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(54) CASE FOR WRISTWATCH

GEHÄUSE FÜR EINE ARMBANDUHR

BOITIER POUR MONTRE-BRACELET

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Description

[0001] The invention relates to a construction of a case for a wristwatch of a skeleton type through which a part of a mechanical device such as a movement or a whole internal mechanism can be seen. In particular, the invention relates to case for a wristwatch, wherein a timepiece case body made of a hard transparent material having mirror-polished inner and outer peripheral surfaces formed in a hollow, almost cylindrical shape or a hollow polygonal and almost cylindrical shape is arranged to accommodate a timepiece movement and accommodates an inner frame connecting member for fixedly holding said timepiece movement in an axial direction of said cylinder, a cover body provided with a connecting portion with an inner frame connection member is arranged at both end-opening portions of said timepiece case body, both end-opening portions are covered by said cover bodies, and both cover bodies are integrally and fixedly connected to each end portion of said inner frame connecting member, wherein said transparent hard material is an ornamental material for a watch such as single crystal sapphire, jewel material, translucent ceramics, inorganic glass and rigid plastics, said cover bodies to be combined are made of an ornamental material for a watch such as noble metal, metallic or cemented carbide, single crystal sapphire, jewel material, translucent ceramics, inorganic glass, and rigid plastics, wherein a part of said cover body is constructed so as to serve also as a portion for attaching a wristwatch band.

BACKGROUND OF THE INVENTION

[0002] Conventionally, many cases for a wristwatch of a skeleton type, wherein a mechanical movement for a wristwatch is protected by two windshields made of transparent hard material, such as inorganic cover glass (hereafter referred to as inorganic glass), sapphire cover glass (hereafter referred to as sapphire), etc., and the aforementioned movement is arranged and fixedly held in a space inside the watch case so that the movement can be seen through upper and a lower windows located in a direction of thickness at a middle position of the case, have been proposed.

[0003] However, since this type of watch is designed simply by making two planes of a timepiece case body facing in a direction of thickness transparent (skeletonizing), its external shape seems to be the same as general normal models from the viewpoint of appearance. Such a structural restriction has caused a problem in the past that it is difficult to design a fashionable, innovative, and unique wristwatch of a skeleton type.

[0004] In addition, high integration of electronic circuits and use of a very small quartz resonator has enabled size reductions, weight reductions, and simplification of the recent quartz watch movement. However, design inconvenience due to excessive simplification such that mechanical and precise motion inherent in the mechanical movement and fashionableness as a personal ornament having marked individualities are insufficient has been revealed.

[0005] The purpose of this invention considering these circumstances is to provide a case for a wristwatch of a new skeleton type having a unique construction associated with fashionable and innovative design inherent in a wristwatch as a personal ornament with excellent waterproof performance as well as transparent and three-dimensional styling and having a simple movement supporting construction.

[0006] A wristwatch of the type mentioned above is known from FR-A-2 580 832.

SUMMARY OF THE INVENTION

[0007] In order to solve the abovementioned problems, in a case for a wristwatch relating to this invention and having the features identified above, it is provided that the cover body is arranged in such a way that a band can be attached to said cover body in a direction perpendicular to the said axial direction of said hollow, almost cylindrical shape or hollow polygonal and almost cylindrical shape comprising a timepiece case body.

[0008] Thus, it is possible to use a hollow cylindrical transparent hard timepiece case body in a basic outer enclosing portion and to use a support mechanism for suspending the timepiece movement inside the case. In this way, a unique wristwatch construction of a skeleton type having transparent and three-dimensional style can be realized, and a wristwatch case of new and innovative design can be provided. Further, a case for a wristwatch in which one type of transparent hard material selected from the above options and one or more types of materials for the aforementioned cover bodies can be combined is provided. Thus, it is possible to provide a variety of cases for a wristwatch ranging from lightweight and inexpensive specifications to gorgeous-looking ornamental specifications depending on an application by selecting and combining these materials. It is a matter of course that an ornamental part for a watch made of a generally worked metallic material of which surface is subjected to ornamental treatment can be used for the aforementioned cover body. By having a part of the cover body serve as a portion for attaching a wristwatch band, it is possible to reduce the time for manufacturing parts and the number of parts, to facilitate attachment of a band etc., and to provide a case for a wristwatch having a sense of unity. By attaching the band in a direction perpendicular to an axial direction of the cylinder comprising the timepiece case body, a case for a wristwatch having a total wristwatch image of a horizontally long design is completed.

[0009] In addition, in a case for a wristwatch relating to this invention, ring-shaped elastic gaskets are inserted between the aforementioned cover bodies and the edges of both end-opening portions of the aforementioned case body for a wristwatch and are covered by the cover bod-

ies to provide a case for a wristwatch where both cover bodies are integrally and fixedly held in each end portion of the aforementioned inner frame connecting member.

[0010] Thus, a case for a wristwatch having a simple construction and excellent waterproof performance can be provided.

[0011] In a case for a wristwatch relating to this invention, the aforementioned transparent hard material made of sapphire single crystal lifting material in a modified tube shape such as an almost hollow cylindrical shape and a hollow polygonal and almost cylindrical shape grown by the EFG method is used.

