/247 . . . disc-shaped [N: ([G04B19/243A](#) takes precedence; for electrically driven timepieces [G04C17/00S2](#))] [N0507]

G04B19/25 Devices for setting the date indicators manually [N0507]

G04B19/253 Driving or releasing mechanisms [N0507]

G04B19/253H [N: Independent date indicating devices activated by hand or by

		clockwork, e.g. calendar watches] [N0507]
G04B19/253H2	. . . . .	[N: driven or released by a steady movement] [N0507]
G04B19/253H2A	. . . . .	{7 dots} [N: automatically corrected at the end of months having less than 31 days] [N0507]
G04B19/253H2M	. . . . .	{7 dots} [N: manually corrected at the end of months having less than 31 days] [N0507]
G04B19/253M	. . . . .	[N: wherein the date indicators are driven or released mechanically by a clockwork movement] [N0507]
G04B19/253M2	. . . . .	[N: driven or released continuously by the clockwork movement] [N0507]
G04B19/253M2M	. . . . .	{7 dots} [N: manually corrected at the end of months having less than 31 days] [N0507]
G04B19/253M4	. . . . .	[N: driven or released stepwise by the clockwork movement] [N0507]
G04B19/253M4A	. . . . .	{7 dots} [N: automatically corrected at the end of months having less than 31 days] [N0507]
G04B19/253M4M	. . . . .	{7 dots} [N: manually corrected at the end of months having less than 31 days] [N0507]
G04B19/253M6	. . . . .	[N: driven or released stepwise by an energy source which is released at determined moments by the clockwork movement] [N0507]
G04B19/253M6A	. . . . .	{7 dots} [N: automatically corrected at the end of months having less than 31 days] [N0507]
G04B19/253M6M	. . . . .	{7 dots} [N: manually corrected at the end of months having less than 31 days] [N0507]
G04B19/253M8	. . . . .	[N: driven or released by their own energy source which is released at regular time intervals] [N0507]
G04B19/257	. . .	drum-shaped [N: or three-dimensional shaped (G04B19/243A takes precedence; for electrically driven timepieces G04C17/00T2)] [N0507]
G04B19/257H	. . . . .	[N: Independent date indicators activated by hand or by clockwork] [N0507]
G04B19/257M	. . . . .	[N: Driving or releasing mechanisms wherein the date indicators are driven or released mechanically by a clockwork movement] [N0507]
G04B19/257M4	. . . . .	[N: driven or released stepwise by the clockwork movement] [N0507]
G04B19/257M6	. . . . .	[N: driven or released stepwise by an energy source which is released at determined moments by the clockwork movement] [N0507]
G04B19/257M8	. . . . .	[N: driven or released by their own energy source which is released at regular time intervals] [N0507]
G04B19/26	. .	Clocks or watches with indicators for tides, for the phases of the moon, or the like [N: planetaria G09B27/00 to G09B27/06 ; arrangements for table reference e.g. menstrual tables G06C3/00]
G04B19/26A	. .	[N: with indicators for astrological informations]
G04B19/26B	. .	[N: with indicators for biological cycles]
G04B19/26M	. .	[N: with indicators for tides]
G04B19/26P	. .	[N: with indicators for the phases of the moon]
G04B19/28	. .	Adjustable guide marks or pointers for indicating determined points of time [N: inscriptions or pictures moved by hand G04B45/00F ; measurement of unknown time intervals by regulatable hands, scales or marks G04F7/00B]
G04B19/28B	. .	[N: on rotatable rings, i.e. bezel (for graduations on the bezels G04B19/18)] [C0410]

