



(12)

EUROPEAN PATENT APPLICATION

(43)

Date of publication:
22.05.2024 Bulletin 2024/21

(51)

International Patent Classification (IPC):
G04B 37/00 (2006.01) G04B 37/04 (2006.01)
G04B 47/04 (2006.01)

(21)

Application number: 23151279.9

(52)

Cooperative Patent Classification (CPC):
G04B 37/0008; G04B 37/005; G04B 37/04;
G04B 47/046

(22)

Date of filing: 12.01.2023

(84)

Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

- JIANG, Xin
Shenzhen City (CN)
- LI, Xiangyu
Shenzhen City (CN)
- LIU, Jun
Shenzhen City (CN)
- HU, Chongzhu
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(30)

Priority: 02.11.2022 CN 202211363634

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WATCH CASE WITH REPLACEABLE MOVEMENT

(57) The present disclosure relates to the field of watch cases, in particular to a watch case with a replaceable movement. The watch case includes a ring case and a watchband assembly. Different movements are mounted to the ring case through a movement connecting structure. The watchband assembly is connected to the case and used for securing a watch on the wrist. The ring case and the movement are in replaceable fit. According to the present disclosure, the movement and the

case of the watch can be quickly disassembled for replacement, and one movement can be correspondingly fitted with cases of different shapes and colors, thus making the watch have different visual effects. A user can choose suitable cases and movements for matching and combination on different occasions according to different needs, thus avoiding the purchase of many different watches and reducing the financial pressure of purchasers.

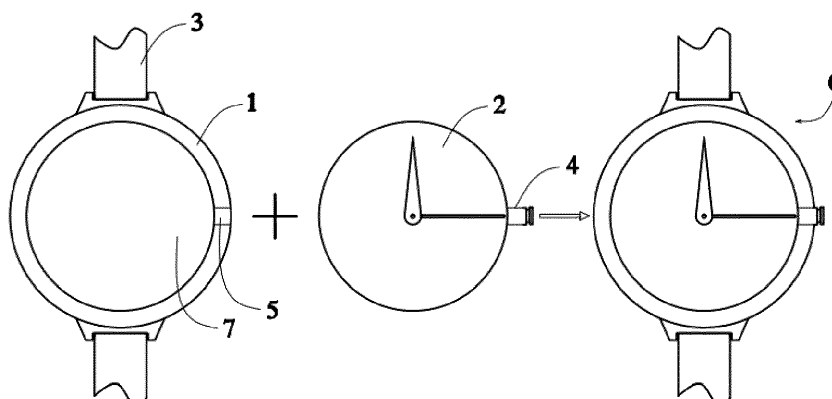


FIG. 1

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The application claims priority to Chinese patent application No. 202211363634.4, filed on November 2, 2022, the entire contents of which are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to the technical field of watch cases, in particular to a watch case with a replaceable movement.

BACKGROUND

[0003] Existing watches, after being made, generally just has a fixed shape or style. For example, a mechanical movement is mounted in a case and only needs to be disassembled for repair after the movement or the case fails. With the development of society, watches have gradually become an ornament in people's lives, and consumers who are enthusiastic about watches may buy or collect watches.

[0004] Consumers who love watches generally like to buy watches of different shapes, styles and colors, or watches of different colors or styles are needed to match the overall dressing style. It costs a lot of money for a wearer to buy a variety of watches. How to obtain watches of different styles by fitting fewer cases with movements of different styles, such as colors and shapes, so as to reduce the purchase pressure of consumers is an objective to be realized. Moreover, the ease of disassembly and replacement in the event of a case or movement failure is also not to be overlooked.

SUMMARY

[0005] The objective of the present disclosure is to provide a watch case with a replaceable movement, in order to solve the problems mentioned in the background art.

[0006] To achieve the above objective, the present disclosure provides the following technical solutions:

[0007] A watch case with a replaceable movement is provided with a movement mounting structure, the movement being able to be fixed to the case through the movement mounting structure to realize fitting between the case and different movements.

[0008] Further, the movement mounting structure is an interference fit structure, the interference fit structure realizing fixation between the movement and the case through an elastic structure that is deformable under pressure.

[0009] Further, the interference fit structure is that a groove structure is provided in an outer side surface of the movement, at least one elastic projection is disposed on an inner side surface of the case, and the groove

structure and the elastic projection may fit to realize the fixing function.

[0010] Further, the interference fit structure is that elastic projections are disposed on the outer side surface of the movement and the inner side surface of the case respectively, and the elastic projections may fit to realize the fixing function.

[0011] Further, the movement mounting structure is a buckle structure, the buckle structure being removable by pressing.

[0012] Further, the buckle structure is that at least one slot is provided in the part where the movement and the case are in contact, tabs are provided in the slots, and bolts penetrate through the tabs to fix the movement and the case.

[0013] Further, the buckle structure is that at least one inverted slot is provided in an inner wall of the case, a side surface of the movement has spring tabs with projections, and the spring tabs fit the inverted slots.

[0014] Further, the buckle structure is that one side of one of the case and the movement has at least one projection with an elastic member, and one side of the other of the case and the movement has grooves fitting the projections.

[0015] Further, the buckle structure is that ejector pins are further included and used for ejecting the projections out of the grooves in order to achieve relative separation of the case from the movement.

[0016] Further, the movement mounting structure is a bolted structure, the bolted structure realizing a function of fixing the movement and the case through a screw, a bolt or a pin.

[0017] Further, the bolted structure is that the movement and the case are provided with mounting holes which fit with screws or pins to fix the movement and the case.

[0018] Further, the bolted structure is that at least one slot is provided in the part where the movement and the case are in contact, tabs are provided in the slots, and screws penetrate through the tabs to fix the movement and the case.

[0019] Further, the bolted structure is that the case has a rotatable fixing member, and fixation is achieved by rotating the fixing member on the case.

[0020] Further, the movement mounting structure is a magnetic fixing structure.

[0021] Further, the movement mounting structure is a guide slot structure, the guide slot structure being able to guide the movement to slide to a fixing position in a determined manner.

[0022] Further, the guide slot structure is that a side surface of one of the movement and the case has at least one guide slot, and a side surface of the other of the movement and the case has guide blocks for fitting the guide slots.

[0023] Further, the guide slot structure is that one side of one of the case and the movement has dovetail slots, and one side of the other of the case and the movement

has sliders fitting the dovetail slots.

[0024] Further, the guide slot structure is of a TF card slot type, and the movement laterally slides into the case and is clamped to the case for fixation.

[0025] Further, the guide slot structure is that an inlet needs to be reserved in the case, such that the movement may be placed into the case from any surface (generally from a side surface).

[0026] Further, the movement mounting structure is a rotary clamped structure, the rotary clamped structure being that one of the case and the movement has protruding parts and the other of the case and the movement has clamping parts in rotary clamped connection with the protruding parts.

[0027] Further, the movement mounting structure is a threaded fixing structure.

[0028] Further, the movement mounting structure is a flexible caliper type structure, the caliper type structure being able to fix the movement and the case.

[0029] Further, the movement mounting structure is that the case is a flexible soft sleeve with an area of an exposed part smaller than an area of the movement, and the movement is squeezed into the soft sleeve, such that wrapped fixation is achieved.

[0030] Further, the movement mounting structure is that the case is provided with a rotatable cover for covering and fixing the movement located inside the case.

[0031] Further, the movement mounting structure is that the case has two parts that are able to be opened and closed, and the movement is fixed inside the case through the two parts that are able to be opened and closed and a locking device.

[0032] Further, the locking device includes a connecting rod connected to one part. The connecting rod is screwed to the other part through a fixing knob so as to fix the movement inside the case.

[0033] Further, the detachable structure is that the case includes a bottom plate, and case bodies capable of rotating to be combined are respectively provided at two ends of the bottom plate.

[0034] Further, the movement mounting structure is a snap spring structure, the snap spring structure being that a side surface of one of the case and the movement at least has one elastic spring and the other of the case and the movement has grooves fitting the elastic springs.

[0035] Further, the movement mounting structure is a latch structure, the latch structure being that slots are provided in connecting sides of the case and the movement and a slider is provided in the slots for limiting vertical motion of the movement.

[0036] Further, the case is further provided with a wearing assembly, the wearing assembly being connected to the case for securing a watch on the wrist.

[0037] Further, the wearing assembly and the case are detachably connected.

[0038] Further, the case is of a ring structure.

[0039] Further, the shape of the case of the ring structure includes, but is not limited to, round, square, tonneau

shape, and other polygonal shapes.

[0040] Further, movements that may fit the case may be a mechanical movement, a smart movement, a quartz movement, or movements of any other principle.

[0041] Further, the shape of the movements that may fit the case includes, but is not limited to, round, square, and other polygonal shapes.

[0042] Further, the material of the case includes, but is not limited to, plastic, metal, and rubber.

[0043] Further, customizable buttons are reserved on the case for triggering functional buttons on the movement.