[0012] Thus, it is possible to make an outer enclosing body of a case for a wristwatch of a wide variety of designs from a lifting material in a tube-like almost polygonal shape or a modified shape, which is one of the characteristics of the EFG method, enabling an innovative design.

[0013] In a case for a wristwatch relating to this invention, at least one of the aforementioned cover bodies is provided with a winding crown portion for operating a setting stem of the aforementioned timepiece movement.

[0014] Thus, it is possible to perform operation of a movement such as synchronization as basic operation of a watch from the outside of a timepiece case body.

[0015] In a case for a wristwatch relating to this invention, the aforementioned timepiece movement is a mechanical movement of a skeleton specification.

[0016] Thus, it is possible to see an entire mechanism inside a timepiece case body through a case to provide a function of demonstrating mechanical and precise motion inherent in a wristwatch of a mechanical movement type and fashionableness as a personal ornament.

[0017] In a case for a wristwatch relating to this invention, ornamental jewels are enchased in one or both of two spaces at the dial side and back side between the aforementioned inner frame connecting member and the timepiece case body.

[0018] Thus, it is possible to provide a wristwatch having functions as an ornamental and jewelry watch and gorgeous styling in addition to fashionableness as a personal ornament. Moreover, it is possible to provide a reversible type wristwatch using the right side as a watch and the reversible side as a jewel enchased bracelet.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

Figure 1 is a schematic front view of a case for a wristwatch for explaining an embodiment of this invention.

Figure 2 is a cross-sectional schematic side view of a case for a wristwatch for explaining an embodiment of this invention.

Figure 3 is a schematic bottom view of a case for a wristwatch for explaining an embodiment of this invention.

Figure 4 is a schematic view of a whole wristwatch for explaining an example of embodiments of this invention.

Figure 5 is a schematic view of a whole wristwatch for explaining another different example of embodiments of this invention.

Figure 6 is three schematic side views of a whole wristwatch for explaining another different example of embodiments of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] The details of this invention are described based on the embodiments. The construction shown in this embodiment is one of the typical examples of constructions according to this invention defined by claim 1 and is not limited to these examples.

<Embodiment 1>

[0021] The details of an embodiment of this invention are described referring to Figures 1 through 4.

[0022] Figures 1 through 3 are schematic diagrams showing a dial side front view, a cross-sectional side view cut in a direction of 3 to 9 o'clock, and a bottom view seen from 9 o'clock of an embodiment respectively according to this invention. In the diagrams, a timepiece case body 1 is formed in a hollow cylindrical shape using single crystal sapphire (or, for example, a mirror-transparent or partially semi-transparent hard material such as inorganic glass is acceptable), cover bodies 3a and 3b are made in contact with both end-opening portions of the timepiece case body 1 through ring-shaped gaskets 2 in an axial direction of a cylinder, and these cover bodies 3a and 3b are fixedly connected to each end of an inner frame connecting member 4 arranged in an axial direction penetrating in the aforementioned timepiece case body 1 with a screw 10 (only a cover body 3b is illustrated) to air-tightly seal both end-opening portions of the timepiece case body 1.

[0023] The inner frame connecting member 4 additionally serving to accommodate and hold a movement 5 has a member with a concave surface F for a gold plated or ornamentally coated metallic dial or a member made by shaping a transparent material etc., and the inner frame connecting member 4 is designed and arranged so that a large space is formed between the concave portion of this inner frame connecting member 4 and the timepiece case body 1 in a direction of thickness of the movement 5. Furthermore, both axial end portions of the inner frame connecting member 4 are fit in internal peripheral surfaces at both ends of a cylinder of the cylindrical timepiece case body 1 so that the inner frame connecting member

4 is integrally held in a middle position of the cylindrical shape.

[0024] Item 6 in the drawing is a fork (attaching portion) provided in both cover bodies 3a and 3b through which a watchband, chain, etc. passes, Item 7 a winding crown formed and arranged so as to protrude from the inner frame connecting member 4 to the outside of the cover body, Item 8 a back cover for fixedly holding the movement 5 in the inner frame connecting member 4, Item 9 a setting stem pipe integrally formed with the aforementioned winding crown, Item 10 screws provided in the cover bodies of both sides of the timepiece case body 1 and used for supporting and fixing the inner frame connecting member 4, Item 11 a spring rod for attaching a watchband, and Item 12 an end cap to be attached to the cover body 3b.

[0025] The inner frame-connecting member 4 holding the movement 5 integrally is inserted into the timepiece case body 1 and the cover bodies 3a and 3b are fastened to these both ends of the inner frame connecting member 4 with the screws 10 after placing the gaskets 2 between the timepiece case body and the cover bodies. Thus the timepiece case body 1 is air -tight and sealed by the cover bodies 3a and 3b in a condition that the timepiece case body encloses the movement 5.

[0026] In a case for a wristwatch 100, a large space formed between the inner frame-connecting member 4, additionally serving as a dial, and the inner periphery of the hollow cylinder of the timepiece case body 1 provides a design having good and deep visibility as shown in Figure 4. Thus, a wristwatch of innovative and unique design having three-dimensional styling thanks to its concave plane can be obtained.

<Embodiment 2>

[0027] The details of another embodiment of this invention are described referring to Figures 5 and 6.

