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(54) **ORNAMENT**

(57) A personal ornament comprises a support member assembly; a pair of support members formed so as to project upwardly in order that the support member assembly at predetermined space; axle holes formed a part in corresponding to the support members, respectively; a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and a pair of support axles provided at a part in corresponding to the axle

holes of the support member of the gemstone support bracket, being formed inclined face at the lower part which is supported at lower part adjacent to an opening end of the axle hole so that the position of the center of gravity of gemstone including a diamond changes and its motion also shakes automatically by motion of small support member, and brightness of gemstone including as a diamond attached to the gemstone support bracket can demonstrate the brightness to the maximum extent.

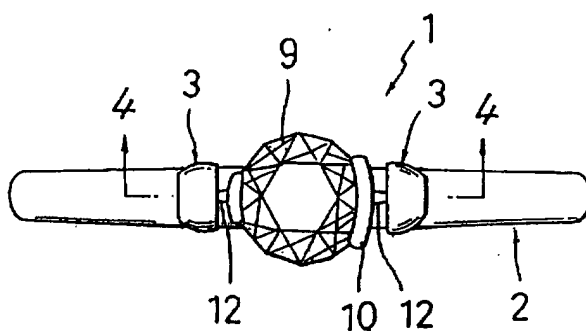


FIG. 1

Description**Brief Description of the Drawings****Background Art****[0008]**

[0001] The present invention relates generally to personal ornaments including a ring, necklace, pendant, earring, bracelet, broach, tie holder or cuff links.

[0002] A significant disadvantage associated with the usual personal ornaments listed was, that by mounting gemstones in the support member which is equipped with a chain or ring part put on a person's finger, the gemstones were always displayed in a fixed condition.

[0003] Since the personal ornaments including a ring, necklace, pendant, earring, bracelet, broach, tie holder or cuff links create a beauty according to the reflective condition of the light which shines upon gemstone including a diamond or is planning whether it is conspicuous, however gemstones are fixedly mounted to the support member, there were problem that There can be few motions of gemstone including a diamond and cannot make it shine.

[0004] Accordingly, the position of the center of gravity of gemstone including a diamond changes and its motion also shakes automatically by motion of small support member, and brightness of gemstone such as a diamond attached to the gemstone support bracket can demonstrate the brightness to the maximum extent.

[0005] The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages thereof, are described below with reference to the accompanying drawings in which a presently preferred embodiment of the invention is illustrated as an example.

[0006] It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only, and are not intended as a definition of the limits of the invention.

Disclosure of the Invention

[0007] Accordingly, a personal ornament comprises a support member assembly; a pair of support members formed so as to project upwardly in order that the support member assembly at predetermined space; axle holes formed a part in corresponding to the support members, respectively; a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and a pair of support axles provided at a part in corresponding to the axle holes of the support member of the gemstone support bracket, being formed inclined face at the lower part which is supported at lower part adjacent to an opening end of the axle hole.

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|--|---|--|
| <p>5</p> <p>10</p> <p>15</p> <p>20</p> <p>25</p> <p>30</p> <p>35</p> <p>40</p> <p>45</p> <p>50</p> <p>55</p> | <p>FIG. 1</p> <p>FIG. 2</p> <p>FIG. 3</p> <p>FIG. 4</p> <p>FIG. 5</p> <p>FIG. 6</p> <p>FIG. 7</p> <p>FIG. 8</p> <p>FIG. 9</p> <p>FIG. 10</p> <p>FIG. 11</p> <p>FIG. 12</p> <p>FIG. 13</p> <p>FIG. 14</p> <p>FIG. 15</p> <p>FIG. 16</p> <p>FIG. 17</p> <p>FIG. 18</p> <p>FIG. 19</p> <p>FIG. 20</p> <p>FIG. 21</p> <p>FIG. 22</p> <p>FIG. 23</p> <p>FIG. 24</p> <p>FIG. 25</p> | <p>is a plan view showing a first embodiment of the present invention;</p> <p>is a front view showing the first embodiment of the present invention;</p> <p>is a side view showing the first embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 4 - 4 of FIG. 1;</p> <p>is a cross sectional view taken through line 5 - 5 of FIG. 4;</p> <p>is a cross sectional view taken through line 6 - 6 of FIG. 4;</p> <p>is an explanation view of the way in which the gemstone swings;</p> <p>is a plan view showing a second embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 9-9 of FIG. 8;</p> <p>is an explanation view of a support member showing the second embodiment of the present invention;</p> <p>is a plan view showing a third embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 12-12 of FIG 11;</p> <p>is a cross sectional view taken through line 13-13 of FIG. 12;</p> <p>is a plan view showing a fourth embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 15 - 15 of FIG. 14;</p> <p>is a cross sectional view taken through line 16 - 16 of FIG. 15;</p> <p>is a plan view showing a fifth embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 18 - 18 of FIG 17;</p> <p>is an explanation view of a support member showing the fifth embodiment of the present invention;</p> <p>is a plan view showing a sixth embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 21 - 21 of FIG 20;</p> <p>is an explanation view of a support member showing the sixth embodiment of the present invention;</p> <p>is a plan view showing a seventh embodiment of the present invention;</p> <p>is an expanded sectional view taken through line 24 - 24 of FIG. 23;</p> <p>is an explanation view of a support member showing the seventh embodiment of the present invention;</p> |
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FIG. 26 is a plan view showing a eighth embodiment of the present invention;
 FIG. 27 is an expanded sectional view taken through line 27 - 27 of FIG. 26;
 FIG. 28 is a cross sectional view taken through line 28 - 28 of FIG. 26;
 FIG. 29 is a plan view showing a ninth embodiment of the present invention;
 FIG. 30 is a front view showing the ninth embodiment of the present invention;
 FIG. 31 is a side view showing the ninth embodiment of the present invention;
 FIG. 32 is a plan view showing a tenth embodiment of the present invention;
 FIG. 33 is a front view showing the tenth embodiment of the present invention;
 FIG. 34 is a side view, partly in cross section showing the tenth embodiment of the present invention;
 FIG. 35 is a plan view showing a eleventh embodiment of the present invention;
 FIG. 36 is a front view showing the eleventh embodiment of the present invention;
 FIG. 37 is a side view showing the eleventh embodiment of the present invention;
 FIG. 38 is a plan view showing a twelfth embodiment of the present invention;
 FIG. 39 is a front view showing the twelfth embodiment of the present invention;
 FIG. 40 is a side view showing the twelfth embodiment of the present invention;
 FIG. 41 is a plan view showing a thirteenth embodiment of the present invention;
 FIG. 42 is a front view showing the thirteenth embodiment of the present invention;
 FIG. 43 is a side view showing the thirteenth embodiment of the present invention;
 FIG. 44 is a plan view showing a fourteenth embodiment of the present invention;
 FIG. 45 is an expanded sectional view taken through line 25 - 25 of FIG. 44; and
 FIG. 46 is a cross sectional view taken through line 26 - 26 of FIG. 45.

