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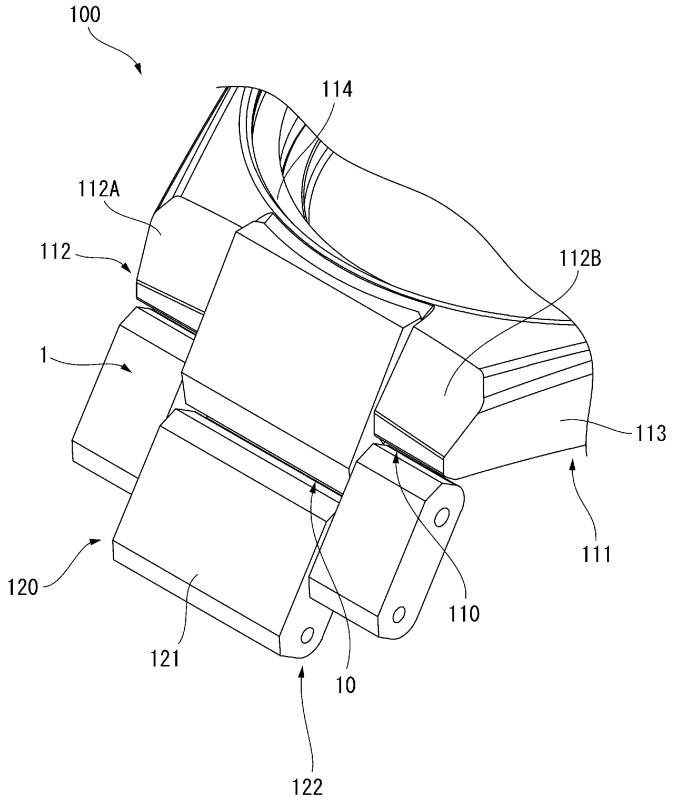
# (54) BAND-HOLDING MECHANISM, WRIST-WORN DEVICE, WRIST-WORN DEVICE MAIN BODY, BAND-HOLDING UNIT, AND BAND

(57) A band-holding mechanism includes a band, a holding member, and an intermediate member. The band includes a first pin arranged in an engagement-side end portion with a case. The first pin extends in a width direction of the band. The holding member is configured to hold the band with the first pin caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

FIG. 1

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## Description

**[0001]** The present application is based on, and claims priority from JP Application Serial Number 2023-216172, filed December 21, 2023, the disclosure of which is hereby incorporated by reference herein in its entirety.

## BACKGROUND

### 1. Technical Field

**[0002]** The present disclosure relates to a band-holding mechanism, a wrist-worn device, a wrist-worn device main body, a band-holding unit, and a band.

### 2. Related Art

**[0003]** A band disclosed in JP-A-2020-74841 can be easily attached to and detached from a case of a wrist-worn device, such as a wristwatch, to be worn on a wrist.

**[0004]** The band disclosed in JP-A-2020-74841 includes a coupler body member having a guide groove into which a pin supported by a lug of the case can be inserted. The coupler body member is fitted with a fixing member that is movable between a fixation position and an attachment/detachment position. The coupler body member is fixed to the case when the fixing member is placed in the fixation position. When the fixing member is placed in the attachment/detachment position, the pin can be inserted into the guide groove or the inserted pin can be removed from the guide groove. With the fixing member being switchable between the fixation position and the attachment/detachment position, the band can be easily attached to and detached from the wrist-worn device.

**[0005]** The coupler body member and the fixing member constitute a component disposed at the end of the band disclosed in JP-A-2020-74841. There is therefore a problem in that the component disposed at the end of the band is increased in size.

## SUMMARY

**[0006]** According to an aspect of the present disclosure, a band-holding mechanism includes a band, a holding member, and an intermediate member. The band includes a first pin arranged in an engagement-side end portion with a case. The first pin extends in a width direction of the band. The holding member is configured to hold the band with the first pin caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

**[0007]** According to an aspect of the present disclosure, a wrist-worn device includes a case, a band, a holding member, and an intermediate member. The band includes a first pin arranged in an engagement-side end portion with the case. The first pin extends in a width direction of the band. The holding member is configured to hold the band with the first pin caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

**[0008]** According to an aspect of the present disclosure, a wrist-worn device main body includes a case, a holding member, and an intermediate member. The holding member is configured to hold a band with a first pin, of the band, caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

**[0009]** According to an aspect of the present disclosure, a band-holding unit includes a holding member and an intermediate member. The holding member is configured to hold a band with a first pin, of the band, caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to a case or inseparable from the case.

**[0010]** According to an aspect of the present disclosure, a band includes a first pin arranged in an engagement-side end portion with a case. The first pin extends in a width direction of the band. The band is configured to be coupled to the case by a holding member and an intermediate member. The first pin is caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0011]**

FIG. 1 is a perspective view of a watch in a first embodiment, schematically illustrating the principal part thereof.

FIG. 2 is an exploded perspective view of a band-holding mechanism in the first embodiment, schematically illustrating the principal part thereof.

FIG. 3 is a perspective view of the watch in FIG. 1, schematically illustrating the principal part of the watch viewed in another direction.

FIG. 4 is a sectional view of the band-holding mechanism in the first embodiment, schematically illustrating the principal part thereof.

FIG. 5 is a sectional view of a holding member in the first embodiment which is placed in a fixation position.

FIG. 6 is a sectional view of the holding member in the first embodiment which is placed in an attachment/detachment position.

FIG. 7 is a sectional view and illustrates a situation where a band in the first embodiment is attached to a case.

FIG. 8 is a sectional view and illustrates a situation where the band in the first embodiment is attached to the case.

FIG. 9 is an exploded perspective view of a band-holding mechanism in a second embodiment, schematically illustrating the principal part thereof.
FIG. 10 is a sectional view of the band-holding mechanism in the second embodiment, schematically illustrating the principal part thereof.
FIG. 11 is a sectional view of a holding member in the second embodiment which is placed in a fixation position.
FIG. 12 is a sectional view of the holding member in the second embodiment which is placed in an attachment/detachment position.
FIG. 13 is a sectional view and illustrates a situation where a band in the second embodiment is attached to the case.
FIG. 14 is a sectional view and illustrates a situation where the band in the second embodiment is attached to a case.
FIG. 15 is a sectional view of a band-holding mechanism according to a variation, schematically illustrating the principal part thereof.
FIG. 16 is a back view of a watch according to the variation, schematically illustrating the principal part thereof.
FIG. 17 is a perspective view of a watch according to another variation, schematically illustrating the principal part thereof.
FIG. 18 is an exploded perspective view of a band-holding mechanism according to still another variation, schematically illustrating the principal part thereof.

## DESCRIPTION OF EMBODIMENTS

### First Embodiment

**[0012]** A watch 100 in a first embodiment of the present disclosure is described below with reference to FIGs. 1 to 4. The watch 100 is an example of a wrist-worn device that is to be worn on the wearer's wrist. FIG. 1 is a perspective view of the watch 100 in the first embodiment, schematically illustrating the principal part thereof. FIG. 2 is an exploded perspective view of a band-holding mechanism 1, schematically illustrating the principal part thereof. FIG. 3 is a perspective view of the watch 100 in FIG. 1, schematically illustrating the principal part of the watch 100 viewed in another direction. FIG. 4 is a sectional view of the band-holding mechanism 1, schematically illustrating the principal part thereof. As illustrated in FIG. 1, the watch 100 includes a watch body 110 and a band 120. The watch 100 is an example of a wrist-worn device disclosed herein.

### Watch Body

**[0013]** The watch body 110 includes a case 111 and lugs 112. The case 111 includes a case body 113, a bezel 114, a case back 115, and a cover glass (not illustrated). The case body 113 is a cylindrical metal member and houses, for example, a dial and a movement (not illustrated). The bezel 114 is an annular metal member and is disposed on the top of the case body 113. The cover glass (not illustrated) is fixed with the bezel 114. The case back 115 is a metal member and is disposed to cover an opening at the bottom of the case body 113.

**[0014]** The lugs 112 are located at the 6 o'clock position and the 12 o'clock position, respectively, of the case body 113. The lugs 112 each include a pair of holding pieces 112A and 112B protruding from a side face of the case body 113. The pair of holding pieces 112A and 112B may have the same shape or different shapes when viewed in plan or viewed laterally. The shape viewed in plan herein refers to the shape viewed in a direction perpendicular to the dial of the watch 100, and the shape viewed laterally herein refers to the shape viewed in the 3 o'clock direction or the 9 o'clock direction of the watch 100.

**[0015]** The band 120 includes a band body 122 and a first pin 123. The band body 122 is composed of bracelet links 121, which are metal pieces attached to each other. The first pin 123 is located in an engagement-side end portion of the band body 122 with the case 111. The first pin 123 extends in the width direction of the band 120. The first pin 123 in the present embodiment is in the form of a cylindrical column. The first pin 123 and a band-holding unit 10 constitute the band-holding mechanism 1 disclosed herein. The watch body 110 in the present embodiment includes the band-holding unit 10. The watch body 110 is an example of a wrist-worn device main body disclosed herein.

### Band-Holding Unit

**[0016]** The band-holding unit 10 serves the purpose of coupling the band 120 to the case 111 of the watch body 110. The band-holding unit 10 in the present embodiment includes a holding member 20 and an intermediate member 30.

### Holding Member

**[0017]** The holding member 20 is configured to hold the band 120 in a state in which the first pin 123 of the band 120 is caught on the holding member 20. The holding member 20 in the present embodiment includes a holding member main body 21 and an elastic member 22. The holding member main body 21 is disposed in a housing recess 313 of the intermediate member 30, which will be described later. The holding member main body 21 is fastened to the bottom of the housing recess 313 with a fastening member 33, in which state the holding member main body 21 is supported by the intermediate member 30. As will be described later, the holding member main body 21 is movable between a fixation position and an attachment/detachment position in the housing recess 313 of the intermediate member 30. The holding member main body 21 in the present embodiment has a contact

face 211, which comes into contact with the first pin 123 inserted into an introduction groove 311 of the intermediate member 30, which will be described later. The holding member main body 21 has a hole 212, into which the fastening member 33 is inserted. The fastening member 33 will be described later.

**[0018]** The elastic member 22 is what is known as a coil spring. The elastic member 22 is disposed in the housing recess 313 of the intermediate member 30, which will be described later. More specifically, the elastic member 22 disposed in the housing recess 313 is located between the holding member main body 21 and the bottom of the housing recess 313. The elastic member 22 is configured to bias the holding member main body 21 in the direction pointing to the back side of the watch 100.

Intermediate Member

**[0019]** The intermediate member 30 supports the holding member 20 and is fixed to the case 111. The intermediate member 30 in the present embodiment includes an intermediate member main body 31, a second pin 32, and the fastening member 33.

**[0020]** The intermediate member main body 31 is made of metal and has the introduction groove 311, an insertion hole 312, and the housing recess 313. As mentioned above, the first pin 123 of the band 120 is to be inserted into the introduction groove 311. The introduction groove 311 in the present embodiment is provided such that the intermediate member main body 31 is open on the back side of the watch 100. The introduction groove 311 has an opening 314 and a bottom portion 315. The opening 314 is provided such that the intermediate member main body 31 is open on the back side of the watch 100, as mentioned above. The opening 314 is an example of an opening of what is disclosed herein. The bottom portion 315 is the innermost end of the introduction groove 311.

**[0021]** The second pin 32 is inserted in the insertion hole 312. The insertion hole 312 of the intermediate member main body 31 in the present embodiment is a through-hole extending in the width direction of the intermediate member main body 31. As with the introduction groove 311, the housing recess 313 is provided such that the intermediate member main body 31 is open on the back side of the watch 100. The holding member main body 21 and the elastic member 22 are disposed in the housing recess 313, as mentioned above.

**[0022]** The second pin 32 is what is known as a spring rod. The second pin 32 is inserted in the insertion hole 312 of the intermediate member main body 31 and is supported by the pair of holding pieces 112A and 112B of the lug 112. In this state, the intermediate member 30 is fixed to the case 111. The fastening member 33 is what is known as a shoulder screw. The fastening member 33 is inserted into the hole 212 of the holding member main body 21 and is rotated into a threaded hole (not illustrated) at the bottom of the housing recess 313. In this way, the holding member main body 21 is attached to the housing recess 313 with the fastening member 33. The holding member main body 21 is slidable within the housing recess 313 in the state in which the holding member main body 21 is attached to the housing recess 313 with the fastening member 33.