- G04B19/28B2
 - . . . [N: with locking means to prevent undesired rotations in both directions] [N1102]
 - [N: **WARNING** [N1102]
 - Not complete pending reclassification; see also [G04B19/28B](#)
 -]
- G04B19/30
 - . Illumination of dials or hands [N: dials in general [G04B19/06](#); moving indicating means with numbers or hands, in general [G04B19/20](#); arrangements for indicating different local apparent times by means of a globe illuminated from inside [G04B19/22](#); continuous indication of the time by non-electric light sources [G04B25/00](#); e.g. by electric lamps [G04C17/02](#); illumination by electric lamps which function at fixed times or periodically [G04C19/02](#); illuminated panels [G09F13/00](#), [G04B13/22](#)]
- G04B19/30B
 - . . [N: the hands carrying the light source (hands and manufacture thereof [G04B19/04B](#); projection of hands or dials [G04B19/34](#); illumination of scales and/or hands on moving scales [H03J1/02](#); on compasses [G01C17/24](#); on weighing apparatus [G01G23/18](#); on measuring instruments [G01D11/28](#))]
- G04B19/32
 - . . by luminescent substances [N: (disc or drum shaped indicating means with marks or windows [G04B19/04](#); with numbers or number-marks [G04B19/20](#); cases for housing the electrical parts [G04G17/00](#); projection of hands and/or scales on weighing apparatus [G01G19/00](#); on measuring instruments [G01D5/26B](#); for advertising [G09F19/18](#))] [M1108]
- G04B19/34
 - . Position of the hands projected optically [N: for advertising [G09F19/18](#); indicating by discs or drums with mark or window [G04B19/04](#), with figures or signs [G04B19/20](#); illumination of dials or hands [G04B19/30](#), case for electrical components [G04C3/00M](#); Optical projection of a pointer and/or scale for weighing apparatus [G01G23/32](#); for measuring instruments [G01D5/26B](#)]
- G04B21/00**

Indicating the time by acoustic means (at preselected times [G04B23/00](#); by electro-acoustic means [G04C21/04](#); [N: indicating the time by means other than acoustically, or by combined means [G04B25/00](#); indicating the time by visual means [G04B19/00](#), [G04C17/00](#); acoustic signalling arrangements [G08B3/00](#)]) [C0501]
- G04B21/00B
 - . [N: Periodical acoustic signalling arrangements ([G04B21/02](#) takes precedence); (adjustment of the frequency by setting the length of the pendulum [G04B17/12B](#); metronomes [G04F5/62](#))]
- G04B21/02
 - . Regular striking mechanisms giving the full hour, half hour, or quarter hour [N: electrically operating striking mechanisms with choice of repertoire [G04C21/02D](#)]
- G04B21/02B
 - . . [N: with saw mechanism (with electric drive [G04C21/62B](#))]
- G04B21/02B2
 - . . . [N: with silent saw action]
- G04B21/02C
 - . . [N: with locking wheel (electrically driven [G04C21/62C](#))]
- G04B21/04
 - . . Hour wheels; Racks or rakes; Snails or similar control mechanisms
- G04B21/06
 - . . Details of striking mechanisms, e.g. hammer, fan governor [N: escapements in general [G04B15/00](#); mechanisms for stabilising frequency [G04B17/00](#); resistance regulators [G05D13/00](#); mechanical toys [A63H](#)]
- G04B21/08
 - . . Sounding bodies; Whistles; Musical apparatus (with electro-acoustical transmitters [G04C21/00](#), [N: [G04B23/08](#); sounding arrangements in alarm clocks [G04B23/02H](#); cases with arrangements for enhancing sound production [G04B37/00J](#); carillons and sounding boards [G10F1/08](#), [G04B1/10](#), [G10D13/08](#)])
- G04B21/10
 - . . Releasing or locking the regular stroke, e.g. for silence during the night
- G04B21/12
 - . . Reiterating watches or clocks
- G04B21/14
 - . . Winding-up the striking mechanism by the clockwork; winding up the clockwork by

the striking mechanism [N: winding up by hand or mechanically [G04B3/00](#)]

G04B23/00

Arrangements producing acoustic signals at preselected times [N: (indicating the time by optical means [G04B19/00](#), [G04C17/00](#); indicating the time by acoustic means [G04B21/00](#); indicating the time by means other than acoustic or optical, or by a combination of means [G04B25/00](#); acoustic time signals produced electrically [G04C21/00](#); coin-freed alarm clocks [G07F17/00B](#); acoustic signalling means [G08B3/00](#))]

G04B23/00B

- [N: by starting up musical boxes or other musical recordings (starting up and stopping of phonographs by means of clockwork apparatus [G11B33/06](#))]

G04B23/02

- Alarm clocks (electrically released alarm signals [G04C21/00](#)) [N: waking up by electric lamps [G04C19/02](#); by other means [G04B25/00B](#); alarm clocks with electric contacts [G04C23/06](#)]

G04B23/02B

- • [N: Controls (winding up the alarm; adjusting and indicating the waking time)]

G04B23/02D

- • [N: Driving, e.g. by springs or common drive with the clockwork; gears; escapements (escapements in general [G04B15/00](#); regulating means for clockworks in general [G04B17/00](#))]

G04B23/02F

- • [N: Signal triggering (in alarm clocks which deliver also or only non-acoustic signals [G04B25/00B](#))]