Best Mode for Carrying Out the Invention

[0009] Preferred embodiments of the present invention are described in more detail below referring to the accompanying drawings.

[0010] An understanding of the present invention may be best gained by reference FIGS. 1 to 7. FIGS. 1 to 7 illustrate a winding device of a first embodiment of the present invention.

[0011] A personal ornament 1 as a ring comprises a support member assembly 2, a pair of support members 3, 3, screw holes 4, 4, bolts 5, 5, axle holes 8, 8, a gemstone support bracket 10 and a pair of support axles 12, 12.

[0012] The support member assembly 2 forms in the shape of a ring which can be worn on one of a person's fingers, which is made of precious material.

[0013] The support member 3 is fixedly formed integrally or by using adhesives at outward circumferential part of the support member assembly 2 so as to project upwardly, the space between the support members 3 having a fixed distance.

[0014] The screw hole 4 is formed at a center part of the support member 3, and the bolt 5 is inserted into the screw hole 4 and screwed.

[0015] The axle holes 8, 8 include a circle hole 6 and a hole 7 formed in the shape of a dish respectively; the circle hole 6 is formed at a tip portion of the axle hole 8; and the dish-shaped hole 7 extending to an opening end thereof, which links to the circle hole 6.

[0016] The gemstone support bracket 10 supports gemstone 9 including diamonds positioned to be able to swing between the support members 3, 3.

[0017] The support axles 12, 12 are fitted to the part in corresponding to the axle holes 8, 8 formed at the support members 3, 3, respectively, being formed in the shape of a conical or triangular pyramid trapezoid and having slopes 11, 11 at the lower end thereof which is supported and located at the lower part of the opening end of the circle hole of the axle holes 8, 8, respectively.

[0018] In the above referred personal ornament 1 used as a ring, after the bolts 5, 5 are located so that the space between the bolts 5 for attachment of the support members become large, the support axles 12 and 12 of the gemstone support bracket 10 which the gemstone 9 including diamond is attached to locate into the axle holes 8 and 8, and the bolts 5, 5 are screwed so that the tip parts of the support axles 12 and 12 locate in the central part of the circular holes 6, 6 respectively, and adhesives is filled up the space between the bolts and holes 4 and 4, as a result it can be prevent to come off the bolts 5, 5.

[0019] In the personal ornament 1, used as a ring, which is assembled, the center-of-gravity position of the gemstone support bracket 10 attached the gemstone 9 including diamond thereto changes by movement of the support member assembly 2, and the support bracket shakes so as to turn centering on the support axles 12, 12.

[0020] Moreover, since each lower part of the support axles 12, 12 is formed in the shape of a triangular pyramid or a triangular pyramid trapezoid having slopes 11, 11, the support bracket moves in the axial direction centering of the support axles 12, 12 and also moves with shaking so that it automatically locates at the center part.

[0021] Other embodiments of the present invention will now be described referring to FIGS. 8 to 46. Through the drawings of the embodiments, like components are denoted by like numerals as of the first embodiment and will not be further explained in great detail.

[0022] A second embodiment of the present invention

is shown in FIGS. 8 to 10. It is distinguished from the first embodiment by the fact that the axle hole 8 is replaced with another like axle hole 8A. The axle holes 8A, 8A include only circle hole formed at a tip part of bolts 5A, 5A. A personal ornament 1 A with the axle holes 8A, 8A according to the second embodiment has similar advantages to that according to the first embodiment.