[0028] As shown in Figure 5, since ornamental jewels 13 are enchased in one or both of two spaces between the inner frame-connecting member 4' and the timepiece case body 1 in a wristwatch case 100, a gorgeous-looking wristwatch having a function as an ornamental and jewelry watch in addition to fashionableness as a personal ornament can be provided. Therefore, it is also possible to use it as a function-reversible wristwatch of which a right side functions as a wristwatch and of which a reverse side functions as an accessory bracelet enchased with jewels. The illustrated construction of the portions for attaching a wristwatch band does not form part of the invention.

[0029] Furthermore, it is possible to manufacture a new case for a wristwatch integrated with a skeleton construction of an innovative design with an image having no side edges in a 12 to 6 o'clock direction as shown in Figure 6 while still keeping a basic image inherent in a conventional wristwatch.

Industrial Applicability

[0030] As described above, this invention makes it possible to provide a case for a wristwatch having a three-dimensional unique construction and a simple hollow suspension support construction in addition to innovative design as a personal ornament and excellent waterproof performance.

[0031] Moreover, a timepiece case body is formed in an almost hollow cylindrical shape or a hollow polygonal and almost cylindrical shape using a transparent hard material and cover bodies covering both end-opening portions are fixedly connected to both end portions of an inner frame connecting member inserted and arranged in the timepiece case body. Thus, it is possible not only to construct an almost cylindrical wristwatch case of skeleton specification very easily but also to securely and attach and fix the cover body to opening ends of both sides in an air tight manner even when the timepiece case body is formed using a difficult-to-shape material having a shape such as an almost cylindrical polygon.

[0032] Simultaneously, when a timepiece movement of an ornamental mechanical type with skeleton specification is applied, it is possible to add a function of demonstrating mechanical precise motion inherent in a mechanical wristwatch and fashionableness as a personal ornament provided with engraving etc.

[0033] This inner frame-connecting member for fixing both cover bodies is allowed to simultaneously support the movement at the central position inside the timepiece case body. Thus, it is possible to provide a sufficient space for a dial between the timepiece case body and the cover bodies, to provide an innovative design of hollow suspension support construction in a case of skeleton specification,

[0034] Since ornamental jewels are enchased in one or both of two spaces in a direction of movement thickness between the inner frame connecting member and the timepiece case body in a case for a wristwatch, a gorgeous-looking wristwatch having a function as a jewelry watch in addition to fashionableness as a personal ornament can be provided. Therefore, it is also possible to use it as a function-reversible wristwatch of which a right side functions as a wristwatch and of which a reverse side functions as a jewelry bracelet enchased with jewels.

Description of items

[0035]

1	Timepiece case body
2	Gasket
3a and 3b	Cover bodies
4	Inner frame connecting member
5	Movement
6	Fork (attaching portion)
7	Winding crown
8	Back cover

9	Setting stem
10	Screw
11	Spring rod
12	End cap
13	Jewel
100	Wristwatch body
102	Band

Claims

1. A case for a wristwatch, wherein a timepiece case body made of a hard transparent material having mirror-polished inner and outer peripheral surfaces formed in a hollow, almost cylindrical shape or a hollow polygonal and almost cylindrical shape is arranged to accommodate a timepiece movement (5) and accomodates an inner frame connecting member (4) for fixedly holding said timepiece movement (5) in an axial direction of said cylinder, a cover body 3a, 3b provided with a connecting portion with an inner frame connection member is arranged at both end-opening portions of said timepiece case body (1), both end-opening portions are covered by said cover bodies (3a, 3b), and both cover bodies (3a, 3b) are integrally and fixedly connected to each end portion of said inner frame connecting member (4), wherein said transparent hard material is an ornamental material for a watch such as single crystal sapphire, jewel material, translucent ceramics, inorganic glass and rigid plastics, said cover bodies (3a, 3b) to be combined are made of an ornamental material for a watch such as noble metal, metallic or cemented carbide, single crystal sapphire, jewel material, translucent ceramics, inorganic glass, and rigid plastics, wherein a part of said cover body (3a, 3b) is constructed so as to serve also as a portion for attaching a wristwatch band (102), **characterized in that** the cover body (3a, 3b) is arranged in such a way that the band 102) can be attached to said cover body (3a, 3b) in a direction perpendicular to the said axial direction of said hollow, almost cylindrical shape or hollow polygonal and almost cylindrical shape comprising the timepiece case body.

2. A case for a wristwatch according to Claim 1, wherein ring-shaped elastic gaskets (2) are inserted between said cover body (3a, 3b) and edges of both end-opening portions of said timepiece case body and are covered by said cover bodies to provide a case for a wristwatch where both cover bodies are integrally and fixedly held in each end portion of said inner frame connecting member.

3. A case for a wristwatch according to Claim 1 or 2, wherein said transparent hard material is made of a sapphire single crystal lifting material in a modified tube shape, such as a hollow, almost cylindrical shape and a hollow polygonal and almost cylindrical shape grown by the EFG method.

4. A case for a wristwatch according to Claims 1 through 3, wherein at least one of said cover bodies (3a, 3b) is provided with a winding crown portion (7) for operating a setting stem (9) of said timepiece movement

5. A case for a wristwatch according to Claims 1 through 4, wherein said timepiece movement (5) is a mechanical movement of a skeleton specification.

