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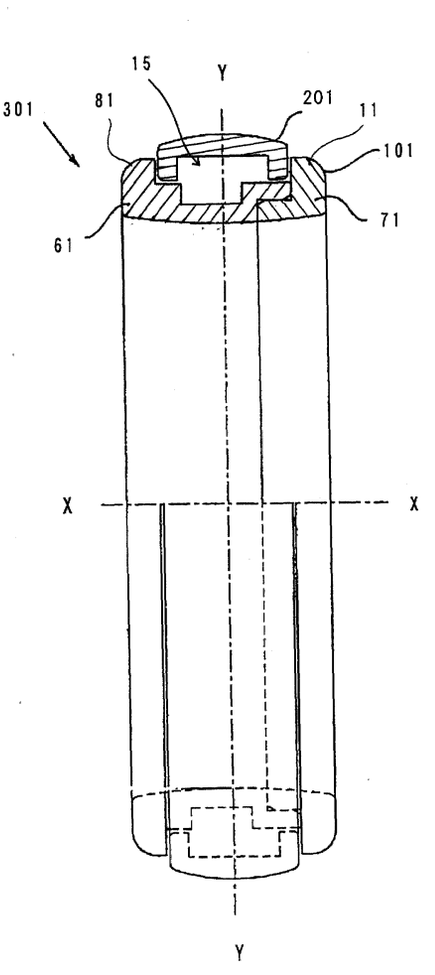
(54) Ring jewelry

(57) A ring jewelry item capable of undergoing change in appearance and being of robust structure, while having at attractive appearance and being easily assembled. The ring jewelry item comprises a first ring element and a second ring element rotatably connected with the first ring element. The first ring element may comprise a base ring and the second ring element may comprise a rotary ring rotatable mounted on a cylindrical supporting wall of the base ring. The base ring may be divided into a first ring and a second ring fitted to each other. The rotary ring is rotatably held on the supporting wall in a groove formed between annular ridges on peripheral edges of the first and the second rings. A click stop mechanism for holding the rotary ring at a plurality of rotational positions relatively to the base ring may be provided.

FIG. 2



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Description

[0001] The present invention relates to jewelry having a ring-like form.

[0002] The ring-like jewelry is known as an earring, a finger ring, an arm ring, a bracelet, a necklace, a brooch and pendant etc. In the following description, such ring-like jewelry will be simply referred to as ring jewelry.

[0003] There are know various types of ring jewelry having a complex structure permitting a part thereof to move, such as disclosed in Japanese Design Registration Nos. 941255 and 808847, as well as ring jewelry having a one-piece structure. In general, the ring jewelry of simple design is popular.

[0004] Some ring jewelry has simple design without any specific ornament for enrich appearance so as to emphasize quality of material. Some ring jewelry has a section of a circle, an ellipse or a polygon and a carving and/or a jewel is arranged at an outer periphery thereof. Although the simple design is popular, some people have a desire of changing design of the carving or a kind of the jewel, for example changing a diamond for the morning to a sapphire for the evening to be suitable for the occasion.

[0005] For acceding such requirement, there has been proposed ring jewelry where a ring body is separated to a base ring and a rotary ring mounted on the base ring rotatably, and various kinds of carvings and jewels are arranged on the rotary ring so as to permit the rotary ring to rotate with respect to the base ring, so that the appearance of the ring is changed.

[0006] Japanese Utility-Model Publication No. 51-19599 discloses a finger ring comprising a base ring having a peripheral ridge, a center ring and a side peripheral ring. After the center ring is fitted on the base annulus and the side peripheral annulus is fitted to the base annulus to hold the center ring fixedly.

[0007] This finger ring permits an exchange of the center ring with new one by removing the side ring so as to change the appearance of the finger ring. The fitting of the center ring on the base ring is not stable since it is necessary to arrange the side peripheral ring removable thus has a possibility of disengaging of the ring when the side annulus is loosened, thus is not suitable for a ring of high price to be used for a long time.

[0008] Japanese Utility-Model Publication No. 64-39013 discloses a double finger ring which has an inner ring and an outer ring fitted on the inner ring removably to permit the outer ring to move with respect to the inner ring. Since the outer ring is forcedly fitted on the inner ring from a side of the inner ring, there are possibilities that the center ring damages the base ring in the forced fitting and is disengaged with the base ring due to change of temperature thus this structure is not suitable for a costly ring.

[0009] A ring-like jewelry disclosed in Japanese Patent Publication No. 8-89317 comprises a main ring, a sub ring and a decoration ring plate. The decoration ring plage is inserted onto the main ring with a peripheral edge inserted into an annular recess formed at a peripheral edge of the main ring, and the sub ring is attached to the assembled main ring so that the other peripheral edge inserted into an annular recess formed at a peripheral edge of the sub ring. Since the main ring and the sub ring are connected fixedly by brazing, the decoration ring can not be detached or changed. The decoration ring is not rotatable since the peripheral edges are fitted into the annular recesses of the main ring.

[0010] A ring-like jewelry disclosed in Japanese Patent Publication No. 9-84611 comprises two annular elements connected together by soldering and an outer crown rotatably mounted on a groove formed by the two annular elements.

[0011] After the outer crown is inserted onto one of the annular elements, the other annular element is connected with the one annular element. An undesirable force is not applied to the outer crown in assembling the ring and the annular elements have ridges at one end to form the groove to receive the outer crown. Further, a junction between the inner crown and the outer crown is covered by the ridge to be inconspicuous and thus suitable for manufacturing a gorgeous appearing ring. However, since the tow ring elements are connected to each other by soldering, the ring elements tends to be deformed or cause discoloration by heat and require a precise soldering operation which is laborious and costly.

[0012] As disclosed in the above publication, although there is known a ring jewelry having a inner crown assembled by a plurality of components and an outer crown mounted rotatably on the inner crown, ring elements constituting the inner crown is fixedly connected by soldering.

[0013] An object of the present invention is to provide a ring jewelry item capable of undergoing change in appearance and being of robust structure, while having at attractive appearance and being easily assembled.

[0014] The ring comprises a base ring and a rotary ring. Noble metal is suitable for material of the base ring and the rotary ring for a relatively small ring such as a finger ring, but plastics, glass, stone or wood may be used as material of the base ring and the rotary ring.

[0015] The base ring may comprise tow pieces of a first ring and a second ring having substantially the same inner diameter. The inner diameters of the first and second rings are set equal to each other so as to eliminate a gap between them for comfortable feeling in wearing.

[0016] The first ring has a first annular ridge on one side thereof and a cylindrical supporting wall for rotatably supporting the rotary ring. There is formed an annular notch between the first annular ridge and the supporting wall.

[0017] The second ring has a fitting portion fitted to an end of the supporting wall of the first ring at one end thereof and a second annular ridge at the other end

thereof .

[0018] Each of the first and second annular ridge may have a cross section of a triangle, a semicircle and a trapezoid on a plane along an axis of the ring. An ornament by jewels and/or carvings may be provided on an outer circumferential surface of the first and second annular ridge.

[0019] One of an axial end of the supporting wall of the base ring and the fitting portion of the rotary ring is made to have smaller diameter than the other, to be fitted to each other without any soldering. In this case, a length of fitting between the axial end of the supporting wall and the fitting portion of the rotary ring may be set relatively large and slanted engagement may be adopted for secure fitting and engagement between the first ring and the second ring.

[0020] The first ring and the second ring are fitted together to form an annular groove between the first annular ridge and the second annular ridge. The rotary ring is held rotatably on the cylindrical supporting portion in the annular groove of the base ring. The width of the rotary ring may be set substantially equal to the width of the annular groove of the base ring, to make a junction of the base ring and the rotary ring inconspicuous.

[0021] In assembling the ring, the first ring is fitted into the rotary ring and then the second ring is fitted to the first ring. When material of the first ring and second ring is made of material which is not suitable for fitting by elastic force such as glass and stone, expansion and contraction by heat can be utilized.

[0022] A plurality of rotary rings may be held rotatably in the annular groove of the base ring.

[0023] The base ring may not be divided into two pieces to have a one-piece structure. In this case, a base ring has a first circumferential ornament portion on one side thereof and a cylindrical supporting wall having an outer diameter smaller than that of the circumferential ornament portion. A rotary ring has a second circumferential ornament portion and rotatably held on the cylindrical supporting wall of the base ring and engaged with the base ring unmovably in an axial direction of the base ring. A various engagement structure may be adopted. An annular protrusion may be formed on the cylindrical supporting wall of the base ring and an annular groove to be engaged with the annular projection may be formed on an inner surface of the rotary ring so as to make a junction of the base ring and the rotary ring inconspicious.

[0024] The annular protrusion may have a perpendicular face and a slant face continuously joining with a cylindrical surface of the supporting wall so that the rotary ring is easily fitted to the base ring but difficult to be drawn form the base ring.

[0025] Cross sections of the base ring and the rotary ring on a plane along an axis of the ring jewelry are substantially symmetrical with respect to a central plane of the ring jewelry perpendicular to said plane.

[0026] A length of the cylindrical supporting wall may be set substantially equal to a length of the rotary ring in the axial direction of the ring jewelry, and further an inner portion of an axial end of the rotary ring may be formed to project inwardly to cover an axial end of the supporting wall of the base ring so that the inner face of the projected potion is joined with an inner surface of the supporting wall of the base ring.

[0027] A click stop mechanism may be provided for holding the rotary ring at a plurality of rotational positions relatively to the base ring so as to retain a selected rotational position and prevent an unintentional rotation of the rotary ring by insensible touch in wearing. The click stop mechanism may comprise an elastic member provided between the base ring and the rotary ring by a convex/concave engagement. The elastic member may be in the form of a C-shaped wire or belt and one end of the elastic member is fixed to the rotary ring or the base ring. The convex/concave engagement may comprise a protrusion on the elastic member and one or more concaves on the supporting wall of the base ring or on an inner surface of the rotary ring. The protrusion is caught by one of the concaves with the rotation of the rotary ring relative to the base ring providing a click feeling to an wearer and the rotary ring is held at a desired rotational position. Alternatively, the click stop mechanism may comprise a ball provided between the base ring and the rotary ring and a spring for urging the ball in a radial direction of the base ring and a hole formed on an outer surface of the base ring or an inner surface of the rotary ring for accommodate the ball and the spring.

[0028] A ball bearing may be provided between the base ring and the rotary ring for smooth rotation of the rotary ring with a light external force.