[0023] A third embodiment of the present invention is shown in FIGS. 11 to 13. It is distinguished from the first embodiment by the fact that a pair of support axles 12A, 12A formed in the shape of circular cone or crucible former is fixed to the gemstone support bracket 10, respectively. A personal ornament 1B with the support axles 12A, 12A according to the third embodiment has similar advantages to that according to the first embodiment.

[0024] A fourth embodiment of the present invention is shown in FIGS. 14 to 16. It is distinguished from the first embodiment by the fact that a pair of support axles 12B, 12B formed in the shape of semi-circular cone or semi-crucible former is fixed to the gemstone support bracket 10, respectively. A personal ornament 1 C with the support axles 12B, 12B according to the fourth embodiment has similar advantages to that according to the first embodiment.

[0025] A fifth embodiment of the present invention is shown in FIGS. 17 to 19. It is distinguished from the first embodiment by the fact that insertion grooves 13, 13 open upwardly and axle holes 8B, 8B are formed at the pair of support members respectively; the axle holes 8B supports the support axles 12, 12 of the gemstone support bracket 10 through the insertion grooves 13; insertion groove covers 14, 14 are engaged fixedly with the insertion groove 13, 13 so as to cover the insertion grooves 13, 13 respectively. A personal ornament 1D according to the fifth embodiment has similar advantages to that according to the first embodiment.

[0026] Moreover, in this embodiment, the insertion grooves 13, 13 are provided at side part of the support member 3 respectively.

[0027] A sixth embodiment of the present invention is shown in FIGS. 20 to 22. It is distinguished from the fifth embodiment by the fact that a pair of column-shaped support member 12C, 12C is fixed to the gemstone support member 10, and the support members 3, 3 includes axle holes 8C, 8C, respectively, including inclined planes 15, 15 formed at lower part thereof, which expands to the opening end. A personal ornament 1E according to the sixth embodiment has similar advantages to that according to the fifth embodiment.

[0028] A seventh embodiment of the present invention is shown in FIGS. 23 to 25. It is distinguished from the first embodiment by the fact that axle holes 8D, 8D are formed at the support members 3, 3 directly, respectively, and the support members 3, 3 are engaged fixedly with concave portions 16, 16 formed at the support member assembly 2. A personal ornament 1F according

to the seventh embodiment has similar advantages to that according to the first embodiment.

[0029] Moreover, in this embodiment, the support members 3, 3 may be fixed to the support member assembly 2 by adhesives or screwing the bolt.

[0030] An eighth embodiment of the present invention is shown in FIGS. 26 to 28. It is distinguished from the first embodiment by the fact that the support member assembly 2 is replaced with another like assembly 2A. The support member assembly 2A comprises a support member body 17 which is formed in the shape of a ring which can be worn on one of a person's fingers and a rotation member 18 including the pair of support members 3, 3 attached to a top part of the support member body 17 rotatably or rotatably at a fixed degree. A personal ornament 1 G with the support member assembly 2A according to the seventh embodiment has similar advantages to that according to the first embodiment and can be used the gemstone support bracket having gemstone 9 including a diamond so as to swing smoothly by rotating the rotation member 18.

[0031] A ninth embodiment of the present invention is shown in FIGS. 29 to 31. It is distinguished from the first embodiment by the fact that the support member assembly 2 is replaced with another like assembly 2B. The support member assembly 2B is formed in the shape so as to be able to use as a necklace, in a shape of a heart in this embodiment, including a hanging ring 20 which supports a chain 19 and a weight 10a which balance the gemstone 9 so as to position at the front. A personal ornament 1 H according to the ninth embodiment has similar advantages to that according to the first embodiment and is suited to use as a necklace.

[0032] A tenth embodiment of the present invention is shown in FIGS. 32 to 34. It is distinguished from the first embodiment by the fact that the support member assembly 2 is replaced with another like assembly 2C. The support member assembly 2C is formed in the shape of a ring having C-letter shape so as to wear on one of a person's wrist. A personal ornament 11 according to the tenth embodiment has similar advantages to that according to the first embodiment and is suited to use as a bracelet.

[0033] An eleventh embodiment of the present invention is shown in FIGS. 35 to 37. It is distinguished from the ninth embodiment by the fact that the support member assembly 2B is replaced with another like assembly 2D. The support member assembly 2D is formed at the voluntary shape so as to use as a brooch, a leaf shape in this embodiment. Moreover, the support member assembly 2D includes a safety pin 21 on the back face of the support member assembly 2D. A personal ornament 1J according to the eleventh embodiment has similar advantages to that according to the ninth embodiment and is suited to use as a brooch.

[0034] In addition, in this embodiment, the support member assembly 2D maybe included the means for engaging, which engages removably with the tip part of

a clip or pin in place of the safety pin 21.

