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(54) **Watch with interchangeable member**

(57) A watch having a removable member configured to provide a readily interchange of aesthetic appearance thereof according to the wish of the wearer is disclosed herein. Said removable member and the straps of the watch can be detached and attached readily independent of components of the watch.

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Description

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FIELD OF THE INVENTION

[0002] The present invention is in the field of watches. More specifically, the present invention relates to watches with removable and interchangeable member.

BACKGROUND

[0003] In this day and age, watches are considered as not only a practical device for telling the time but also as a piece of jewelry or even a fashion statement. Very often, an ordinary person would possess a number of different watches for dress coordination. Appearance of the watch face often has the most immediate visual impact for a watch. Therefore, a watch having a readily interchangeable appearance is highly desirable to satisfy the need of matching different outfits or dress occasions.

[0004] Watches of changeable appearance by having removable parts, namely U.S. Patent 4,660,992, U.S. Patent 4,796,240, U.S. Patent 5,793,710 and U.S. 7,177,234 have been disclosed. However, many of these existing changeable watch faces require complicated configurations for removal and attachment thereof, which add to the cost and labor to manufacture, as well as difficulties for an ordinary watch wearer to change the watch face conveniently. Therefore, an alternative solution to establish different appearance for a single watch is favorable.

[0005] The present invention provides watches with removable member for easy interchange of watch appearance such that the same watch can be worn in multiple dress co-ordinations and occasions. The novel and simple, nevertheless secure, construction of the present invention is low in manufacturing cost and makes interchange of watch face practicable for watch wearers that have no mechanical manual skills. More specifically, the removal and attachment of the removable member of the present invention are independent of other components of a watch; hence disassembly of other components of a watch, namely wristband or watch cover, is unnecessary.

SUMMARY OF THE INVENTION

[0006] It is the object of the present invention to provide a watch having a removable member configured in such a way that aesthetic appearance of the watch can be changed according to the wish of the wearer, wherein other components of the watch need not be disassembled during the removal or attachment of the removable member. The removal and attachment of the removable member can also be performed by anyone, such as the wearer, without any watch manual skills.

[0007] In one aspect, the present invention is a watch comprising a watch case, a crystal attached to an upper body of said case from which the watch is viewed and distal to the wearer when being worn; a case back attached to a lower body of said case that is proximal to the wearer and a removable member which is readily exchangeable for aesthetic purposes. Said case, crystal and case back integrate together forming a compartment for encasement of mechanical constituents, namely movement, rotor and needles needed for proper functioning of a watch. Said removable member includes an exterior side wall and an interior side wall. The interior side wall is further defined by top and bottom edges with respect to the direction from which the watch is read. The top and bottom edges are elevated at about a right angle to the plane of internal side wall, which functions as a coupling means to securely engaging the removable member onto the case, while allowing the removable member to be freely releasable from the case. Since the removable member can be easily separated from the case, the removable member is used as a vehicle for interchange of aesthetic appearance of a watch.

[0008] In another aspect, the watch of the present invention further includes straps or any conventional horological holding mechanisms for anchoring the watch head onto a wearer. The watch case includes typical shelf-like projections on opposite ends thereof, or called lugs, connectible to opposite ends of the strap via a detachable means without screw threads, such that straps can readily be replaced without special mechanical skills or tools. In this aspect, the removable member may extend to the lugs and provides additional shielding to the connection between the watch case and strap. The apparent advantage of the aforementioned coupling and detachable means of the present invention is that they do not require any threads, screws, pin or the like or disassembly of other components of a watch. The present invention offers an alternative way to interchange different aesthetic appearances for the same watch in a simple, safe and convenient manner by providing an aesthetic removable member and detachable watch bands, where attachment and removal thereof avoid the disassembly of other components of a watch and the use of tools.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] **FIG. 1** is a schematic drawing of an angular view of a watch head **100** according to one embodiment of the present invention;

[0010] **FIG. 2** is a schematic drawing of a top plan view

of a watch head **100** according to one embodiment of the present invention;

[0011] **FIG. 3** is a schematic drawing of a bottom plan view of a watch head **100** according to one embodiment of the present invention;

[0012] **FIG. 4A and 4B** are side views along line y-y of a watch head **100** according to one embodiment of the present invention shown schematically, **FIG 4C** is side view along line x-x of a watch head according to one embodiment of the present invention;

[0013] **FIG. 5** schematic drawings of an exploded perspective view of a watch head **100** according to one embodiment of the present invention;

[0014] **FIG. 6** is a schematic drawing of one embodiment of the present invention, where the removable member is detached from the watch head **100;**

[0015] **FIG. 7** are schematic drawings showing cross section of one embodiment of the present invention taken along line x-x in **FIG. 1, FIG. 7A** illustrates the removable member **120** engages with watch case **130, FIG. 7B** illustrates the removable member **120** and **FIG. 7C** illustrates the watch head without removable member **120;**

[0016] **FIG. 8** is a schematic drawing of an exploded perspective view of a watch according to one embodiment of the present invention, illustrating the coupling means between the removable member **120** and watch case **130** and, the detachment means between the watch case **130** and wristbands **150a, 150b;**

[0017] **FIG. 9** are schematic drawings showing cross section of a watch head **100** according to one embodiment of the present invention taken along line y-y in **FIG. 1, FIG. 9A** illustrates the removable member **120** engages with watch case **130** and the lugs **131a, 131b, FIG. 9B** illustrates the removable member **120** and **FIG. 9C** illustrates the watch head without removable member **120;**

[0018] **FIG. 10** is a schematic drawing of cross section of one embodiment of the present invention taken along line y-y in **FIG.1,** where the spatial relationship between the watch case **130,** removable member **120** and wristband **150** is shown.

[0019] **FIG. 11** are schematic drawings illustrates interlocking the removable member onto watch case.

[0020] **FIG. 12** are schematic drawings illustrates releasing the removable member from watch case.

DETAILED DESCRIPTION OF THE INVENTION

[0021] Reference is made in detail to the presently preferred embodiment of the present invention, which serve to explain the principles of the invention. The embodiments or examples disclosed herein are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized, and that changes may be made without departing from the spirit of the present invention. Non-limiting embodiments of the present invention will be exemplarily described below with reference to the accompanying drawings.

[0022] The first objective of the present invention is to provide a timepiece where the aesthetic appearance thereof can be interchanged readily for different dress co-ordinations and occasions. The terms "watch" and "timepiece" herein are used interchangeably and refer to any type of analog, digital, mechanical or quartz watches that may be worn by an ordinary person as an accessory in a variety ways, such as on wrists or neck. **FIG. 1-4** depicts the top, bottom and side views of the watch head according to an exemplary embodiment of the present invention, illustrating the spatial orientations of the four fundamental components of the present invention. **FIG. 5** is an exploded view of the four fundamental components of the present invention. **FIG. 6** illustrates case, crystal and case back integrated together to form the watch head and removable member separated from the watch head. The watch head **100** is a watch without any holding mechanism. The four fundamental components of the present watch are watch case **130,** crystal **110,** case back **140** and aesthetic removable member **120.** As seen in **FIG. 1-4,** the removable member **120** and case **130** are configured such that the removable member coincides with the periphery of the watch case.