[0029] For a better understanding of the invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:-

FIG. 1a and FIG. 1b are a side view and an elevation view of a ring jewelry, respectively, according to one embodiment of the present invention;

FIG. 2 is an elevation view partially in section of the ring jewelry shown in FIGS. la and 1b;

FIG. 3 is a partially sectional view of components of the ring jewelry shown in FIG. 1;

FIG. 4 is an elevation view partially in section of a ring jewelry according to a second embodiment of the present invention;

FIG. 5 is an exploded view of the ring jewelry shown in FIG. 4;

FIG. 6 is an elevation view partially in section of a ring jewelry according to a third embodiment of the present invention;

FIG. 7a and 7b are a side view and an elevation view partially in section of a ring jewelry, respectively, according to a fourth embodiment of the present invention;

FIG. 8 is an elevation of a ring jewelry according to a fifth embodiment of the present invention;

FIG. 9a is an elevation view partially in section of a ring jewelry and FIG. 9b is a side view of a part of a click stopper ring, according to a sixth embodiment of the present invention;

FIG. 10 is an elevation view partially in section of a ring jewelry according to a seventh embodiment of the present invention;

FIG. 11 is an elevation view partially in section of a ring jewelry according to a eighth embodiment of the present invention;

FIG. 12 is an elevation view partially in section of a ring jewelry according to a ninth embodiment of the present invention;

FIG. 13 is an enlarged view of a peripheral portion the ring jewelry as shown in FIG. 12;

FIGS. 14a-14d are elevation views of the ring jewelry as shown in FIG. 12 showing a different appearance with relative rotation of a first rotary ring member and a second rotary ring member; and

FIG. 15 is an elevation view partially in section of a ring jewelry according to a tenth embodiment of the present invention.

[0030] FIGS. 1a and 1b show a finger ring according to a first embodiment of the present invention. A ring 301 is formed by a combination of a base ring 101 and a rotary ring 201. Material of the base ring 101 and the rotary ring 201 is gold of 18k. Carvings 4 and jewels 5 are provided on an outer surface of the rotary ring 201 which is rotatable relatively to the base ring 101. Carvings and/or jewels may be provided as ornament on an outer surface of the base ring 101. The carvings 4 and the jewels 5 on the rotary ring 201 are arranged to provide a different appearance of the ring 301 depending on a rotational position of the rotary ring 201 with respect to the base ring 101.

[0031] As shown in FIG. 2, the base ring 101 comprises a first ring 61 and a second ring 71 divided with respect to a direction of an axis X-X of the ring 301 which is perpendicular to a central plane Y-Y of the ring 301. Inner diameters of the first ring 61 and the second ring 71 are the same.

[0032] As shown in FIG. 3, the first ring 61 has an annular ridge 81 at one axial end thereof, and a cylindrical supporting wall 91 for supporting the rotary ring 201 thereon having an outer diameter smaller than that of the annular ridge 81. The annular ridge 81 has a section of a quarter circle. An inner periphery of the supporting wall 91 at the other end is cut off to form an annular receiving recess 10. In this embodiment, an annular groove 91b is formed on an outer surface of the supporting wall 91 at an approximately central position so as to make the thickness of the supporting wall 91 approximately uniform.

[0033] The second ring 71 has an annular ridge 11 at one axial end and an annular fitting portion 71a at the other axial end. The annular ridge 11 has an outer diameter substantially equal to that of the annular ridge 81 of the first ring 61. The annular fitting portion 71a has an outer diameter and a length to fit into the receiving recess 91a of the first ring 61. The annular fitting portion 71a is fitted into the receiving recess 91a of the first ring 61 using an appropriate special tool so that the second ring 71 can not be removed without the special tool. The fitted status of the first ring 61 and the second ring 71 is securely maintained by elastic forces acting between an annular protrusion 91c of the supporting wall 91 and the annular fitting portion 71a of the second ring 71 in the radial direction. The outer periphery of the annular fitting portion 71a of the second ring 71 may have a slightly slanted cross section to have an increased diameter at its axially inner end portion, and the receiving recess 91a of the supporting wall 91 may have a slightly slanted cross section to have an increased diameter corresponding to the slanted cross section of the annular fitting portion 71a at its axially inner end portion to further secure the fitted status.

[0034] The first ring 61 and second ring 71 connected to each other by fitting forms the base ring 101 as shown in FIG. 2. The annular ridges 81 and 11 are presented on respective axial ends of the base ring 101 and a holding groove 15 is formed between the annular ridges 81 and 11. The outer circumferential surface of the annular ridges 81 and 11 are provided with carvings and/or jewels or finished by polishing as a part of the circumferential ornament on the ring 301.

[0035] The rotary ring 201 has ribs 201a and 201b at respective axial ends thereof, which project inwardly in the radial direction, to form a groove 201c between them. The groove 201c is formed for making a thickness of the rotary ring 201 uniform. A width of the rotary ring 2 in the axial direction is set approximately equal to or slightly smaller than a width of the holding groove 15 of the base ring 101.

[0036] When assembling the ring 301, the supporting wall 901 of the first ring 61 is inserted into the rotary ring 201 and then the second ring 71 is fitted to the first ring 61. The rotary ring 201 is thus held in the holding groove 15 of the base ring 101 between the annular ridges 81 and 11 with the ribs 201a and 201b restricted by the annular ridges 81 and 11. The rotary ring 201 is supported on the cylindrical supporting wall 901 of the first ring 61 rotatably with respect to the base ring 101. In this embodiment, the rotary ring 201 is permitted to rotate by an appropriate external force and not to rotate by a minute force by adjustment of axial width and depth of the holding groove 15 of the base ring 101 and the axial width of the rotary ring 201, i.e., a distance between outer faces of the ribs 201a and 201b.

[0037] The appearance of the ring 301 can be changed by rotating the rotary ring 201 with respect to the base ring 101 to move the carvings and/or jewels on the outer surface of the rotary ring 201. Thus, the combination of the carvings and/or jewels on the rotary ring

200 and the carvings and/or jewels on the annular ridges 81 and 11 of the base ring 101 is changed with the rotation of the rotary ring 201 relative to the base ring 101.

[0038] Since the ring 301 is assembled without welding or adhesive, the ring 301 can be disassembled to the first ring 61, the second ring 71 and the rotary ring 201 to permit exchange of the rotary ring 201 o another one. The exchange of the rotary ring 201can be carried out as a special service by an dealer and is not carried out by an owner in general. Further, since welding or adhesion is not required in the assemble process of the ring 301, the assembling process of the ring 301 is simple without causing any damages or befouling on the material of the base ring 101 and the rotary ring 201.

[0039] Furthermore, a plurality of rotary rings having different carvings and/or jewels may be prepared for one kind of the base ring, to produce a different ring by a different combination of one of the rotary rings and the base ring in accordance with an order of a customer.

[0040] FIGS. 4 and 5 show a second embodiment in which a base ring is not divided into two pieces.

[0041] A base ring 102 has an annular ridge 82 at one axial end thereof on which a peripheral ornament is provided and a cylindrical supporting wall 92 thinner than the annular ridge 82 at the other axial end. As contrasted with the first embodiment, the base ring 102 is a one-piece element and not divided into two pieces.

[0042] An annular protrusion 92a is provided on an outer surface of the supporting wall 92 with an appropriate distance from the annular ridge 82. The annular protrusion 92a has a perpendicular surface on one side closer to the annular ridge 82 and a slant surface gradually joining a cylindrical surface of the supporting wall 92.

[0043] The rotary ring 202 has an annular ring portion 20 and an annular ridge 12 integrally formed with the annular ring portion 20 at an axially outer end thereof. A cylindrical fitting surface 202c to be fitted on the supporting wall 92 of the base ring 102 is formed inside the rotary ring 202. The rotary ring 202 has a section substantially comprising a combination of a section of the rotary ring 201 and a section of the annular ridge 11 of the second ring 71 in the first embodiment. 'The fitting face 202c is formed by inner surfaces of ribs 202a and 202b and the annular ridge 12.

[0044] For assembling the ring 302, the rotary ring 202 is pressed to be fitted on the supporting wall 92 of the base ring 102, so that an chamfered edge of the rib 202a is moved on the slant surface of the annular protrusion 92a and the rib 202a is engaged with a channel between the annular ridge 82 and the perpendicular surface of the annular protrusion 92a. Thus, the rotary ring 202 is rotatably held on the cylindrical supporting wall 92 of the base ring 102 not to move in the axial direction X-X relatively to the base ring 102. Since a width of the supporting wall 92 of the base ring 102 in the axial direction X-X is large, the rotary ring 202 is securely held on the base ring 102 without looseness by setting a diameter of the fitting surface 202c of the rotary ring 202 to be substantially equal to or slightly larger than an outer diameter of the supporting wall 92 of the base ring 102.

[0045] Although the base ring 102 and the rotary ring 202 according to this embodiment are not symmetrical with respect to the central plane Y-Y of the ring 302, a profile of the outer surfaces of the base ring 102 and the rotary ring 202 including the annular ridges 82 and 12 is arranged symmetrical. Further, it is preferable to set end faces of the supporting wall 92 of the base ring 102 and the annular ridge 12 of the rotary ring 201 to be settled in the same plane to enhance the appearance of the ring 301.

[0046] FIG. 6 shows a third embodiment of the present invention. As shown in FIG. 6, an inner portion of an annular ridge 13 of the rotary ring 203 is formed to project inwardly of the ring 303 to cover an axial end of a supporting wall 93 of a base ring 203. The inner surface of the projected portion of the annular ridge 13 is joined with an inner surface of a base ring 103 not to project inwardly of the ring 303 and an axially inner face of the projected portion abuts on the end of the supporting wall 93 of the base ring 103.

[0047] With this arrangement, there appears no junction between the axial end of the base ring 103 and the annular ridge 13 of the rotary ring 203 on the lateral side of the ring 303, to enhance the appearance of the ring 302.

[0048] FIGS. 7a and 7b show a fourth embodiment in which an elastic member is incorporated. A ring 304 comprises a base ring 104, a rotary ring 204 and an elastic member of a C-shaped spring 23. The base ring 104 has a first ring 64 and a second ring 74 fitted to each other.

[0049] The base ring 104 has eight concaves 21 on an outer surface of a supporting wall 94 of the base ring 104 at a central position of a width of the ring 304 with the same interval of 45° in the circumferential direction. An annular groove 22 is formed on an inner surface of the rotary ring 204 to accommodate the C-shaped spring 23. The spring 23 is arranged in the annular groove 22 between the supporting wall 94 of the base ring 104 and an inner surface of the rotary ring 204. The C-shaped spring 23 is made of a wire formed into a shape obtained by cutting off a part of a circle, and has three convexes 24 in the radial direction with the same interval of approximate 120° in the circumferential direction, and one end 25 of the spring 23 is engaged with a hole formed in the annular groove 22 of the rotary ring 204.

[0050] When the rotary ring 204 is rotated with respect to the base ring 104, the C-shaped spring 23 rotates with the rotary ring 204 and one of the convexes 24 of the spring 23 is caught by one of the concaves 21 of the base ring 104 successively at every 15°, providing a click feeling to fingers of a wearer. The rotary ring 204 can be held with respect to the base ring 103 at a desired

position with the click feeling. Thus, a click-stop mechanism is provided by the concaves of the base ring 104 and the convexes of the wire spring 23.