Fixation Position and Attachment/Detachment Position of Holding Member

**[0023]** The following describes the fixation position and the attachment/detachment position of the holding member 20. FIG. 5 is a sectional view of the holding member 20 placed in the fixation position. FIG. 6 is a sectional view of the holding member 20 placed in the attachment/detachment position. Under normal conditions illustrated in FIG. 5, the elastic member 22 biases the holding member main body 21 of the holding member 20. As a result, the holding member main body 21 slides within the housing recess 313 in the direction pointing to the back side of the watch 100. That is, the holding member main body 21 slides in a first direction denoted by L1 in FIG. 5. In this state, the opening 314 of the introduction groove 311 viewed in cross section is partially covered with the holding member main body 21. The position of the holding member 20 illustrated in FIG. 5 is herein referred to as the fixation position.

**[0024]** When the holding member main body 21 in the state mentioned above is pressed in the direction pointing to the front side of the watch 100, the holding member main body 21 slides within the housing recess 313 in the direction pointing to the front side of the watch 100 as illustrated in FIG. 6. That is, the holding member main body 21 slides in a second direction denoted by L2 in FIG. 6. In this state, the opening 314 of the introduction groove 311 viewed in cross section is not covered with the holding member main body 21; that is, the introduction groove 311 is exposed to view on the back side of the watch 100. The position of the holding member 20 illustrated in FIG. 6 is herein referred to as the attachment/-detachment position. The holding member main body 21 of the holding member 20 in the present embodiment can slide within the housing recess 313 in the first direction L1 and the second direction L2 and is therefore movable between the fixation position and the attachment/detachment position.

Procedure of How to Attach/Detach Band

**[0025]** The following describes a procedure of how to attach/detach the band 120 in the present embodiment. FIGs. 7 and 8 are sectional views and illustrate a situation where the band 120 is attached to the case 111. Referring to FIG. 7, the first pin 123 of the band 120 is not inserted in the introduction groove 311; that is, the band 120 is not attached to the watch body 110. In this state, the holding member main body 21 is pressed in the second direction L2 and, as a result, the holding member main body 21

moves to the attachment/detachment position. The first pin 123 is then inserted into the introduction groove 311 through the opening 314 and is thus shifted toward the bottom portion 315.

**[0026]** Referring to FIG. 8, the holding member main body 21 is released from the pressing force when the first pin 123 inserted in the introduction groove 311 is in contact with the bottom portion 315. In this state, the elastic member 22 biases the holding member main body 21. As a result, the holding member main body 21 slides in the first direction L1 and moves to the fixation position (see FIG. 4). This results in a return to the aforementioned state, in which the opening 314 of the introduction groove 311 is partially covered with the holding member main body 21, and the first pin 123 is caught on the holding member main body 21. When being caught on the holding member main body 21, the first pin 123 is kept from slipping out of the introduction groove 311. In this way, the band 120 is attached to the watch body 110.

**[0027]** The wearer can detach the band 120 from the watch body 110 by pressing the holding member main body 21 in the state illustrated in FIG. 4 to cause the holding member main body 21 to slide in the second direction L2. As a result, the holding member main body 21 moves to the attachment/detachment position (see FIG. 8). Then, the first pin 123 can be shifted along the introduction groove 311 and can be pulled out through the opening 314.

**[0028]** It is sufficient that, since the holding member 20 for holding the band 120 in the present embodiment is supported by the intermediate member 30 attached to the case 111, the first pin 123 extending in the width direction of the band 120 is provided at the end of the band 120. That is, the member for coupling the band 120 to the watch body 110 is attached to the case 111. This leads to a reduction in the size of the member at the end of the band 120 and a reduction in the number of components.

**[0029]** The contact face 211 of the holding member main body 21 in the present embodiment is at an oblique angle to the direction of insertion of the first pin 123, that is, in the direction in which the introduction groove 311 is exposed to view. Thus, the wearer can attach the band 120 to the watch body 110 by inserting the first pin 123 into the introduction groove 311 without having to press the holding member main body 21. That is, the first pin 123 is inserted into the introduction groove 311 with the holding member main body 21 being placed in the fixation position and, as a result, the first pin 123 comes into contact with the contact face 211 of the holding member main body 21. The contact face 211 in the present embodiment is at an oblique angle to the direction of insertion of the first pin 123 such that the holding member main body 21 can slide in the second direction L2. When the first pin 123 in the aforementioned state is inserted further and is thus shifted toward the bottom portion 315 of the introduction groove 311, the first pin 123 is pressed against the contact face 211, causing the holding member main body 21 to slide in the second direction L2. As a result, the holding member main body 21 moves to the attachment/detachment position. Thus, the wearer can attach the band 120 to the watch body 110 without having to press the holding member main body 21.

Functions and Effects of First Embodiment

**[0030]** The first embodiment described above provides the following effects. It is sufficient that, since the holding member 20 configured to hold the band 120 with the first pin 123 caught on the holding member 20 is supported by the intermediate member 30 attached to the case 111, the first pin 123 extending in the width direction of the band 120 is provided at the end of the band 120. This leads to a reduction in the size of the member at the end of the band 120 and a reduction in the number of components.

**[0031]** In the present embodiment, the first pin 123 is caught on the holding member 20 by being inserted into the introduction groove 311 of the intermediate member 30. Thus, the band 120 can be easily attached to the case 111.

**[0032]** The holding member 20 in the present embodiment is shifted to the fixation position or the attachment/-detachment position so that the first pin 123 is caught on the holding member 20 or the first pin 123 is removed from the introduction groove 311. Thus, the band 120 can be easily attached to and detached from the case 111.

**[0033]** The contact face 211 of the holding member 20 in the present embodiment is at an oblique angle to the direction of insertion of the first pin 123. Thus, the first pin 123 can be caught on the holding member 20 by being inserted into the introduction groove without the holding member 20 having to be manipulated. This provides the ease of attaching of the band 120.

Second Embodiment

**[0034]** A watch 100A in a second embodiment of the present disclosure is described below with reference to FIGs. 9 to 14. A band-holding unit 10A in the second embodiment differs from the band-holding unit 10 in the first embodiment in that a holding member 20A is rotatably supported by an intermediate member 30A. Some components in the second embodiment may be identical or similar to those described in the first embodiment. Each of these components in the second embodiment and the corresponding component in the first embodiment may be denoted by the same reference sign and will not be further elaborated on here.

**[0035]** FIG. 9 is an exploded perspective view of a band-holding mechanism 1A in the second embodiment, schematically illustrating the principal part thereof. FIG. 10 is a sectional view of the band-holding mechanism 1A, schematically illustrating the principal part thereof. As in the first embodiment, a band 120 includes a first pin 123 in an engagement-side end portion with a case 111, and the first pin 123 extends in the width direction of the band 120 (see FIGs. 9 and 10). The first pin 123 and the band-

holding unit 10A constitute the band-holding mechanism 1A disclosed herein.

Band-Holding Unit

**[0036]** The band-holding unit 10A serves the purpose of coupling the band 120 to the case 111 of a watch body 110A. The band-holding unit 10A in the present embodiment includes the holding member 20A and the intermediate member 30A.

Holding Member

**[0037]** As with the holding member in the first embodiment, the holding member 20A is configured to hold the band 120 in a state in which the first pin 123 of the band 120 is caught on the holding member 20A. The holding member 20A in the present embodiment includes a holding member main body 21A and an elastic member 22A. The holding member main body 21A is supported by a spring rod 32A of the intermediate member 30A, in which state the holding member main body 21A is rotatably supported by the intermediate member 30A. The intermediate member 30A will be described later. As will be described later, the holding member main body 21A is movable between a fixation position and an attachment/detachment position. The holding member main body 21A in the present embodiment has a contact face 211A, which comes into contact with the first pin 123 inserted in an introduction groove 311A of the intermediate member 30A, which will be described later. The holding member main body 21A includes a hole 212A, a catch section 213A, and a manipulation section 214A. The spring rod 32A, which will be described later, is inserted in the hole 212A. The first pin 123 is to be caught on the catch section 213A. The manipulation section 214A is to be manipulated by the wearer.

**[0038]** The elastic member 22A is what is known as a helical torsion spring. One end of the coil body of the elastic member 22A is fastened to the intermediate member 30A, and the other end of the coil body is attached to the holding member main body 21A. The elastic member 22A in the present embodiment biases the holding member main body 21A, causing the holding member main body 21A to rotate with the catch section 213A thereof moving away from the case 111.

Intermediate Member

**[0039]** The intermediate member 30A supports the holding member 20A and is fixed to the case 111. The intermediate member 30A in the present embodiment includes an intermediate member main body 31A, the spring rod 32A, and a cylindrical member 33A.

**[0040]** The intermediate member main body 31A is made of metal and has the introduction groove 311A and an insertion hole 312A. As in the first embodiment described above, the first pin 123 of the band 120 is to be inserted into the introduction groove 311A. The introduction groove 311A in the present embodiment is provided such that the intermediate member main body 31A is open on the back side of the watch 100A. The introduction groove 311A has an opening 314A and a bottom portion 315A. The opening 314A is provided such that the intermediate member main body 31A is open on the back side of the watch 100A, as mentioned above. The opening 314A is an example of the opening of what is disclosed herein. The bottom portion 315A is the innermost end of the introduction groove 311A.

**[0041]** The spring rod 32A and the cylindrical member 33A are inserted in the insertion hole 312A. The insertion hole 312A of the intermediate member main body 31A in the present embodiment is a through-hole extending in the width direction of the intermediate member main body 31A. The spring rod 32A and the cylindrical member 33A are inserted in the hole 212A of the holding member main body 21A and the insertion hole 312A of the intermediate member main body 31A. Specifically, the spring rod 32A is inserted in the cylindrical member 33A, and the cylindrical member 33A and the spring rod 32A on the inner circumference side of the cylindrical member 33A are inserted in the insertion hole 312A of the intermediate member main body 31A. In this state, the holding member main body 21A is rotatably supported by the intermediate member 30A. The spring rod 32A is supported by a pair of holding pieces 112A and 112B of a lug 112. In this state, the intermediate member 30A is fixed to the case 111.

**[0042]** In the present embodiment, the holding member main body 21A is rotatably supported by the spring rod 32A, and the intermediate member main body 31A is fixed to the case 111 with the spring rod 32A. That is, the spring rod 32A serves as the second pin and a third pin of what is disclosed herein. That is, the spring rod 32A serves as the second pin by which the holding member 20A is rotatably supported, and the spring rod 32A also serves as the third pin with which the intermediate member 30A is fixed to the case. This leads to a reduction in the number of components.

Fixation Position and Attachment/Detachment Position of Holding Member

**[0043]** The following describes the fixation position and the attachment/detachment position of the holding member 20A. FIG. 11 is a sectional view of the holding member 20A placed in the fixation position. FIG. 12 is a sectional view of the holding member 20A placed in the attachment/detachment position. Under normal conditions illustrated in FIG. 11, the elastic member 22A biases the holding member main body 21A of the holding member 20A and, as a result, the holding member main body 21A moves away from the watch body 110A. That is, the holding member main body 21A rotates in a first direction denoted by R1 in FIG. 11. In this state, the opening 314A of the introduction groove 311A viewed in cross section is

covered with the catch section 213A of the holding member main body 21A. The position of the holding member 20A illustrated in FIG. 11 is herein referred to as the fixation position.

**[0044]** When the manipulation section 214A of the holding member main body 21A in the state mentioned above is pressed in the direction pointing to the back side of the watch 100A, the catch section 213A of the holding member main body 21A rotates and moves close to the watch body 110A as illustrated in FIG. 12. That is, the catch section 213A rotates in a second direction denoted by R2 in FIG. 12. In this state, the opening 314A of the introduction groove 311A viewed in cross section is not covered with the catch section 213A of the holding member main body 21A; that is, the introduction groove 311A is exposed to view on the back side of the watch 100A. The position of the holding member 20A illustrated in FIG. 12 is herein referred to as the attachment/detachment position. The holding member main body 21A of the holding member 20A in the present embodiment can rotate in the first direction R1 and the second direction R2 and is therefore movable between the fixation position and the attachment/detachment position. Procedure of How to Attach/Detach Band

**[0045]** The following describes a procedure of how to attach/detach the band 120 in the present embodiment. FIGs. 13 and 14 are sectional views and illustrate a situation where the band 120 is attached to the case 111. Referring to FIG. 13, the first pin 123 of the band 120 is not inserted in the introduction groove 311A; that is, the band 120 is not attached to the watch body 110A. In this state, the manipulation section 214A of the holding member main body 21A is pressed in the second direction R2 and, as a result, the holding member main body 21A moves to the attachment/detachment position. The first pin 123 is then inserted into the introduction groove 311A through the opening 314A and is thus shifted toward the bottom portion 315A.