[0044] Further, an inner side of the case is a circle with a diameter of 18-60 mm, a thickness of the case is 3-15 mm, and the interference fit structure is that 2-4 elastic bumps are disposed on the inner side of the case or on an outer side of the movement or both on the inner side of the case and on the outer side of the movement.

[0045] Further, an inner side of the case is a circle with a diameter of 18-60 mm, a thickness of the case is 3-15 mm, and the buckle structure is removable through an elastic member.

[0046] Further, an inner side of the case is a rounded rectangle with a length and width of 16-60 mm, a radius of a corner R of the rounded rectangle is 1-10 mm, a thickness of the case is 3-15 mm, and the interference fit structure is that 2-4 elastic bumps are disposed on the inner side of the case or on an outer side of the movement or both on the inner side of the case and on the outer side of the movement.

[0047] Further, an inner side of the case is a rounded rectangle with a length and width of 16-60 mm, a radius of a corner R of the rounded rectangle is 1-10 mm, a thickness of the case is 3-15 mm, and the buckle structure is removable through an elastic member.

[0048] Compared with the prior art, the present disclosure has the following technical effects:

[0049] The case and the movement of the watch may be quickly disassembled for replacement, and one case may be correspondingly fitted with movements of different shapes and colors, thus making the watch have different visual effects.

[0050] Convenience in operation is achieved, and a user can choose suitable cases and movements for matching and combination on different occasions according to different needs, thus avoiding the purchase of many different watches and reducing the financial pressure of purchasers.

[0051] Repair and replacement may be conducted according to the need when the case, especially when the movement fails, which greatly improves the maintenance efficiency.

BRIEF DESCRIPTION OF DRAWINGS

[0052]

FIG. 1 is a schematic structure diagram according

to the present disclosure.

FIG. 2 is a schematic structural diagram according to Example 1 of the present disclosure.

FIG. 3 is a schematic diagram of fitting between an elastic projection and a movement in FIG. 2 according to the present disclosure.

FIG. 4 is a schematic diagram of another fitting between an elastic projection and a movement in FIG. 2 according to the present disclosure.

FIG. 5 is a schematic structural diagram according to Example 3 of the present disclosure.

FIG. 6 is a schematic structural diagram according to Example 4 of the present disclosure.

FIG. 7 is a schematic structural diagram according to Example 5 of the present disclosure.

FIG. 8 is a schematic structural diagram according to Example 6 of the present disclosure.

FIG. 9 is still another schematic structural diagram according to Example 6 of the present disclosure.

FIG. 10 is yet another schematic structural diagram according to Example 6 of the present disclosure.

FIG. 11 is yet another schematic structural diagram according to Example 6 of the present disclosure.

FIG. 12 is yet another schematic structural diagram according to Example 6 of the present disclosure.

FIG. 13 is yet another schematic structural diagram according to Example 6 of the present disclosure.

FIG. 14 is a schematic structural diagram according to Example 8 of the present disclosure.

FIG. 15 is a schematic structural diagram according to Example 9 of the present disclosure.

FIG. 16 is a schematic structural diagram according to Example 10 of the present disclosure.

FIG. 17 is another schematic structural diagram according to Example 10 of the present disclosure.

FIG. 18 is another schematic structural diagram according to Example 5 of the present disclosure.

FIG. 19 is a schematic structural diagram according to Example 11 of the present disclosure.

FIG. 20 is a schematic structural diagram according to Example 12 of the present disclosure.

FIG. 21 is a schematic structural diagram according to Example 13 or 14 of the present disclosure.

FIG. 22 is a schematic structural diagram according to Example 15 of the present disclosure.

FIG. 23 is a schematic structural diagram according to Example 16 of the present disclosure.

FIG. 24 is a schematic diagram of a latch structure according to Example 7 of the present disclosure.

FIG. 25 is another schematic diagram of a latch structure according to Example 7 of the present disclosure.

FIG. 26 is a schematic diagram of four elastic springs according to Example 16 of the present disclosure.

FIG. 27 is still another schematic structural diagram according to Example 10 of the present disclosure.

FIG. 28 is another schematic structural diagram according to Example 8 of the present disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0053] The technical solutions in the embodiments of the present disclosure will be clearly and completely described below with reference to the accompanying drawings in the embodiments of the present disclosure. Apparently, the described embodiments are merely a part of the embodiments of the present disclosure, rather than all the embodiments. Based on the embodiments of the present disclosure, all other embodiments obtained by a person of ordinary skill in the art without creative efforts shall fall within the protection scope of the present disclosure.

[0054] In the description of the present disclosure, it is to be noted that the terms "upper/lower end", "inner", "outer", "front end", "rear end", "two ends", "one end", "the other end", and the like indicate orientations or positional relationships based on the orientations or positional relationships shown in the accompanying drawings, are merely for convenience in describing the present disclosure and to simplify the description, and are not intended to indicate or imply that the referred device or element must have a particular orientation or be constructed and operated in a particular orientation, and thus they should not be construed as limiting the present disclosure. In addition, the terms "first" and "second" are merely provided for descriptive purposes and are not to be construed as indicating or implying relative importance.

[0055] In the description of the present disclosure, it is to be noted that, unless otherwise expressly specified and limited, the term "mounted", "provided with/sleeved with", "sleeve connection", "connecting", and the like should be understood in a broad sense, for example, "connection" may be a fixed connection, a detachable connection, or an integral connection; or it may be a mechanical connection or an electrical connection; or it may be a direct connection or an indirect connection through an intermediate medium; or it may be the communication between two elements. The specific meanings of the above terms in the present disclosure may be understood in specific situations by a person of ordinary skill in the art.

[0056] Referring to FIG. 1, the present disclosure provides a technical solution as follows:

A watch case with a replaceable movement is provided.

The case 1 is provided with a movement mounting structure. The movement 2 may be fixed to the case 1 through the movement mounting structure to realize fitting between the case 1 and different movements 2. The case 1 is detachably connected with a wearing assembly 3. The different movements 2 refers to movements classified by power source, including mechanical movements rotating thanks to mechanical winding, electronic movements (such as quartz movements), etc., may be classified by function, including movements mainly for telling the time as well as movements having the functions of a cardiometer and a pedometer in addition to telling the time, and may also be different in shape, appearance, color, etc.

[0057] Customizable buttons are reserved on the case, and the buttons may be connected to and trigger functional buttons on the movements. According to one embodiment of the present disclosure, two customizable buttons are provided and disposed above and below a crown respectively. According to other embodiments, three customizable buttons are provided and disposed above, below and opposite to the crown respectively.

Example 1:

[0058] An interference fit structure is the case and the movement are fixed by means of friction therebetween. The case and the movement need to have a good fit.

[0059] As shown in FIG. 2, the movement 2 and the case 1 are in interference fit. Specifically, a groove 7 for holding the movement is provided in an end surface of the case 1. A side surface of one of the movement 2 and the groove 7 has at least one elastic projection 8, and a side surface of the other of the movement 2 and the groove 7 has recesses 9 fitting the elastic projections 8.

[0060] According to one example of the present disclosure, the projections and the recesses are disposed at dual points, that is, at the positions of 6 o'clock and 12 o'clock of the case or the movement respectively. According to other examples, the projections and the recesses are disposed at four points, that is, at the positions of 2 o'clock, 4 o'clock, 8 o'clock, and 10 o'clock of the case or the movement respectively.

[0061] As shown in FIG. 3, the side surface of the groove 7 of the case 1 has a protruding elastic projection 8, and the side surface of the movement 2 has a recess 9 fitting the elastic projection. Of course, the elastic projection 8 may also be disposed on the side surface of the movement 2, while the recess 9 is located in the side surface of the groove 7 of the case 1 correspondingly. Alternatively, as shown in FIG. 4, the side surface of the groove 7 of the case 1 and the side surface of the movement 2 each have an elastic projection 8 and a recess 9 for alternate fitting.

[0062] The shape, number, position and material of the elastic projections 8 and the recesses 9 are not limited. As shown in FIG. 1, according to this example, a crown holding slot 5 for holding the crown 4 is provided in the case 1.

Example 2:

[0063] The detachable structure is a buckle structure which is removable by pressing.

[0064] According to the detachable structure, the movement 2 and the case 1 are in buckled fit. A buckle is disposed on a liner of the movement. The buckle may also be disposed on an inner wall of the case. The buckle structure is achieved by means of pressable elastic members.

[0065] According to one example of the present disclosure, raised elastic members are disposed on the

movement. The raised elastic members may be pressed and deformed via connecting buttons on the movement. Recesses are provided in the case to clamp the raised elastic members, and the raised elastic members may be moved into or out of the recesses in the case by pressing the connecting buttons, thus achieving assembly or disassembly of the movement and the case.

[0066] According to other examples of the present disclosure, the raised elastic members may also be disposed on the case, and the recesses may be provided in the movement.

[0067] Further preferably, the recesses may also be provided as elastic structures, and the raised elastic members in the recesses may be pushed out by pressing.