[0051] With the above arrangement, the rotary ring 204 is easily held at a desired position not to deviate form the selected desired position even when the rotary action of the rotary ring 204 is set to be performed with a light force.

[0052] FIG. 8 shows a fifth embodiment of the present invention. A ring 305 comprises a base ring 105, a rotary ring 2, coil springs 28 and steel balls 29. The base ring 105 has a first ring 65 and a second ring 75 fitted to each other.

[0053] Eight concaves 26 are provided on an outer surface of a supporting wall 95 of the base ring 105 at a central position of width of the supporting wall 95 with the same interval of 45° in the circumferential direction. Two holes 27 are provided on an inner surface of the rotary ring 205 at a central position of a width thereof with an interval of 212.5 ° in the circumferential direction. A coil spring 28 and a steel ball 29 are accommodated in each hole 27 of the rotary ring 205. For assembling the ring 305, the rotary ring 205 with the steel balls 29 and the coil springs 28 accommodated in the two holes 27 is fitted onto the supporting wall 95 of the first ring 65. The steel ball 29 is urged towards the supporting wall 95 by the coil spring 28. Then, the second ring 75 is fitted to the first ring 65 to complete the ring 305.

[0054] With this structure, when the rotary ring 205 is rotated with respect to the base ring 105, the steel balls 29 urged towards the supporting wall 95 rotate with the rotary ring 205 and one of the steel balls 29 is caught by one of the concaves 28, as shown in FIG. 8, so that the rotary ring 205 is held at that position with respect to the base ring 105 providing a wearer with a click feeling. The rotary ring 205 is held at 16 rotational positions in this embodiment by the engagement between the eight concavities 28 and the two steel balls 29.

[0055] In this embodiment, diameters of the coil spring 28 and the steel ball 29 are set to approximately 0.8mm. The coil springs 28 and the steel balls 29 can be used for the rings 305 having different diameters for finger rings and also for bracelets. In the foregoing fourth embodiment, it is necessary to use the spring 23 having a diameter dedicated for the ring 304.

[0056] FIGS. 9a and 9b show a sixth embodiment in which holes 27 for accommodating coil springs 28 and steel balls 29 are formed on an outer surface of a base ring 106. The rotary ring 206 has a click stopper ring 31 on an inner side thereof. The click stopper ring 31 has twelve V-shaped recesses 32 with the same interval of 30° in the circumferential direction. The two holes 27 for accommodating the coil springs 28 and the steel balls 29 are arranged with an interval of 165°. With this arrangement, the rotary ring 206 is held at 24 rotational positions with respect to the base ring 106.

[0057] In this embodiment, the steel ball 29 smoothly moves on the slant surface of the V-shaped recess 32 when engaging with the recess, to provide a mild click feeling to a wearer.

[0058] FIG. 10 shows a seventh embodiment in which a plurality of rotary rings 207a-207c are provided on a base ring 107.

[0059] As shown in FIG. 10, three rotary rings 207a-207c are rotatably held on the base ring 107. In this embodiment, the base ring 107 may be larger than that of an ordinary ring in width but some people prefer a wide ring.

[0060] In this embodiment, a precise ball bearing 30 is provided between the rotary ring 207a-207c and the base ring 107 for smooth rotation. This arrangement is suitable for a bracelet as well as a finger ring since the respective rotary rings 207a-207c rotate on the base ring 107 with motion of an arm of a wearer to change the combination of carvings 47a-47c on the respective rotary rings 207a-207c and thus change appearance of the ring 307.

[0061] FIG. 11 shows an eighth embodiment which is a modification of the third embodiment as shown in FIG. 6.

[0062] A ring 308 comprises a base ring 108 and a rotary ring 208 fitted to each other. A radially outer end of a ridge portion 88 projects in an axial direction X-X of the ring 308 to form a circumferential wall 108a on which ornament by jewels 58 is provided. A cylindrical supporting wall 98 of the base ring 108 has an annular protrusion 98a at a position closer to an axial end thereof. The rotary ring 208 on which ornament by jewels 59 is provided has a rib 208a engaged with the annular protrusion 98a of the supporting wall 98. The rib 208a is held between the axial end of the circumferential wall 108a and the annular protrusion 98a. Thus, the rotary ring 208 is rotatably held on the cylindrical supporting wall 98 of the base ring 108 not to move in the axial direction X-X relatively to the base ring 108.

[0063] In this embodiment, an outer circumferential surface of the ring 308 is divided approximately equally into an outer surface of the circumferential wall 108a of the base ring 108 and an outer surface of the rotary ring 208. With this arrangement, a change of appearance of the ring 308 by the relative rotation of the base ring 108 and the rotary ring 208 is enhanced since a change of combination of the ornament by the jewels 58 on the outer surface of the base ring 108 and the ornament on the outer surface of the rotary ring 208 is performed on a substantially half area of the whole outer peripheral surface of the ring 308.

[0064] In this embodiment, the base ring 108 and the rotary ring 208 have cylindrical outer surfaces. Alternatively, the base ring 108 and the rotary ring 208 may be formed to have a section of polygon or a plurality of circular arcs in a plane perpendicular to the central axis X-X.

[0065] FIGS. 12, 13 and 14a-14d show a ninth embodiment of the present invention.

[0066] A ring 309 comprises a first rotary ring member

109 and a second rotary ring member 209 which are fitted to each other to be rotatable but unmovable in an axial direction X-X of the ring 309. The first rotary ring member 109 and the second rotary ring member 209 are connected to each other with axially inner surfaces 109a and 209a abutting with each other. The first rotary ring member 109 has an annular groove 109b on the inner surface 109a to form a cylindrical supporting wall 109c at the inner portion of thereof. The second rotary ring member 209 has an annular projection 209b fitted into the annular groove 109b of the first rotary ring member 109. An annular protrusion 209c is formed at an end portion of the annular projection 209b of the second rotary ring member 209 and is engaged with an annular groove 109d formed on an outer circumference of the supporting wall 109c. A concave 209d on an outer periphery of the second rotary ring member 209 shown in FIG. 13 is formed for embedding a jewel 59b.

[0067] One or more holes 27 are formed axially in the first rotary ring member 109 at the bottom of the annular groove 109b. A coil spring 28 and a steel ball 29 are accommodated in each hole 27 of the first rotary ring member 109. An appropriate number of concaves 26 are provided on an outer end of the annular projection 209b of the second rotary ring member 209 with an appropriate interval in the circumferential direction. For assembling the ring 309, the first rotary ring member 209 with the steel balls 29 and the coil springs 28 accommodated in the holes 27 is fitted to the second rotary ring member 209. The steel ball 29 is urged towards the annular projection 209b of the second rotary ring member 209.

[0068] When the first rotary ring member 109 is rotated with respect to the second rotary ring member 209, the steel ball 29 urged towards the annular projection 209b rotates with the first rotary ring member 109 and the steel ball 29 is caught by one of the concaves 26 formed on the annular projection 209b, providing a wearer with a click feeling, thus a click stop mechanism is formed.

[0069] In this embodiment, an outer circumferential surface of the ring 309 is divided approximately equally into an outer surface of the first rotary ring member 309 on which an ornament by jewels 59a is provided and an outer surface of the second rotary ring member 209 on which an ornament by jewels 59b is provided, as in the eighth embodiment. With this arrangement, a change of appearance of the ring 309 by the relative rotation of the first rotary ring member 309 and the second rotary ring member 209 is enhanced, as shown in FIGS. 14a-14d.

[0070] FIG. 15 shows a tenth embodiment of the present invention which is a modification of the ninth embodiment.

[0071] A ring 310 of this embodiment comprises a first rotary ring member 110 and a second rotary ring member 210 and a third rotary ring member 311 which are fitted to one other to be rotatable but unmovable in an axial direction X-X of the ring 310. An axially inner face 110a of the first rotary ring member 110 and one of axially outer faces 210a of the second rotary ring member 210 abut with each other, and the other of the axially outer faces 210b abut an axially inner face 311a of the third rotary ring member 311.

[0072] Click stop mechanisms CS1 and CS2 are provided each having the same structure as the click stop mechanism CS in the eighth embodiment are provided between the first rotary ring member 110 and the second rotary ring member 210 and between the second rotary ring member 210 and the third rotary ring member 311.

[0073] In this embodiment, an outer circumferential surface of the ring 310 is divided approximately equally into three areas and thus a change of appearance of the ring 309 by the relative rotation of the first, second and third rotary ring members is further enhanced.

[0074] In the foregoing embodiments, rings designed for finger rings have been mainly described according to the present invention. The present invention can be applied to jewelry having a ring-like form such as an earring, a finger ring, a bracelet, a necklace, and further to a brooch and a pendant head.

[0075] According to the present invention, since a base ring is formed by fitting a first ring and a second ring to each other without any soldering, the base ring and a rotary ring are assembled without causing any damages or befouling on material of these elements. Further, the first ring and the second ring can be disassembled to permit exchange of the rotary ring. The assembling process is simple and the cost for the assembly can be reduced.

[0076] Since annular ridges are provided at respective sides of the base ring and the rotary ring is held in a groove between the annular ridges, the rotary ring is securely held on the base ring and easy to rotate. A junction between the base ring and the rotary ring is covered by the annular ridges and an axial section of the ring is symmetrical with respect to a central plane of the ring perpendicular to a central axis, to enhance the appearance of the ring.

[0077] A plurality of rotary rings on the base ring increases a variation of the combination of ornaments on the outer circumference of the ring.

[0078] Further, the structure of the ring is simplified by adopting a base ring of one-piece structure and a rotary ring and rotatably held on a cylindrical supporting wall of the base ring and engaged with the base ring unmovably in the axial direction.

[0079] A rotational position of the rotary ring selected by a wearer is retained and an unintentional rotation of the rotary ring is prevented by providing a click stop mechanism for holding the rotary ring at a plurality of rotational positions relatively to the base ring, giving the wearer a click operation feeling.

Claims

1. A ring jewelry item comprising:

   a base ring divided into a first ring and a second ring having substantially the same inner diameter, said first ring having a first annular ridge at one end
   thereof and a cylindrical supporting wall, and said second ring having a fitting portion at one end thereof and a second annular ridge at the other end thereof,
   the other end of said first ring and the fitting portion of said second ring are fitted together to form an annular groove between said first annular ridge and
   said second annular ridge; and a rotary ring held rotatably on said cylindrical supporting portion in said annular groove of said base ring.

2. A ring jewelry item according to claim 1, wherein each of said first and second annular ridges has an outer circumferential surface on which ornament is provided.

3. A ring jewelry item according to claim 1 or 2, wherein a plurality of rotary rings is held rotatably in said annular groove of said base ring.