[0023] The case is defined by an upper body and a lower body. The upper and lower bodies of the watch case pertain to direction from which the watch is viewed, wherein upper body is distal to the wearer and lower body is proximal to the wearer when the watch is, for instance, worn on a wrist. Crystal **110** is a transparent cover that attaches to the upper body of case **130.** Case back **140** is positioned at the lower body of case **130.** Watch case **130** together with crystal **110** and case back **140** form the watch head to protect and house mechanical components for functioning of a watch. It is appreciated that watch case, crystal and case back may be made from a variety of materials and, in different forms and shapes according to the aesthetic design of a watch. It is understood that periphery of the watch case denotes the overall shape of the watch head and the present watch is functional and can be worn without the aesthetic removable member if such is desired by the wearer. The case may take a variety of other shapes, which are not necessarily round as shown in the figures herein. For example, watch case may be, but is not limited to, rectangular, square, oval, carre, carage, tonneau or asymmetrical.

[0024] The removable member **120** which comes in a variety of shapes and designs contributes to the aesthetic appearance of the present watch. The removable member comprises exterior side wall and interior side wall, wherein the exterior side wall may be of a variety of shapes forming the periphery of the removable member and determining the aesthetic design of the watch. If desired, additional decorations may be added onto exterior side wall for creating different aesthetic designs of the watch. The interior side wall is configured to coincide with periphery of the watch case for attachment thereto. In one embodiment, the interior side wall is further defined

by top and bottom edges **121, 122 (FIG. 6),** wherein the top edge **121** outlines an opening align with crystal **110** and the bottom edge **122** has two openings at the two opposite ends proximal to the connection between the watch case **130** and watch band (not shown in **FIG. 6)** or other holding mechanism. The bottom edge **122** may further include a third opening adapted to the crown **160** of a watch as illustrated in **FIG. 6.** In one embodiment, when the present invention is a pocket watch, openings at the bottom edge may not be necessary. In another embodiment, the interior side wall does not include a top edge. In this embodiment, the removable member further serves as protective cover for crystal which is readily subject to scratches and damages while cannot be interchanged.

[0025] **FIG. 7A** illustrates that removable member **120** is coupled to case **130. FIG. 7B** and **7C** show removable member **120** is separated from case **130.** Removable member **120** comprises elevations **123, 124** along top and bottom edges of the interior side wall thereof **121** and **122,** respectively. In one embodiment, the elevations are raised at about right angle to the plane of the interior side wall. In another embodiment, the two elevations are equal in size. Preferably, the bottom elevation **124** is higher than the top elevation **123.** The elevations are better observed in **FIG. 8.** The case **130** includes a projection **132** along the periphery thereof creating two top and bottom indented edges **133, 134 (FIG. 7).** To attach the removable member **120** onto the watch head, the two elevations **123, 124** of the removable member **120** are snapped into the two indented edges **133, 134.** The longer bottom elevation **124** acts as a grip to secure the removable member onto the case. As seen in **FIG. 7A,** removable member **120's** interior side wall is complementary to the periphery of the watch case. Elevations **123** and **124** complement to indented edges **133** and **134** (dotted arrow in **FIG. 5** and **FIG. 7).** It would be readily appreciated that the width and length of the two elevations and the indented edges may vary, so long as the overall dimensions thereof are complementary to one another. Such complementary arrangement enables the removable member to securely interlock with the watch case, and to detach therefrom by asserting simple vertical movement from the bottom edge of the removable member. **FIG. 11** and **FIG. 12** illustrate attachment and removal of the removable member from the watch case avoid disassembly of other components of the watch. The removable member interlocks the case by aligning the removable member atop the case **(FIG. 11A)** and compressing the removable member into and against the watch case **(FIG. 11B).** The removable member can be released from the watch case **(FIG. 12B)** by pressing downwards at one side of its bottom edge using two finger-tips **(FIG. 12A).** Accordingly, the removable member is an useful vehicle for interchange of different aesthetic appearance for the same watch. It is readily understood that the figures of the present invention are for mere illustration of exemplary embodiments of the present invention and do not serve to limit other shapes and appearance thereof.

[0026] Following materials are non-limiting examples that are suitable for the watch case and the removable member of the present invention: acrylonitrile butadiene styrene, acetal, acetate, acrylic, epoxy, ethylene copolymer (EEA, EVA), fluoropolymer (PTFE, PVDF), ionomer, nylon, PEEK, polyimide, polyamide-imide, polybutadiene, polycarbonate, polyethylene, polyester (PET, PBT), vinyl ester, polyetherimide, polyphenylene oxide, polypropylene, polysulphide, polysulphone, aramid, polyurethane, silicone, polystyrene, PVC, rubber, resin, polymer, ceramic, wood, stone, crystal, sapphire, glass, metal, carbon fiber, glass fiber and brass.

[0027] The second object of the present invention relates to a watch where the connection between the watch head and strap can be readily released manually by wearer's hands without any tools. This means that substitution of different kinds of strap or holding mechanism for different dress occasion can also be achieved. For example, holding mechanism for anchoring a timepiece of the present invention may be in a form of, but is not limited to, straps, bands, chain or bracelets. The watch case includes two typical shelf-like projections on opposite ends thereof, or called lugs **131a, 131b,** connectible to opposite ends of watch bands **150a, 150b** or any conventional horological holding mechanism **(FIG.8).** Each of the lugs provides an opening in the form of a slit **135. FIG. 9A** illustrates a cross section of an exemplary slit includes, but is not limited to, a key hole **136.** For example, the circular part as shown in the cross section may be substituted by a different shape, such as a triangle or a square. The opposite end of a pair of watch bands **150a, 150b** comprises an appendage **151a, 151b** in a shape corresponding to the slit **135,** such that each of the watch bands can readily be interchanged by sliding in and out of the lug. Again, screw threads, pin or the like are not employed in the connection between the watch case and band; replacement can be done by the wearer conveniently without any tools. In one embodiment, the removable member **125** can extends to further cover the lugs **(FIG. 9A).** In this embodiment, the aesthetic removable member additionally serves as a supplementary means to secure the attachment between the watch head and strap **(FIG. 10).** In another embodiment, the removable member does not cover lug portion of the watch case.

[0028] In yet another embodiment of the present invention, the present watch further includes a bezel which is either snapped or screwed into the upper part of the watch case. The bezels can be functional for diving and timing or purely for aesthetic purpose. The removable member may or may not cover the bezel depending on the desired aesthetic appearance of the watch.

[0029] Without further elaboration, it is believed that one skilled in the art can, based on the descriptions herein, modify the present invention without departing the spirit of the present invention and utilize the present in-

vention to its fullest extend. All publication recited herein are hereby incorporated by reference in their entirety.

Claims

1. A timepiece comprising
a case defined by an upper body and a lower body, said case comprises a projection along the periphery thereof generating first and second indented edges;
a crystal attached to the upper body of said case;
a case back positioned at the lower body of said case, wherein said case, crystal and case back form an integral unit for protecting and housing mechanical components required for functioning of the timepiece; and
a removable member comprises an exterior side wall and an interior side wall, wherein the exterior side wall forms a periphery of the removable member and the interior side wall configured to coincide with the periphery of said case, said interior side wall comprises a first elevation along the top edge and a second elevation along the bottom edge thereof, wherein the first and second elevations of the interior side wall, and the first and second indented edges of the case are complementary such that the removable member securely interlocks with the case and wherein the removable member can be separated from the case manually without any tools independent of other components of the timepiece.

2. The timepiece of claim 1, wherein said first and second elevations are about right angle to the plane of the interior side wall.

3. The timepiece of claim 1 or 2, wherein the second elevation is higher than the first elevation.

4. The timepiece of claim 1 or 2, wherein the first and second elevations are equal in size.

5. The timepiece of claims 1-4, wherein the top edge of the interior side wall outlines an opening align with periphery of the crystal.