[0068] According to other examples of the present disclosure, the raised elastic members and the recesses are disposed at dual points, that is, at the positions of 6 o'clock and 12 o'clock of the case or the movement respectively. According to other examples, the raised elastic members and the recesses are disposed at four points, that is, at the positions of 2 o'clock, 4 o'clock, 8 o'clock, and 10 o'clock of the case or the movement respectively.

Example 3:

[0069] As shown in FIG. 5, the detachable structure is that at least one inverted slot 21 is provided in an inner wall of the case 1, a side surface of the movement 2 has spring tabs 17 with projections 18, and the spring tabs fit the inverted slots 21.

[0070] Since an outer wall of the movement 2 has the spring tabs 17, outer walls of the spring tabs 17 have the projections 18, and correspondingly, the inverted slots 21 are provided in the inner wall of the case 1, the spring tabs 17 may be squeezed by force when the movement 2 is placed into the case 1, and may be popped into the inverted slots 21 when the projections 18 move to the inverted slots 21, thus achieving fixation between the movement 2 and the case 1. According to this example, gaps 19 are reserved at the connecting positions between the movement 2 and the case 1 to facilitate the mounting of the movement 2, as well as to move back the spring tabs 17. Alternatively, the spring tabs may be moved back by ejector pins via reserved channels 20, or by reserving small gaps, so as to achieve disengagement of the projections 18 from the inverted slots 21, such that the movement 2 may be convenient to disassemble. Accordingly, the channels 20 are provided in the side surface of the case 1 for insertion of the ejector pins, such that the ejector pins may be inserted into the channels 20 to achieve the disengagement of the projections 18 from the inverted slots 21.

Example 4:

[0071] As shown in FIG. 6, this example is similar to Example 1, and in Example 1, the elastic projections 8 are fixed, while in this example, projections 24 with elastic

members 23 are movable. Specifically, the detachable structure is that one side of one of the case 1 and the movement 2 has at least one protrusion 24 with an elastic member 23, and one side of the other of the movement 2 and the case 1 has grooves 26 fitting the protrusions 24.

[0072] The projections 24 with the elastic members 23 are located on the side wall of the movement 2 or the case 1. The shape of the projections 24 may be column shape or ball shape, and the elastic members 23 are preferably springs.

[0073] When subjected to pressure, the elastic members 23 are deformed. When the pressure disappears or decreases, the elastic members recover the shape, and are clamped into the grooves 26 for position fixing. It is to be noted that the grooves 26 may also be realized in the form of the projections 24, and the key is to prevent sliding.

[0074] The ball shape may be a protruding pellet and a spring, and the other side is a groove.

[0075] The column shape may be a protruding ball and a spring, and the other side is a groove. The protrusion may also be a protruding ball and a spring, and the other side is a raised stopper.

[0076] According to this example, cavities 22 for holding the elastic members 23 and the projections 24 are provided in the movement 2.

Example 5:

[0077] This example is a further extension of Example 4. Ejector pins 25 are further included, and are I-shaped buttons to eject the projections 24 out of the grooves 26 in order to achieve relative separation of the case 1 from the movement 2.

[0078] Similarly, each projection 24 may be shaped as a protruding ball and a spring. By default, the ball is extruded by the spring and abuts against the groove 26 for fixing. A slot (i.e., the channel 20 in FIG. 12) is provided in the vertical direction (of the movement 2). The ball has a ramp, and a slider (i.e., the projection 24) may slide to make room when pushed with the ejector pin. The other side is the groove.

[0079] Each projection is shaped as a protruding ball and a spring. By default, the ball is extruded by the spring and abuts against the groove for fixing. A slot is provided horizontally (in the case 1 and the movement 2), and the slider may slide to make room when pushed with the ejector pin.

[0080] As shown in FIG. 7, each projection is shaped as a protruding ball and a spring. By default, the ball is extruded by the spring and abuts against the groove 26 for fixing. A slot (i.e., the channel 20 in FIG. 7) is provided, and a button (the ejector pin 25) is provided and, when pressed, extrudes the slider (i.e., the protrusion 24) to make room.

[0081] As shown in FIG. 18, the detachable structure is that the case 1 and the movement 2 are fixed through a buckle 30 on the side surface after being mounted.

[0082] The movement 2 and the case 1 are fixedly clamped through the elastic buckle 30.

Example 6:

[0083] The detachable structure is that the movement 2 and the case 1 are in bolted connection.

[0084] Specifically, the movement 2 and the case 1 are provided with mounting holes which fit with screws 10 or pins to fix the movement 2 and the case 1.

[0085] The screws 10 are used as an example for illustration.

[0086] As shown in FIG. 8, the case 1 has an opening (which is open upwards or downwards) for holding the movement 2. The opening is U-shaped as a whole. Upon placement of the movement 2, the screws 10 vertically penetrate through the case 1 to preset screw holes of the movement 2, so as to achieve fixation between the case 1 and the movement 2.

[0087] As shown in FIG. 9, upon placement of the movement 2, the screws 10 may also perform horizontal penetration to achieve fixation between the case 1 and the movement 2.

[0088] As shown in FIG. 10, two U-shaped parts may be provided, that is, two case parts are provided, including a first part 12 and a second 13 respectively. The two parts are disposed symmetrically. The screws 10 then perform vertical penetration to achieve fixation between the case 1 and the movement 2. That is, the movement 2 is fastened inside the two U-shaped case parts.

[0089] As shown in FIG. 8 or FIG. 10, hiding slots 11 are provided in the case 1 such that outer ends of the screws 10 may be flush with an outer end surface of the case 1 after the screws 10 are mounted, which may neither hamper wearing nor affect the appearance. The above is threaded fixation, and fixation through nuts is also feasible.

[0090] Specifically, as shown in FIG. 11, at least one slot 7 (generally formed by slotting or perforating at the bottom) is provided in the part where the movement 2 and the case 1 are in contact, tabs 14 are provided in the slots 7, and screws 10 penetrate through the tabs to fix the movement 2 and the case 1.

[0091] As shown in FIG. 11, the screws 10 penetrate through the tabs 14 and then may be fixed to the case 1.

[0092] As shown in FIG. 12, the screws 10 penetrate through the tabs 14 and then may be fixed to the movement 2.

[0093] Alternatively, as shown in FIG. 13, the screws 10 penetrate through the tabs 14 and then may be fixed to the case 1 and the movement 2 respectively.

[0094] According to this example, in addition to the screws 10, pins are also feasible, the number, shape and position of which are not limited.

Example 7:

[0095] According to the detachable structure, the

movement and the case are magnetically fixed.

[0096] At least one of the movement and the case is embedded with a magnet, and the other of the movement and the case is embedded with an iron sheet or magnet attracted to the above magnet.

Example 8:

[0097] As shown in FIG. 14 to FIG. 28, the detachable structure is that a side surface of one of the movement 2 and the case 1 has at least one guide slot 15, and a side surface of the other of the movement 2 and the case 1 has guide blocks 16 for fitting the guide slots 15.

[0098] The guide slots 15 may be provided in an outer wall of the movement 2, or in an inner wall of the case 1, or in both. Correspondingly, the guide blocks 16 slide in along the guide slots 15 for position fixing.

[0099] The position, number, direction, etc. of the guide slots 15 are not limited according to this example.

[0100] The detachable structure is that one side of one of the case and the movement has dovetail slots, and one side of the other of the case and the movement has sliders fitting the dovetail slots.

[0101] One of the movement and the case is provided with a dovetail slot cavity A. The other of the movement and the case is provided with a slider B matching the cavity in shape. After alignment, the slider may be pushed into A for locking.

[0102] Further, an elastic member abuts against the slider in the direction perpendicular to the sliding direction, so as to limit the motion of the slider.

[0103] TF card slot type: the movement laterally slides into the case and is clamped to the case for fixation.

[0104] Latch structure: as shown in FIG. 24 and FIG. 25, the movement and the case are each provided with a slot 41, and a slider 42 is disposed on the case and may be in contact with the movement and the case at the same time. The slider 42 may move along the slots, and may limit the vertical motion of the movement 2 by sliding.

[0105] Drawer type: an inlet needs to be reserved in the case, such that the movement may be placed into the case from any surface (generally from a side surface).

Example 9:

[0106] As shown in FIG. 15, the detachable structure is that one of the case 1 and the movement 2 has a protruding part 27, and the other of the case 1 and the movement 2 has a clamping part 28 in rotary clamped connection with the protruding part 27.

[0107] The clamped mode according to this example is similar to a pressure cooker lid, and the protruding parts on two sides are rotated and then fastened.

[0108] In this example, due to rotation, a wide crown holding slot and a detachable crown may be included.

Example 10:

[0109] The detachable structure is that the case 1 and the movement 2 are in threaded screw-in fit.

5 **[0110]** Threads 29 are provided on the inner wall of the case 1 and the outer wall of the movement 2.

[0111] As shown in FIG. 16, Mode 1: the movement 2 is completely screwed into the case 1.

10 **[0112]** As shown in FIG. 17, Mode 2: the case is divided into a plurality of parts, including a first part 12 and a second part 13 respectively, at least one of which has a threaded relationship with the movement 2. Therefore, the movement 2 is clamped between the first part 12 and the second part 13.