4. A ring jewelry item comprising:

   a base ring having a first circumferential ornamental portion on one side thereof and a cylindrical supporting wall having an outer diameter smaller than that of the circumferential ornament portion; and
   a rotary ring having a second circumferential ornamental portion and rotatably held on said cylindrical supporting wall of said base ring to be unmovably in an axial direction of the base ring.

5. A ring jewelry item according to claim 4, wherein cross sections of said base ring and said rotary ring on a plane along an axis of the ring jewelry are substantially symmetrical with respect to a plane perpendicular to said axis.

6. A ring jewelry item according to claim 4 or 5, wherein a length of said cylindrical supporting wall is substantially equal to a length of said rotary ring in the axial direction.

7. A ring jewelry item according to claim 4, 5 or 6, wherein said base ring has a substantially annular protrusion on the cylindrical supporting wall and said rotary ring has an annular groove to be engaged with said annular projection.

8. A ring jewelry item according to claim 7, wherein said annular protrusion has a perpendicular face and a slant face continuously joining with a cylindrical surface of said supporting wall.

9. A ring jewelry item according to any preceding claim, further comprising a click stop mechanism for holding said rotary ring at a plurality of angular positions relatively to said base ring.

10. A ring jewelry item according to claim 9, wherein said click stop mechanism comprises an elastic member provided between said base ring and said rotary ring by a concave/convex engagement.

11. A ring jewelry item according to claim 9, wherein said click stop mechanism comprises a ball provided between said base ring and said rotary ring and a spring for urging said ball in a radial direction of the ring jewelry and a hole formed on an outer surface of said base ring or an inner surface of said rotary ring for accommodate said ball and said spring.

12. A ring jewelry item according to any preceding claim, further comprising a ball bearing between said base ring and said rotary ring.

13. A ring jewelry item comprising:

   a first rotary ring member having a first circumferential ornament surface and an first abutting surface inclined with respect to an axial direction of the ring jewelry; and
   a second rotary ring member having a second circumferential ornament surface and an second abutting surface abutting with said first abutting surface,
   and rotatably fitted to said first rotary ring member to be unmovable in an axial direction of the ring jewelry.

14. A ring jewelry item according to claim 13, wherein said first circumferential ornament surface and said second circumferential ornament surface has substantially the same area.

15. A ring jewelry item according to claim 13 or 14, wherein said first rotary ring member has an annular groove and said second rotary ring member has an annular projection projecting in the axial direction of the ring jewelry and fitted into the annular groove of said first rotary ring member.

16. A ring jewelry item according to claim 113, 14 or 15, wherein said annular projection has a substantially annular protrusion at an end thereof to be engaged with an annular groove formed in said first rotary

ring member.

17. A ring jewelry item according to any one of claims 13 to 16, further comprising a click stop mechanism for holding said first rotary ring member at a plurality of angular positions relatively to said second rotary ring member.

18. A ring jewelry item according to any one of claims 13 to 17, wherein said second rotary ring member has an additional abutting surface inclined with respect to the axial direction of the ring jewelry, and said ring jewelry further comprises a third rotary ring member having a third circumferential ornament surface and an third abutting surface abutting with said additional abutting surface of said second rotary ring member, and rotatably fitted to said second rotary ring member to be unmovable in an axial direction of the ring jewelry.

19. A ring jewelry item according to claim 18, further comprising click stop mechanisms for holding said first rotary ring member at a plurality of angular positions relatively to said second rotary ring member and for holding said third rotary ring member at a plurality of angular positions relatively to said second rotary ring member.