6. The timepiece of claims 1-4, wherein the top edge of the interior side wall outlines an opening align with periphery of the crystal and the bottom edge has at least one opening.

7. The timepiece of claims 1-6, wherein the watch case and the removable member are made from acrylonitrile butadiene styrene, acetal, acetate, acrylic, epoxy, ethylene copolymer, fluoropolymer, ionomer, nylon, PEEK, polyimide, polyamide-imide, polybutadiene, polycarbonate, polyethylene, polyester, vinyl ester, polyetherimide, polyphenylene oxide, polypropylene, polysulphide, polysulphone, aramid, polyurethane, silicone, polystyrene, PVC, rubber, resin, polymer, ceramic, wood, stone, crystal, sapphire, glass, metal, carbon fiber, glass fiber or brass.

8. The timepiece of claims 1-7, wherein the case further comprises two shelf-like projections on opposite ends thereof configured to connect to a holding means for anchoring said timepiece onto a user.

9. A timepiece comprises
a case defined by upper and lower body, said case comprises a projection along periphery thereof generating first and second indented edges, and two shelf-like projections on opposite ends thereof;
a crystal attached to the upper body of said case;
a case back positioned at the lower body of said case, wherein said case, crystal and case back form an integral unit for protecting and housing mechanical components required for functioning of the timepiece;
a removable member comprises exterior side wall and interior side wall, wherein the exterior side wall forms periphery of the removable member and the interior side wall configured to coincide with the periphery of said case, said interior side wall comprises a first elevation along the top edge and a second elevation along the bottom edge thereof, wherein the first and second elevations of the interior side wall, and the first and second indented edges of the case are complementary such that the removable member securely interlocks with the case and wherein the removable member can be separated from the case manually without any tools independent of other components of the timepeice; and
a detachable holding mechanism connectible to the two shelf-like projections of the case for anchoring the timepiece onto an user, wherein replacement of said detachable holding mechanism is done manually without any tools.

10. The timepiece of claim 9, wherein the shelf-like projections each comprise an opening in a form of a slit and the holding mechanism comprises an appendage in a shape corresponding to the slit such that the appendage is sandwiched between said slit when connected to the case and can be replaced by sliding in and out of the slit.

11. The timepiece of claim 9 or 10, wherein the removable member covers the shelf-like projections of the case serving as a securing means for connection between the case and holding mechanism

12. The timepiece of claim 9- 11, wherein the holding mechanism comprises bracelet, bands, straps or chain.

13. The timepiece of claim 9-12, wherein the slit has a

cross section area of a key hole.