6. A case for a wristwatch according to Claims 1 through 5, wherein ornamental jewels (13) are enchased in one or both of two spaces at a dial side and a backside between said inner frame connecting member (4) and said timepiece case body (1).

Patentansprüche

1. Gehäuse für eine Armbanduhr, bei dem ein Uhrengehäusekörper aus einem harten, transparenten Material mit Spiegelglanz-Innen- und Außenumfangsflächen, die in einer hohlen, beinahe zylindrischen Form oder einer hohlpolygonen und beinahe zylindrischen Form ausgeführt sind, so angeordnet ist, dass er ein Uhrwerk (5) aufnimmt, und ein Innenrahmenverbindungselement (4) aufnimmt, das das Uhrwerk (5) in einer Axialrichtung des Zylinders festhält, ein Abdeckungskörper (3a, 3b), der mit einem Verbindungsabschnitt mit einem Innenrahmenverbindungselement versehen ist, an beiden Stirnöffnungsabschnitten des Uhrengehäusekörpers (1) angeordnet ist, beide Stirnöffnungsabschnitte von den Abdeckungskörpern (3a, 3b) abgedeckt sind und beide Abdeckungskörper (3a, 3b) einstückig und fest mit jedem Endabschnitt des Innenrahmenverbindungselements (4) verbunden sind, wobei das transparente, harte Material ein Ziermaterial für eine Uhr wie etwa einkristalliner Saphir, Edelsteinmaterial, durchscheinende Keramik, anorganisches Glas bzw. starrer Kunststoff ist, die zu verbindenden Abdeckungskörper (3a, 3b) aus einem Ziermaterial für eine Uhr wie etwa Edelmetall, Metallcarbid oder Hartmetall, einkristallinem Saphir, Edelsteinmaterial, durchscheinender Keramik, anorganischem Glas bzw. starrem Kunststoff bestehen, wobei ein Teil des Abdeckungskörpers (3a, 3b) so ausgebildet ist, dass er auch als Befestigungsabschnitt für ein Armbanduhrband (102) dient, **dadurch gekennzeichnet, dass** der Abdekkungskörper (3a, 3b) derart angeordnet ist, dass das Band (102) in einer zur Axialrichtung der hohlen, beinahe zylindrischen Form bzw. hohlpolygonen und beinahe zylindrischen Form, die den Uhrengehäusekörper umfasst, senkrechten Richtung am Abdeckungskörper (3a, 3b) be-

festigt werden kann.

2. Gehäuse für eine Armbanduhr nach Anspruch 1, bei dem ringförmige, elastische Dichtungen (2) zwischen den Abdeckungskörper (3a, 3b) und Rändern beider Stirnöffnungsabschnitte des Uhrengehäusekörpers eingesetzt und von den Abdeckungskörpern abgedeckt sind, um ein Gehäuse für eine Armbanduhr zu schaffen, bei dem beide Abdeckungskörper einstückig und fest in jedem Endabschnitt des Innenrahmenverbindungselements gehalten sind.

3. Gehäuse für eine Armbanduhr nach Anspruch 1 oder 2, bei dem das transparente, harte Material aus einem Saphireinkristall-"Lifting"-Material in einer modifizierten Röhrenform wie etwa einer durch das EFG-Verfahren aufgewachsenen hohlen, beinahe zylindrischen Form bzw. einer hohlpolygonen und beinahe zylindrischen Form besteht.

4. Gehäuse für eine Armbanduhr nach den Ansprüchen 1 bis 3, bei dem wenigstens einer der Abdekkungskörper (3a, 3b) mit einem Aufziehkronenabschnitt (7) zur Betätigung einer Stellwelle (9) des Uhrwerks (5) versehen ist.

5. Gehäuse für eine Armbanduhr nach den Ansprüchen 1 bis 4, bei dem das Uhrwerk (5) ein mechanisches Werk einer Skelettspezifikation ist.

6. Gehäuse für eine Armbanduhr nach den Ansprüchen 1 bis 5, bei dem Zieredelsteine (13) in einem oder beiden von zwei Räumen an einer Zifferblattseite und einer Rückseite zwischen dem Innenrahmenverbindungselement (4) und dem Uhrengehäusekörper (1) gefasst sind.