FIG. 1b

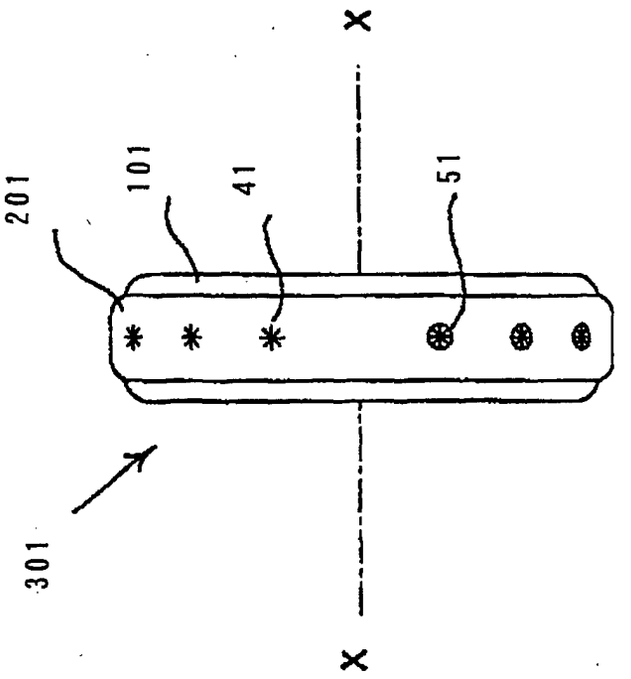


FIG. 1a

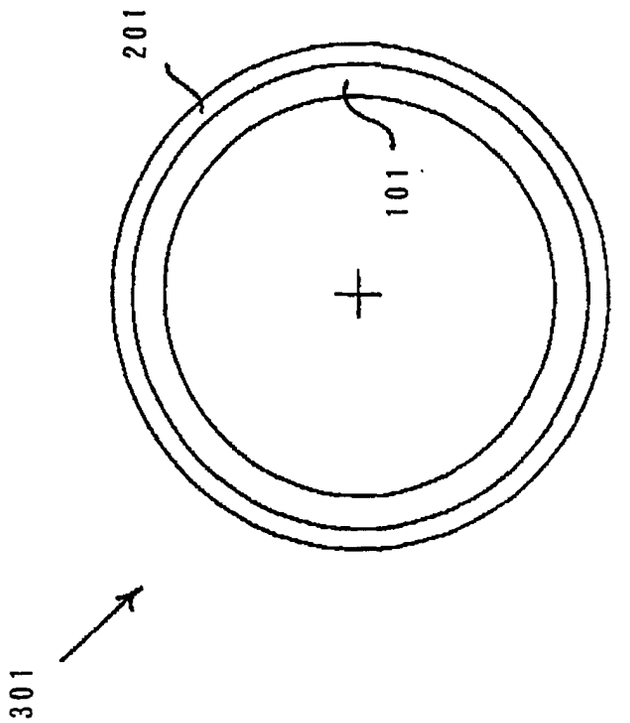


FIG. 2

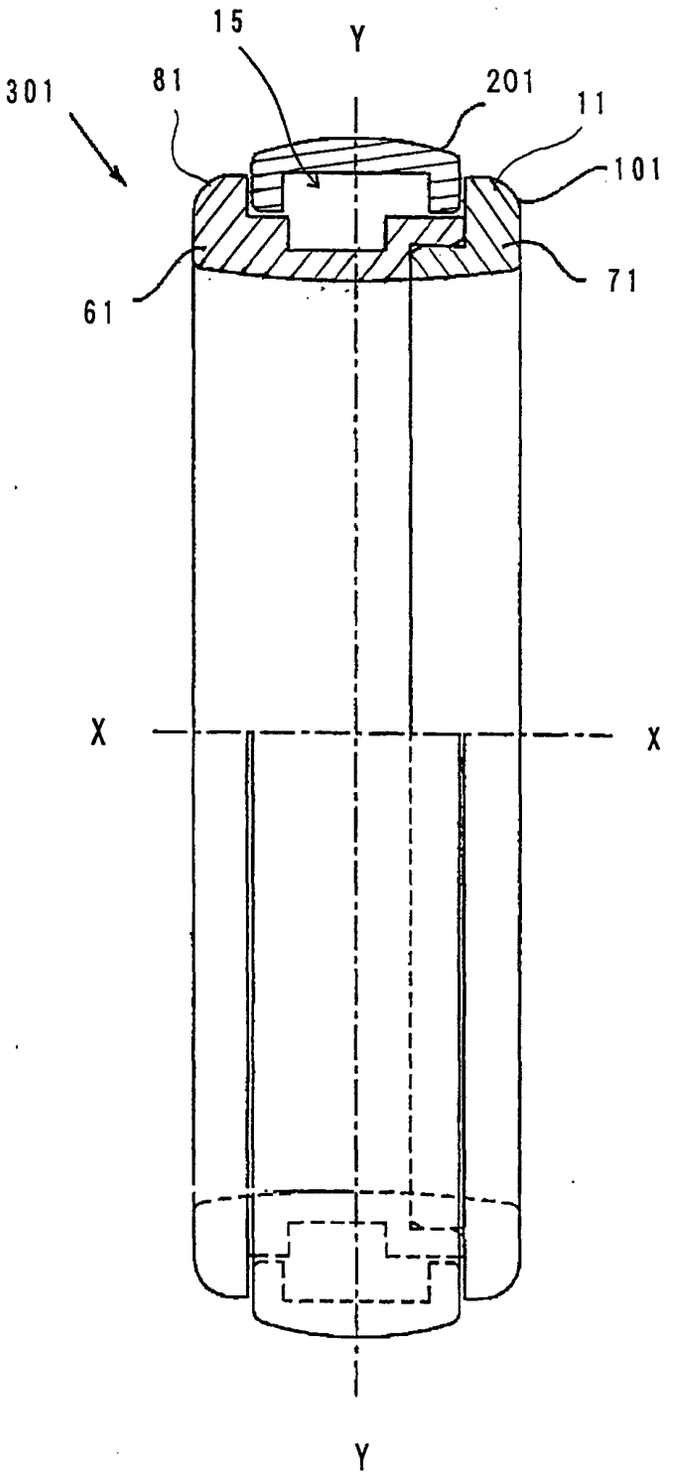


FIG. 3

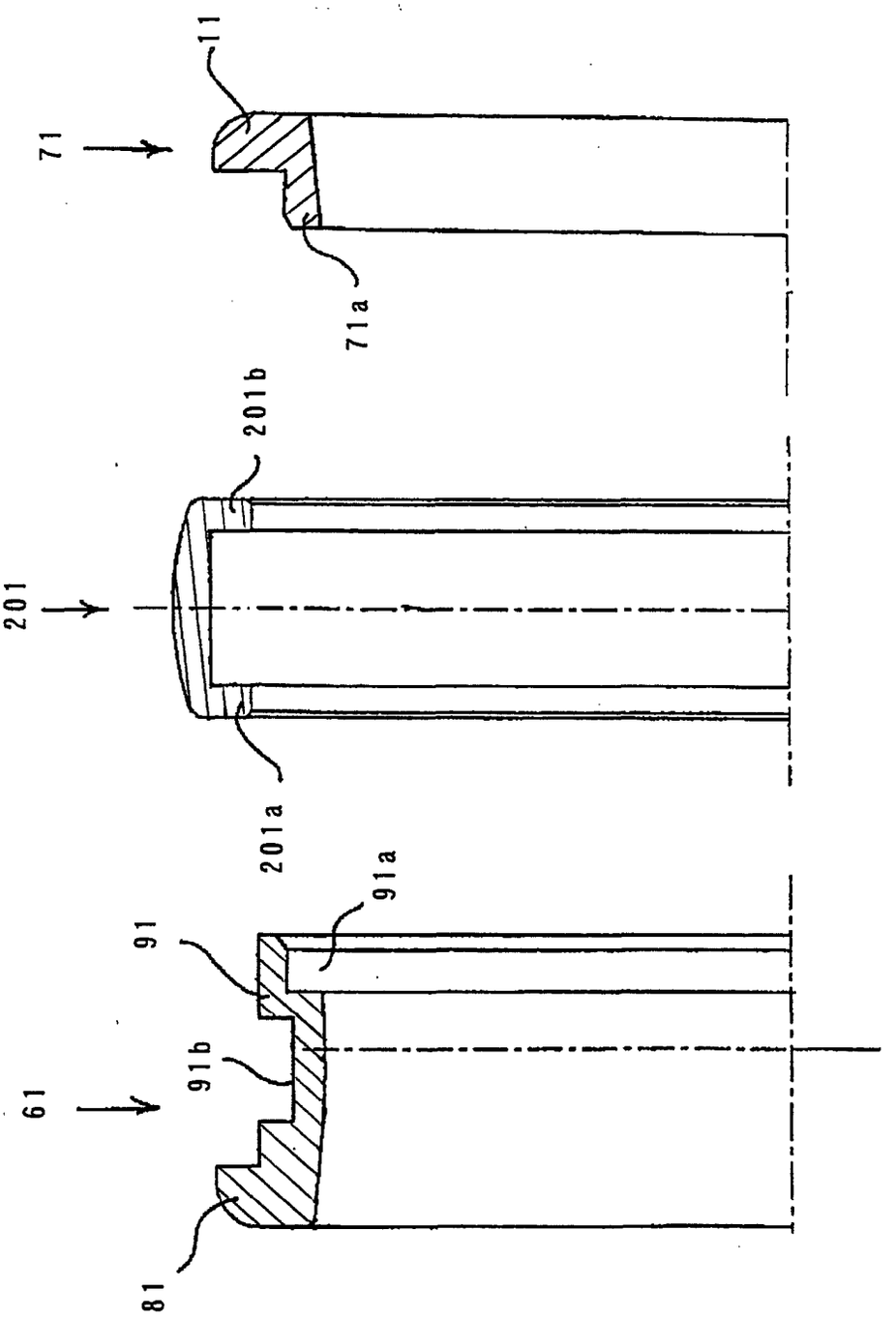


FIG. 4

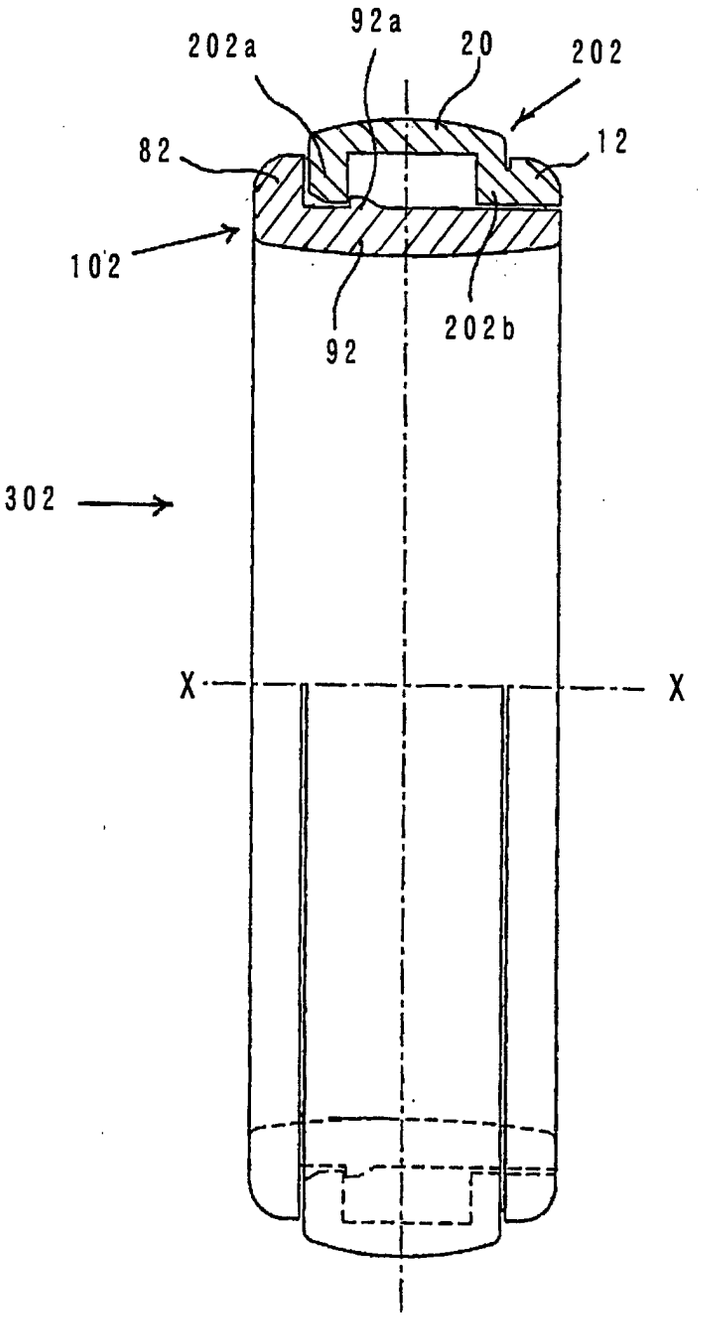


FIG. 5