G04B23/02G

- • [N: Hammer driving; hammers; devices with several hammers or sounding bodies; vibrators]

G04B23/02H

- • [N: Sounding bodies; boxes used as sounding cases; fixation on or in the case (sounding bodies [G04B21/08](#); case enhancing transmission of sound waves [G04B37/00J](#))]

G04B23/03

- • Alarm signal stop arrangements [N0501]

G04B23/04

- • with coarse and fine setting of the preselected times

G04B23/06

- • adjustable for several preselected times with automatic stopping of the signal

G04B23/08

- • operating on successive days without resetting; operating only once in each 24 hours

G04B23/10

- • with pre-signal; with repeated signal; with changeable intensity of sound

G04B23/12

- • Alarm watches to be worn in pockets or on the wrist (giving signals by stimulating the skin [G04B25/04](#))

G04B25/00

Indicating the time by other means or by combined means (electric or electromechanical indicating [G04C](#); [N: illumination of dials or hands [G04B19/30](#); indicating the time by acoustic means [G04B21/00](#); arrangements producing acoustic signals at preselected times [G04B23/00](#); continuously indicating the time optically by electric means [G04C19/00](#); producing acoustic time signals by electrical means [G04C21/00](#); devices for cooking eggs [A47J29/00](#)])

G04B25/00B

- [N: in alarm clocks ([G04B25/04](#) takes precedence)]

G04B25/02

- by feeling; Clocks or watches for blind persons

G04B25/04

- • Alarm clocks or watches with devices stimulating the skin [N: normal pocket or wrist alarm clocks [G04B23/12](#)]

G04B25/06

- by moving figures, e.g. cuckoo clocks, trumpet clocks [N: figures or part of figures set in motion by the clockwork and creating an optical special effect [G04B45/00B](#); figures or parts of figures not used to indicate time [G04B45/00H](#); clockworks driving inscriptions or figures [G04B45/00D](#); time indication by means of plates or bands driven electrically [G04C19/04](#)]

G04B27/00**Mechanical devices for setting the time indicating means**

- G04B27/00B . [N: Internal gear therefor, e.g. for setting the second hand or for setting several clockworks]
- G04B27/00C . [N: The setting apparatus being crown shaped ([G04B27/02](#) takes precedence)]
- G04B27/00D . [N: having several simultaneous functions, e.g. stopping or starting the clockwork or the hands ([G04B27/02](#) takes precedence)]
- G04B27/00F . [N: stepwise or on determined values ([G04B27/02](#) takes precedence)]
- G04B27/00G . [N: otherwise than manually ([G04B27/02](#) takes precedence) (oscillator weights in general [G04B5/04](#))]
- G04B27/00K . [N: with parts which are put together with the winding parts, but are functionally separate from them]
- G04B27/02 . by making use of the winding means [N: winding by hand or mechanically [G04B3/00](#)]
- G04B27/02B . . [N: changing of the winding position to the setting position and vice versa is done with an independant part of the winding or setting mechanism ([G04B27/04B](#) and [G04B27/06B](#) take precedence) (by part of the case [G04B27/08C](#))]
- G04B27/02F . . [N: for several clockworks or pairs of hands and/or supplementary functions]
- G04B27/04 . . with clutch wheel [N: support and displacement of the winding stem through the case, means for preventing the stem from going too far, fixation [G04B37/06](#)]
- G04B27/04B . . . [N: Changing the winding position to the setting position and vice versa is done with an independant part of the winding or setting mechanism]
- G04B27/06 . . with rocking bar [N: support and displacement of the winding stem through the case, means preventing the stem from going too far, fixation [G04B37/06](#)]
- G04B27/06B . . . [N: Changing the winding position to the setting position and vice versa is done with an independant part of the winding or setting mechanism]
- G04B27/08 . by using parts of the case [N: winding by using parts of the case [G04B3/08](#)]
- G04B27/08B . . [N: which may be used for winding when changed form the normal position]
- G04B27/08C . . [N: which, after displacing a supplementary part, may be used for winding (similar devices [G04B27/02B](#); in mechanisms with coupled pinions [G04B27/04B](#); in rocking mechanisms [G04B27/06B](#))]

Guide heading:

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

G04B29/00**Frameworks**

- G04B29/02 . Plates; Bridges; Cocks
- G04B29/02B . . [N: Bridges]
- G04B29/02C . . [N: Cocks]
- G04B29/02S . . [N: Materials and manufacturing (alloys, in general [C22C](#))]
- G04B29/04 . Connecting or supporting parts