**[0046]** Referring to FIG. 14, the manipulation section 214A of the holding member main body 21A is released from the pressing force when the first pin 123 inserted in the introduction groove 311A is in contact with the bottom portion 315A. In this state, the elastic member 22A biases the holding member main body 21A. As a result, the holding member main body 21A rotates in the first direction R1 and moves to the fixation position (see FIG. 10). This results in a return to the aforementioned state, in which the opening 314A of the introduction groove 311A is covered with the catch section 213A of the holding member main body 21A, and the first pin 123 is caught on the catch section 213A of the holding member main body 21A. When being caught on the catch section 213A of the holding member main body 21A, the first pin 123 is kept from slipping out of the introduction groove 311A and, as a result, the band 120 is attached to the watch body 110A.

**[0047]** The wearer can detach the band 120 from the watch body 110A by pressing the manipulation section 214A of the holding member main body 21A in the state illustrated in FIG. 10 to cause the holding member main body 21A to rotate in the second direction R2. As a result, the holding member main body 21A moves to the attachment/detachment position (see FIG. 13). Then, the first pin 123 can be shifted along the introduction groove 311A and can be pulled out through the opening 314A.

**[0048]** It is sufficient that, since the holding member 20A for holding the band 120 in the present embodiment is supported by the intermediate member 30A attached to the case 111, the first pin 123 extending in the width direction of the band 120 is provided at the end of the band 120 as in the first embodiment. That is, the member for coupling the band 120 to the watch body 110A is attached to the case 111. This leads to a reduction in the size of the member at the end of the band 120 and a reduction in the number of components. The intermediate member 30A in the present embodiment includes the spring rod 32A by which the holding member 20A is rotatably supported. The holding member 20A is thus movable between the fixation position and the attachment/detachment position while being rotatably supported by the intermediate member 30A.

**[0049]** The present embodiment is also similar to the first embodiment in the following respect: the contact face 211A of the holding member main body 21A in the present embodiment is at an oblique angle to the direction of insertion of the first pin 123, that is, in the direction in which the introduction groove 311A is exposed to view. Thus, the wearer can attach the band 120 to the watch body 110A by inserting the first pin 123 into the introduction groove 311A without having to press the holding member main body 21A.

Functions and Effects of Second Embodiment

**[0050]** The second embodiment described above provides the following effects. The intermediate member 30A in the present embodiment includes the spring rod 32A by which the holding member 20A is rotatably supported. The holding member 20A is thus movable between the fixation position and the attachment/detachment position while being rotatably supported by the intermediate member 30A.

**[0051]** The intermediate member 30A in the present embodiment is attached to the case 111 with the spring rod 32A. Thus, the intermediate member 30A can be easily fixed to the case 111.

**[0052]** In the present embodiment, the holding member 20A is rotatably supported by the spring rod 32A, and the intermediate member 30A is fixed to the case 111 with the spring rod 32A. This leads to a reduction in the number of components

Variations

**[0053]** The present disclosure is not limited to the embodiments described above and includes any variations, modifications, and the like that fall within the scope

in which an object of the present disclosure can be achieved. FIG. 15 is a sectional view of a band-holding mechanism 1B according to a variation, schematically illustrating the principal part thereof. FIG. 16 is a back view of a watch 100B according to the variation, schematically illustrating the principal part thereof. Referring to FIGs. 15 and 16, a band-holding unit 10B of the band-holding mechanism 1B according to the variation includes a holding member 20B and an intermediate member 30B. The intermediate member 30B includes an intermediate member main body 31B. As with the holding member 20A in the second embodiment described above, the holding member 20B includes a catch section 213B and a manipulation section 214B. The intermediate member main body 31B according to the variation is provided with a lid 215B, with which the intermediate member main body 31B is covered on the back side of a watch body 110B. The lid 215B that covers the back side of the intermediate member main body 31B precludes the possibility that the first pin 123 and the like will be partially exposed to view. This leads to improved design.

**[0054]** FIG. 17 is a perspective view of a watch 100C according to another variation, schematically illustrating the principal part thereof. Examples of the band body of the band is not limited to the ones described in the first and second embodiments; that is, it is not required that a band body 122 of a band 120 be composed of bracelet links 121, which are metal pieces attached to each other. As illustrated in FIG. 17, the band body 122C may, for example, be made of leather, cloth, or synthetic resin.

**[0055]** FIG. 18 is an exploded perspective view of a band-holding mechanism 1D according to still another variation, schematically illustrating the principal part thereof. Referring to FIG. 18, a band-holding unit 10D of the band-holding mechanism 1D, which is included in a watch 100D according to the variation, includes a holding member 20D and an intermediate member 30D. An intermediate member main body 31D of the intermediate member 30D is inseparable from a case 111 of a watch body 110D. This eliminates the need to provide a spring rod and other pieces for attaching the intermediate member main body 31D to the case 111 and thus leads to a reduction in the number of components.

**[0056]** The spring rod 32A in the second embodiment described above serves as the second pin for supporting the holding member 20A and the third pin for fixing the intermediate member 30A to the case 111. Alternatively, the second pin for supporting the holding member and the third pin for fixing the intermediate member to the case may be discrete pieces.

**[0057]** The first pin 123 in each embodiment described above is in the form of a cylindrical column. However, it is not required that the first pin 123 be in the form of a cylindrical column. For example, the first pin in the form of an elliptical column or a polygonal prism may be provided so that the angle at which the band is attached to the intermediate member can be adjusted as desired. Examples in which the first pin is in the form of a cylinder or a polygonal cylinder are also included in the present disclosure.

**[0058]** Examples of the wrist-worn device are not limited to the watches 100, 100A, 100B, 100C, and 100D in the embodiments described above. For example, the present disclosure can be applied to other wrist-worn devices, such as pulsimeters, and to bands attachable to the wrist-worn devices. The watches 100, 100A, 100B, 100C, and 100D described above as examples of the wrist-worn device each may be what is known as a digital or analog watch or any other watch that can be held to the wearer's wrist with a band.

## Summary of Present Disclosure

**[0059]** A band-holding mechanism according to the present disclosure includes a band, a holding member, and an intermediate member. The band includes a first pin in an engagement-side end portion with a case. The first pin extends in a width direction of the band. The holding member is configured to hold the band with the first pin caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case. It is sufficient that, since the holding member configured to hold the band with the first pin caught on the holding member is supported by the intermediate member that is attached to the case or inseparable from the case, the first pin extending in the width direction of the band is provided at the end of the band. This leads to a reduction in the size of the member at the end of the band and a reduction in the number of components.

**[0060]** The intermediate member of the band-holding mechanism according to the present disclosure may have an introduction groove into which the first pin is insertable. The first pin may be caught on the holding member by being inserted into the introduction groove. Since the first pin can be caught on the holding member by being inserted into the introduction groove of the intermediate member, the band can be easily attached to the case.

**[0061]** The intermediate member of the band-holding mechanism according to the present disclosure may support the holding member to be movable between a fixation position for fixing the first pin to the introduction groove and an attachment/detachment position for removing the first pin inserted into the introduction groove. Since the holding member can be shifted to the fixation position or the attachment/detachment position so that the first pin is caught on the holding member or the first pin is removed from the introduction groove, the band can be easily attached to and detached from the case.

**[0062]** The holding member of the band-holding mechanism according to the present disclosure may have a contact face that comes into contact with the first pin inserted into the introduction groove through an opening of the introduction groove. The contact face may be at an

oblique angle to a direction of insertion of the first pin to cause the holding member to move to the attachment/-detachment position when the first pin in contact with the contact face is inserted further into the introduction groove. Since the contact face of the holding member is at an oblique angle to the direction of insertion of the first pin, the first pin can be caught on the holding member by being inserted into the introduction groove without the holding member having to be manipulated. This provides the ease of attaching of the band.

**[0063]** The intermediate member of the band-holding mechanism according to the present disclosure may include a second pin by which the holding member is rotatably supported. The holding member is thus movable between the fixation position and the attachment/detachment position while being rotatably supported by the intermediate member.

**[0064]** The intermediate member of the band-holding mechanism according to the present disclosure may include a third pin with which the intermediate member is attached to the case. Thus, the intermediate member can be easily fixed to the case.

**[0065]** The intermediate member of the band-holding mechanism according to the present disclosure may include a spring rod serving as the second pin and the third pin. Since the spring rod serves as the second pin by which the holding member is rotatably supported and the spring rod also serves as the third pin with which the intermediate member is fixed to the case, the number of components can be reduced.

**[0066]** A wrist-worn device according to the present disclosure includes a case, a band, a holding member, and an intermediate member. The band includes a first pin in an engagement-side end portion with the case. The first pin extends in a width direction of the band. The holding member is configured to hold the band with the first pin caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

**[0067]** A wrist-worn device main body according to the present disclosure includes a case, a holding member, and an intermediate member. The holding member is configured to hold a band with a first pin, of the band, caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

**[0068]** A band-holding unit according to the present disclosure includes a holding member and an intermediate member. The holding member is configured to hold a band with a first pin, of the band, caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to a case or inseparable from the case.

**[0069]** A band according to the present disclosure includes a first pin in an engagement-side end portion with a case. The first pin extends in a width direction of the band. The band is configured to be coupled to the case by a holding member and an intermediate member. The first pin is caught on the holding member. The intermediate member supports the holding member. The intermediate member is attached to the case or inseparable from the case.

## Claims

1. A band-holding mechanism comprising:

   a band including a first pin arranged in an engagement-side end portion with a case, the first pin extending in a width direction of the band;
   a holding member configured to hold the band with the first pin caught on the holding member; and
   an intermediate member supporting the holding member, the intermediate member being attached to the case or inseparable from the case.

2. The band-holding mechanism according to claim 1, wherein

   the intermediate member has an introduction groove into which the first pin is insertable, and the first pin is caught on the holding member by being inserted into the introduction groove.

3. The band-holding mechanism according to claim 2, wherein the intermediate member supports the holding member to be movable between a fixation position for fixing the first pin to the introduction groove and an attachment/detachment position for removing the first pin from the introduction groove.

4. The band-holding mechanism according to claim 3, wherein

   the holding member has a contact face that comes into contact with the first pin inserted into the introduction groove through an opening of the introduction groove, and
   the contact face is at an oblique angle to a direction of insertion of the first pin to cause the holding member to move to the attachment/-detachment position when the first pin in contact with the contact face is inserted further into the introduction groove.

5. The band-holding mechanism according to claim 3 or 4, wherein the intermediate member includes a second pin by which the holding member is rotatably supported.

6. The band-holding mechanism according to claim 5, wherein the intermediate member includes a third

pin with which the intermediate member is attached to the case.

**7.** The band-holding mechanism according to claim 6, wherein the intermediate member includes a spring rod serving as the second pin and the third pin.

**8.** A wrist-worn device comprising:

a case; and
the band-holding mechanism according to any one of claims 1 to 7.

**9.** A wrist-worn device main body comprising:

a case;
a holding member configured to hold a band with a first pin, of the band, caught on the holding member; and
an intermediate member supporting the holding member, the intermediate member being attached to the case or inseparable from the case.

**10.** A band comprising a first pin arranged in an engagement-side end portion with a case, the first pin extending in a width direction of the band, the band being configured to be coupled to the case by a holding member and an intermediate member, the first pin being caught on the holding member, the intermediate member supporting the holding member, the intermediate member being attached to the case or inseparable from the case.