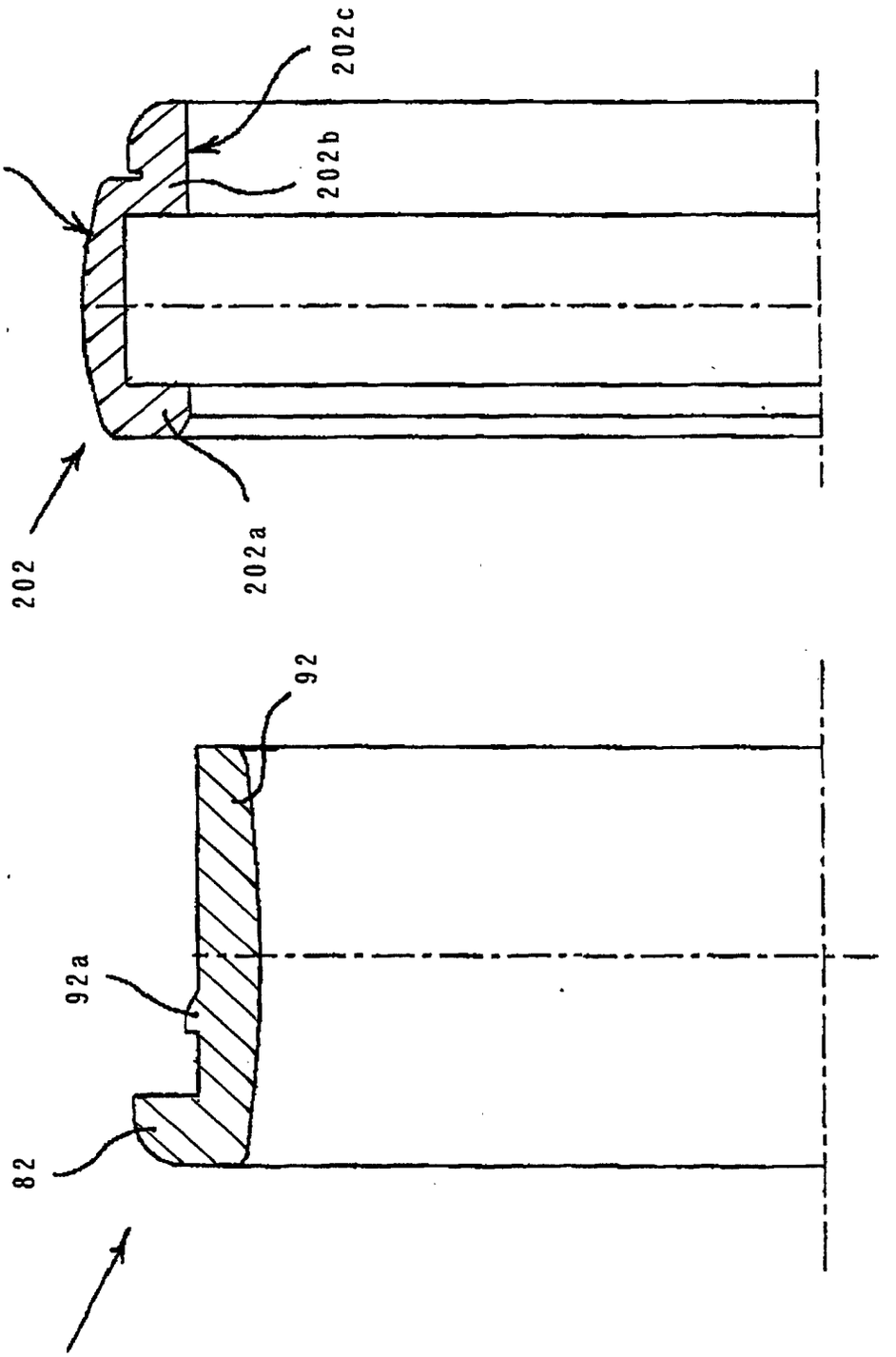


FIG6

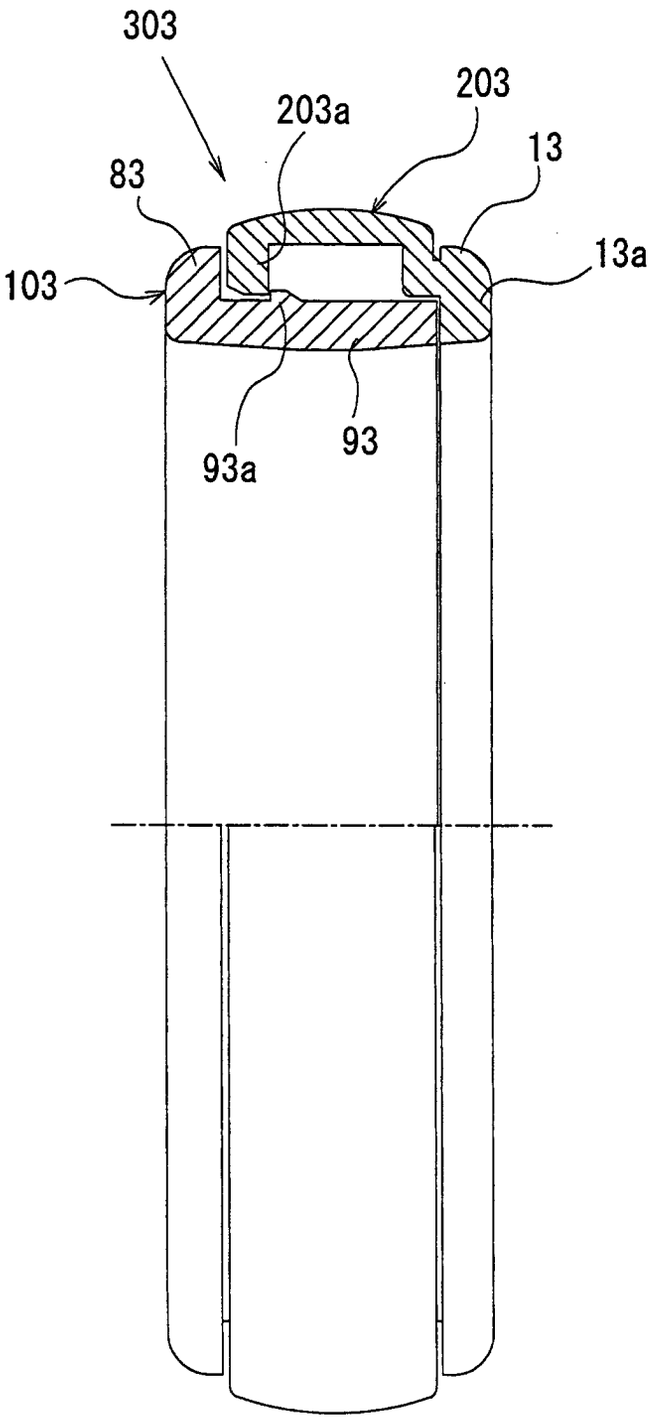


FIG. 7b

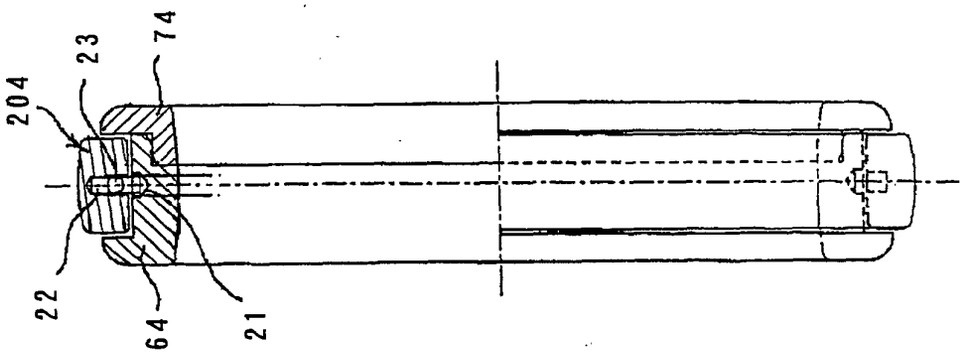


FIG. 7a

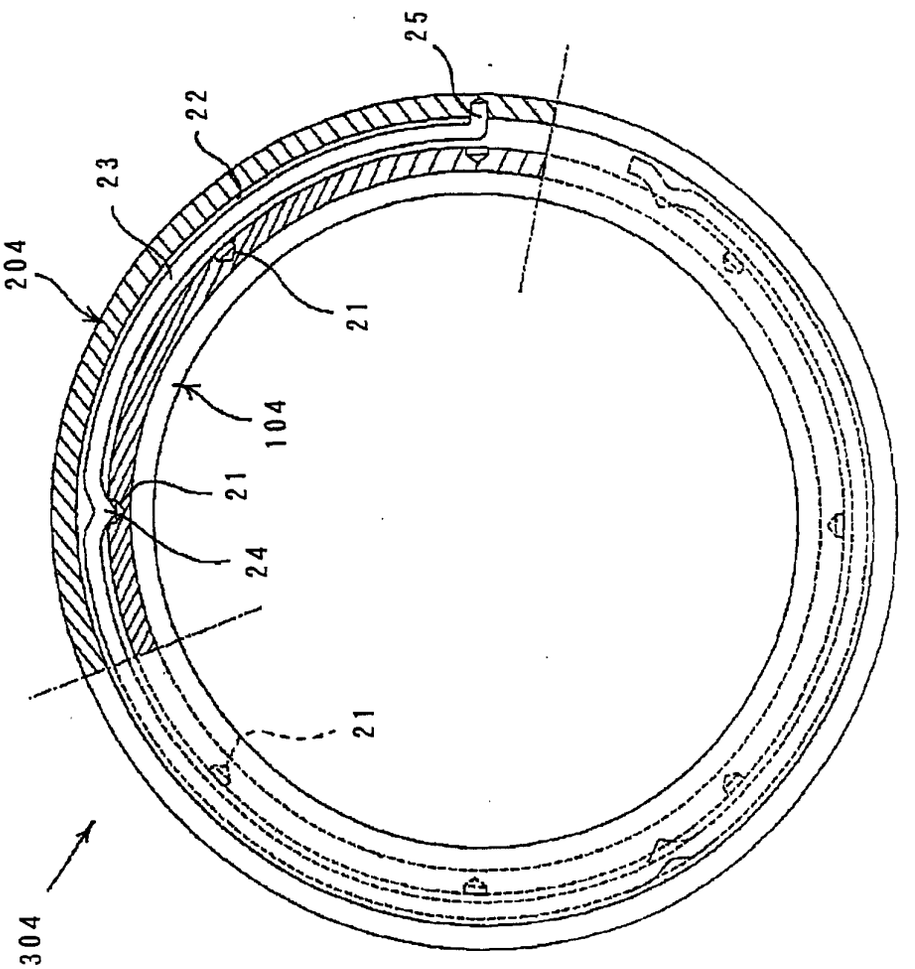


FIG. 8

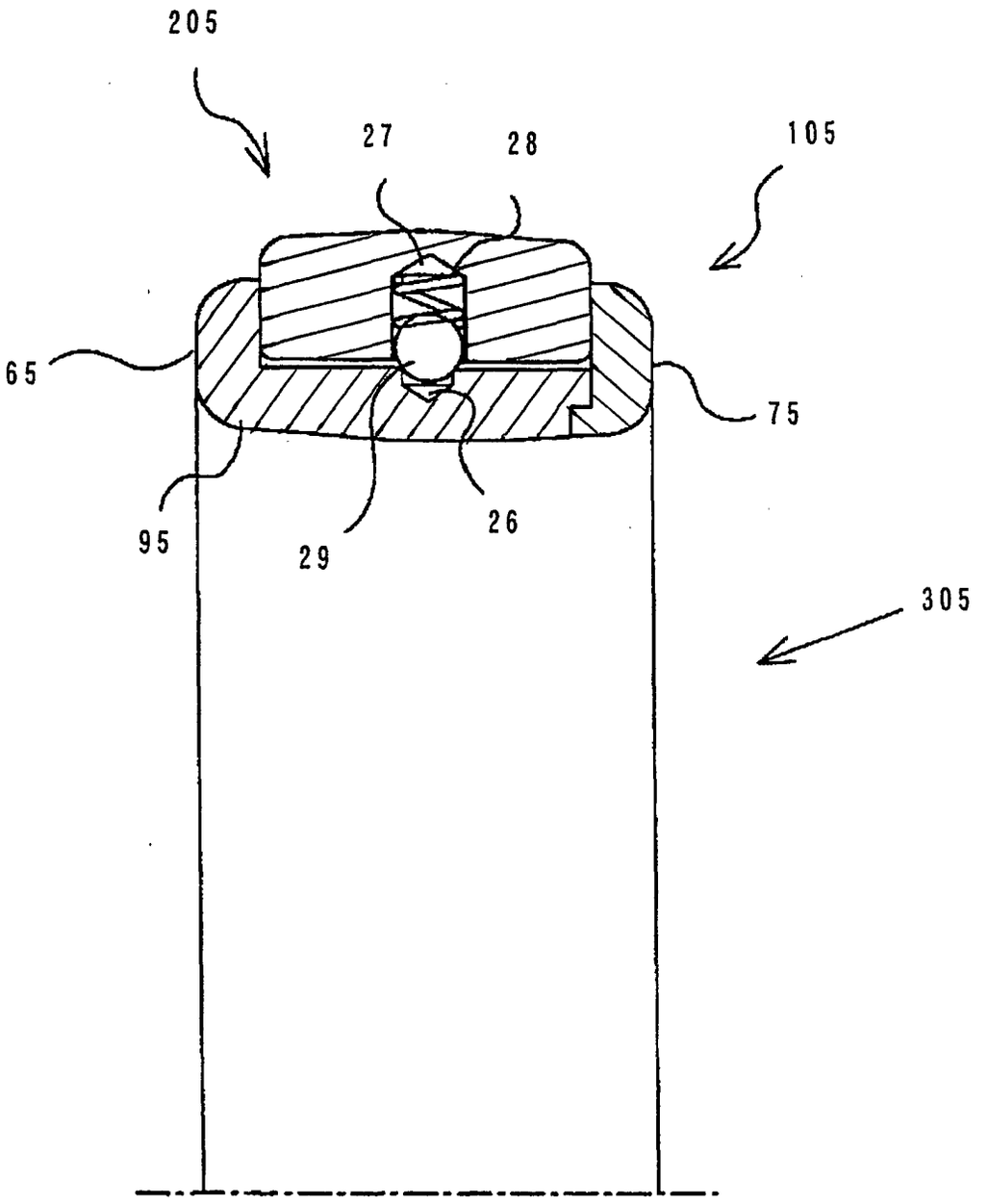


FIG. 9b

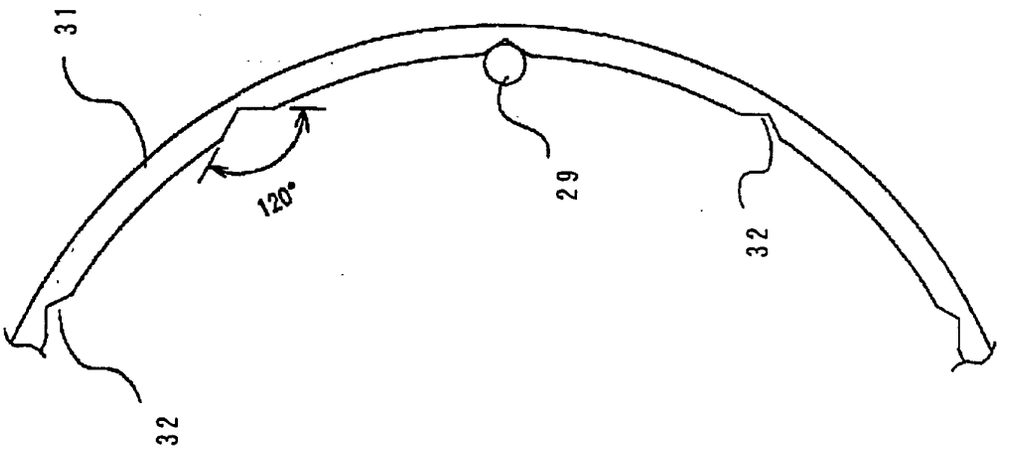