14. The timepiece of any preceding claims further comprises a bezel positioned in the upper body of the case.

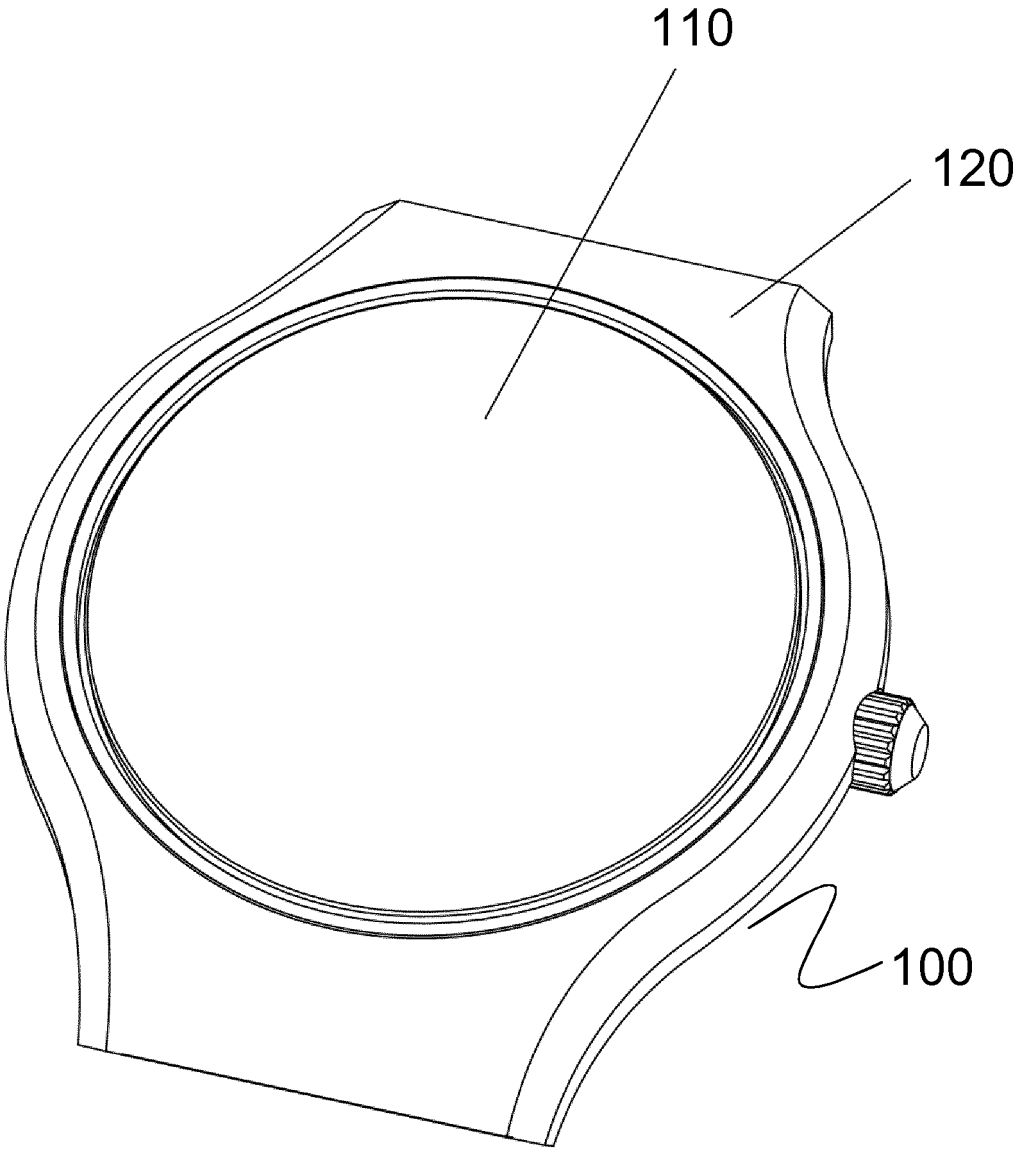


FIG.1

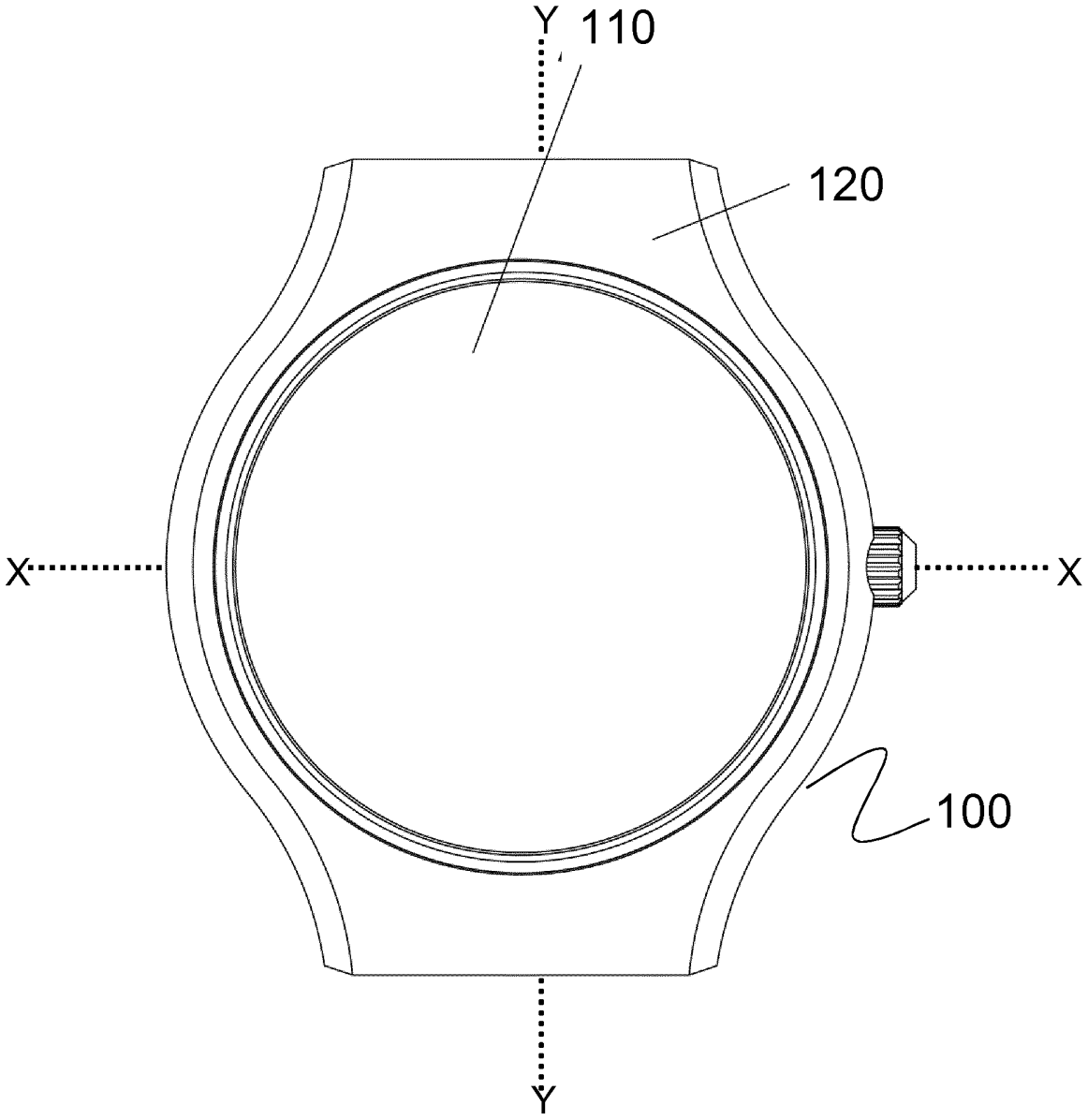


FIG. 2

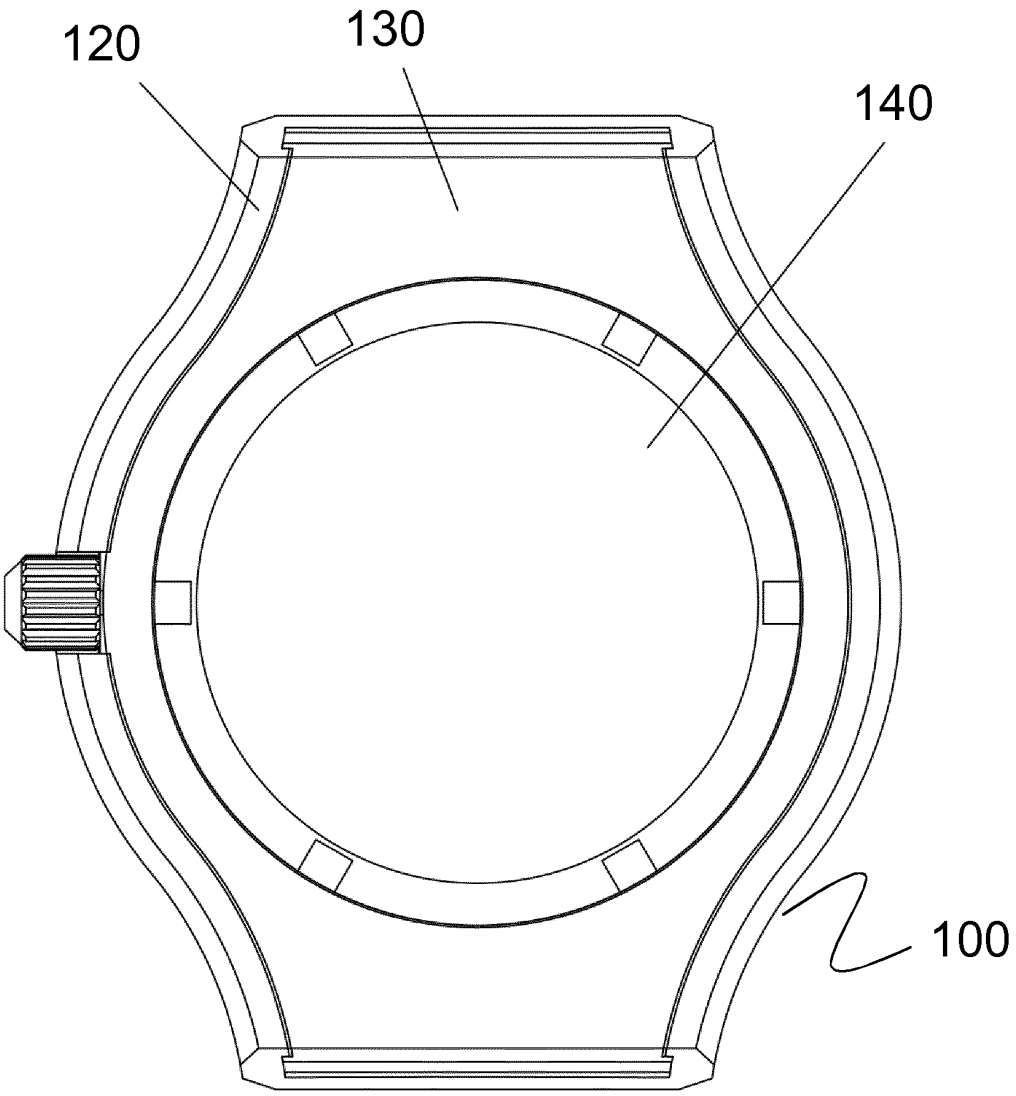


FIG. 3

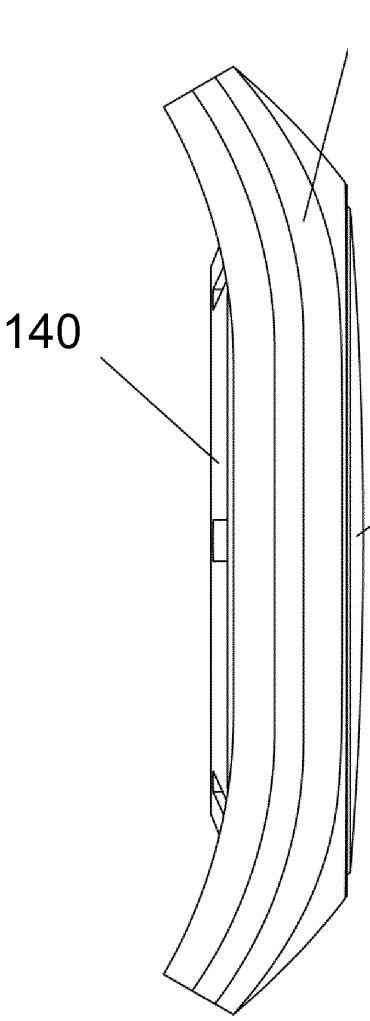


FIG. 4A

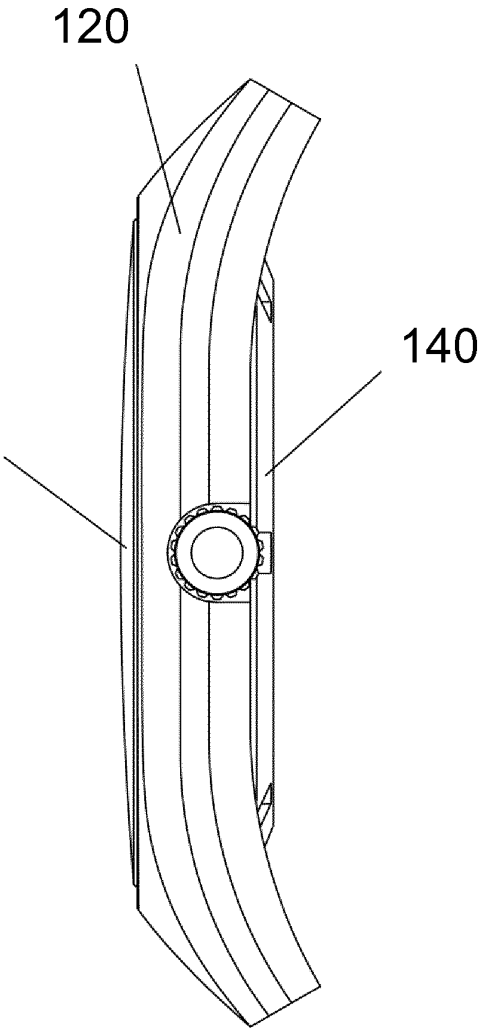


FIG. 4B

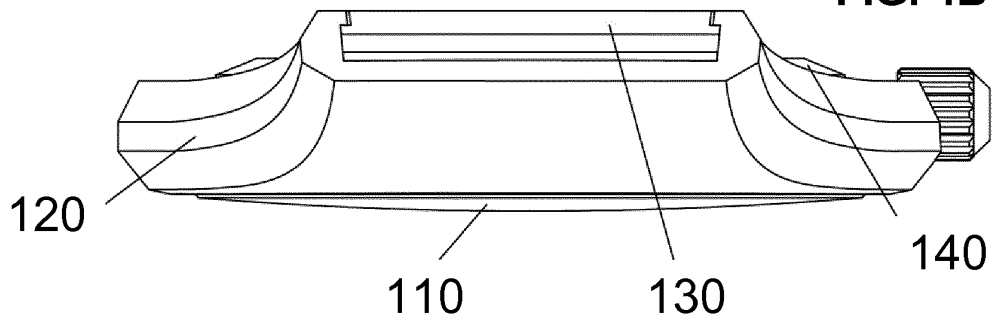


FIG. 4C

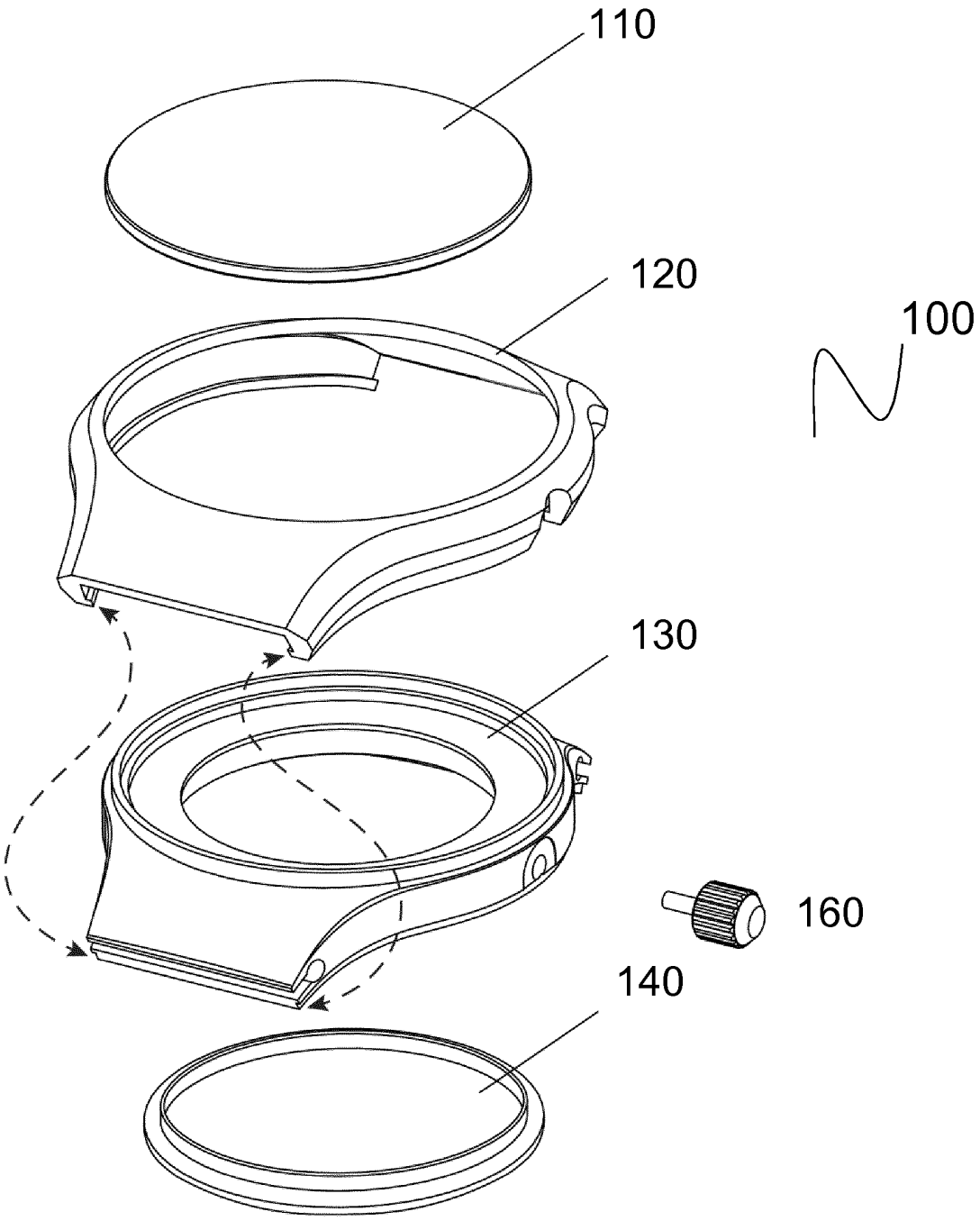


FIG. 5

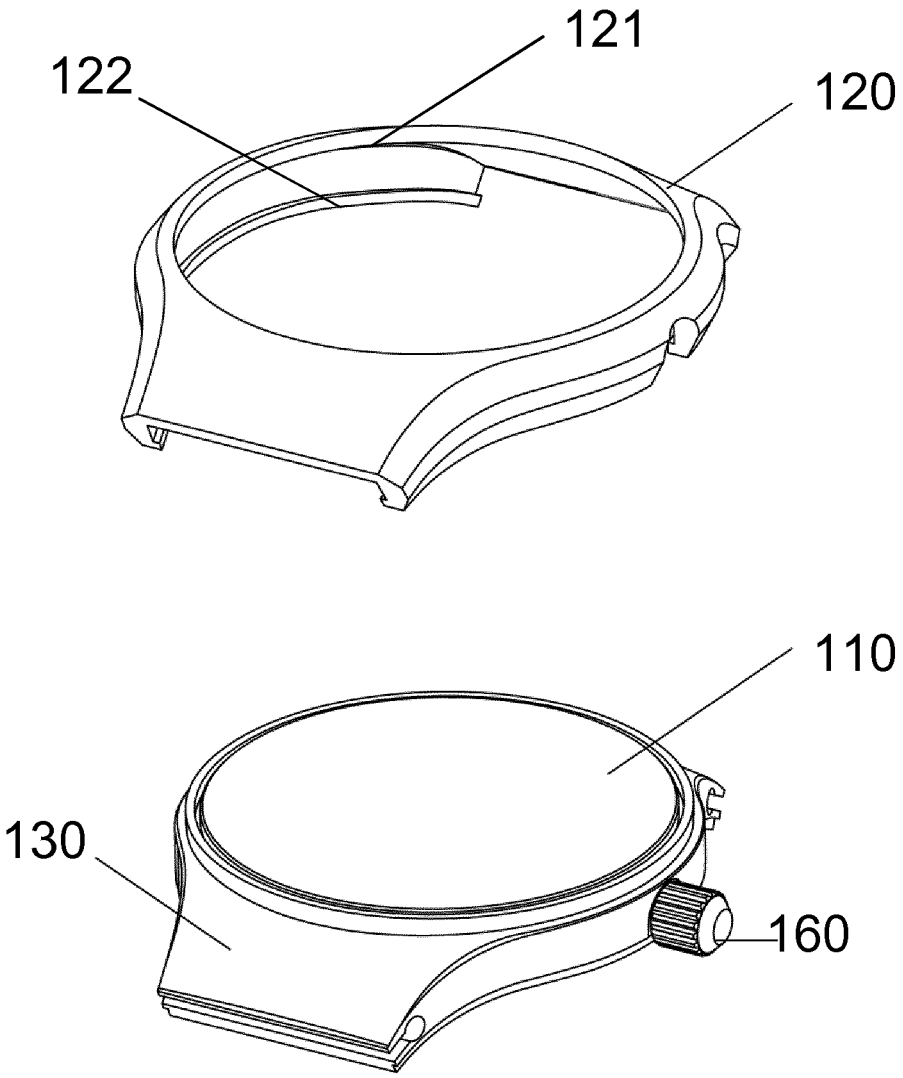


FIG. 6

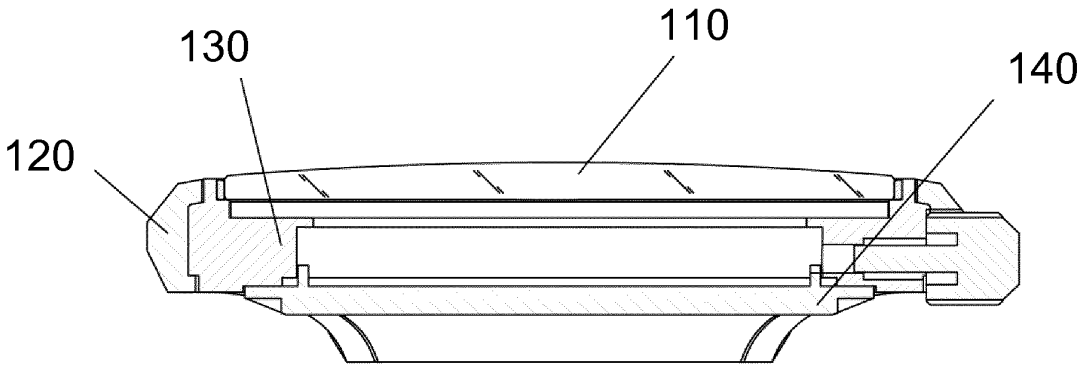