FIG. 1

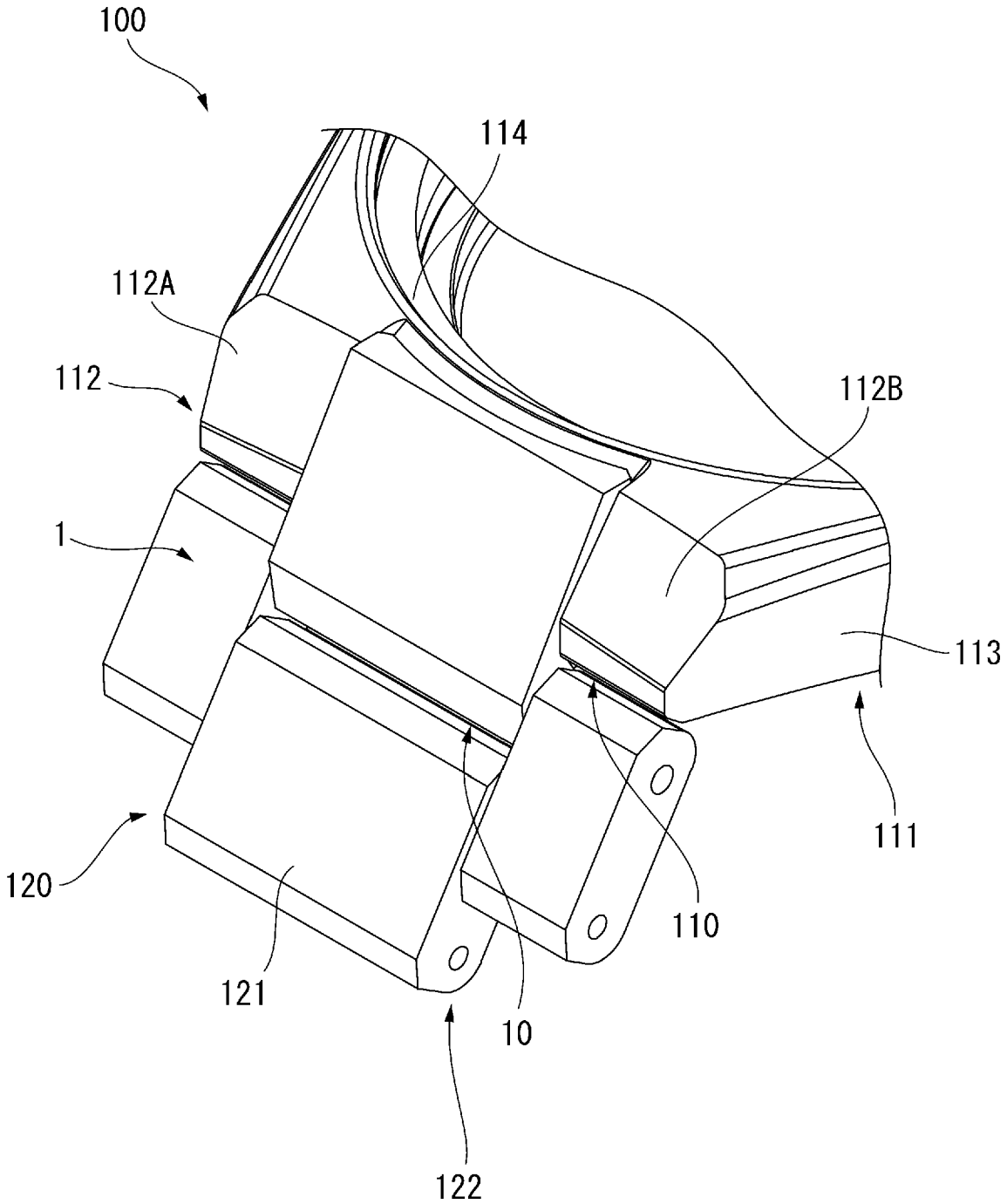


FIG. 2

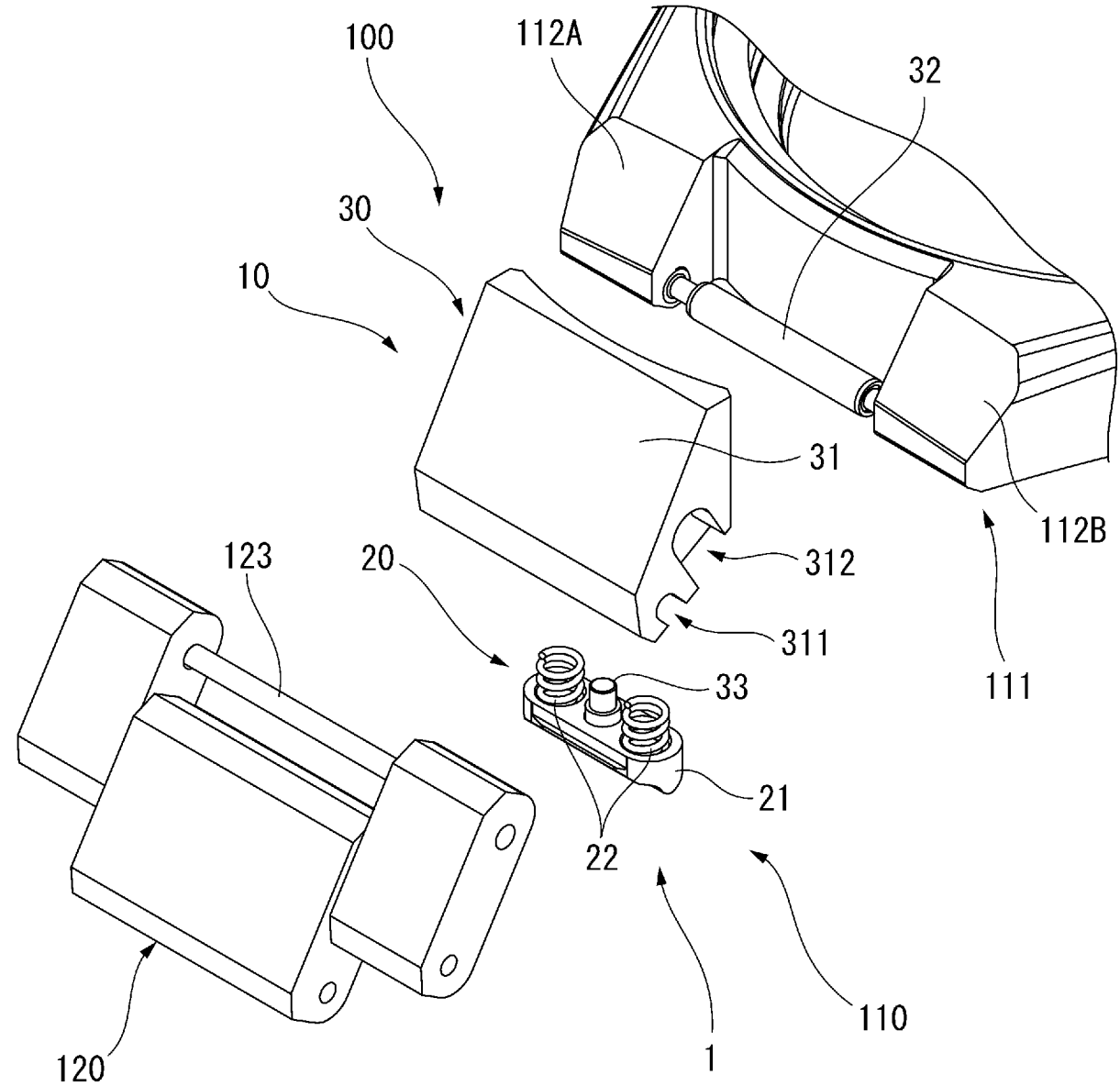


FIG. 3

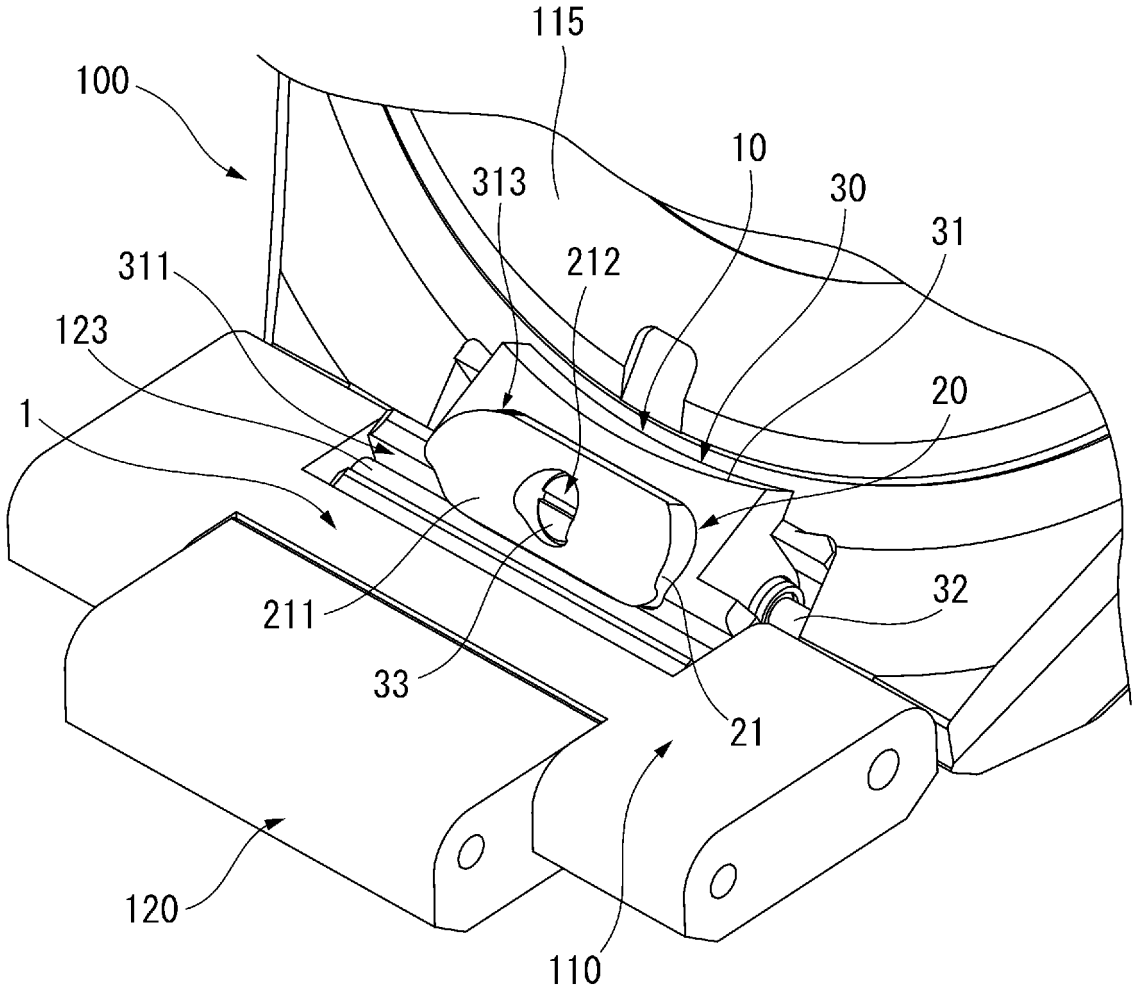


FIG. 4

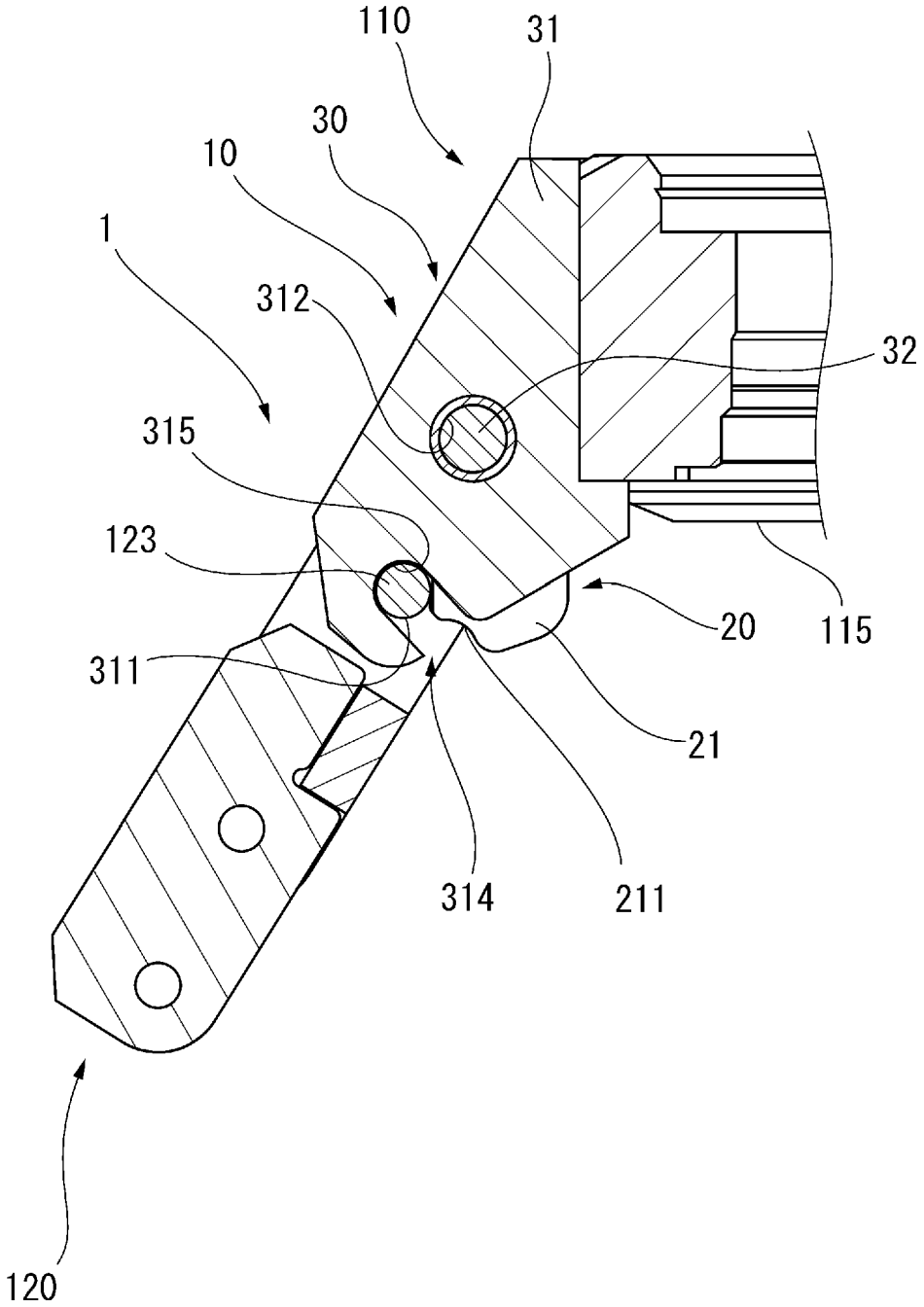


FIG. 5