[0035] A twelfth embodiment of the present invention is shown in FIGS. 38 to 40. It is distinguished from the ninth embodiment by the fact that the support member assembly 2B is replaced with another like assembly 2E 5 formed in the shape of a clip as a voluntary shape so as to be able to use as a tie holder. A personal ornament 1K with the support member assembly 2E according to the twelfth embodiment has similar advantages to that according to the ninth embodiment and is suited to use as tie holder. 10

[0036] A thirteenth embodiment of the present invention is shown in FIGS. 41 to 43. It is distinguished from the ninth embodiment by the fact that the support member assembly 2B is replaced with another like assembly 2F 15 formed in the shape of a cuff links as a voluntary shape so as to be able to use as cuff links. A personal ornament 1L with the support member assembly 2F according to the thirteenth embodiment has similar advantages to that according to the ninth embodiment and is suited to use as cuff links. 20

[0037] A fourteenth embodiment of the present invention is shown in FIGS. 44 to 46. It is distinguished from the first embodiment by the fact that further includes a pair of support axles 23, 23 formed at a part in corresponding to the pair of the support members 3, 3 respectively, being formed inclined plane 22 at the upper part thereof and a pair of axle holes 24, 24 which is formed at a part in corresponding to the support axles 23, 23 of the support members 3, 3 of a gemstone support bracket 10A attached gemstone 9 including diamond, positioned oscillatably between the support members 3, 3, which is inserted the portion adjacent the tip part of the support axles 23, 23 and supports it on the upper surface thereof. A personal ornament 1M according to the 25 fourteenth embodiment has similar advantages to that according to the first embodiment. 30

[0038] Moreover, in the ninth, tenth, eleventh, twelfth, thirteen and fourteenth embodiment of the present invention, the use of the composition of the first embodiment is explained, however, these embodiment are not intended to be the limits of this invention. The composition of the second to eighth embodiments may be used to the ninth to fourteenth embodiment. 35

[0039] Furthermore, in each embodiment of the present invention, the use of the gemstone support member which attached gemstone including diamond, however, the present invention may be used a member with mirror finish; mirror with pattern, character, letter etc.; or reflector fixed gemstone including small diamond, etc., in addition to pattern, character, letter etc. 40

[0040] In this case, the present invention may be use the gemstone support bracket formed with the reflector in one or formed as another object.

[0041] As set forth above, the advantages of the invention are as follows: 45

(1) Since a personal ornament comprises a support

member assembly; a pair of support members formed so as to project upwardly in order that the support member assembly at predetermined space; axle holes formed a part in corresponding to the support members, respectively; a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and a pair of support axles provided at a part in corresponding to the axle holes of the support member of the gemstone support bracket, being formed inclined face at the lower part which is supported at lower part adjacent to an opening end of the axle hole, the position of the center of gravity of gemstone including a diamond changes and its motion also shakes automatically by motion of small support member.

Therefore, brightness of gemstone such as a diamond attached to the gemstone support bracket can demonstrate the brightness to the maximum extent.

(2) As discussed above, since the support axle which is formed the lower part thereof in the inclined plane is supported by the lower part adjacent to the opening end of the axle hole of the support member, the gemstone support bracket allows to swing smoothly.

(3) As discussed above, the distance between the axle holes of the support members is formed more greatly than the distance between the tip parts of the support axles.

Therefore, it is easy to attach the gemstone support bracket attached to the gemstone including a diamond to the space between the axle holes.

(4) As discussed above, since the lower part of the support axles is formed in the inclined plane if the gemstone support bracket moves in the axial direction, it can be made to move to the central part automatically by oscillating the gemstone support bracket.

(5) Claims 2, 3, 4, 5, 6, 7, 8 and 9 is also acquired the same effect as the above-mentioned descriptions (1) - (4).

45 Claims

1. A personal ornament comprising:

a support member assembly;
a pair of support members formed so as to project upwardly in order that the support member assembly at predetermined space;
axle holes formed a part in corresponding to the support members, respectively;
a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and
a pair of support axles provided at a part in cor-

responding to the axle holes of the support member of the gemstone support bracket, being formed inclined surface at the lower part which is supported at lower part adjacent to an opening end of the axle hole.

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2. A personal ornament according to claim 1, wherein the support member is formed in a shape to be put on a person's finger.

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3. A personal ornament according to claim 1, wherein the support member is formed so as to hang with a chain.

4. A personal ornament according to claim 1, wherein the support member is formed in a shape to be put on a person's wrist.

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5. A personal ornament according to claim 1, wherein the support member is formed so as to be attached in clothes with one of a safety pin and a clip.

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6. A personal ornament according to any one of claims 1 to 4, wherein at least one side of the axle hole formed in the support members, respectively is formed at a tip part of the bolt, which is screwed fixedly onto the support member.

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7. A personal ornament comprising:

a support member assembly;
a pair of support members formed so as to project upwardly in order that the support member assembly at predetermined space;
axle holes formed a part in corresponding to the support members, respectively, a lower part thereof formed inclined face so as to expand at side of the opening end in order;
a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and
a pair of support axle formed in the shape of a column, provided at a part in corresponding to the axle holes, respectively, of the gemstone support bracket, positioned a top end thereof at the inclined surface of the lower portion of center of the axle hole.

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8. A personal ornament comprising:

a support member assembly further including a support member body; and rotation member attached one of rotatably and capably of turning at a fixed degree to the support member body;
a pair of support members formed so as to project upwardly in order that the support mem-

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ber assembly at predetermined space;
axle holes formed a part in corresponding to the support members, respectively;
a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and
a pair of support axles provided at a part in corresponding to the axle holes of the support member of the gemstone support bracket, being formed inclined surface at the lower part which is supported at lower part adjacent an opening end of the axle hole.