FIG. 9a

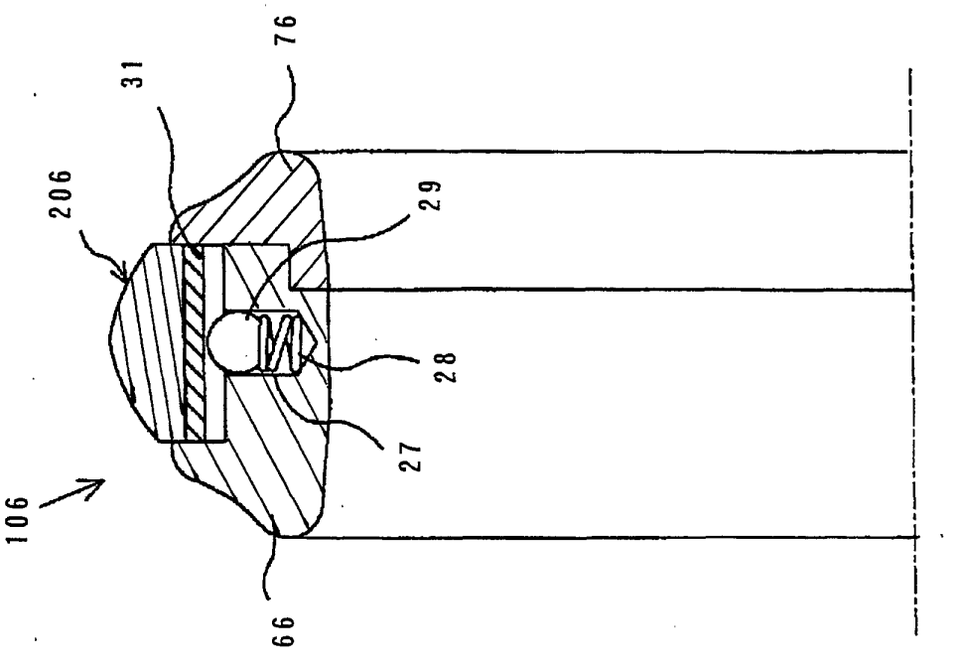


FIG. 10

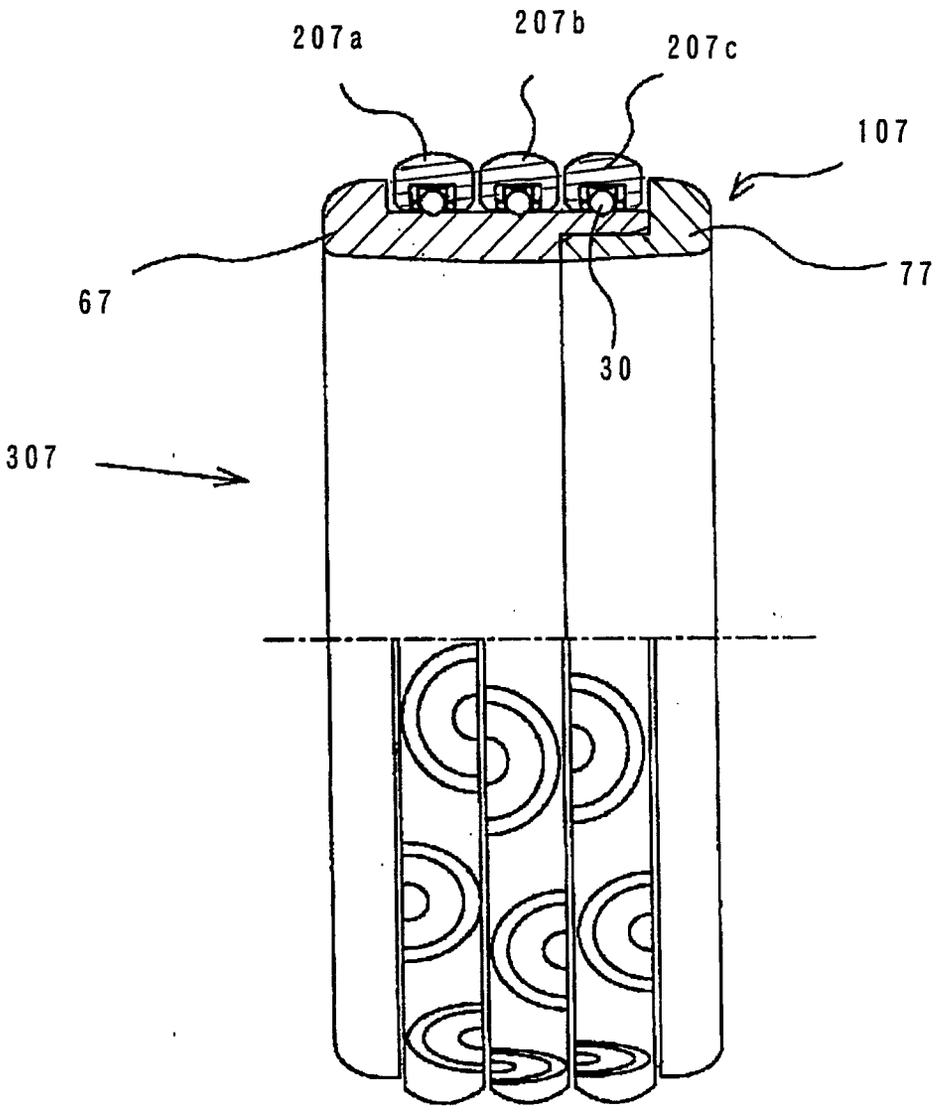


FIG. 11

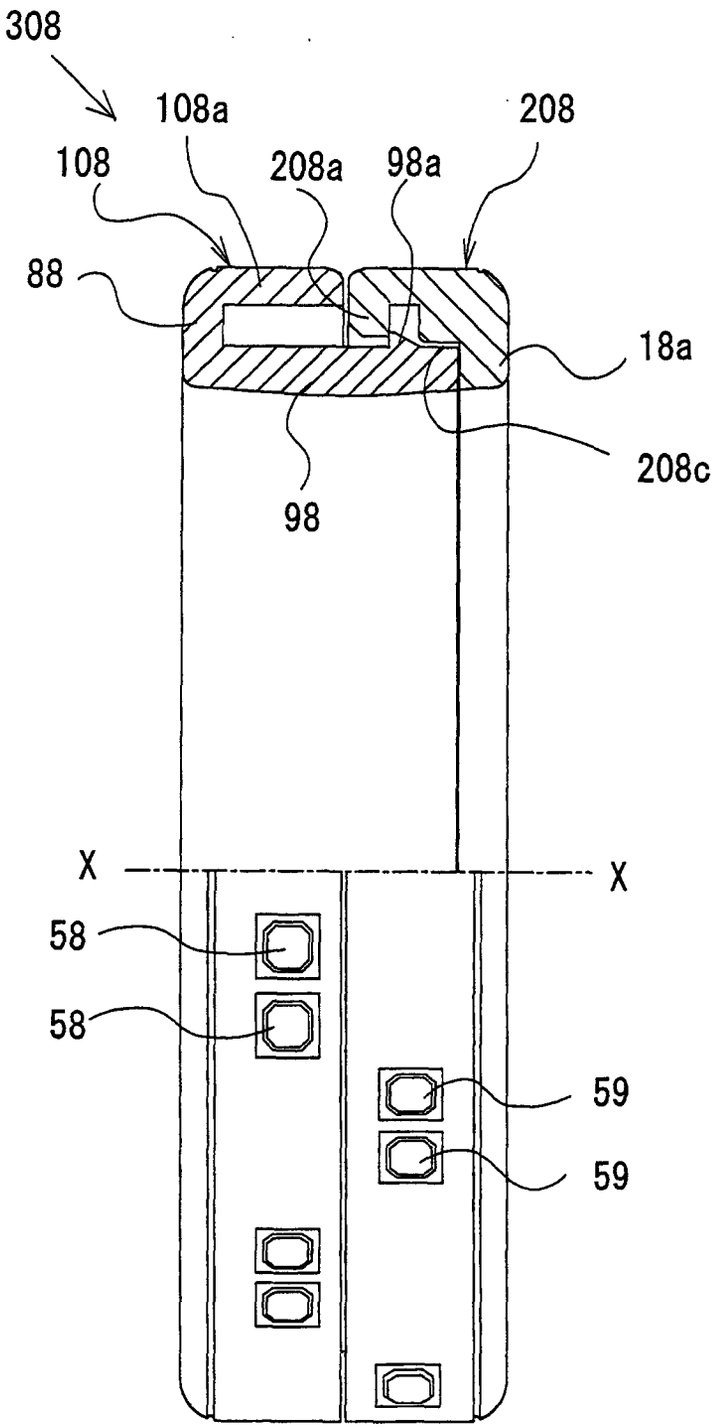


FIG. 12

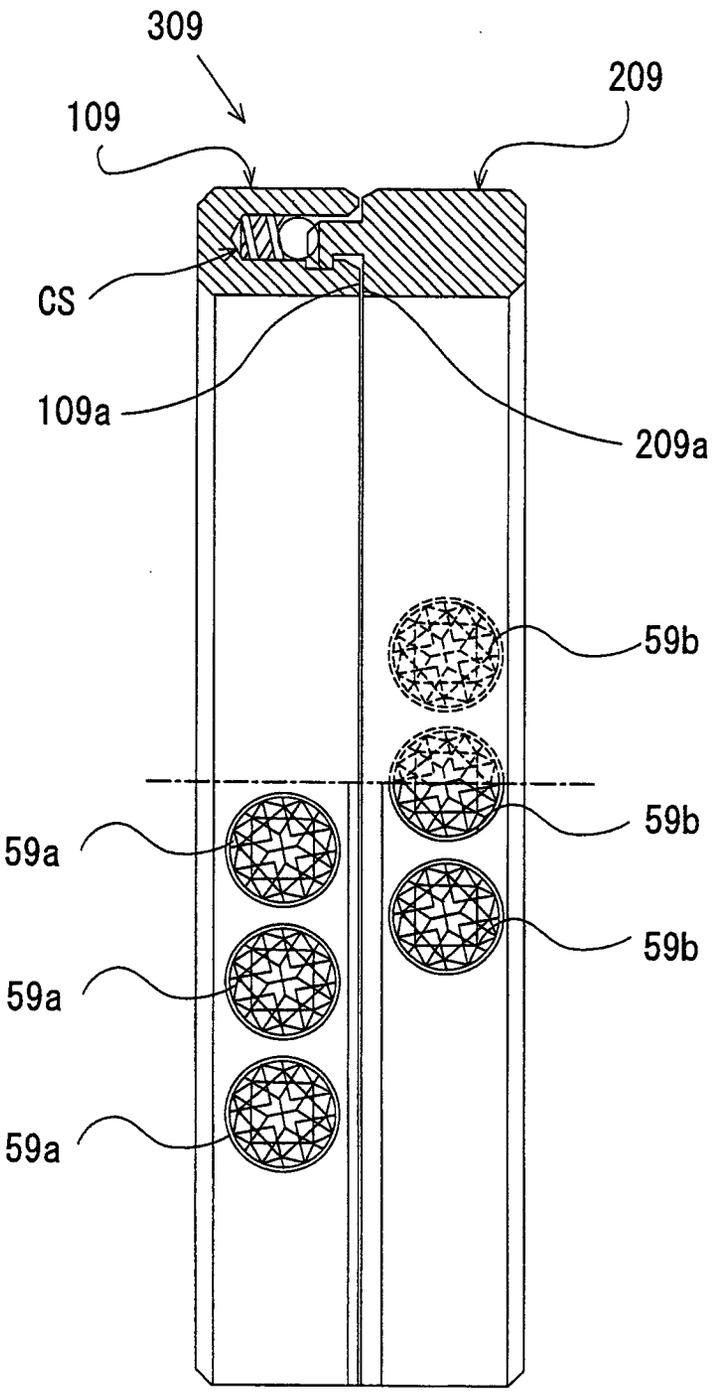


FIG13

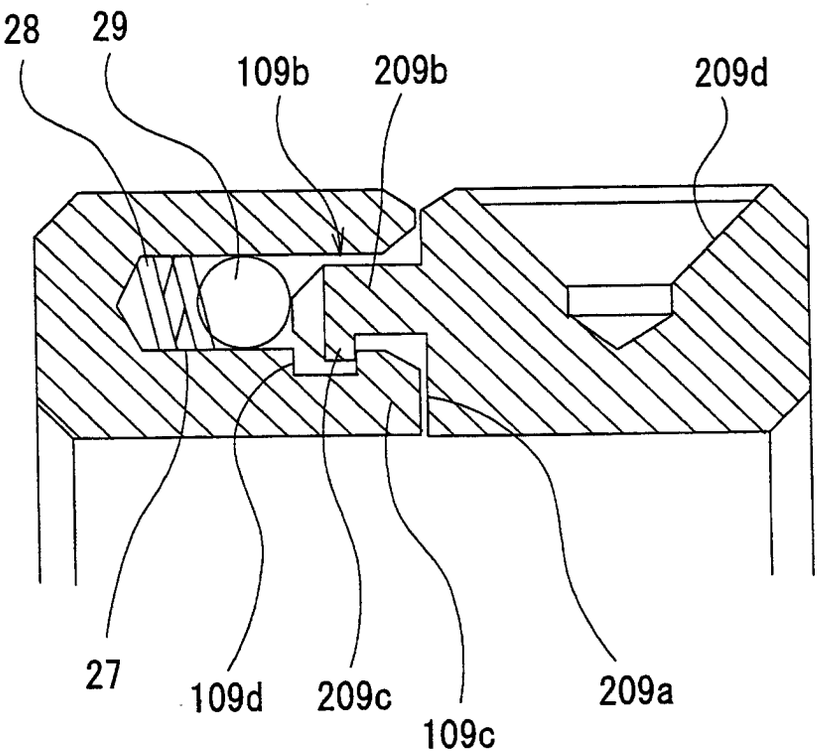


FIG14d