G04B31/00	Bearings; Point suspensions or counter-point suspensions; Pivot bearings; Single parts therefor (bearings in general F16C ; [N: manufacture and composition of springs G04B1/14R ; suspension of oscillating weights G04B5/18B ; suspension of a pendulum G04B17/02 ; bearings for electrical measurement apparatus G01R1/10 , G01R1/12 , G01R11/12 , G01R11/14 ; inserting jewels A44C17/04 ; inserting cutting diamonds B23P5/00 ; devices for fixation of bearing jewels, bearing sleeves, or the like G04D3/04])
G04B31/004	. characterised by the material used [N0501]
G04B31/008	. . Jewel bearings (G04B31/04 takes precedence) [N0501]
G04B31/008B	. . . [N: with jewel hole and cap jewel (shock damping bearings with jewel hole and cap jewel G04B31/04)] [N0501]
G04B31/008C	. . . [N: with cap jewel only] [N0501]
G04B31/008H	. . . [N: with jewel hole only] [N0501]
G04B31/012	. . Metallic bearings [N0501]
G04B31/012B	. . . [N: with metallic ball bearings and metallic roller bearings] [N0501]
G04B31/012C	. . . [N: Metallic step-bearings] [N0501]
G04B31/016	. . Plastic bearings [N0501]
G04B31/02	. Shock-damping bearings [N: (shock damping in the case G04B37/04B2 , G04B37/04B3 , G04B37/04C2)] [C0501]
G04B31/04	. . with jewel hole and cap jewel [N: (jewel bearings with jewel hole and cap jewel G04B31/008B ; tools for inserting jewel bearings G04D3/04B)] [N0501]
G04B31/06	. Manufacture or mounting processes [N0501]
G04B31/08	. Lubrication [N: (self-lubricated plastic bearings G04B31/016 ; lubrication of the escape wheel G04B15/14 ; lubrication of synchronous clockworks G04C15/00T ; lubrication devices and lubricant containers G04D5/00)] [N0501]
G04B33/00	Calibers [N: disposition of components of the automatic winding mechanism in relation to the clockwork G04B5/18]
G04B33/02	. Circular calibers
G04B33/04	. Non-circular calibers
G04B33/06	. of extremely flat shape
G04B33/08	. in which the gear train is arranged in different planes, e.g. parallel or inclined to each other (G04B33/10 takes precedence) [N: case for special purposes, e.g. button or ring clockworks G04B37/12]
G04B33/10	. with seconds hand arranged in the centre of the dial
G04B33/12	. for extremely long running times
G04B33/14	. Calibers of which the mainsprings or barrels are easily removable (mainsprings G04B1/14 ; barrels, arbors G04B1/16) [N: normal or mechanical winding G04B3/00]
G04B33/16	. with arrangements affording protection of the clockwork against damage as a

consequence of a rupture of the mainspring [N: 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 [G04B1/20](#)]

G04B35/00 **Adjusting the gear train, e.g. the backlash of the arbors, depth of meshing of the gears** [N: adjusting the escapement [G04B15/12](#)]

Guide heading: **Protection of the clockwork against damage from the outside**

G04B37/00 **Cases** [N: Cases with a special shape [G04B45/00K](#); ornamentation of the case [G04B47/04](#); cartridges [A45C11/00](#) to [A45C11/38](#)]

- G04B37/00B . [N: for pocket watches and wrist watches]
- G04B37/00B2 . . [N: with folding cover or folding bottom (hinge without spring)]
- G04B37/00B3 . . [N: with cover or bottom with a spring (savonette) bench watches opening or closing with spring action [G04B37/04D5](#)]
- G04B37/00B4 . . [N: with cover or bottom which can slide or turn (without a spring action)]
- G04B37/00B5 . . [N: the cover or the bottom can slide or turn with a spring action]
- G04B37/00B6 . . [N: 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)]
- G04B37/00B8 . . [N: for shaped watches]
- G04B37/00C . [N: for wall clocks and balances (feet and stands for clocks [G04B37/14D](#))]
- G04B37/00J . [N: with means to enhance sound transmission (sonorous means for chimes [G04B21/08](#); for alarm clocks [G04B23/02H](#); clockworks combined with musical devices [G04B47/02C](#))]
- G04B37/00K . [N: for more than one clockwork]
- G04B37/00M . [N: for clock parts, e.g. for the escapement or the electric motor (protection cases and air tight vacuum means for clockwork parts [G04B37/08P](#))]
- G04B37/02 . Evacuated cases; Cases filled with gas or liquids; Cases containing substances for absorbing or binding moisture or dust
- G04B37/04 . Mounting the clockwork in the case; Shock absorbing mountings
- G04B37/04C . . [N: Fixed mounting relating to wall clocks and pendulums]
- G04B37/04C2 . . . [N: with shock damping means (shock damping bearings [G04B31/02](#); protection against shocks with shields [G04B43/00B](#))]
- G04B37/04D . . [N: 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 [G04B37/00B6](#); ornamentation and interchangeable parts of cases, modifying the external appearance of the clockwork [G04B47/04F](#))]
- G04B37/04D2 . . . [N: Clockwork movements coming out without springs, for allowing time reading or winding] [M1108]
- G04B37/04D3 . . . [N: Clockwork movements which come out by spring action for time reading and