15 **[0113]** As shown in FIG. 27, a rotatable watch frame 43 is disposed at a case back of a watch, or a rotatable watch frame 43 is disposed at a case top, or upper and lower watch frames 43 are provided.

Example 11:

[0114] As shown in FIG. 19, the detachable structure is that the case 1 is a flexible soft sleeve with an area 31 of an exposed part smaller than an area of the movement, and the movement 2 is squeezed into the soft sleeve, such that wrapped fixation is achieved.

25 **[0115]** The soft sleeve (such as silica gel) is flexible, with the area 31 of the exposed part smaller than the area of the movement. The movement 2 may be squeezed into the soft sleeve by expanding the soft sleeve with hands, such that wrapped fixation is achieved. Specifically, referring to FIG. 19, the diameter d of the area 31 of the exposed part is smaller than the diameter of the movement 2.

Example 12:

40 **[0116]** As shown in FIG. 20, the detachable structure is that the case has a rotatable cover 32 for covering and fixing the movement 2 inside the case 1.

[0117] The case 1 is divided into two parts which are connected through a shaft. The two parts may be opened and closed, like a book or a shell. After the two parts are opened, the movement 2 is placed into the case, and the case 1 is fixed.

Example 13:

50 **[0118]** As shown in FIG. 21, the detachable structure is that the case includes two parts that may be opened and closed.

[0119] The case is divided into two halves, including a first part 12 and a second part 13 respectively, which are opened and closed through a shaft 33.

55 **[0120]** The movement 2 may be taken out by opening the two parts, and may be fixed by closing the two parts.

Example 14:

[0121] As shown in FIG. 21, this example is an extension of Example 17. The movement 2 is fixed inside the case 1 through the two parts that may be opened and closed and a locking device. The locking device includes a connecting rod connected to one part. The connecting rod is screwed to the other part through a fixing knob 37 so as to fix the movement 2 inside the case 1.

[0122] To enhance firmness, a locking device may also be additionally provided on an opening side, which, however, is not absolutely necessary.

[0123] The connecting rod includes a first connecting rod 34, a middle connecting rod 35, and a second connecting rod 36. The first connecting rod 34 is hinged to one part of the case 1 (this example illustrates an example that the first connecting rod is hinged to the second part 13), the first connecting rod is then hinged to the middle connecting rod 35, the second connecting rod 36 is hinged to the middle connecting rod 35, the fixing knob 37 penetrates through the second connecting rod 36, and upon combination of the first part 12 and the second part 13, the fixing knob 37 is screwed to the first part 12, such that the movement 2 is clamped into the case 1.

Example 15:

[0124] As shown in FIG. 22, the detachable structure is that the case includes a bottom plate 38, and case bodies capable of rotating to be combined are respectively provided at two ends of the bottom plate 38.

[0125] The case is divided into two parts, including a first part 12 and a second part 13, which may be separated or combined by rotating a shaft 39 in order to fit and fix the movement 2.

Example 16:

[0126] As shown in FIG. 23, the detachable structure is that the side surface of one of the case 1 and the movement 2 has at least one elastic spring 40, and the other of the case 1 and the movement 2 has grooves 26 fitting the elastic springs 40.

[0127] The elastic springs 40 (not limited on shape, material, quantity and position) and the groove 26 (not limited on shape, quantity and position) are used for fixing, and the elastic springs 40 may be opened or closed. The elastic springs 40 may be deformed when squeezed, and may retract when the pressure disappears. One of the movement 2 and the case 1 is provided with the elastic springs 40, and the other is provided with the grooves 26. The elastic springs 40 are deformed when squeezed, and are released when the pressure disappears. When the elastic springs 40 are clamped in the grooves 26, fixation between the case 1 and the movement 2 may be achieved.

[0128] As shown in FIG. 26, according to one example of the present disclosure, the elastic springs 40 are dis-

posed at four corners, which has the advantages of simple structure, convenience in operation, adaptability to various shapes, and respective integrity of the movement and the case. According to other examples, the elastic springs 40 may also be respectively disposed on opposite sides or three sides.

[0129] According to different examples, such elastic springs are also referred to as "snap springs", "wave expansion tabs", "wave expansion springs", "C-springs", and "C-type springs". The elastic springs are also referred to as retainer rings or snap rings, are a type of fastener, and are provided in a shaft slot or hole slot of a machine or apparatus to prevent axial motion of parts on a shaft or hole.

[0130] The wearing assembly 3 is mounted to the case 1 by a watchband or bracelet.

[0131] Specifically, standard connectors are reserved on the case. The standard connectors include, but are not limited to, a charging interface and a data interface.

[0132] Specifically, the case has luminous ornaments.

[0133] Specifically, the case is drop-proof, more waterproof and scratch-proof, and has a second display structure.

[0134] According to the present disclosure, the movement may be a mechanical movement already assembled in the prior art or a quartz/electronic movement. In the case that a mechanical movement is adopted, the source of power is winding the crown 4, in order to provide power for the mechanical movement. In the case that a quartz/electronic movement is adopted, the source of power is a built-in power supply that provides power for the movement. The movement has the characteristics of being waterproof, shockproof, etc., which may not be described in detail herein.

[0135] While examples of the present disclosure have been shown and described, it may be understood by a person skilled in the art that various changes, modifications, substitutions and alterations may be made to these examples without departing from the principles and spirit of the present disclosure, the scope of which is defined by the appended claims and their equivalents.

Claims

1. A watch case with a replaceable movement, being provided with a movement mounting structure, the movement being able to be fixed to the case through the movement mounting structure to realize fitting between the case and different movements.
2. The watch case according to claim 1, wherein the movement mounting structure is an interference fit structure, the interference fit structure realizing fixation between the movement and the case through an elastic structure that is deformable under pressure.

3. The watch case according to claim 1, wherein the movement mounting structure is a buckle structure, the buckle structure being removable by pressing.
4. The watch case according to claim 1, wherein the movement mounting structure is a bolted structure, the bolted structure realizing a function of fixing the movement and the case through a screw, a bolt or a pin.
5. The watch case according to claim 1, wherein the movement mounting structure is a magnetic fixing structure.
6. The watch case according to claim 1, wherein the movement mounting structure is a guide slot structure, the guide slot structure being able to guide the movement to slide to a fixing position in a determined manner.
7. The watch case according to claim 1, wherein the movement mounting structure is a rotary clamped structure, the rotary clamped structure being that one of the case and the movement has protruding parts and the other of the case and the movement has clamping parts in rotary clamped connection with the protruding parts.
8. The watch case according to claim 1, wherein the movement mounting structure is a threaded fixing structure.
9. The watch case according to claim 1, wherein the movement mounting structure is a flexible caliper type structure, the caliper type structure being able to fix the movement and the case.
10. The watch case according to claim 1, wherein the movement mounting structure is that the case is a flexible soft sleeve with an area of an exposed part smaller than an area of the movement, and the movement is squeezed into the soft sleeve, such that wrapped fixation is achieved.
11. The watch case according to claim 1, wherein the movement mounting structure is that the case is provided with a rotatable cover for covering and fixing the movement located inside the case.
12. The watch case according to claim 1, wherein the movement mounting structure is that the case has two parts that are able to be opened and closed, and the movement is fixed inside the case through the two parts that are able to be opened and closed and a locking device.
13. The watch case according to claim 1, wherein the movement mounting structure is a snap spring structure, the snap spring structure being that a side surface of one of the case and the movement at least has one elastic spring and the other of the case and the movement has grooves fitting the elastic springs.
14. The watch case according to claim 1, wherein the movement mounting structure is a latch structure, the latch structure being that slots are provided in connecting sides of the case and the movement and a slider is provided in the slots for limiting vertical motion of the movement.
15. The watch case according to claim 1, being further provided with a wearing assembly, the wearing assembly being connected to the case for securing a watch on the wrist.