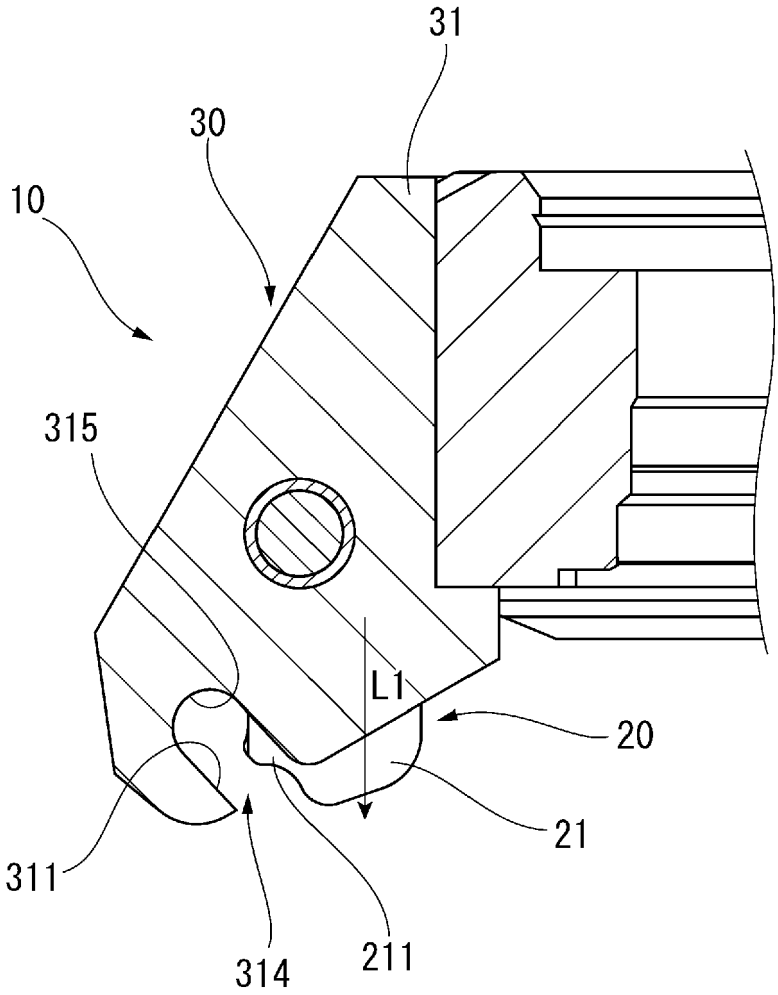


FIG. 6

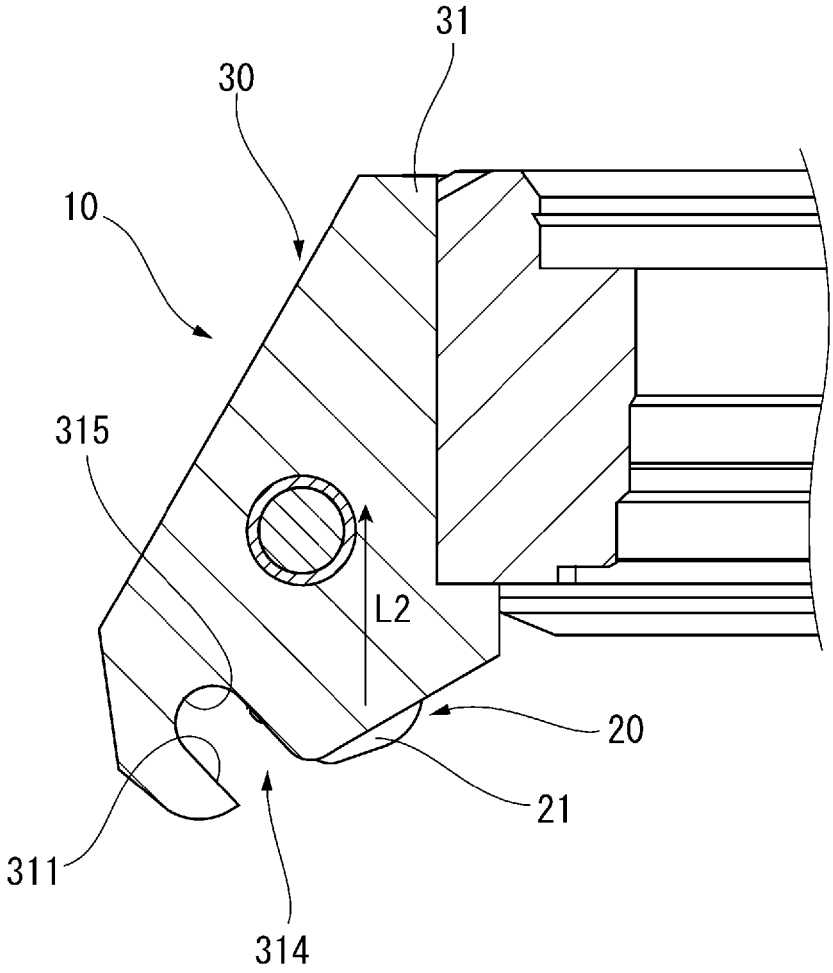


FIG. 7

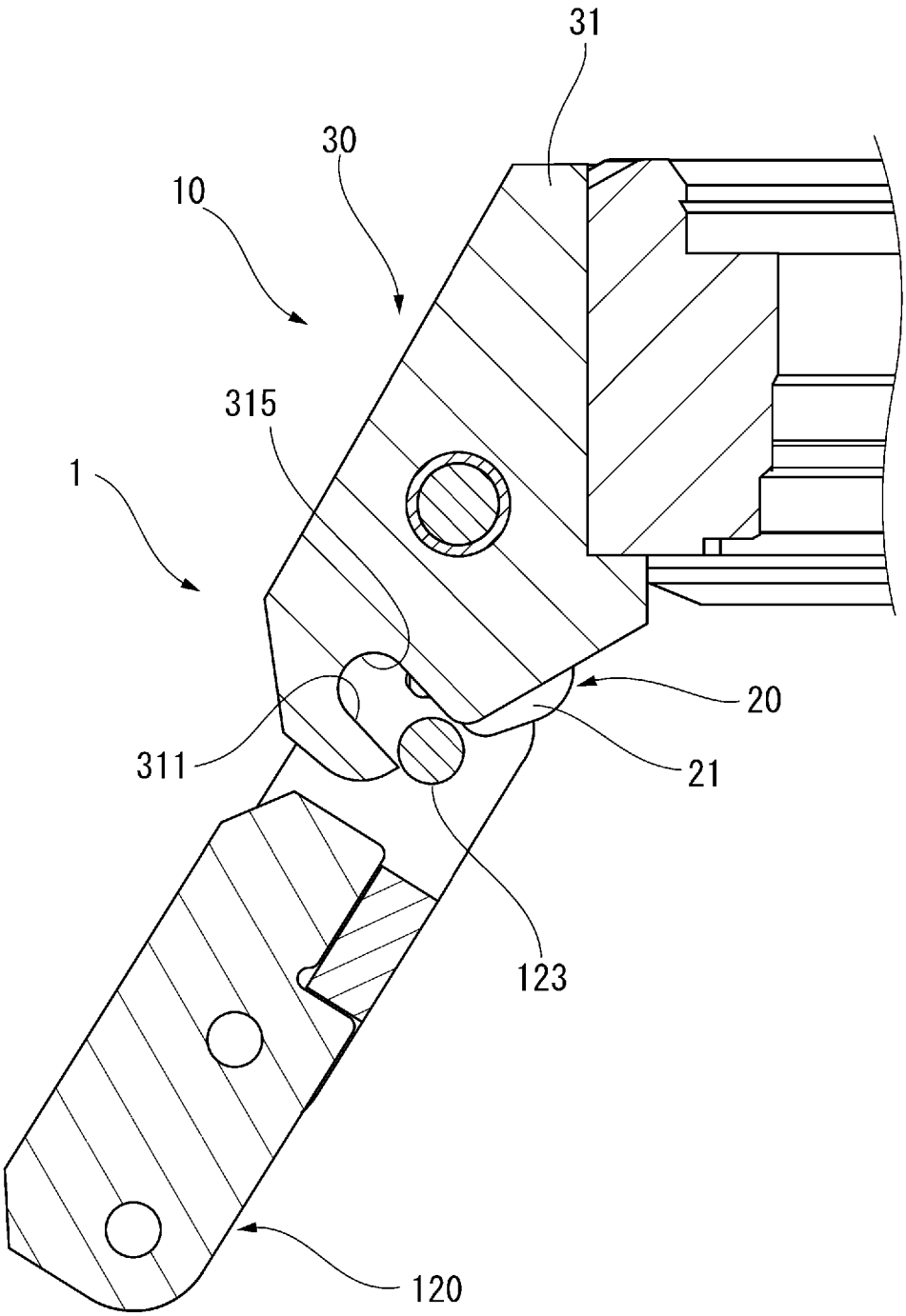


FIG. 8

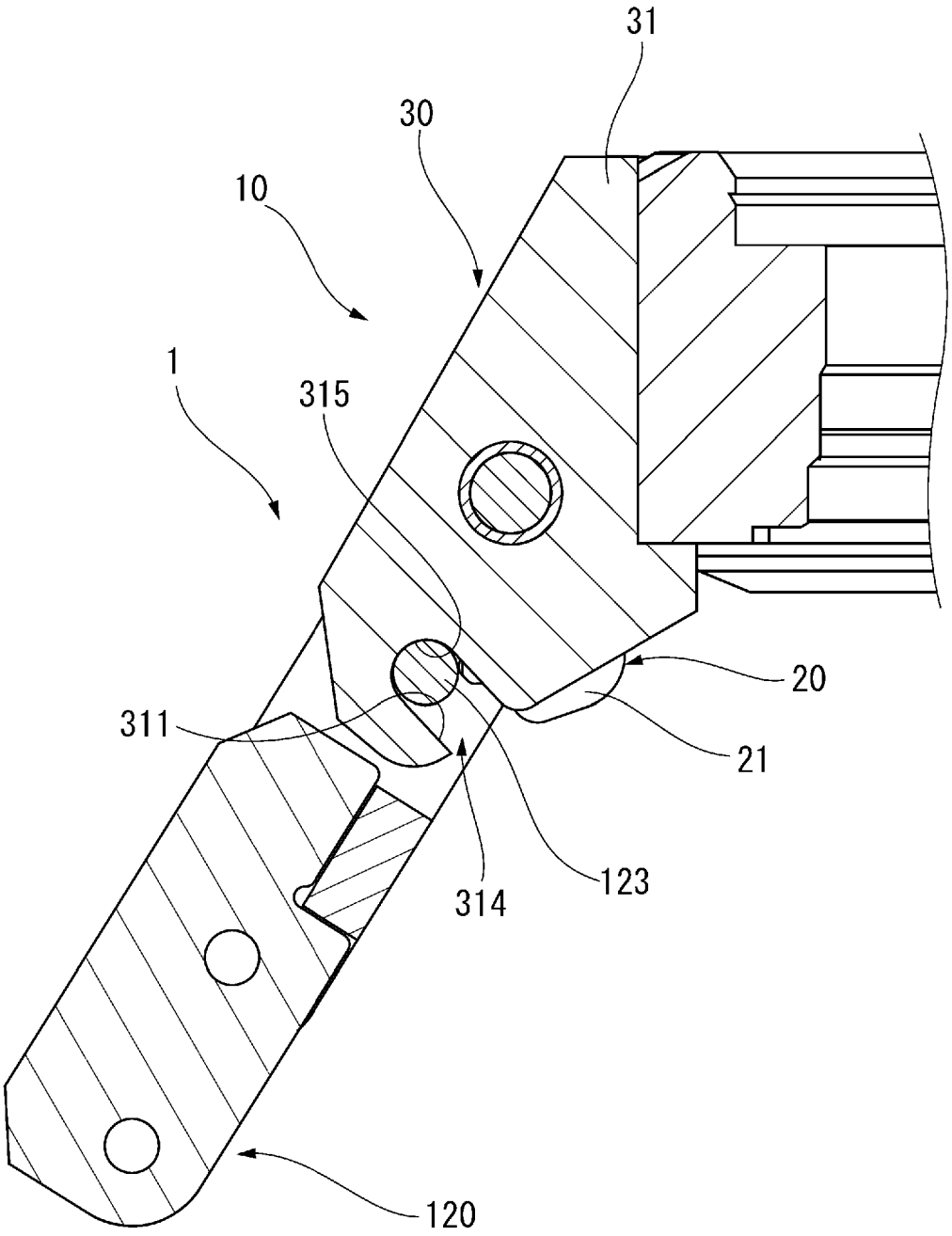
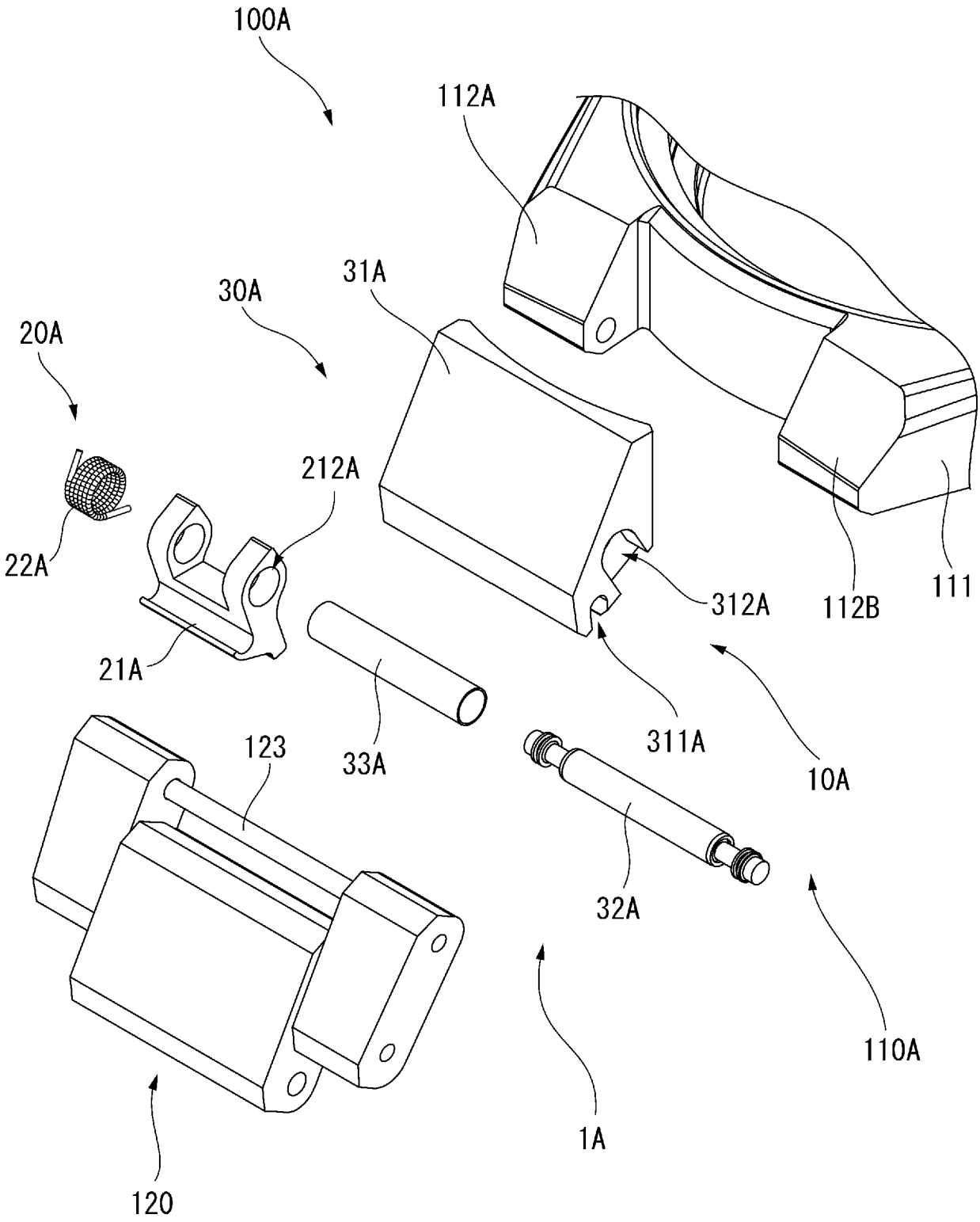