- winding]
- G04B37/04D4 . . . [N: Free standing watches (montre chevalet)]
- G04B37/04D5 . . . [N: 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 [G04B37/00B3](#); wrist watches or pocket watches which can be used as free standing watches with the aid of certain parts of the case [G04B37/14D2](#))]
- G04B37/04D6 . . . [N: Rocking mounting of the clockwork]
- G04B37/04F . . [N: Mountings relative to wall-clockworks and to pendulums allowing certain movements]
- G04B37/04G . . [N: Mountings for sound-damping]
- G04B37/05 . . Fixed mountings for pocket or wrist watches [N0501]
- G04B37/05B . . . [N: with shock damping means not related to the winding stem (shock damping bearings [G04B31/02](#); shock protection [G04B43/00B](#))] [N0501]
- G04B37/05C . . . [N: with shock damping means including the winding stem (shock damping bearings [G04B31/02](#); shock protection [G04B43/00B](#))] [N0501]
- G04B37/05D . . . [N: for shaped watches] [N0501]
- G04B37/06 . Forming the passage for the winding stem through the case; Divided winding stems [N: watertight protection means for the winding stem [G04B37/10](#); fixing the knob to the case [G04B37/14C4](#); winding and setting the hands with the winding stem with clutch wheel [G04B27/04](#), with rocking bar [G04B27/06](#)]
- G04B37/06B . . [N: Means for preventing the winding stem from being pulled out too far]
- G04B37/06B2 . . . [N: by a tirette]
- G04B37/06D . . [N: Divided stem (tige brisee) (normal winding stems [G04B3/04B](#))]
- G04B37/06F . . [N: Stem passage not being part of the layout of the clockwork]
- G04B37/08 . Hermetic sealing of openings, joints, passages or slits [N: covers or protecting devices which can be directly removed, or by sliding or turning [G04B37/00B6](#); hermetic sealing of watch or crystal with special pieces [G04B39/02](#); hermetically-sealed electrical switches [H01H23/06](#)]
- G04B37/08B . . [N: 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 [G04B37/10](#))]
- G04B37/08B2 . . . [N: without special hermetic sealing pieces]
- G04B37/08B5 . . . [N: for shaped watches]
- G04B37/08C . . [N: Complete encasings for wrist or pocket watches without means for hermetic sealing of winding stem or crown]
- G04B37/08C2 . . . [N: without special hermetic sealing pieces]
- G04B37/08C5 . . . [N: for shaped watches]
- G04B37/08M . . [N: Protection of wrist or pocket watch cases against dust]
- G04B37/08P . . [N: 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 [G04B37/00M](#); synchronous motor lubrication [G04C15/00T](#))]
- G04B37/10 . . of winding stems [N: construction of winding crowns [G04B3/04B](#); in combination with hermetic sealing [G04B37/08B](#)]
- G04B37/10D . . . [N: by screwing the crown onto the case]
- G04B37/10F . . . [N: of push buttons (winding up by push button [G04B3/00B](#); crown in the form of push button [G04B3/04F](#); construction of push buttons [G04B3/04G](#))]

- G04B37/11 . . . of the back cover of pocket or wrist watches [N0501]
- G04B37/11B . . . [N: without special hermetic sealing pieces] [N0501]
- G04B37/11D . . . [N: for shaped watches] [N0501]