FIG. 7A

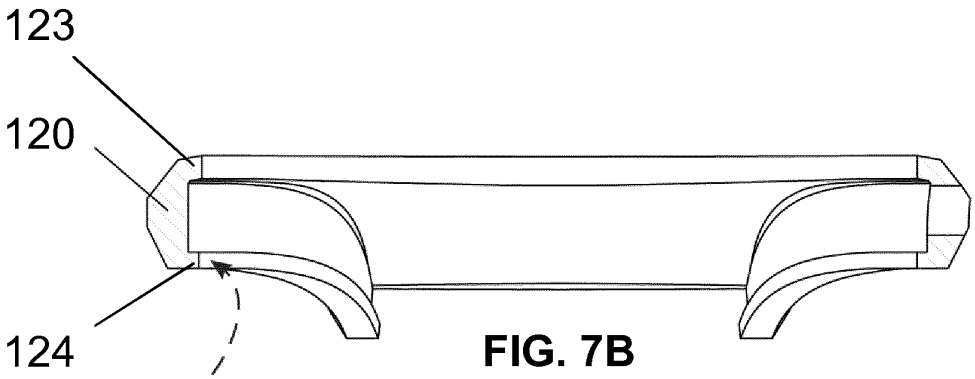


FIG. 7B

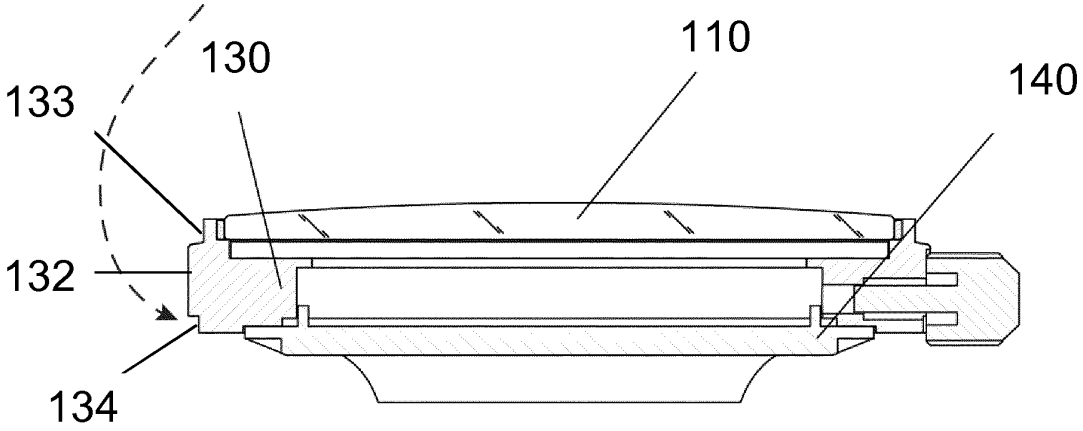


FIG. 7C

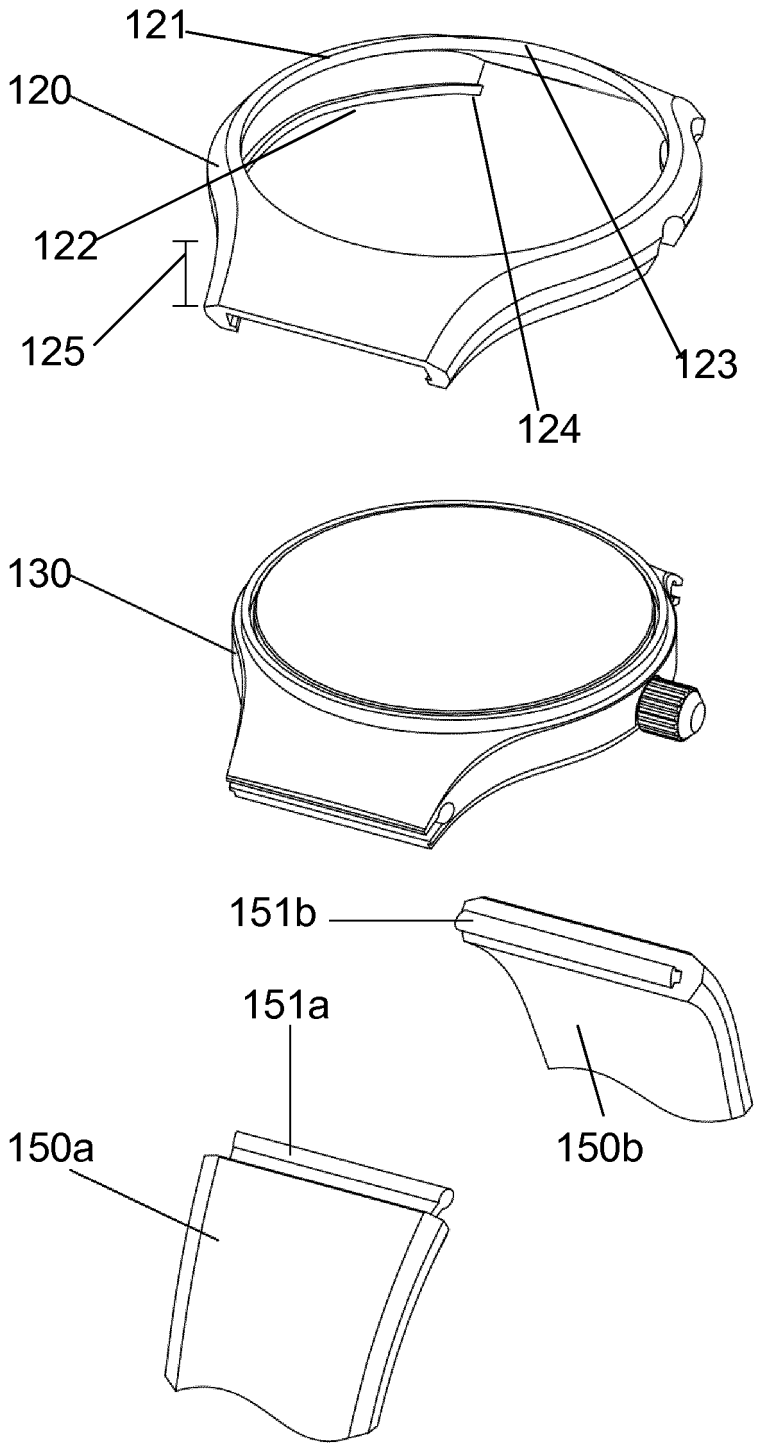


FIG. 8

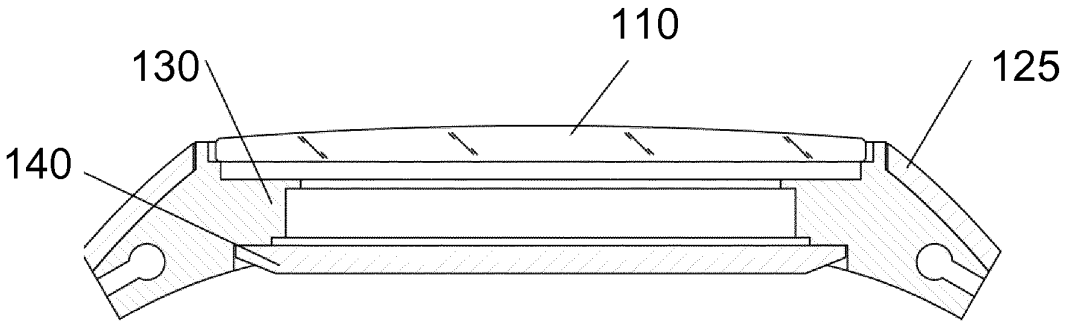


FIG. 9A

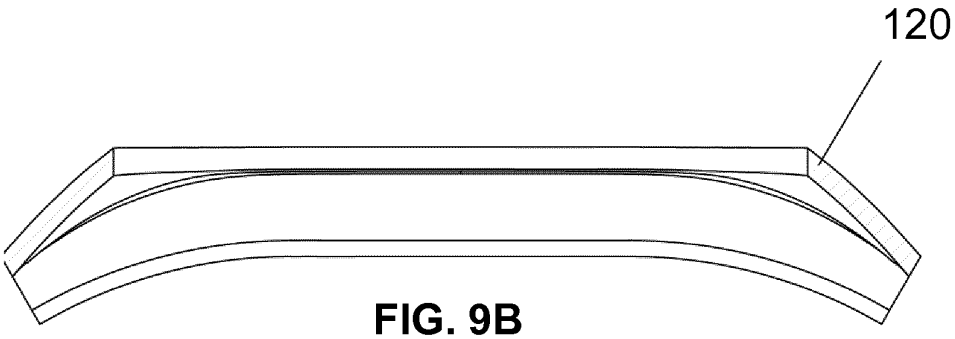


FIG. 9B

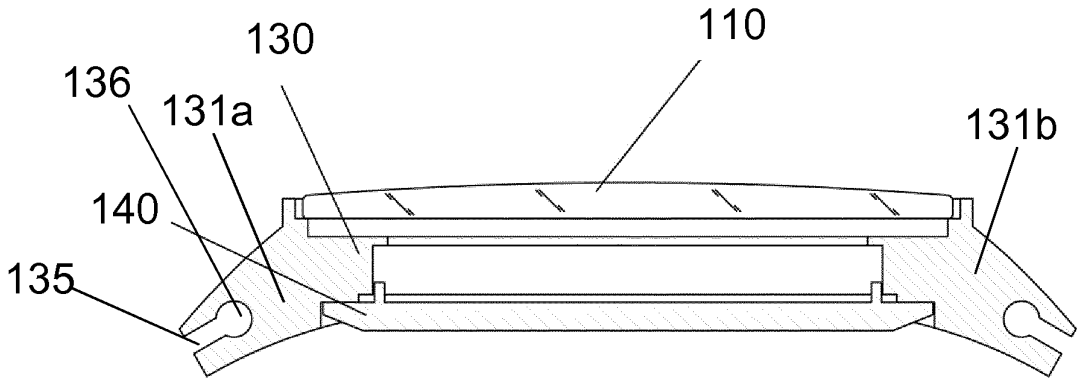


FIG. 9C

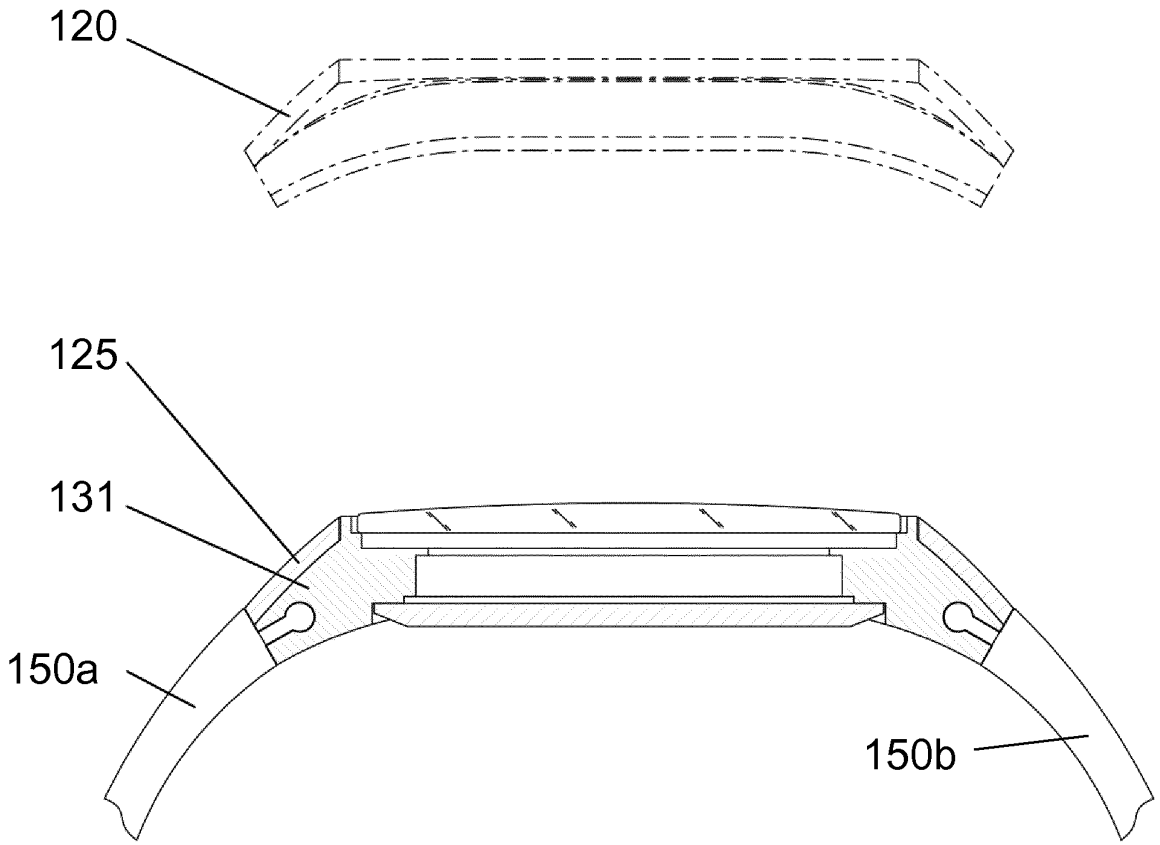


FIG. 10

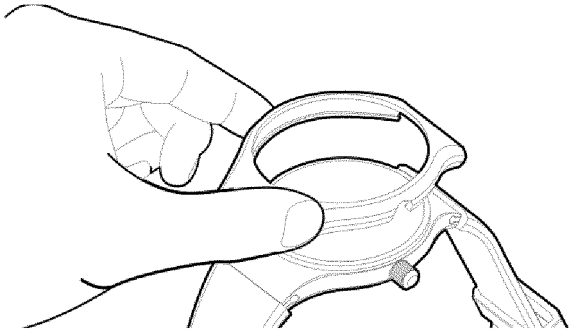


FIG. 11A

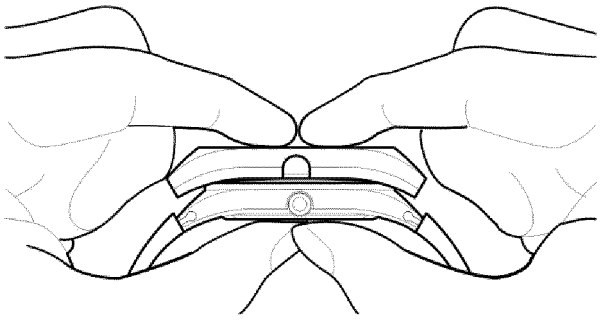


FIG. 11B

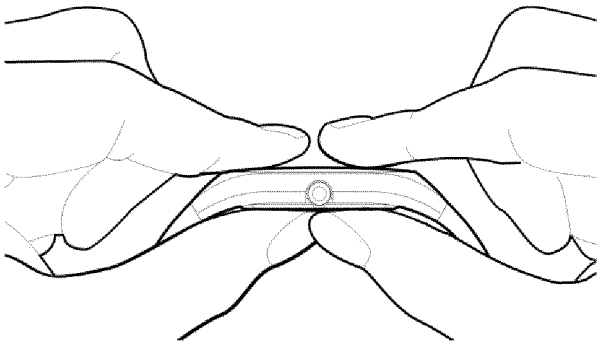


FIG. 11C