FIG. 9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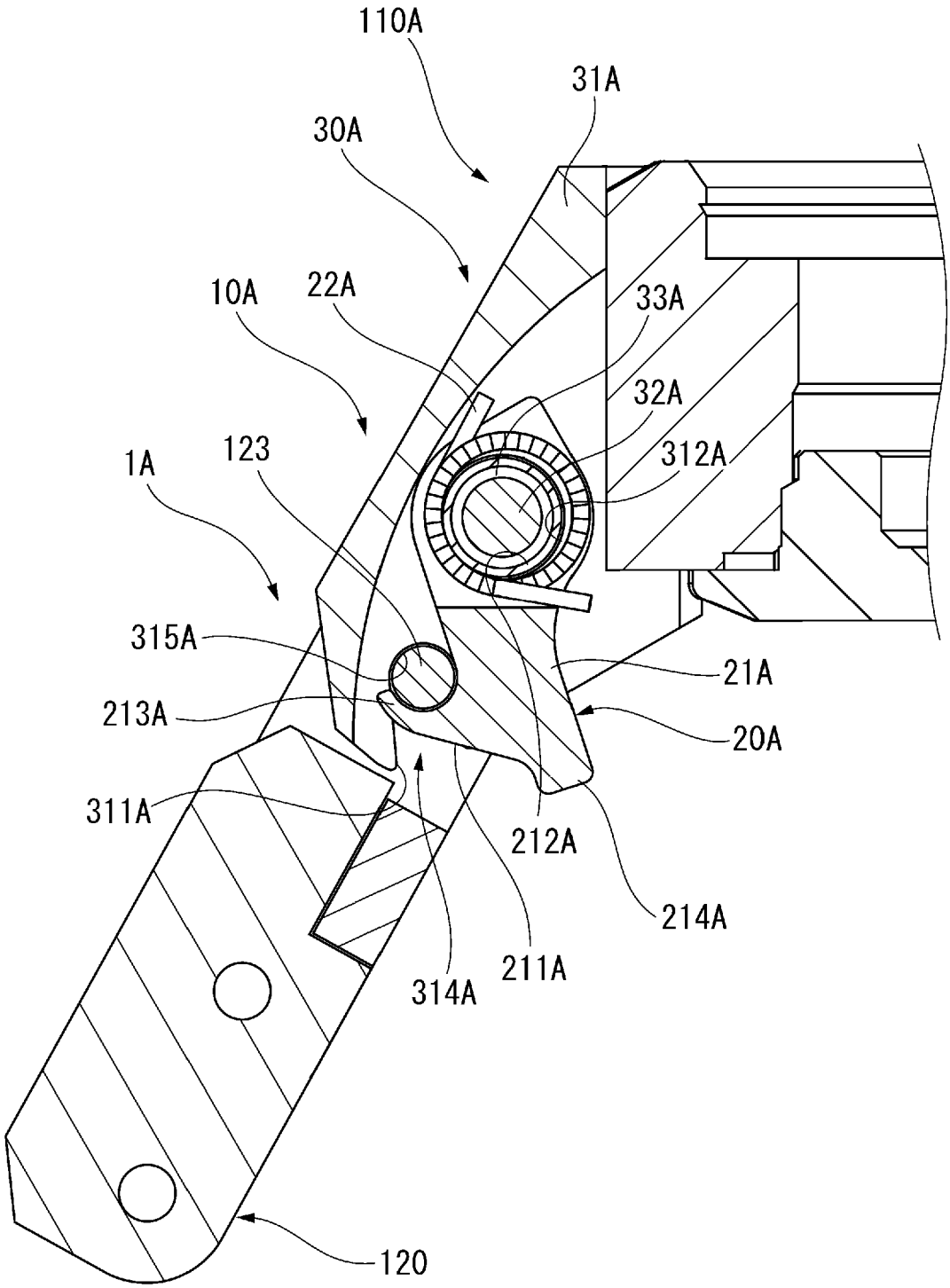
1A
120

FIG. 10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314A
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FIG. 11