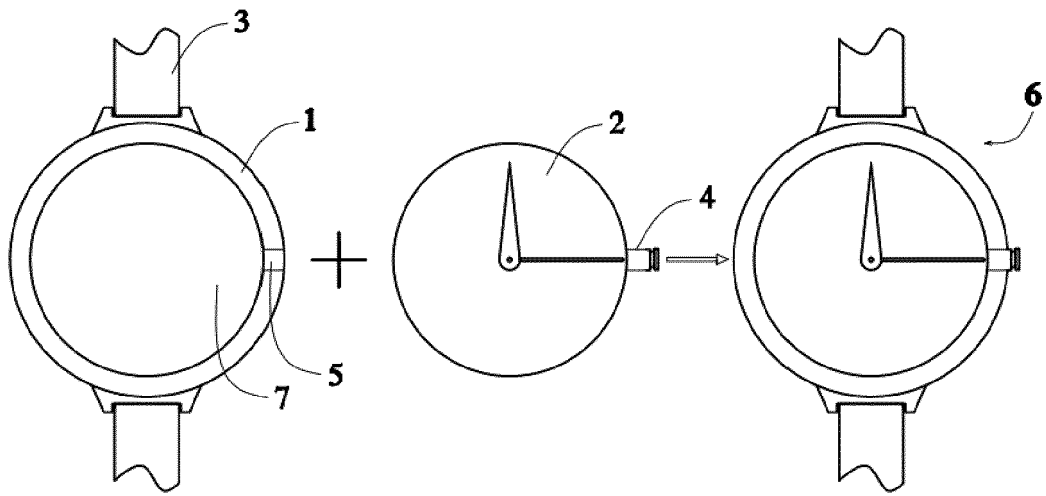


FIG. 1

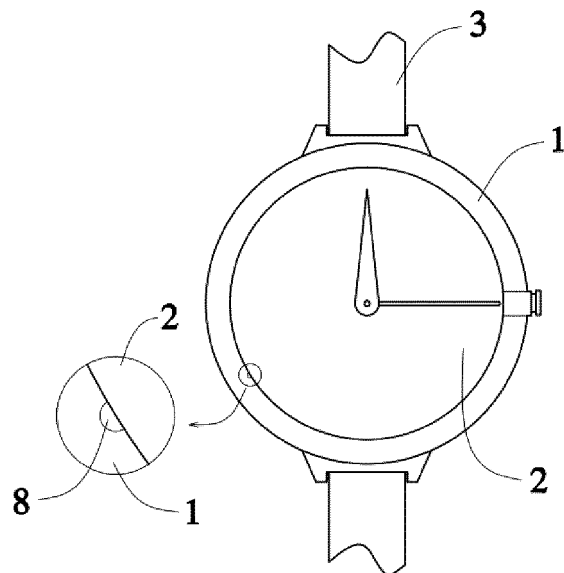


FIG. 2

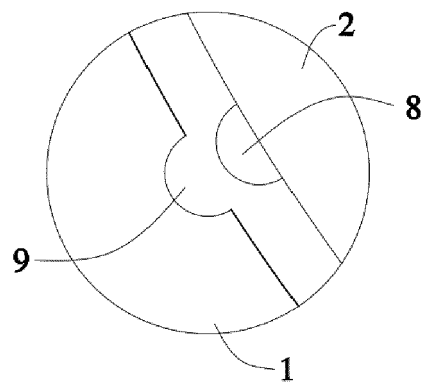


FIG. 3

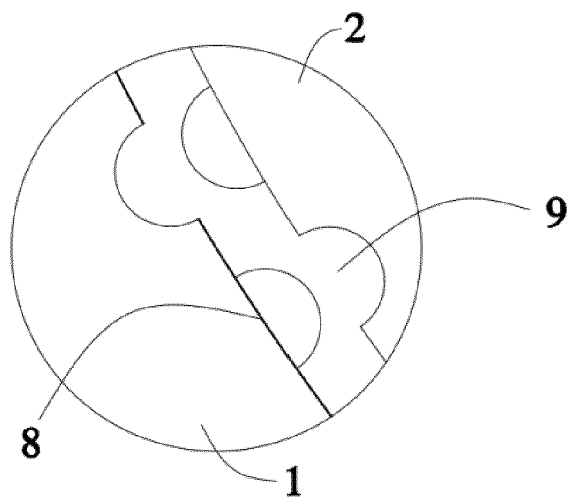


FIG. 4

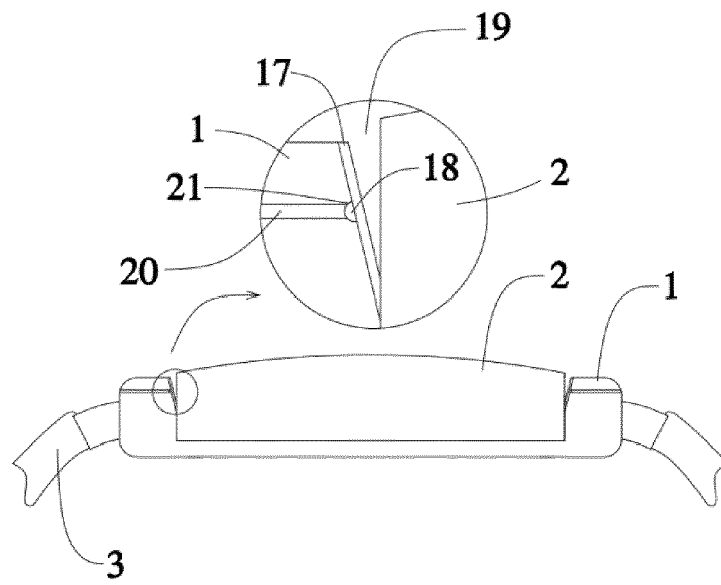


FIG. 5

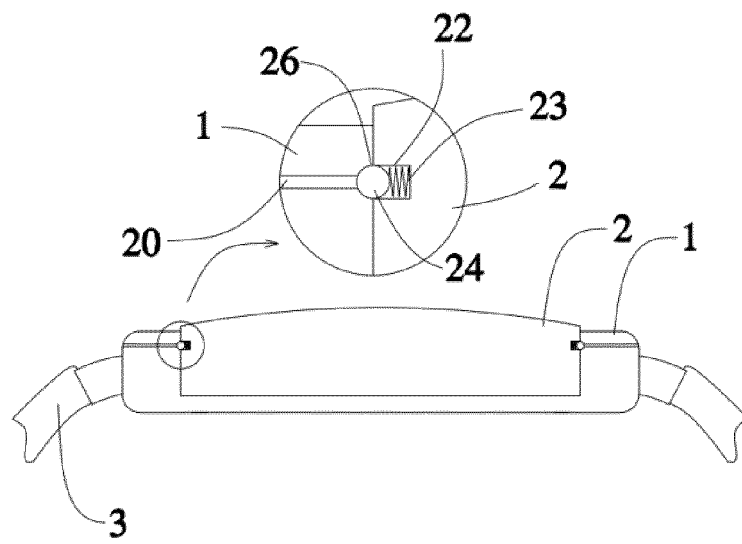


FIG. 6

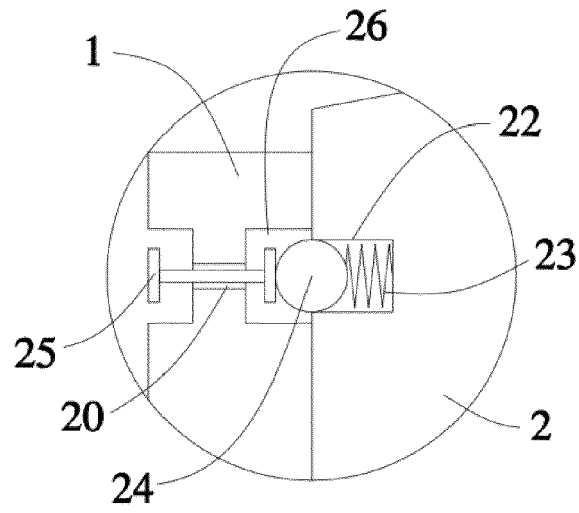


FIG. 7

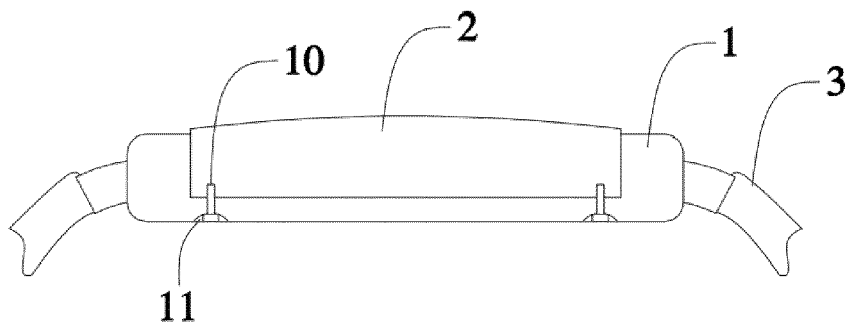