9. A personal ornament comprising:

a support member assembly;
a pair of support members formed so as to project upwardly in order that the support member assembly at predetermined space;
a pair of support axles formed a part in corresponding to the support members, respectively, being formed inclined plates at an upper part thereof;
a gemstone support bracket located movably between the support members, being attached to a gemstone including diamond; and
a pair of axle holes formed at a part in corresponding to the support axles of the support members of the gemstone support bracket, which is inserted the portion adjacent the tip part of the support axles and supports it on the upper surface thereof.

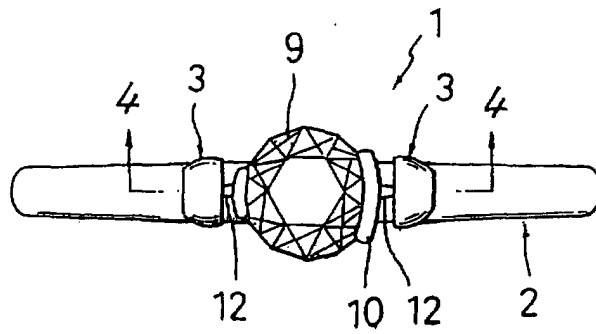


FIG. 1

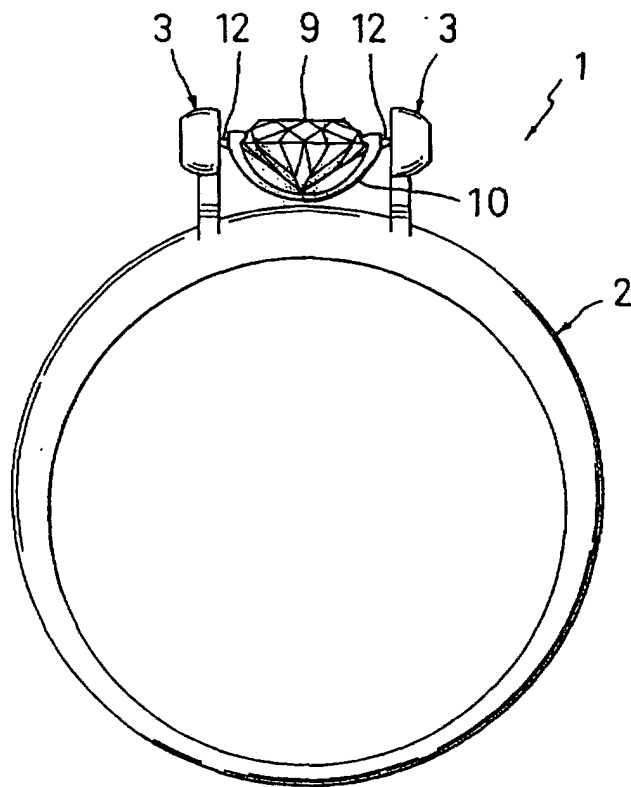


FIG. 2

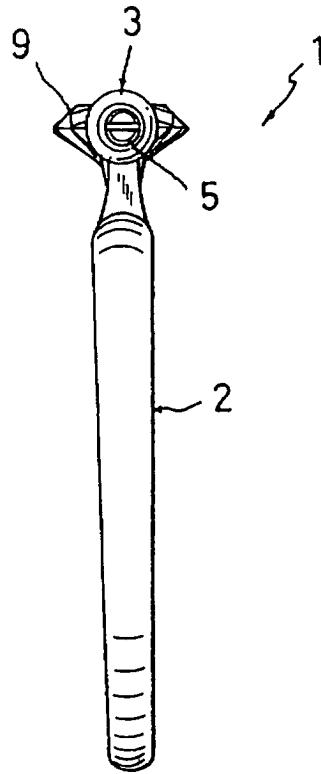


FIG. 3

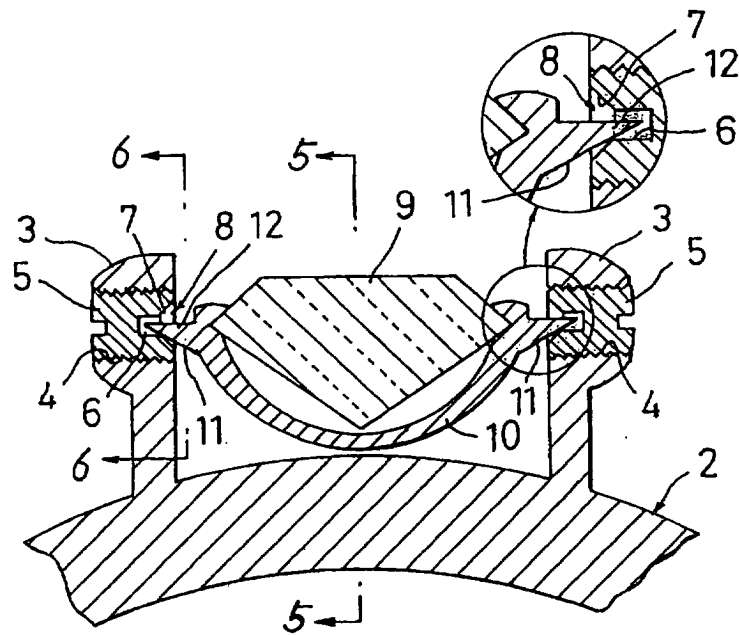


FIG. 4

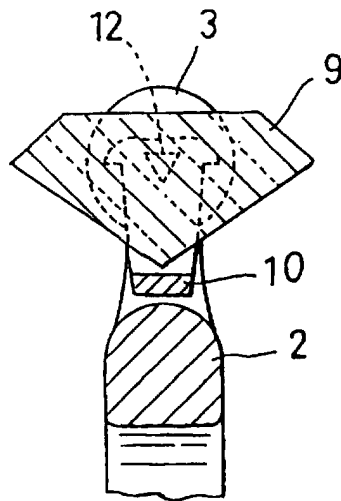