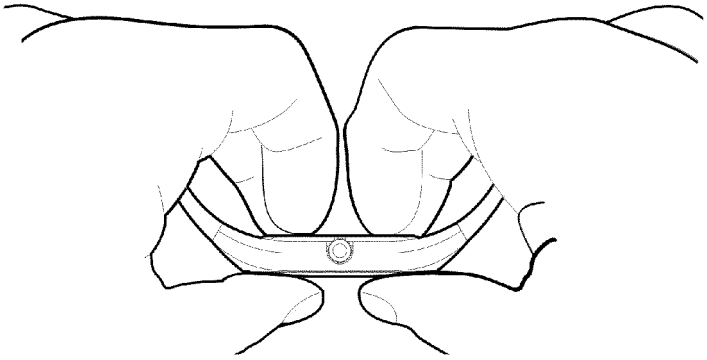


FIG. 12A

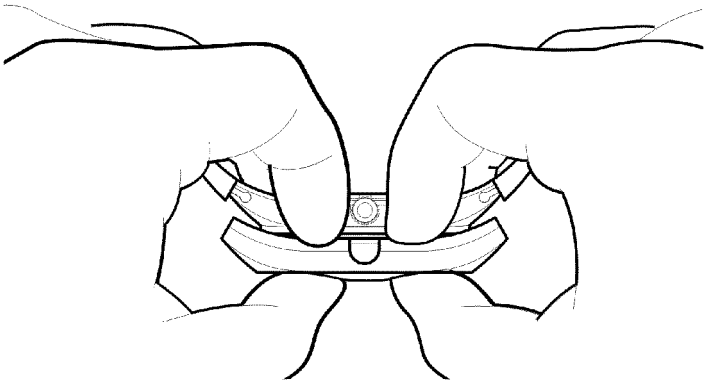


FIG. 12B

Europäisches Patentamt
European Patent Office
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EUROPEAN SEARCH REPORT

Application Number
EP 12 19 9419

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	WO 2004/081677 A2 (VOLTIGE S A [CH]; RUCHONNET JEAN-FRANCOIS [CH]) 23 September 2004 (2004-09-23) * page 4; figures 1-4 *	1-7 8-14	INV. G04B37/00 G04B47/04 A44C5/00 G04B37/14
A	DE 90 15 324 U1 (SCHEIDT, WALTER) 14 March 1991 (1991-03-14) * page 4; figures 1-5 *	1-7	
A	FR 2 199 598 A1 (LERY BOUVIER SA [FR]) 12 April 1974 (1974-04-12) * page 2 - page 3; figures 1-2 *	1-7	
Y	US 6 168 055 B1 (GRADOS CHRISTIAN [FR]) 2 January 2001 (2001-01-02) * columns 2-4; figures 1-4 *	8-14	
Y	FR 2 661 662 A1 (ELECTROLUX SA [FR]) 8 November 1991 (1991-11-08) * abstract; figures 1-4 *	8-14	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	8 January 2014	Mérimèche, Habib

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

EPO FORM 1503 03.82 (P04C01)

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Application Number
EP 12 19 9419

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 12 19 9419

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7

   Invention 1

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2. claims: 8-14

   Invention 2

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 12 19 9419

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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08-01-2014

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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