- G04B37/12 . Cases for special purposes, e.g. watch combined with ring, watch combined with button (watch guards or protectors [A45C11/10](#), [A45C11/12](#); watches combined with cosmetic powder containers [A45D33/30](#)) [N: domed dial [G04B19/10](#); calibers in which the clockwork is disposed on different planes [G04B33/08](#); means for fixing watches on items of clothing [G04B37/14B5](#); cases having means for fixing onto a normal bracelet [G04B37/14F](#); cases giving special affects due to their particular shape [G04B45/00K](#); watches combined with various objects and therefore having a specially shaped case [G04B47/00](#)]

- G04B37/12B . . . [N: used as a mirror]
- G04B37/12C . . . [N: allowing note taking (cases with means for holding sheets of note-paper [G04B37/12D](#); adjustable guide marks or pointers for indicating determined points of time [G04B19/28](#); changeable indicators [G04B45/00P2](#))]
- G04B37/12D . . . [N: used as containers or cartridges (means for incorporating a battery in the case [G04G17/00](#))] [M1108]

- G04B37/14 . Suspending devices, supports or stands for time-pieces insofar as they form part of the case [N: (wrist watch straps, fastening means therefor [A44C5/00](#); display stands [54G14K](#))]

- G04B37/14B . . . [N: Means for fixing the clockwork pieces on other objects (possibly on walls)]
- G04B37/14B2 [N: Separable means]
- G04B37/14B3 [N: Means which can be adjusted as a function of the clockwork piece]
- G04B37/14B4 [N: Means whereby the clockwork piece may move with regard to its suspension device]
- G04B37/14B5 [N: Fixation on items of clothing e.g. with clips (button watches [G04B37/12](#); brooches, or the like [A44C1/00](#); other similar fixation means, in general [A45F5/02](#))]
- G04B37/14B6 [N: Fixation on flat support, e.g. on dashboard]
- G04B37/14C . . . [N: Means for suspending pocket-, or other types of watches, e.g. on small chains (bracelet fixings [G04B37/14F](#))]
- G04B37/14C2 [N: Construction and manufacture of case crown and clip]
- G04B37/14C3 [N: with the case crown and a clip]
- G04B37/14C4 [N: Fixing the case crown onto the case]
- G04B37/14D . . . [N: Supports and feet for supporting the clockwork (cases for standing clockworks in general [G04B37/00C](#))]
- G04B37/14D2 [N: formed by parts of the case (standing watches by bringing them out of the case or purse [G04B37/04D4B](#), [G04B37/04D5](#))]
- G04B37/14F . . . [N: Arrangements for fixing to a bracelet (building watches into bracelets (montre marquise) [G04B37/12](#); arrangements for hanging pocket- or other watches on chains [G04B37/14C](#))]

- G04B37/14F2 [N: by means of a feather spring (Barette á ressort)]
- G04B37/16 . . . Fastening the case to the bracelet [N: not used; see provisionally [G04B37/00](#)]

- G04B37/18 . for pocket or wrist watches ([G04B37/02](#) to [G04B37/16](#) takes precedence) [N: not used; see provisionally [G04B37/00](#)]
- G04B37/20 . . . with hinged covers or backs [N: not used; see provisionally [G04B37/00](#)]

- G04B37/22 . Materials or processes of manufacturing pocket watch or wrist watch cases [N:

- machines or tools for the manufacture of clockwork cases [G04D3/00B20B](#), [G04D3/00D20](#), [G04D3/02C20](#); decoration or tools therefor [G04B45/00M](#)]
- G04B37/22D . . [N: Wear resistant cases]
- [N: **WARNING** [N1102]
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 [G04B37/22](#)]
- G04B37/22F . . [N: metallic cases coated with a nonmetallic layer] [N1102]
- [N: **WARNING** [N1102]
Not complete pending reclassification; see also [G04B37/22](#)]
- G04B37/22K . . [N: Non-metallic cases] [C1102]
- G04B37/22K2 . . . [N: coated with a metallic layer]
- G04B37/22K4 . . . [N: Wooden cases]

G04B39/00 Watch crystals; Fastening or sealing of crystals; Clock glasses

- G04B39/00B . [N: made of glass]
- G04B39/00C . [N: from a material other than glass]
- G04B39/00C2 . . [N: out of wear resistant material, e.g. sapphire]
- G04B39/00G . [N: with means for magnified reading (combinations with a magnifying glass in general [G04B47/00](#))]
- G04B39/02 . Sealing crystals or glasses [N: (sealing the case and the winding stem [G04B37/08](#)) [N0501]
- G04B39/02B . . [N: without special sealing parts] [N0501]

G04B41/00 Locking or holding devices for pendulums, chimes, or the like, for use during transport