FIG. 5

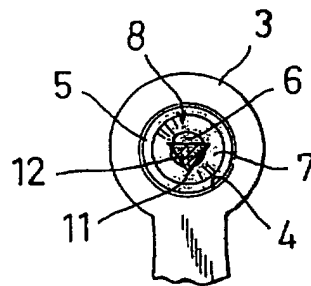


FIG. 6

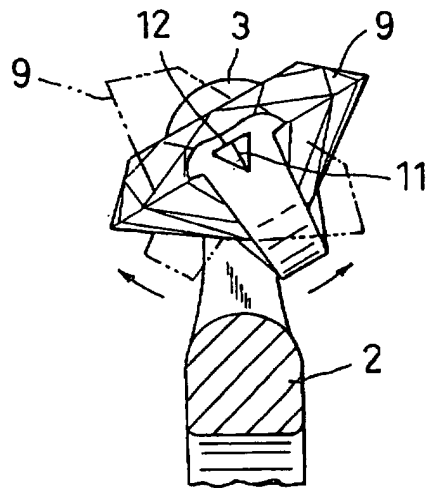


FIG. 7

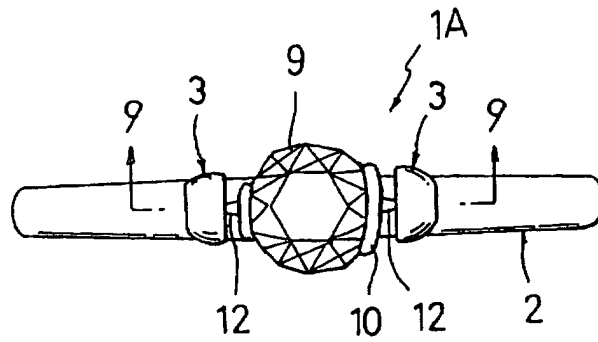


FIG. 8

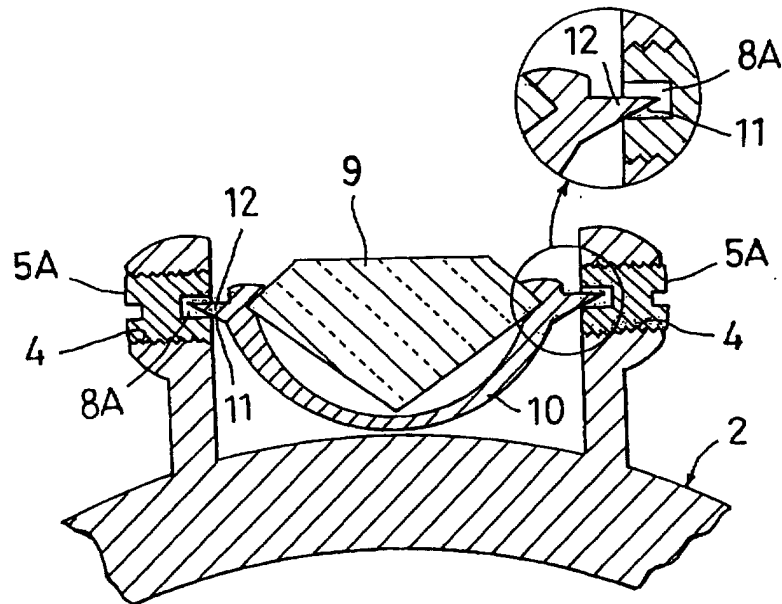


FIG. 9

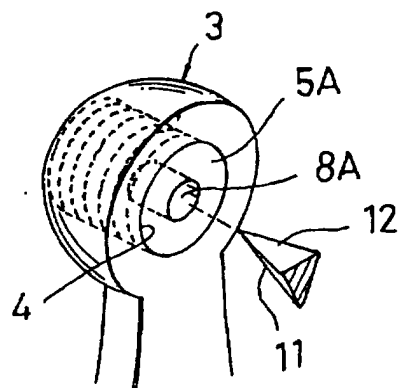


FIG. 10

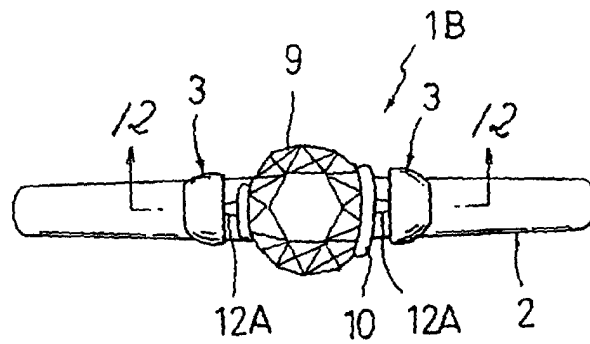


FIG. 11

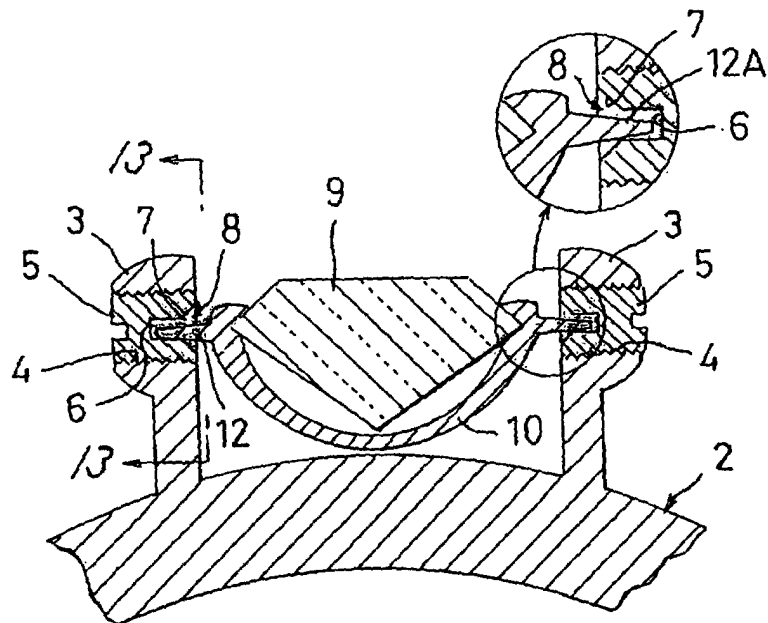


FIG. 12

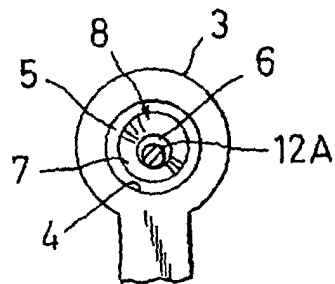


FIG. 13

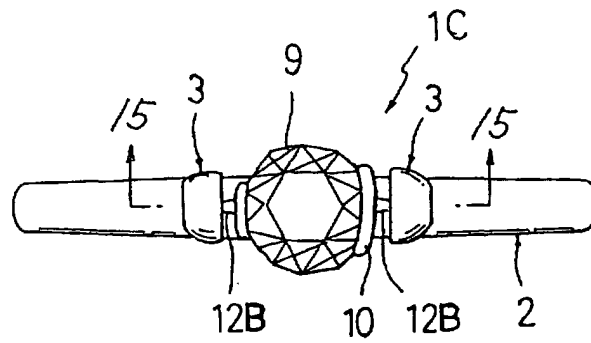