FIG. 8

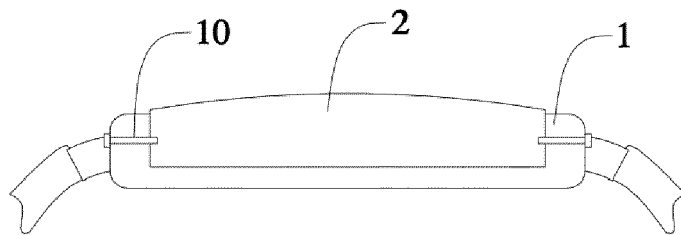


FIG. 9

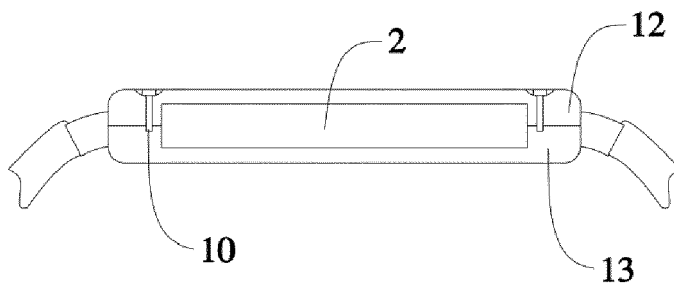


FIG. 10

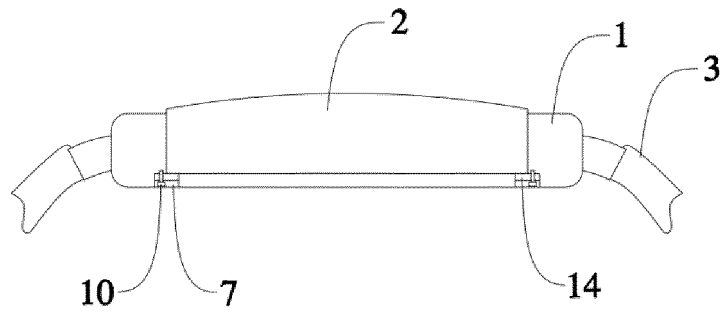


FIG. 11

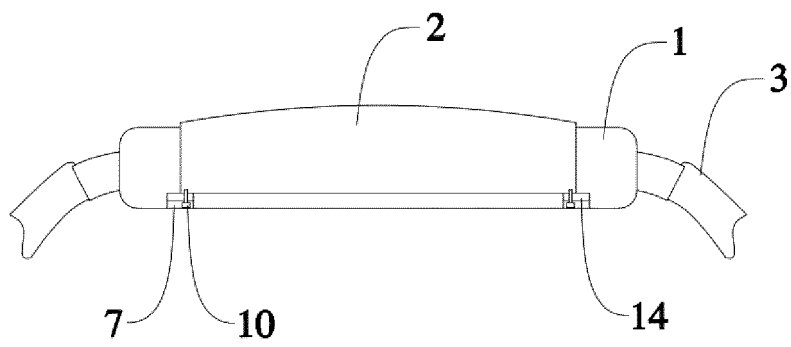


FIG. 12

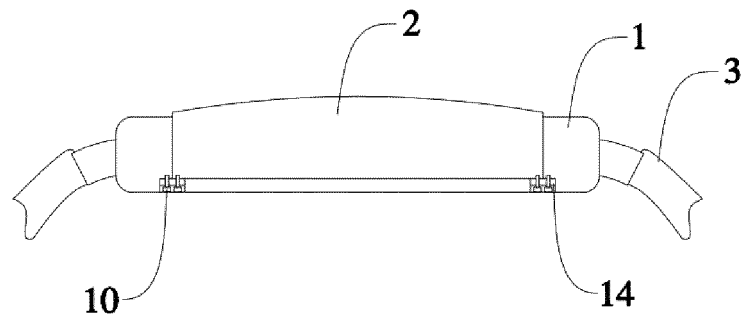


FIG. 13

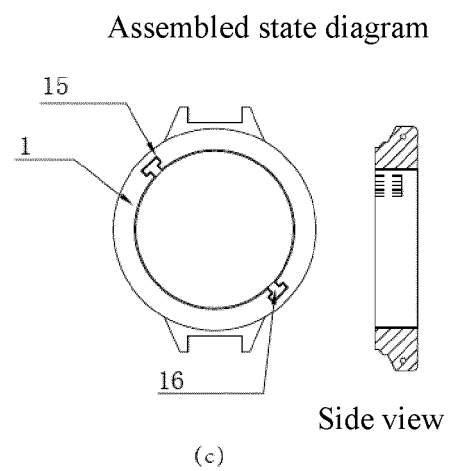
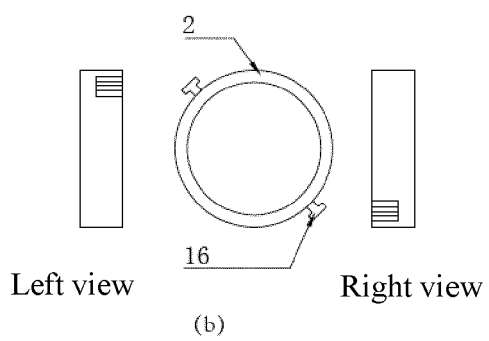
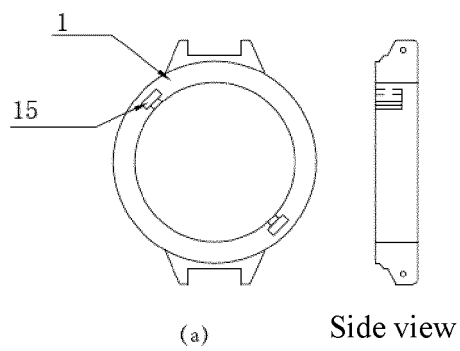