Revendications

1. Boîtier pour une montre-bracelet, dans lequel un corps de boîtier de montre, constitué par un matériau transparent dur ayant des surfaces périphériques intérieure et extérieure spéculaires présentant une forme creuse presque cylindrique et une forme creuse polygonale et presque cylindrique, est agencé pour loger un mouvement de montre (5) et loge un élément de liaison de cadre intérieur (4) pour maintenir de manière fixe le mouvement de montre (5) dans une direction axiale du cylindre, un corps de recouvrement (3a, 3b) réalisé avec un tronçon de liaison avec un élément de liaison de cadre intérieur est logé aux deux tronçons d'ouverture frontale du corps de boîtier de montre (1), les deux tronçons d'ouverture frontale étant couvertes par les corps de recouvrement (3a, 3b), et les deux corps de recouvrement (3a, 3b) sont reliés d'un seul tenant et de manière fixe à chaque tronçon d'extrémité de l'élément de liaison de cadre intérieur (4), le matériau dur transparent étant un matériau ornemental pour une montre tel qu'un saphir monocristallin, une pierre précieuse, une céramique translucide, un verre anorganique et une matière plastique rigide, les corps de recouvrement (3a, 3b) à relier étant réalisés en un matériau ornemental pour une montre tel qu'un métal noble, un carbure métallique ou cémenté, un saphir monocristallin, une pierre précieuse, une céramique translucide, un verre anorganique et une matière plastique rigide, une partie du corps de recouvrement (3a, 3b) étant réalisée de manière à servir aussi de tronçon d'attache du bracelet (102) de la montre-bracelet, **caractérisé en ce que** le corps de recouvrement (3a, 3b) est agencé de telle sorte que le bracelet (102) peut être attaché au corps de recouvrement (3a, 3b) dans une direction perpendiculaire à la direction axiale à la forme creuse presque cylindrique ou à la forme polygonale et presque cylindrique comprenant le corps de boîtier de la montre.

2. Boîtier pour une montre-bracelet selon la revendication 1, dans lequel des joints (2) élastiques de forme annulaire sont insérés entre le corps de recouvrement (3a, 3b) et des bords des deux tronçons d'ouverture frontale du corps de boîtier de montre et sont couverts par les corps de recouvrement pour fournir un boîtier pour une montre-bracelet dans lequel les deux corps de recouvrement sont maintenus d'un seul tenant et de manière fixe dans chaque tronçon d'extrémité de l'élément de liaison de cadre intérieur.

3. Boîtier de montre-bracelet selon la revendication 1 ou 2, dans lequel le matériau dur transparent est constitué par un matériau lifting en saphir monocristallin dans une forme de tube modifiée telle qu'une forme creuse presque cylindrique et une forme creuse polygonale et une forme presque cylindrique, obtenue par la méthode de croissance EFG.

4. Boîtier de montre-bracelet selon les revendications 1 à 3, dans lequel au moins un des corps de recouvrement (3a, 3b) est pourvu d'un tronçon de couronne de remontoir (7) pour actionner une tige de mise à l'heure (9) du mouvement de montre (5).

5. Boîtier de montre-bracelet selon les revendications 1 à 4, dans lequel le mouvement de montre (5) est un mouvement mécanique de type ossature.

6. Boîtier de montre-bracelet selon les revendications 1 à 5, dans lequel des pierres précieuses ornementales (13) sont enchâssées dans un de deux espaces, ou dans les deux espaces, sur un cadran et/ou surf une face postérieure entre l'élément de liaison (4) de cadre intérieur et le corps de boîtier (1) de la montre.