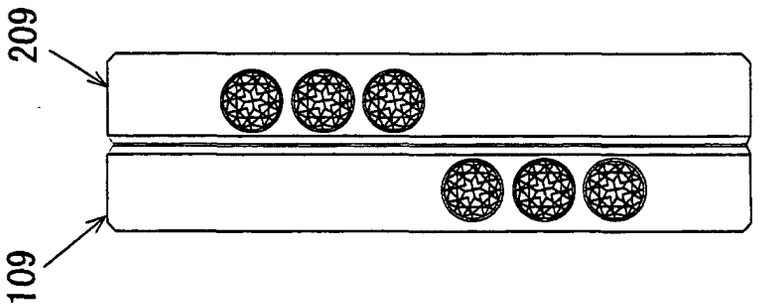


FIG. 14c

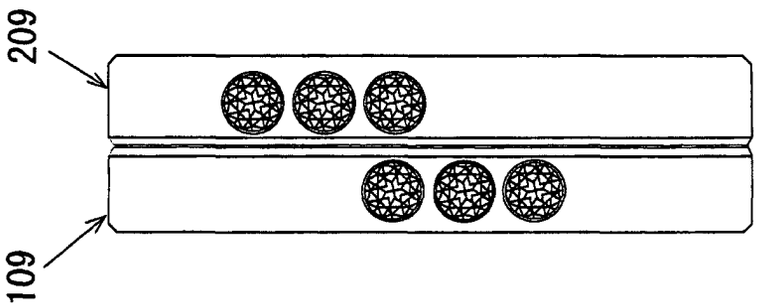


FIG. 14b

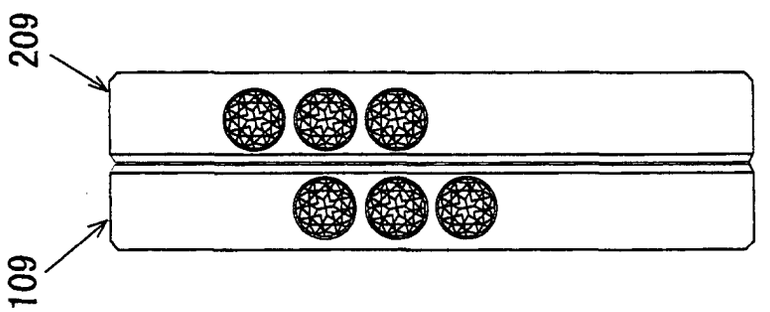


FIG. 14a

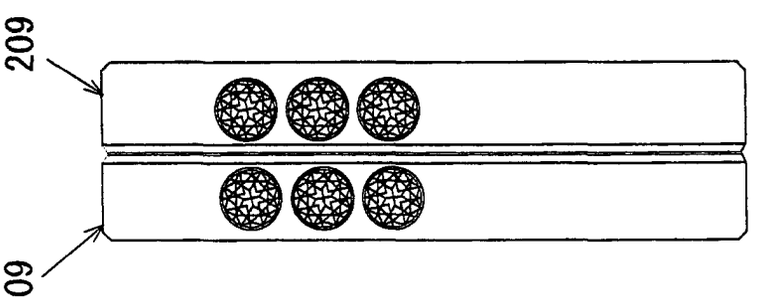
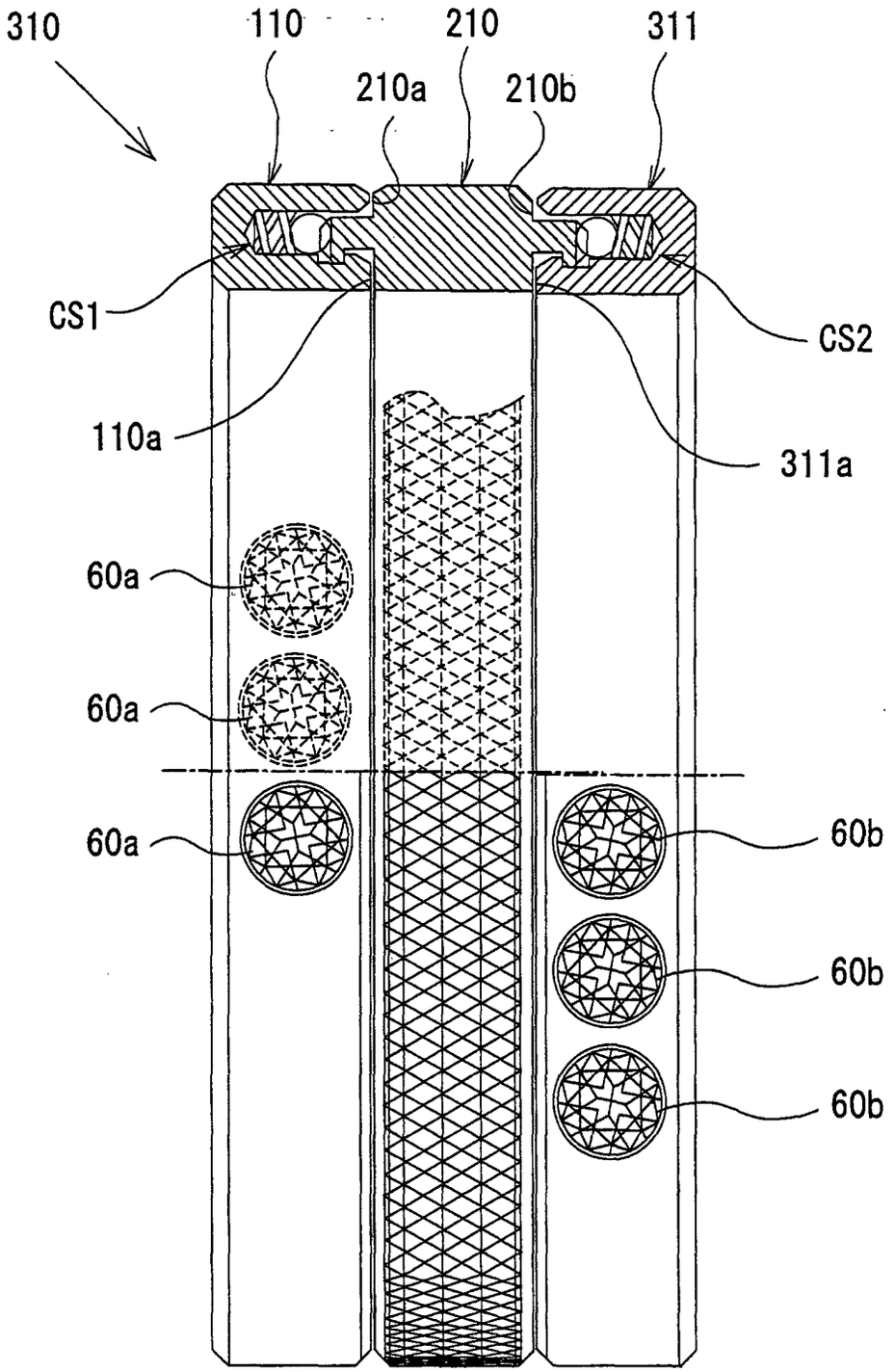


FIG. 15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