FIG. 14

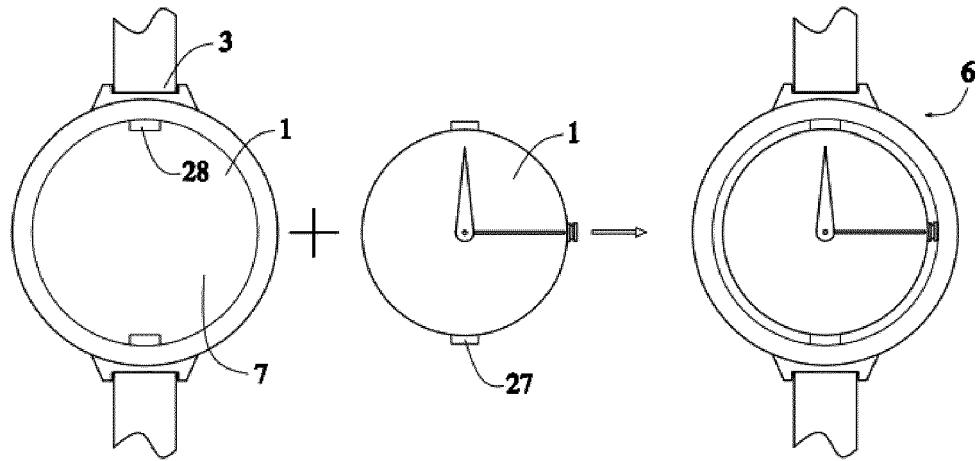


FIG. 15

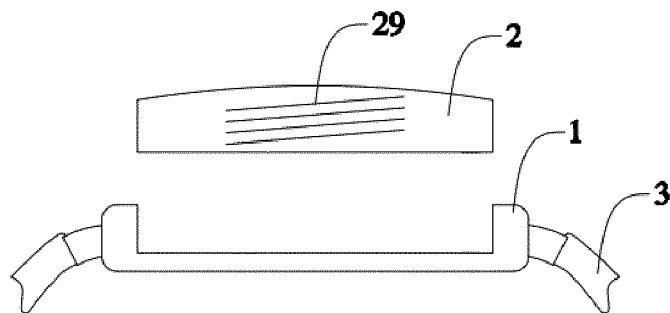


FIG. 16

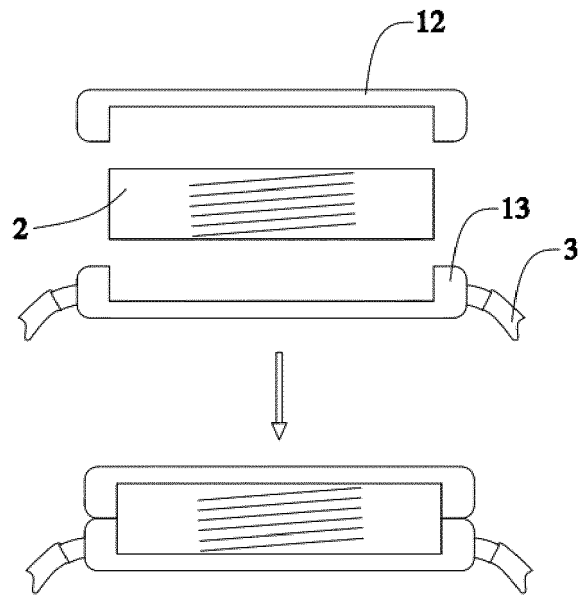


FIG. 17

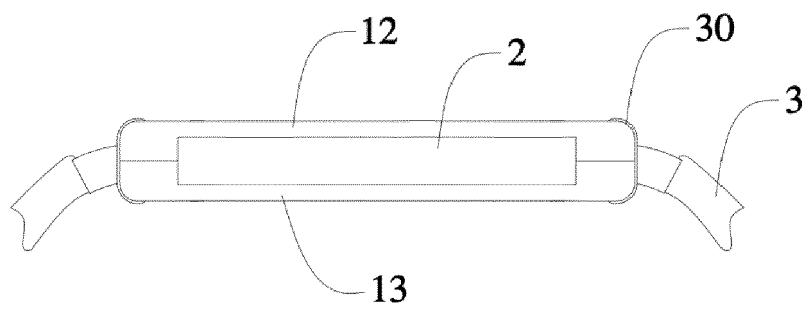


FIG. 18

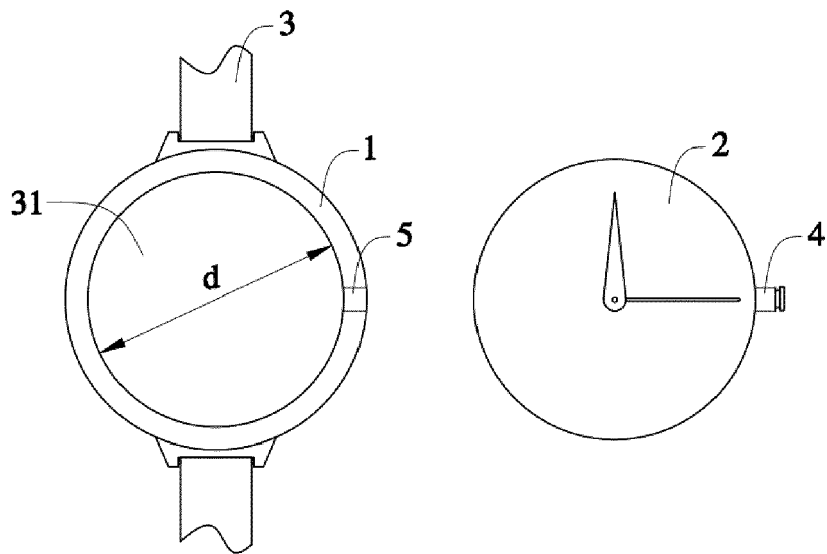


FIG. 19

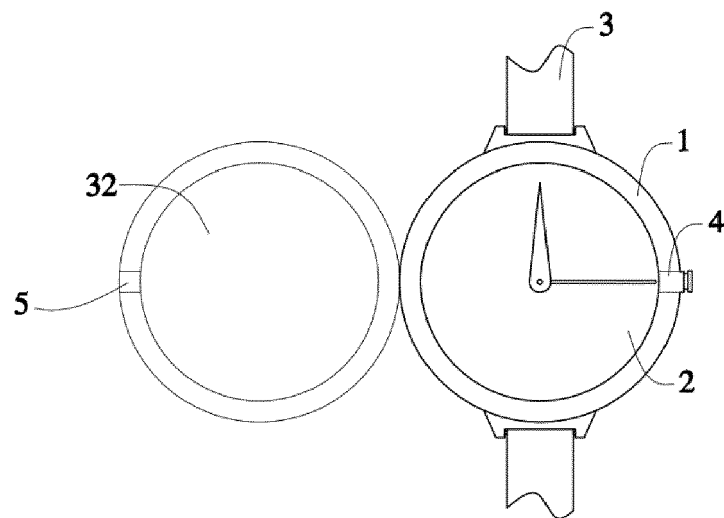


FIG. 20

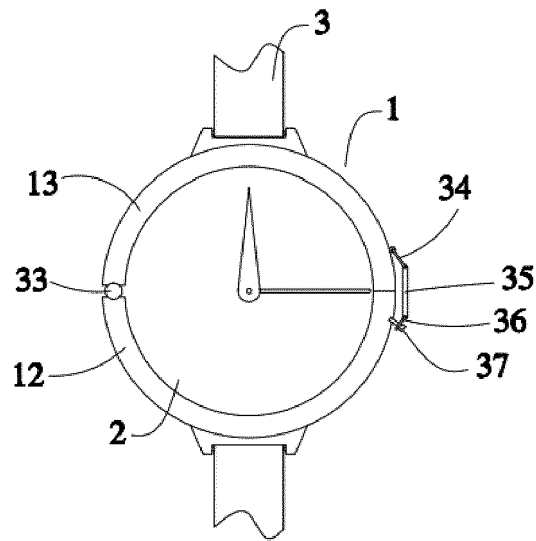


FIG. 21

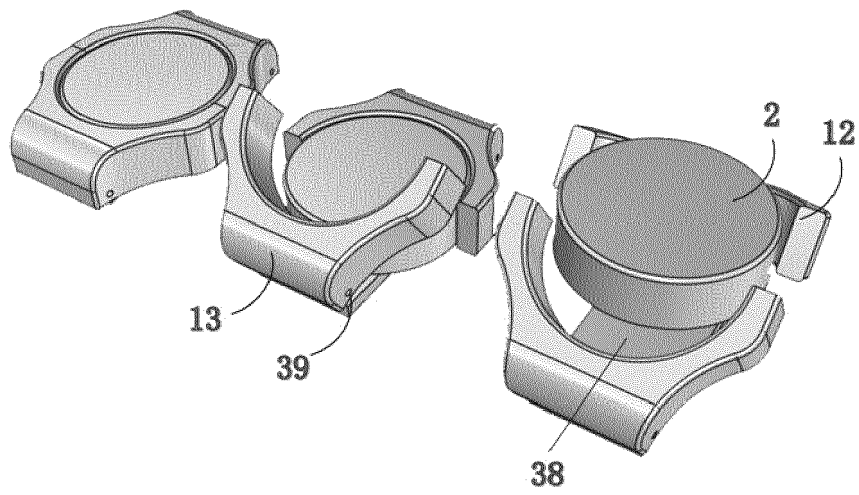


FIG. 22

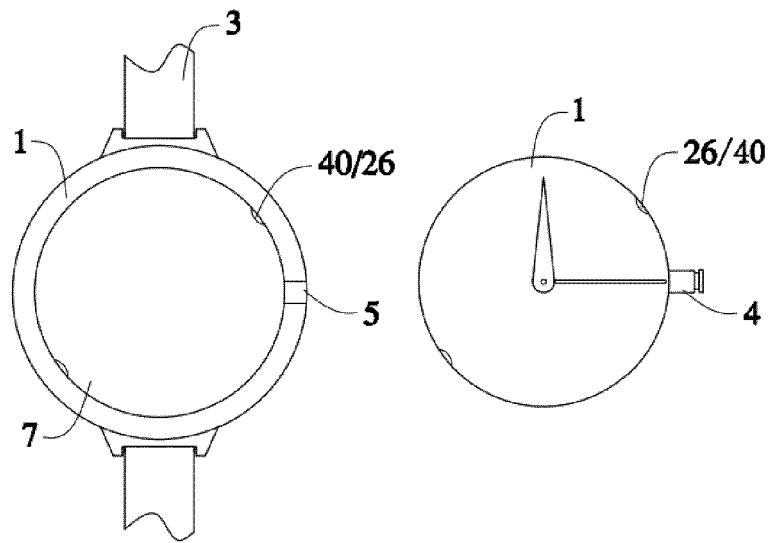


FIG. 23

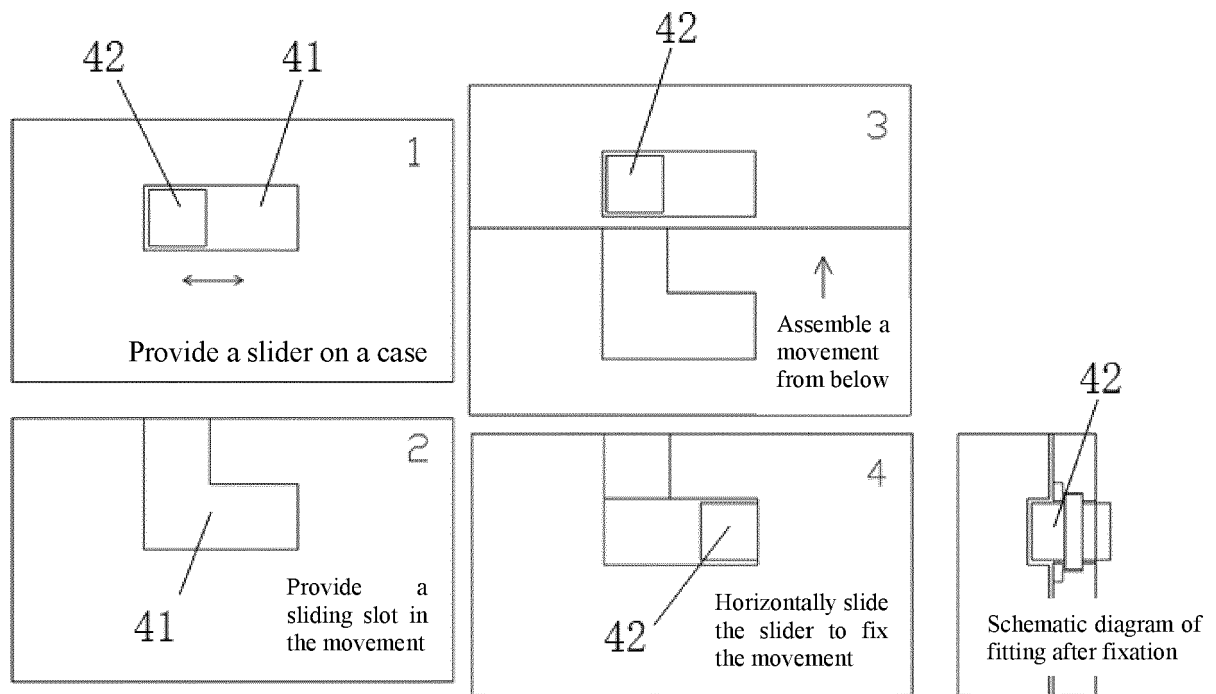


FIG. 24

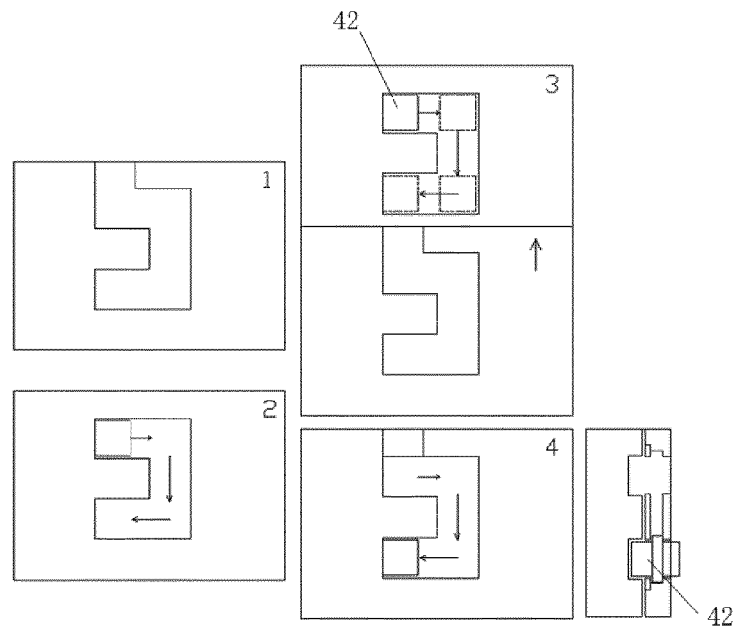


FIG. 25

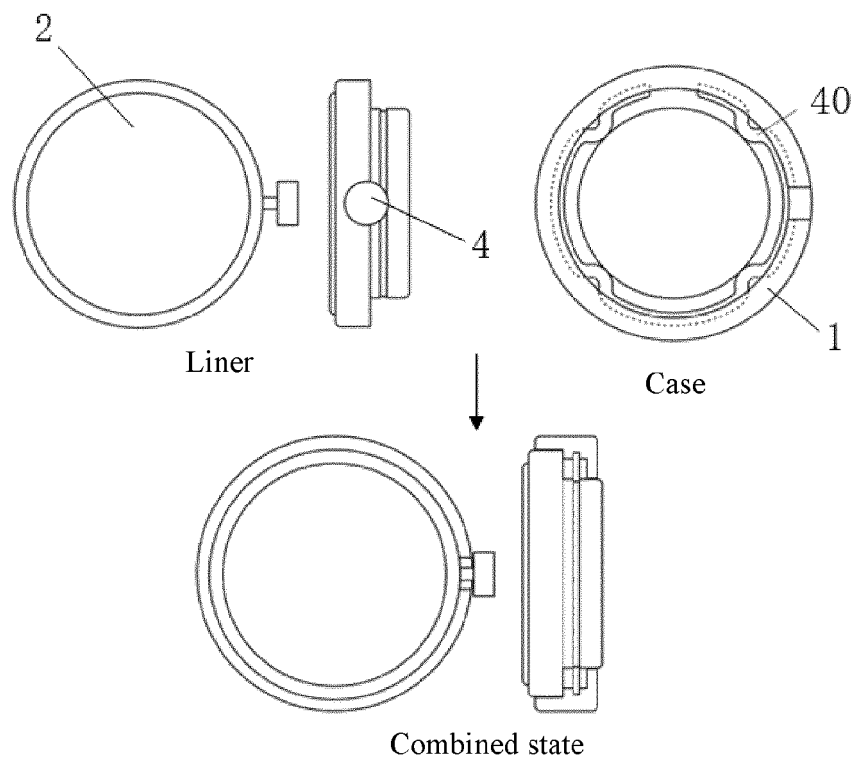


FIG. 26

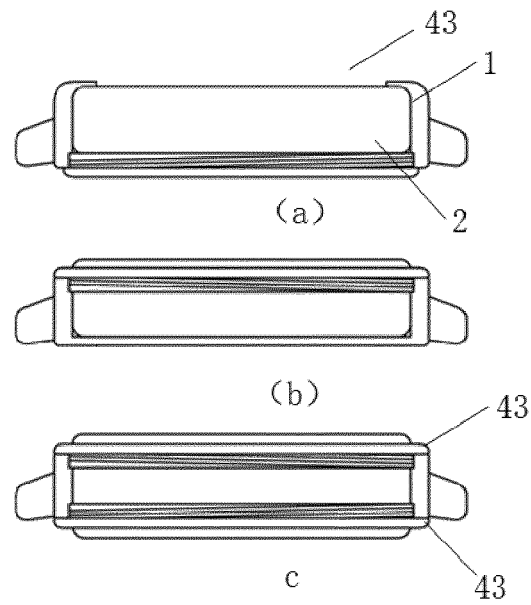


FIG. 27

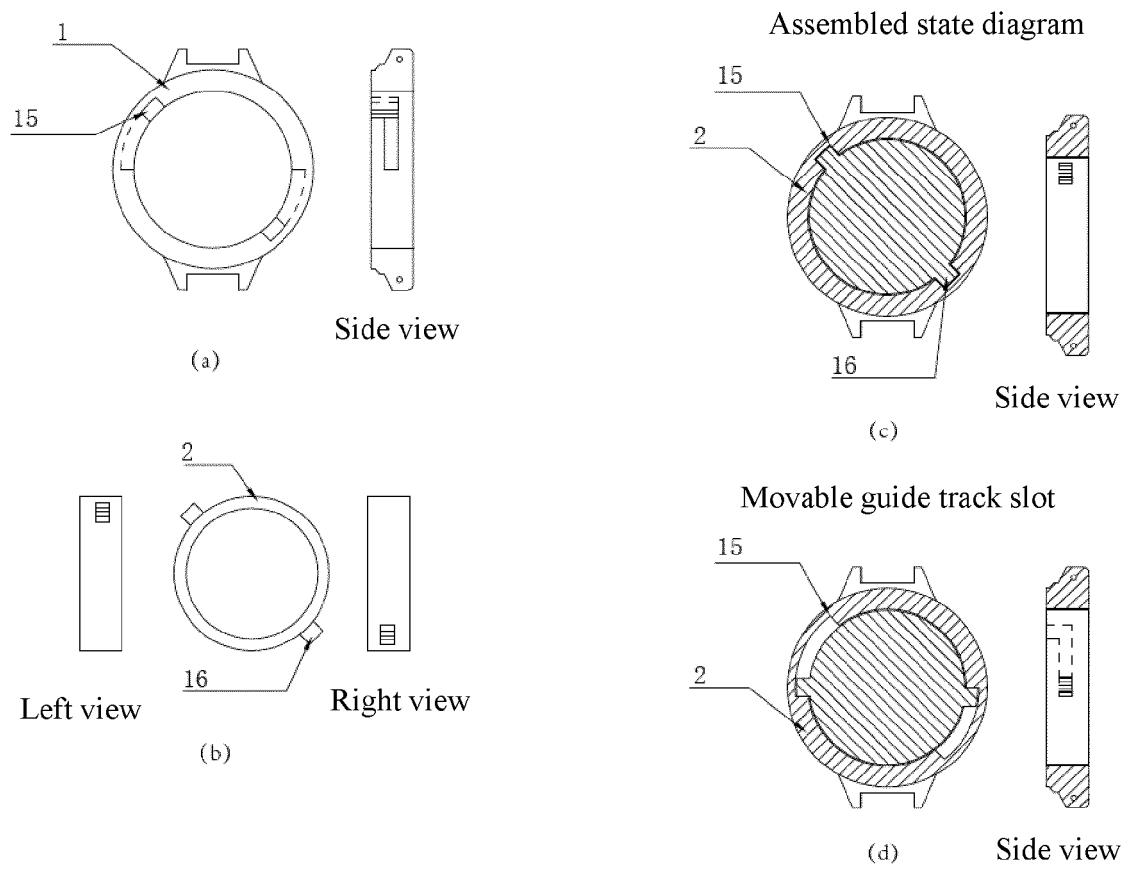


FIG. 28



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Application Number

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A	* figure 1 *	4, 5, 7-12, 14	G04B37/04 G04B47/04

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A	* figure 4 *	4-10, 13, 14	

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A	* figure 1 *	3, 5-7, 9-15	

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A	* paragraphs [0042], [0043]; figure 1A *	2-4, 6-12, 14, 15	

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A	* page 1, column 2, paragraph 2; figures 1, 2 *	2-5, 8, 13, 15	G04B

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A	* page 2, column 1, paragraph 3; figure 3 *	2-8, 11-15	

The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16 August 2023	Examiner Scordel, Maxime
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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ON EUROPEAN PATENT APPLICATION NO.**

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