Fig. 1

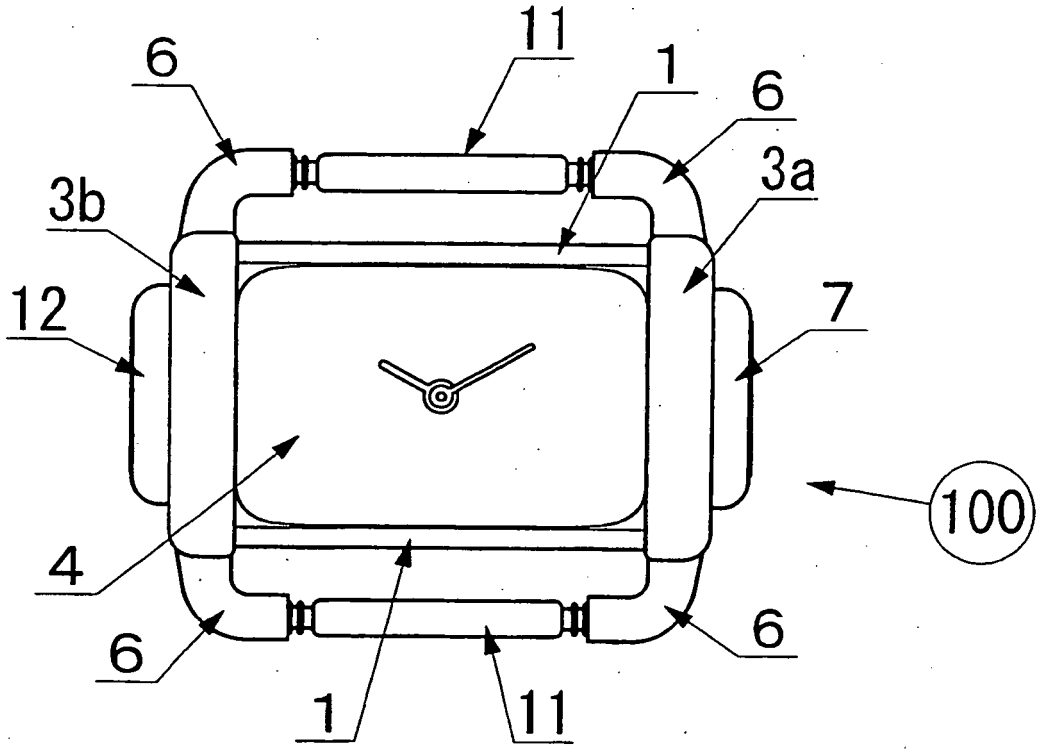


Fig. 2

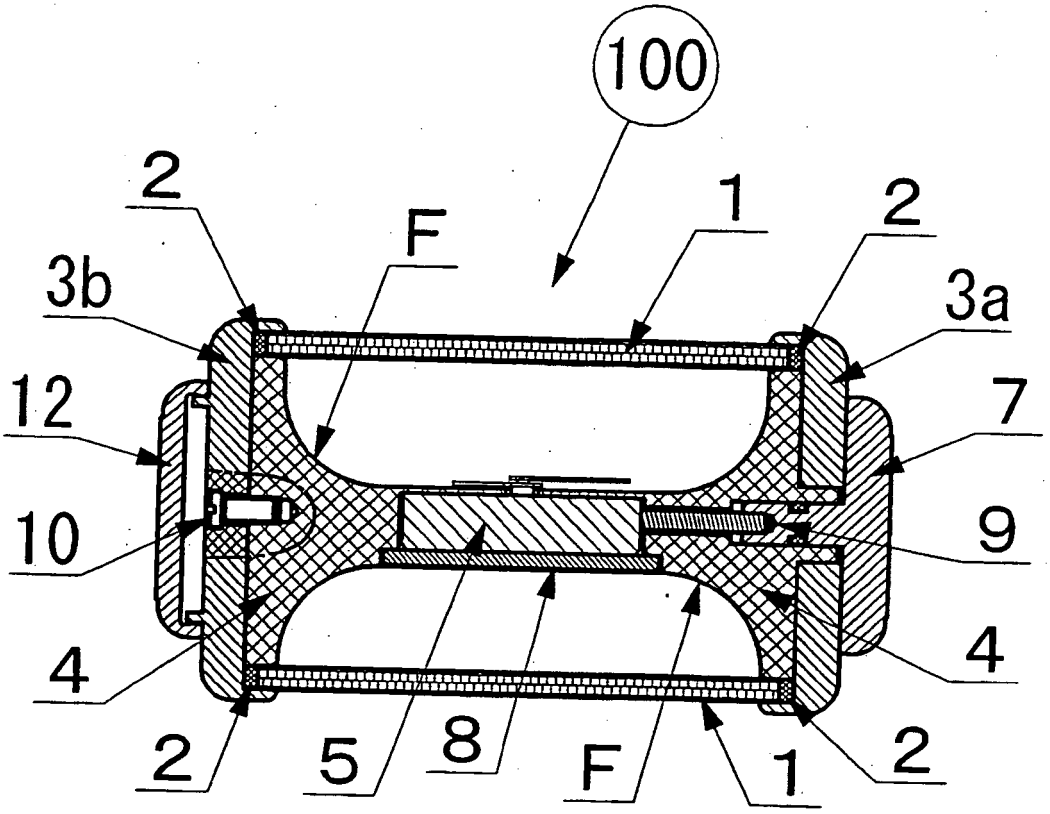


Fig. 3