- G04B41/00B . [N: holding and locking of the pendulum only]

G04B43/00 Protecting clockworks by shields or other means against external influences, e.g. magnetic fields [N: demagnetising apparatus [G04D9/00](#)]

- G04B43/00B . [N: Component shock protection arrangements (shock damping bearings [G04B31/02](#); shock-damping in the case [G04B37/04](#); protection of the pendulum or chime during transport [G04B41/00](#))]
- G04B43/00C . [N: Protection against temperature influences]
- G04B43/00R . [N: Antimagnetic alloys (antimagnetic alloys with temperature compensation [G04B17/22R](#); apparatus for antimagnetising [G04D9/00](#); alloys in general [C22C](#))]

Guide heading: **Clocks with unusual features**

- G04B45/00** Time pieces of which the indicating means or cases provoke special effects, e.g. aesthetic effects (ornamental shaping of dials [G04B19/10](#)) [N: (lubrication of clockwork bearings [G04B31/008](#); special effects and pictures in general [B44F](#))] [C0501]
- G04B45/00B** . [N: Light-, colour-, line-, or spot-effects caused by parts or pictures moved by the clockwork (disc-shaped indicating parts [G04B19/04D](#), [G04B19/20B](#); figures or parts thereof for indicating the time, moved by the clockwork [G04B25/06](#))]
- G04B45/00C** . [N: Light-, colour-, line- or spot-effects caused by or on stationary parts (change of appearance by exchangeable case parts [G04B47/04F](#))]
- G04B45/00D** . [N: Inscriptions or pictures moved by the clockwork, e.g. for advertising (clocks with abrupt time indication [G04B13/00](#); disc-shaped indicating elements [G04B19/04D](#), [G04B19/20B](#); advertising in general [G09F](#))]
- G04B45/00F** . [N: Inscriptions and pictures moved by hand (clockworks with abrupt time indication [G04B13/00](#); adjustable hands or mechanisms [G04B19/28](#); combination of clockwork with counter, e.g. for sports results [G04B47/00](#); movable ornaments and decorations [G04B47/04C](#))]
- G04B45/00H** . [N: Figures or parts thereof moved by the clockwork (disc-shaped indicating means [G04B19/04D](#), [G04B19/20B](#); time indicating by moving figures [G04B25/06](#); normal moving parts of the clockwork visible through a window, e.g. the escapement [G04B45/02](#))]
- G04B45/00H2** . . [N: with oscillating motion, in pocket- or wrist watches]
- G04B45/00H3** . . [N: with oscillating motion in hanging or standing clockworks such as imitation of a real pendulum]
- G04B45/00H4** . . [N: 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 [G04B45/00K](#); decoration and manufacturing methods therefor, also for moving parts [G04B45/00M](#); construction of normal pendulums [G04B17/02](#); construction of normal hands [G04B19/04B](#))]
- G04B45/00K** . [N: Cases and fixed parts with a special shape (movable parts with a special shape [G04B45/00H4](#); decoration in general, and methods of manufacture thereof [G04B45/00M](#); cases in general [G04B37/00](#); combination with genuine utensils or mounting therein [G04B47/00](#))] [M1108]
- G04B45/00M** . [N: Decoration of the case and of parts thereof e.g. as a method of manufacture thereof (specially shaped [G04B45/00H4](#), [G04B45/00K](#); decoration with inscriptions and pictures [G04B45/00P](#); construction of the hands [G04B19/04B](#); decoration by adding extra pieces to the clockwork [G04B47/04](#); colouring by treatment of the surface, e.g. by oxidation [C25D](#))]
- G04B45/00P** . [N: Pictures or inscriptions on the case or parts thereof, attaching complete pictures (decoration and manufacture thereof [G04B45/00M](#); special decorative parts which are attached to the case or other parts [G04B47/04](#))]
- G04B45/00P2** . . [N: Changeable parts (cases or clockworks with holders or as holders [G04B37/12D](#))]
- G04B45/02** . Time pieces of which the clockwork is visible partly or wholly [N: figures or parts thereof moved by the clockwork [G04B45/00H](#)]
- G04B45/04** . Time pieces with invisible drive, e.g. with hands attached to a rotating glass disc [N:

- for advertising [G09F23/00](#); disc-shaped hands with marks or notches [G04B19/04D](#)]
- G04B45/04B
 - [N: the clockwork being positioned in the hands or pendulum (gearwork [G04B1/00](#); pendulums [G04B17/02](#); construction of the hands [G04B19/04B](#))]
- G04B45/04C
 - [N: the driving mechanism of the hands being invisible because of special shielding (construction of the hands [G04B19/04B](#))]
- G04B47/00**