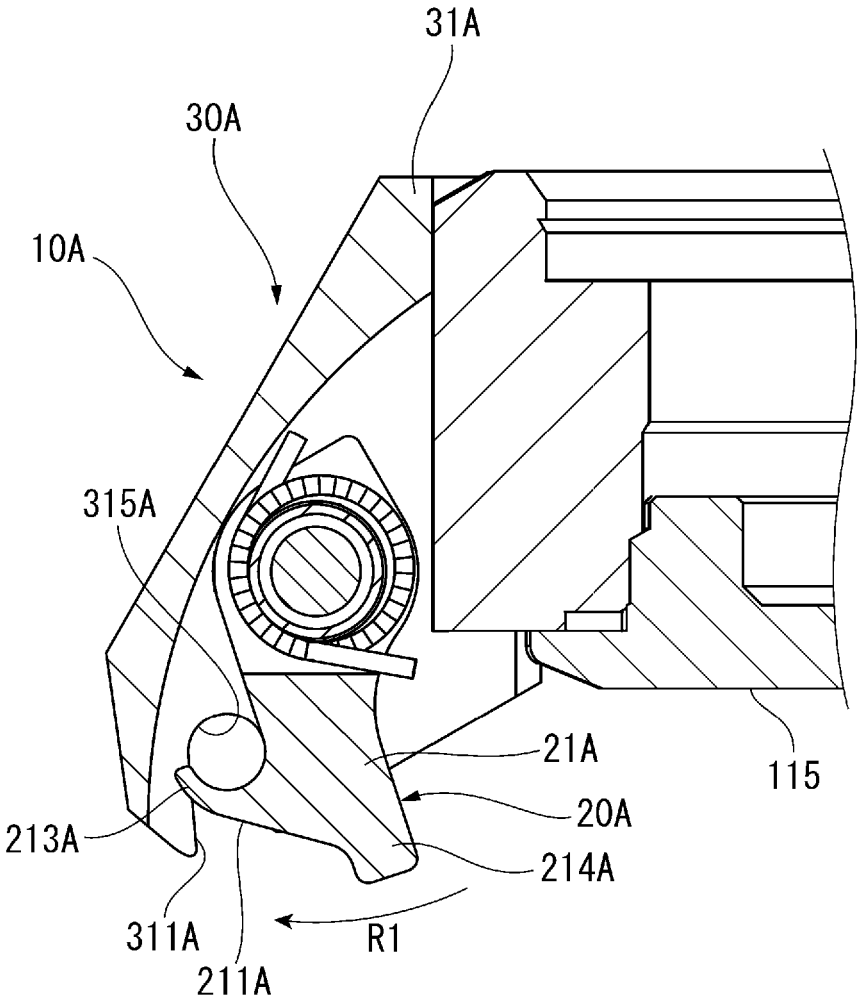


FIG. 12

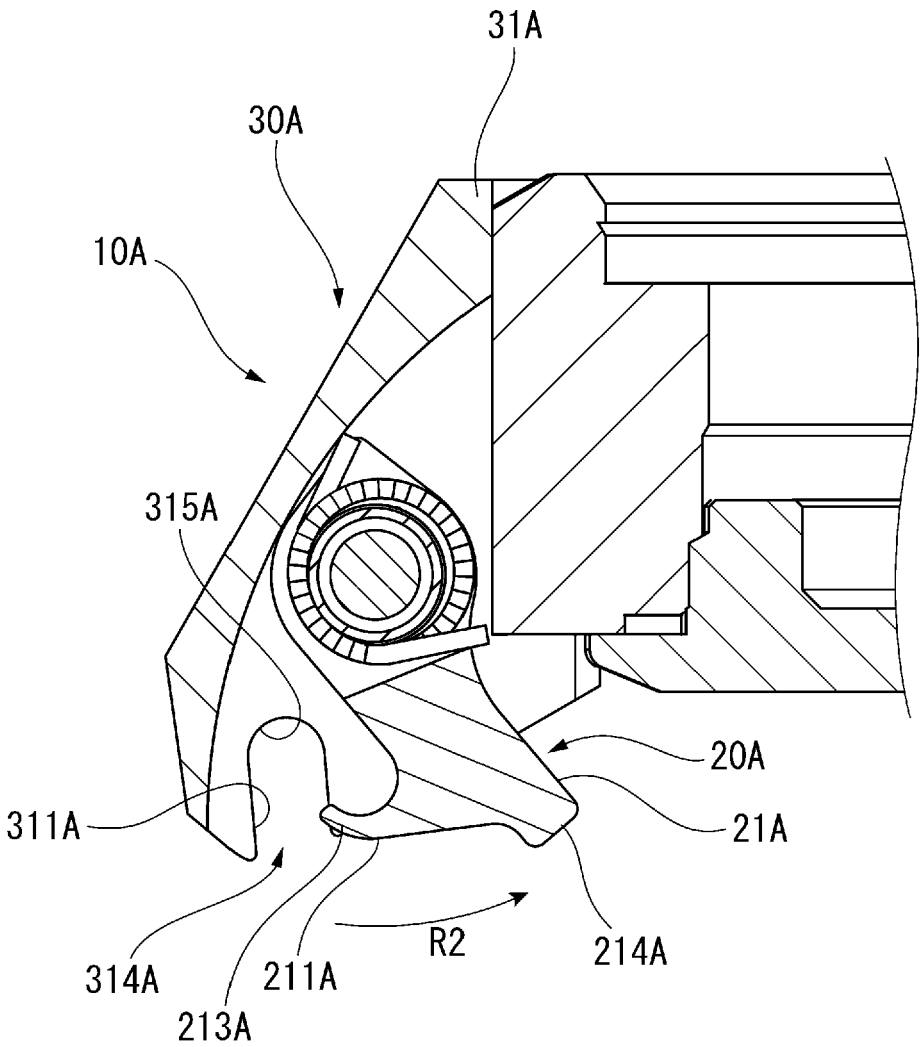


FIG. 13

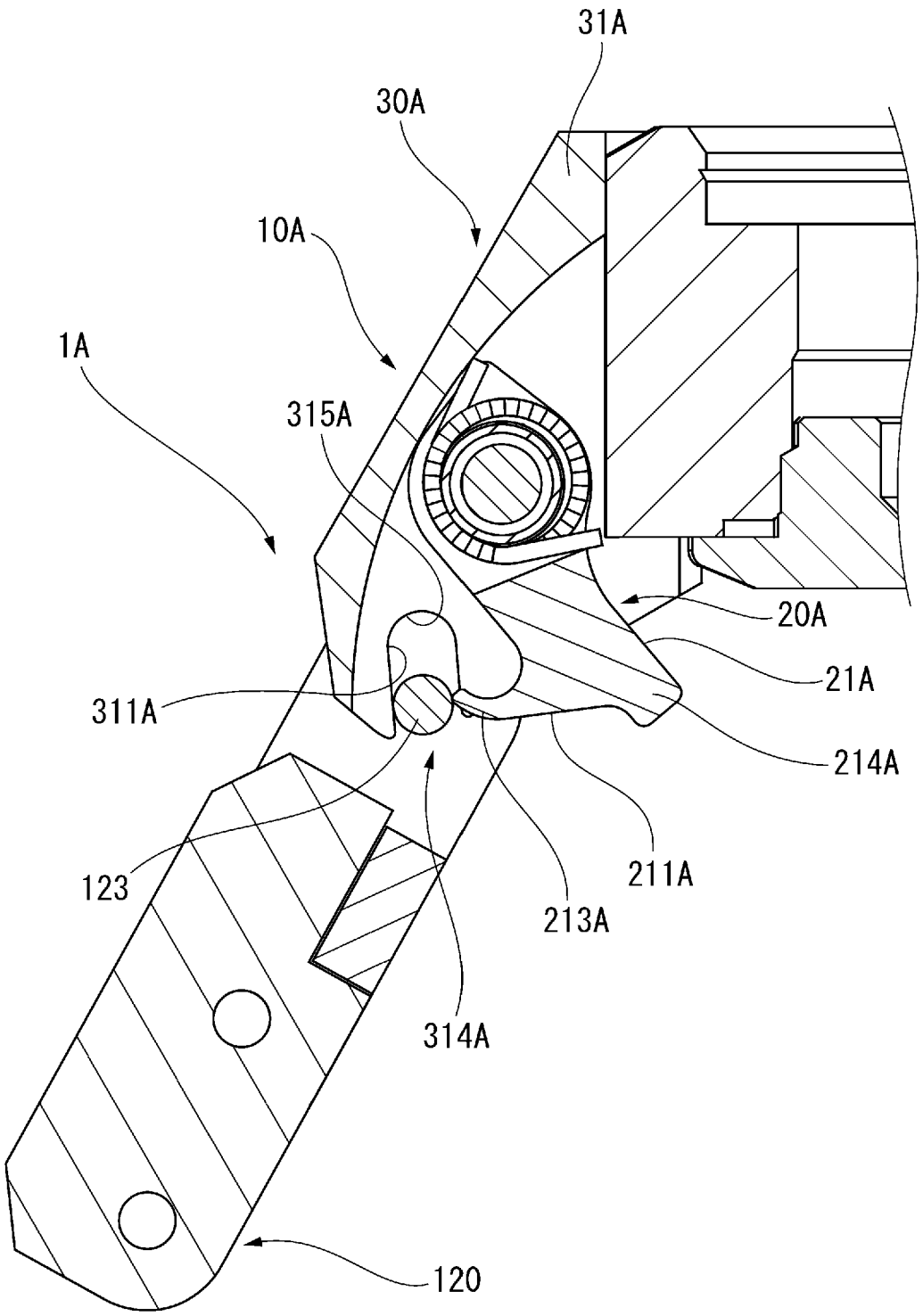


FIG. 14

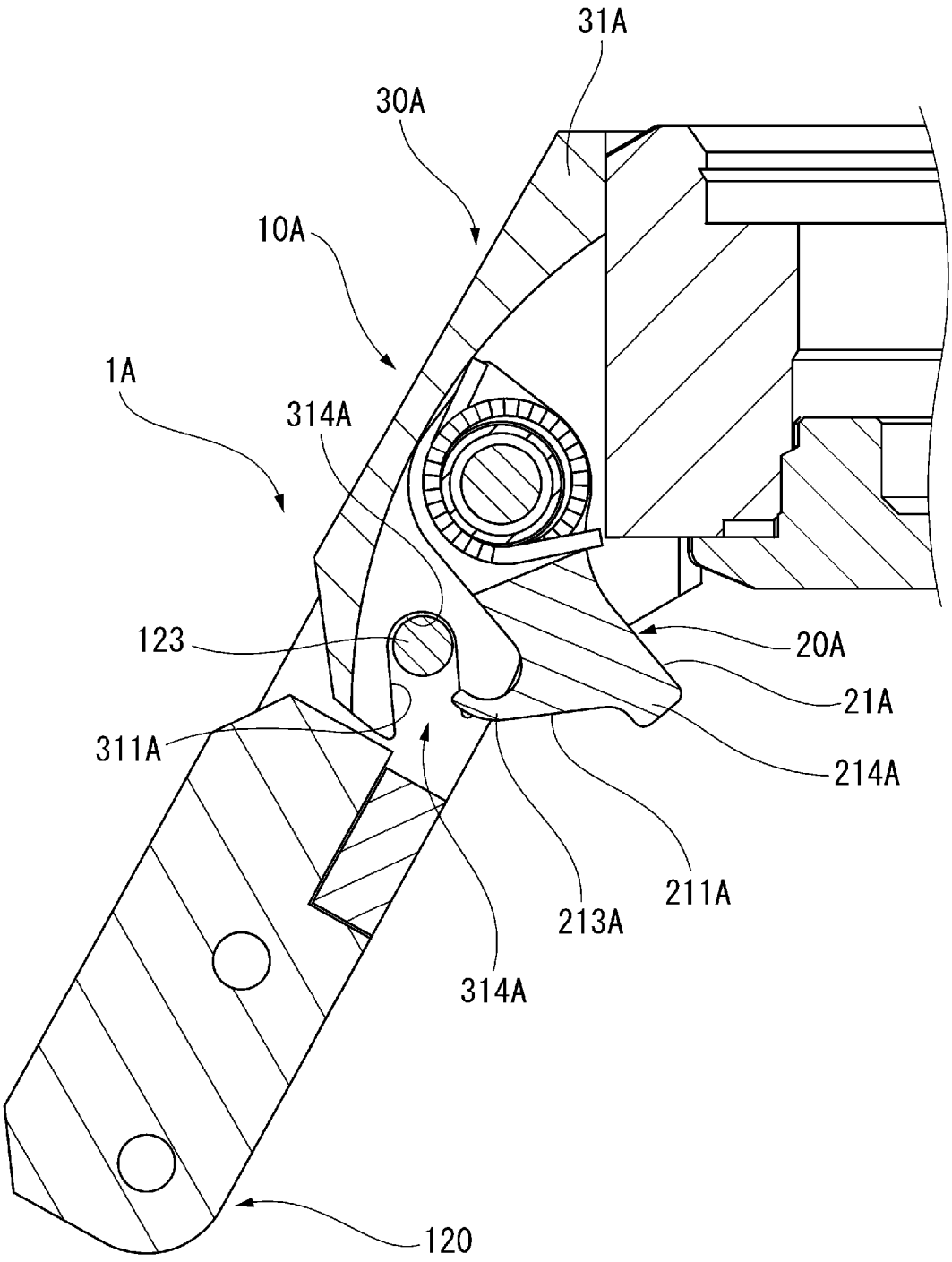


FIG. 15

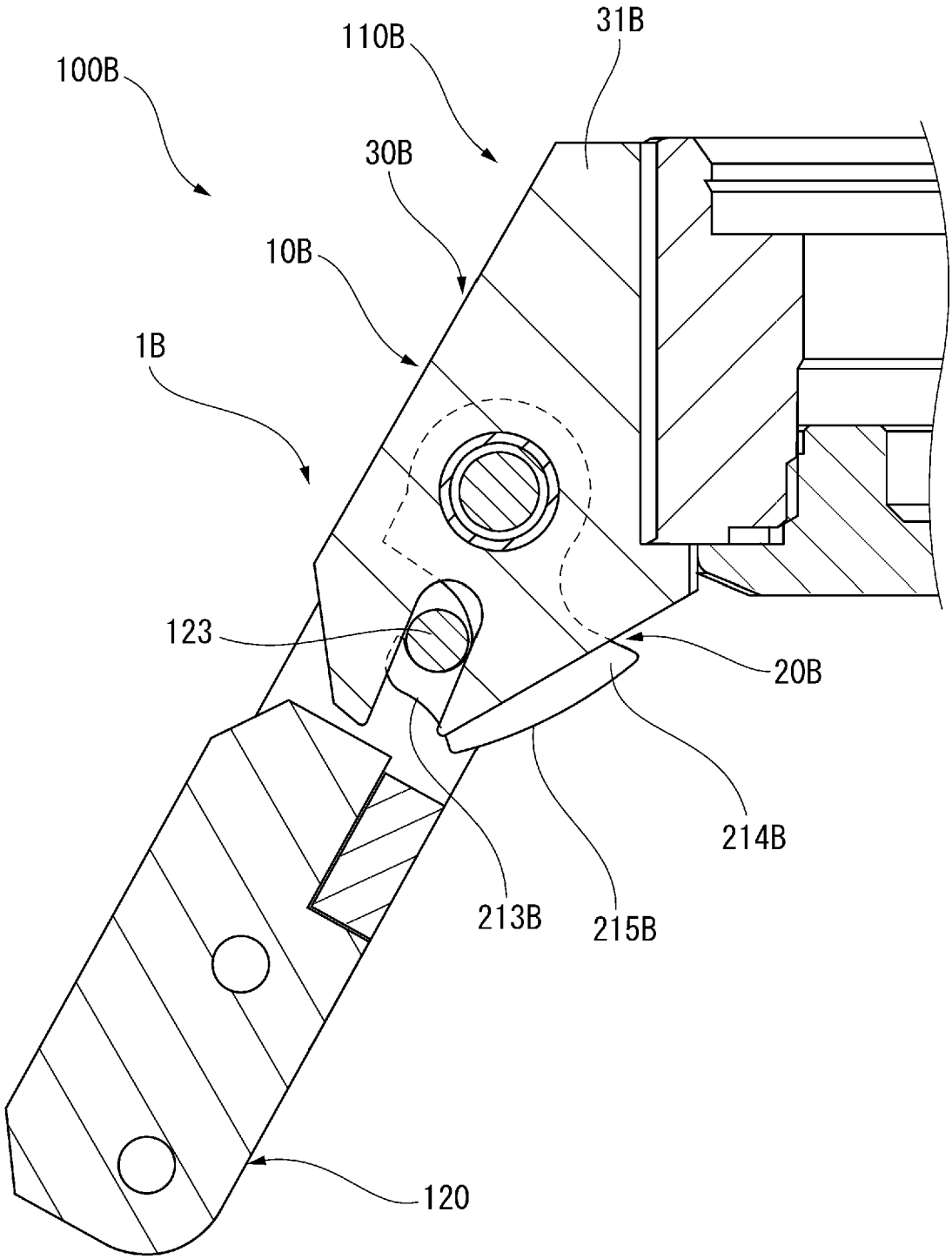


FIG. 16

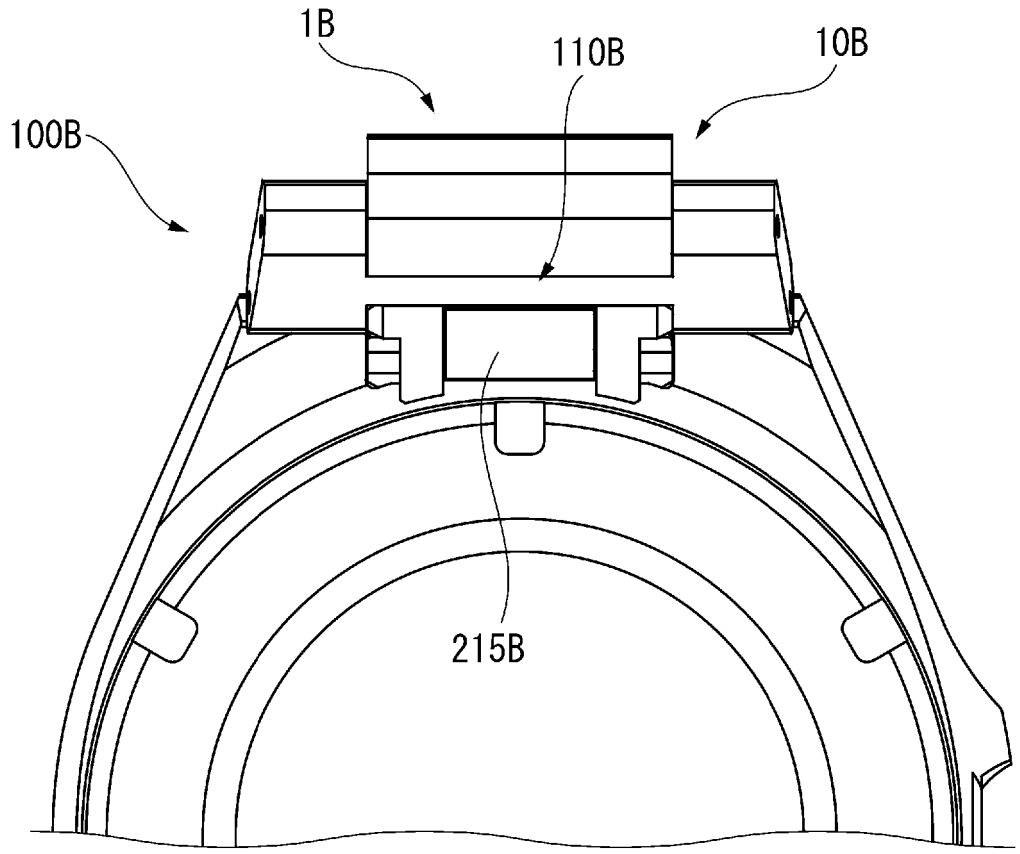


FIG. 17

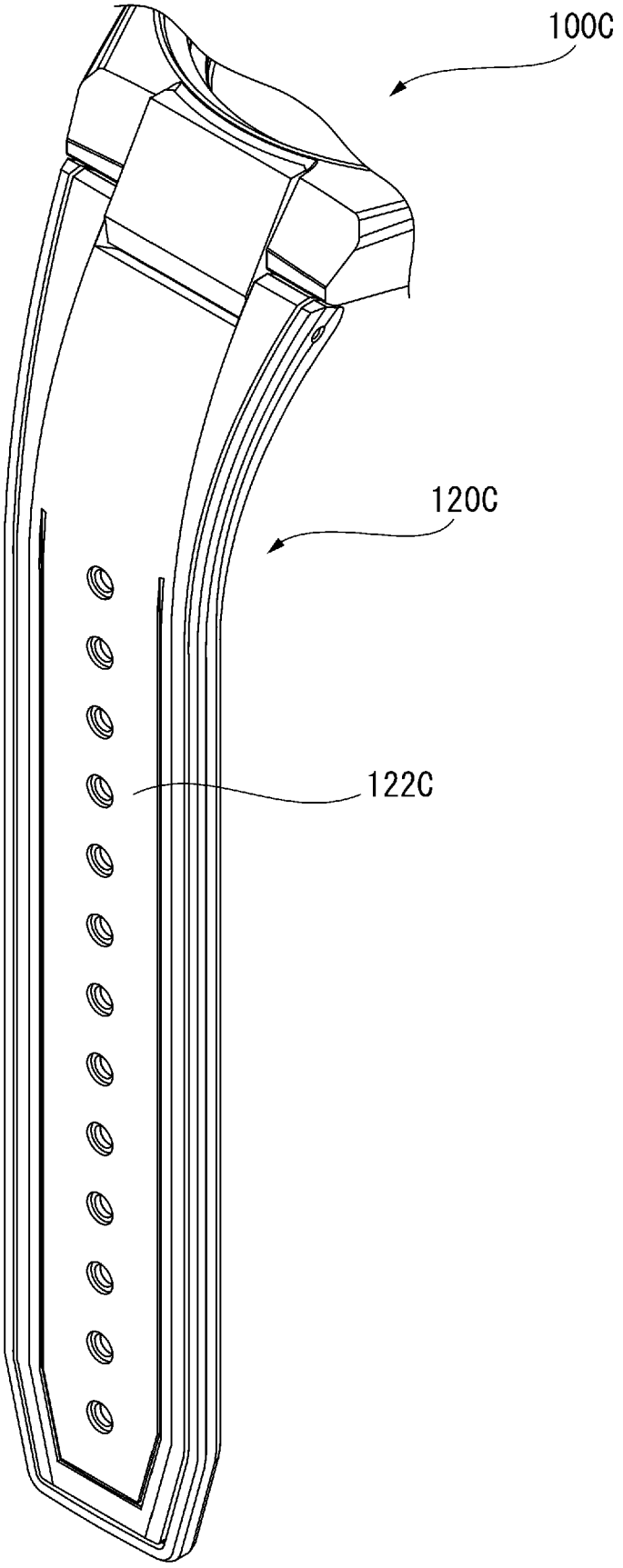
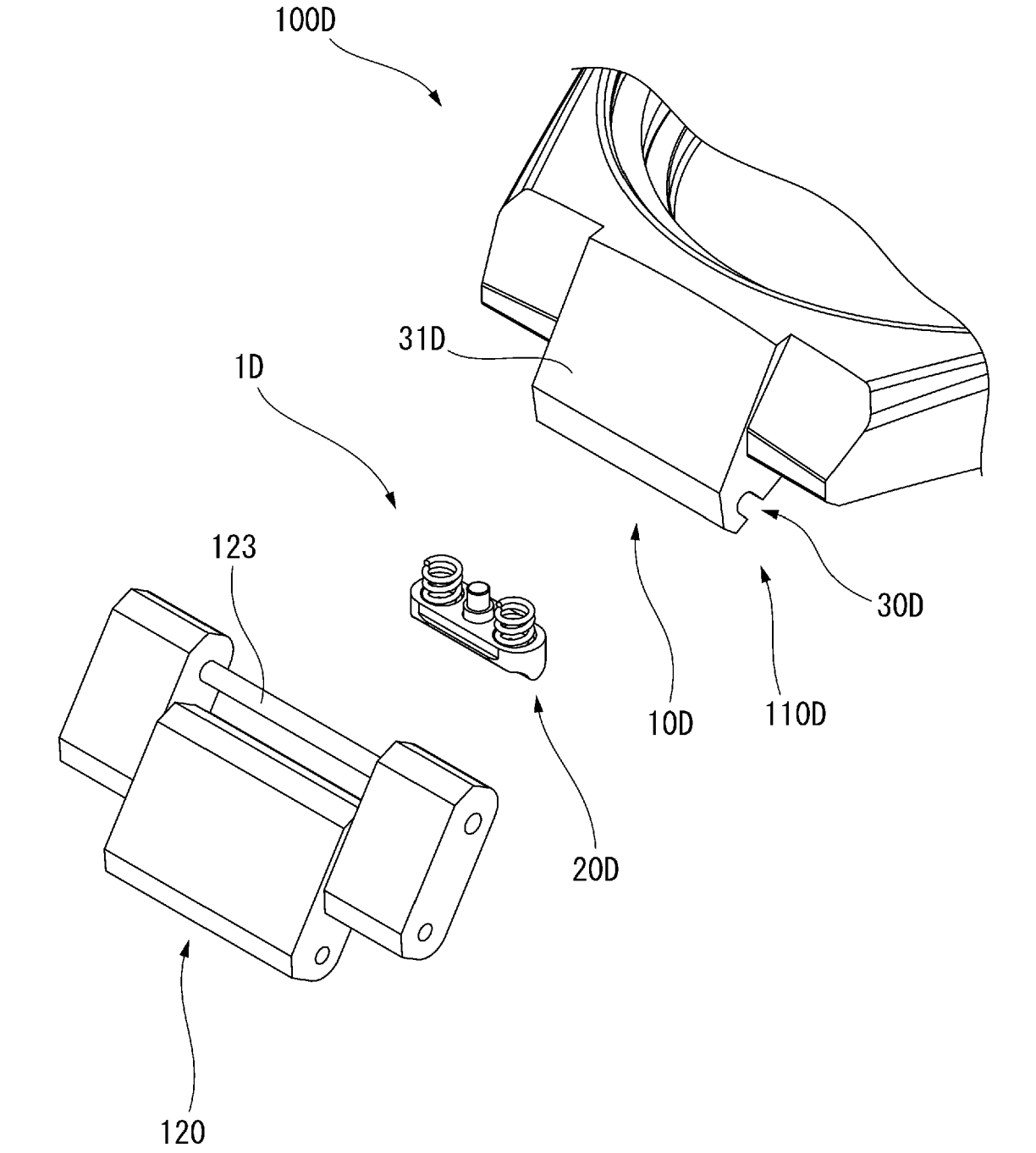


FIG. 18



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Application Number
EP 24 22 1375

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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
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| A | US 2020/142358 A1 (TANIGUCHI TSUTOMU [JP] ET AL) 7 May 2020 (2020-05-07) * paragraphs [0078] - [0081]; figure 3 * | 6,7 | |

TECHNICAL FIELDS SEARCHED (IPC)

A44C

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 8 May 2025 | Gallego, Adoración |

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# ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 24 22 1375

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

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- JP 2020074841 A **[0003] [0004] [0005]**