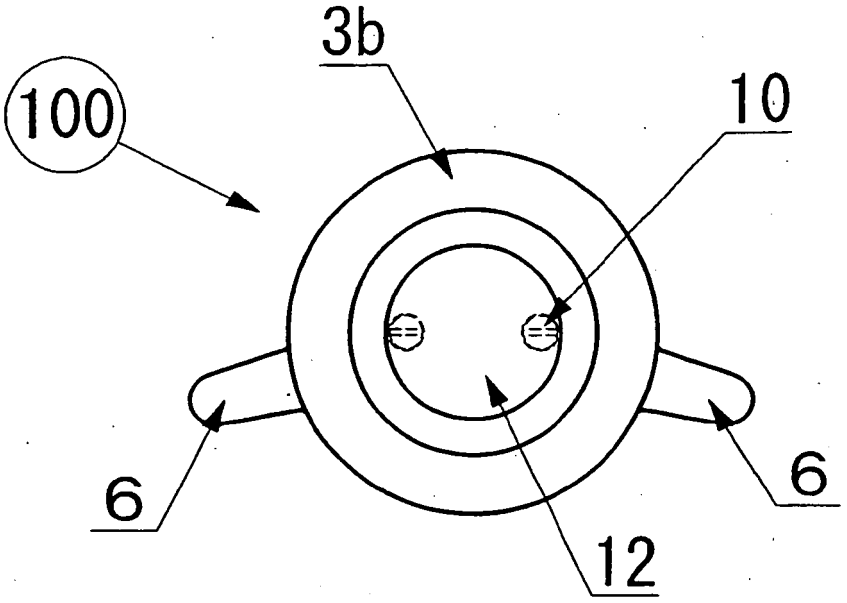


Fig. 4

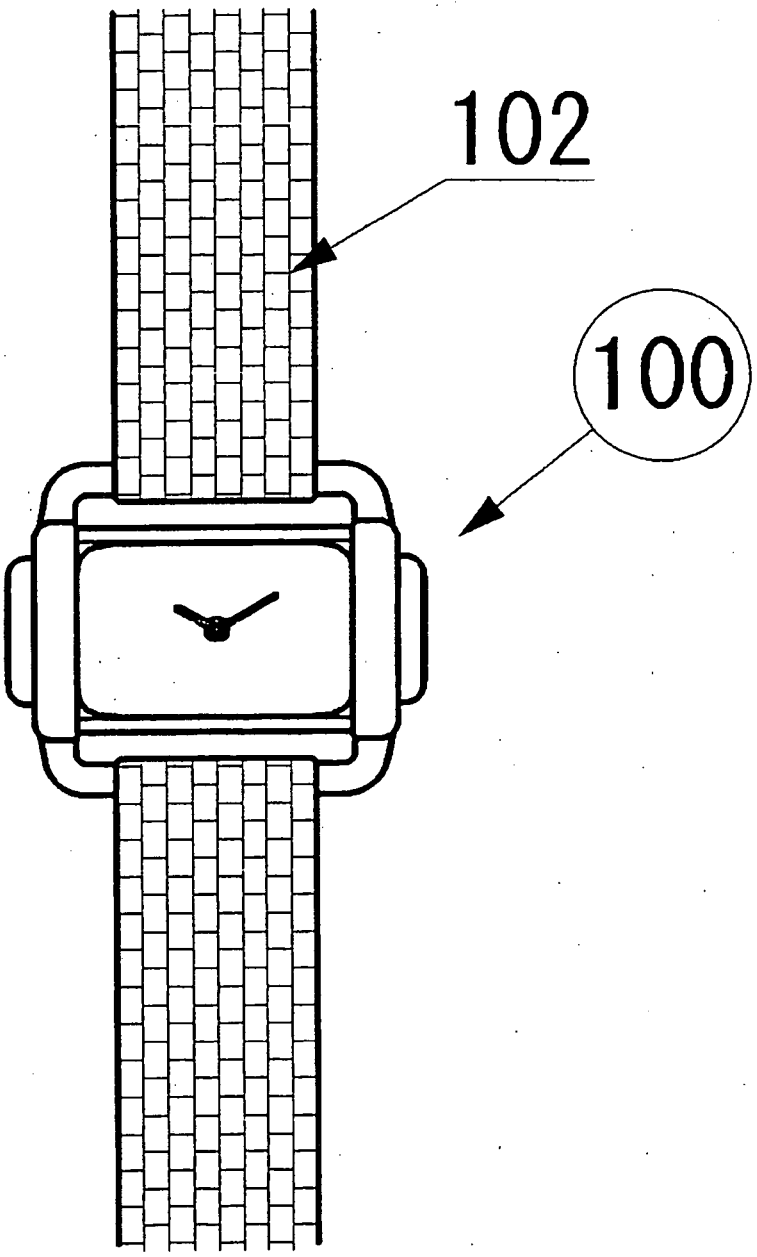


Fig. 5

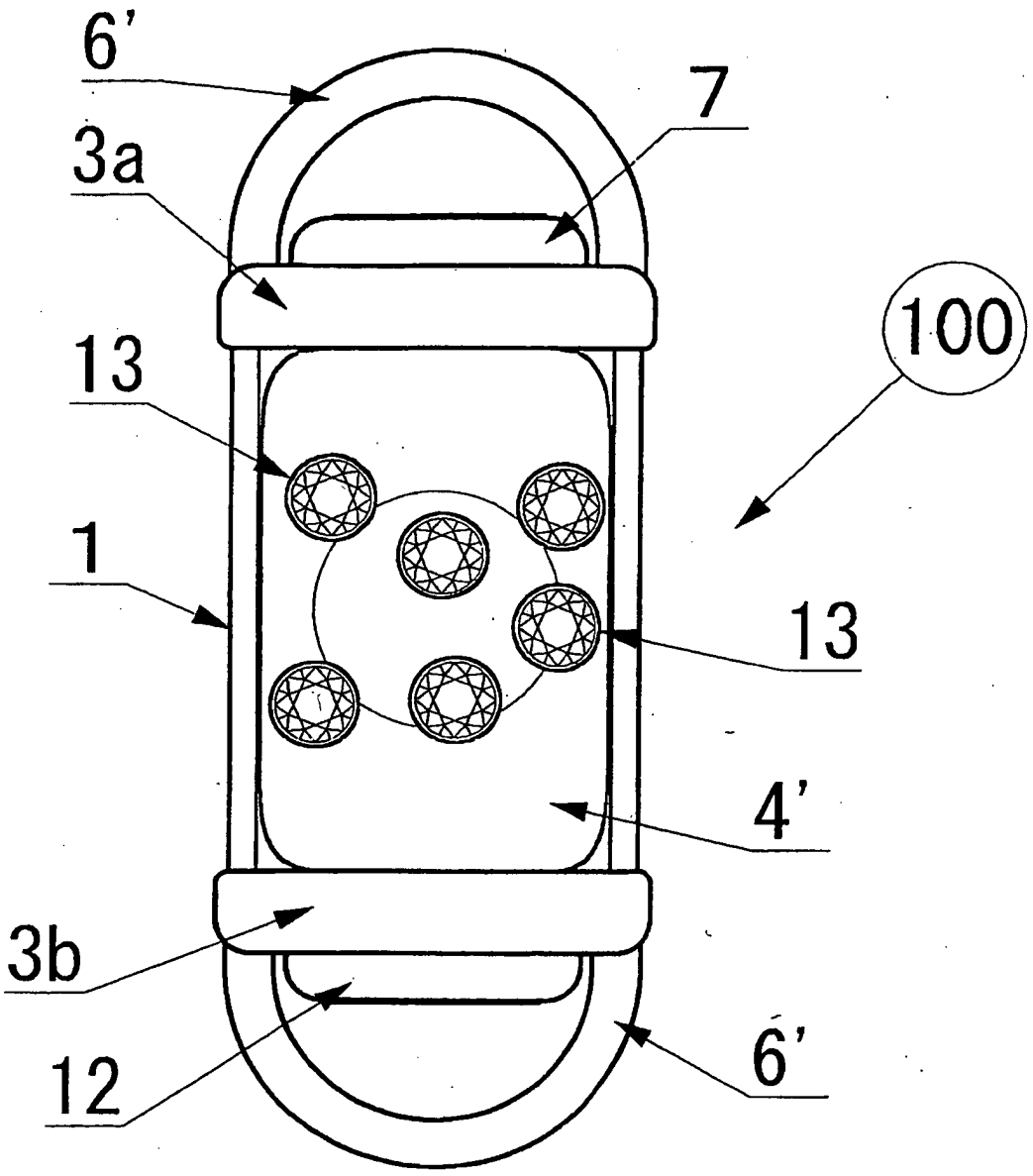