Time-pieces combined with other articles which do not interfere with the running or the time-keeping of the time-piece ([N: clockwork cases for special purposes [G04B37/12](#); clocks with magnifying glass built in the face [G04B39/00](#); time-pieces in which parts or cases produce special effects, e.g. aesthetic effects, [G04B45/00](#), particularly with inscriptions or pictures moved by hand [G04B45/00F](#), with specially shaped cases or parts [G04B45/00K](#); combination of] writing or drawing implements with devices for indicating time [B43K29/087](#); combined with cameras, projectors, or photographic painting apparatus [G03B29/00](#)) [C0210]
- G04B47/00B
 - [N: Mounting or fixing to the steering wheel of a vehicle]
- G04B47/00C
 - [N: Mounting in and combined with adjustable indicating means, e.g. date indicating means adjustable by hand, marks or counters (calendar clocks [G04B19/24](#))]
- G04B47/00E
 - [N: combined with a key]
- G04B47/00G
 - [N: combined with a lighter]
- G04B47/00T
 - [N: combined with a thermometer]
- G04B47/02
 - Installations within mirrors, pictures, furniture or other household articles [N: clock-lamps, globe-clocks with a fixed dial, [G04B19/04](#); clock in the form of a lamp with a dial mounted upon it, moved by the clockwork [G04B19/20C](#); clockwork in the form of a globe for indicating different local apparent times [G04B19/22](#); illumination of the dial and the hands [G04B19/30](#); clock-lamps with the lamp switched on and off by the clockwork mechanism [G04C19/02](#), within keys [G04B47/00E](#), within lighters [G04B47/00G](#), within pens [B43K29/087](#)]
- G04B47/02C
 - [N: in musical instruments or loudspeakers (sounding bodies with chimes [G04B21/08](#); in alarm clocks [G04B23/02H](#); cases with arrangements for enhancing the sound production [G04B37/00J](#))]
- G04B47/04
 - with attached ornaments or amusement apparatus [N: decorated cases see [G04B45/00](#)]
- G04B47/04B
 - [N: Fastening of jewels and the like (set on or into numbers [G04B19/10B](#); jewel bearings [G04B31/008](#); setting of jewels and tools therefor [A44C](#); devices for setting jewel bearings [G04D3/04](#))]
- G04B47/04C
 - [N: Movable decorations and parts thereof (inscriptions and pictures moved by hand [G04B45/00F](#))]
- G04B47/04F
 - [N: 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 [G04B37/00B6](#); with a clockwork which can be mounted on different cases for changing its external appearance [G04B37/04D](#); clockworks which can be mounted in different cases for changing their purpose [G04B37/14](#); decoration of the case or parts thereof [G04B45/00M](#); changeable pictures or inscriptions [G04B45/00P2](#))]
- G04B47/04K
 - [N: Clockwork combined with toys (devices for teaching clock reading [G09B19/12](#); indicating play time [G07C1/28](#))]

- G04B47/06
 - with attached measuring instruments, e.g. pedometer, barometer, thermometer or compass [N: in combination with a tachometer which winds up the clockwork [G04B5/20F](#)]
- G04B47/06B
 - • [N: 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)] [C1102]
- G04B47/06H
 - • [N: measuring physiological quantities, e.g. pedometers, heart-rate sensors, blood pressure gauges and the like] [N1102]

[N: **WARNING** [N1102]
Not complete pending reclassification; see also [G04B47/06](#) and [G04B47/06B](#)]
- G04B47/06K
 - • [N: with a compass (compasses [G01C17/00](#))]
- G04B47/06P
 - • [N: with a pressure sensor] [N1102]

[N: **WARNING** [N1102]
Not complete pending reclassification; see also [G04B47/06](#) and [G04B47/06B](#)]
- G04B47/06T
 - • [N: with a thermometer] [N1102]

[N: **WARNING** [N1102]
Not complete pending reclassification; see also [G04B47/06](#) and [G04B47/06B](#)]
- G04B49/00

Time-pieces using the position of the sun, moon or stars [N: devices for fixing the place and time by astronomical observations [G01C21/00](#)]
- G04B49/02
 - Sundials [N: normal dials [G04B19/06](#)]
- G04B49/04
 - • Graduation or shaping of dials
- G04B99/00

Subject matter not provided for in other groups of this subclass [N0704]