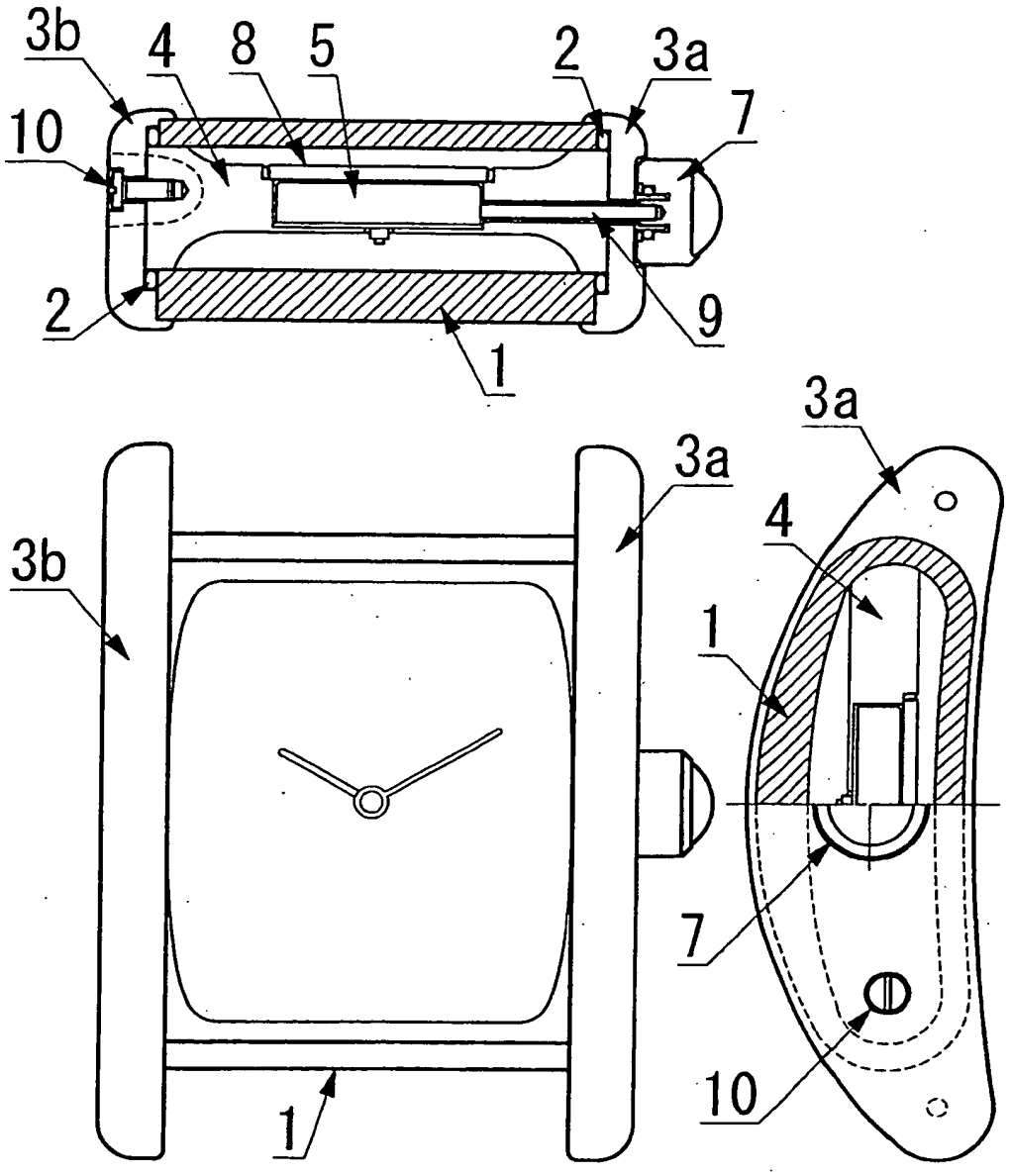


Fig. 6



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