FIG. 14

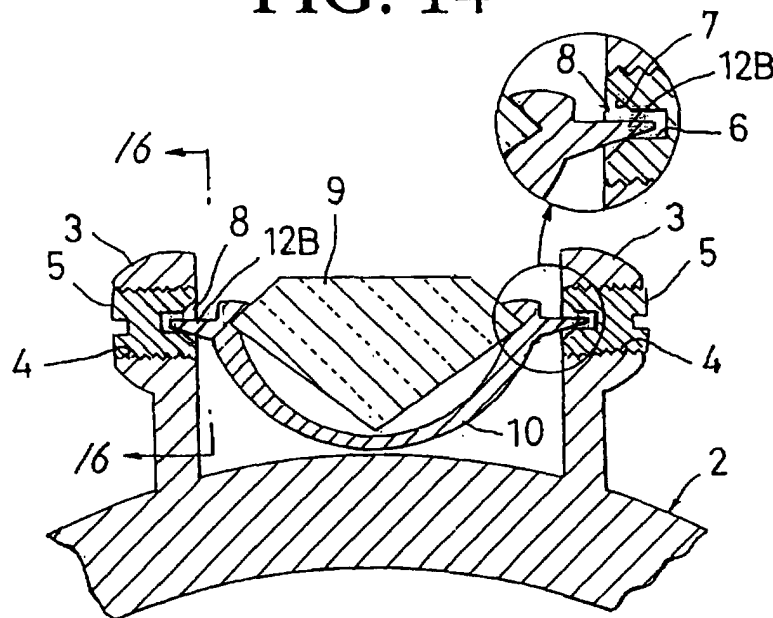


FIG. 15

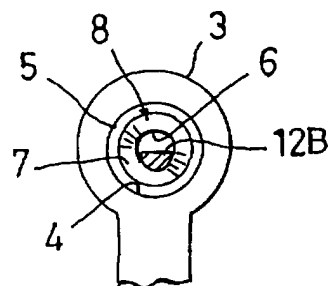


FIG. 16

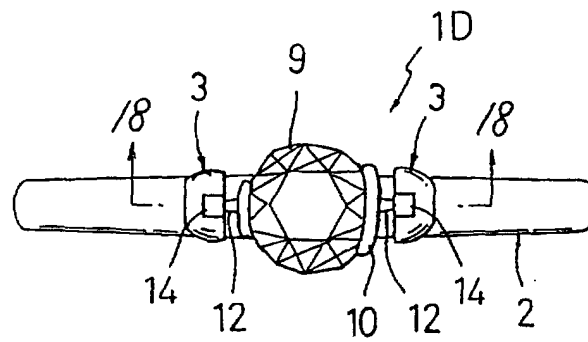


FIG. 17

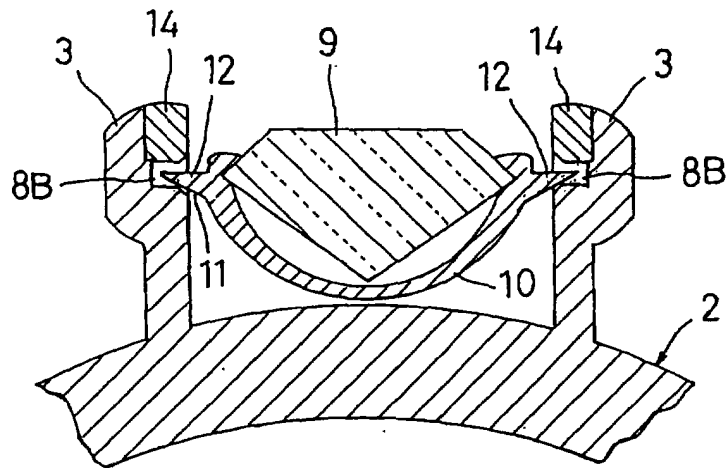


FIG. 18

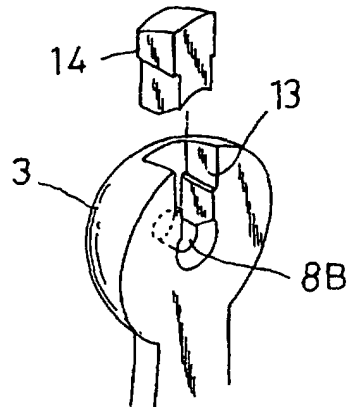


FIG. 19

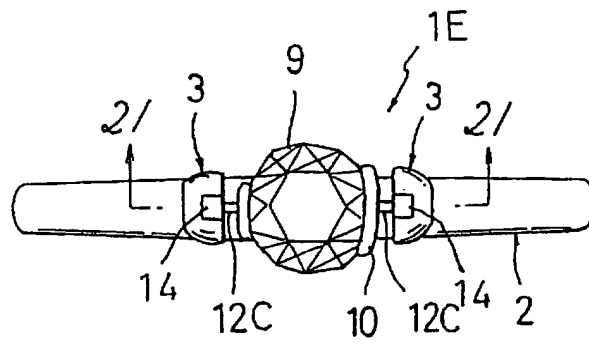


FIG. 20

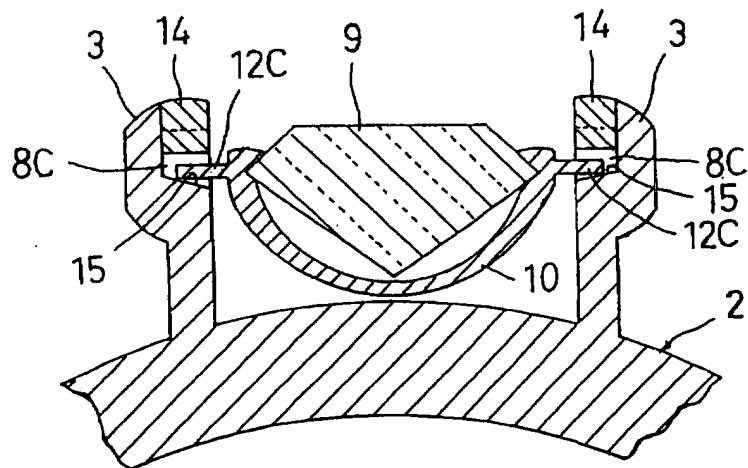


FIG. 21

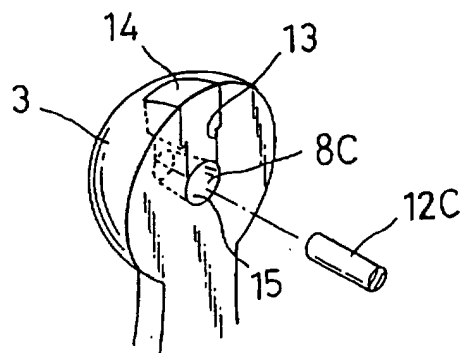


FIG. 22

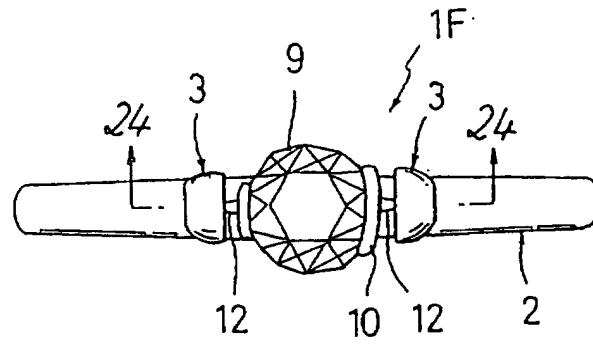


FIG. 23

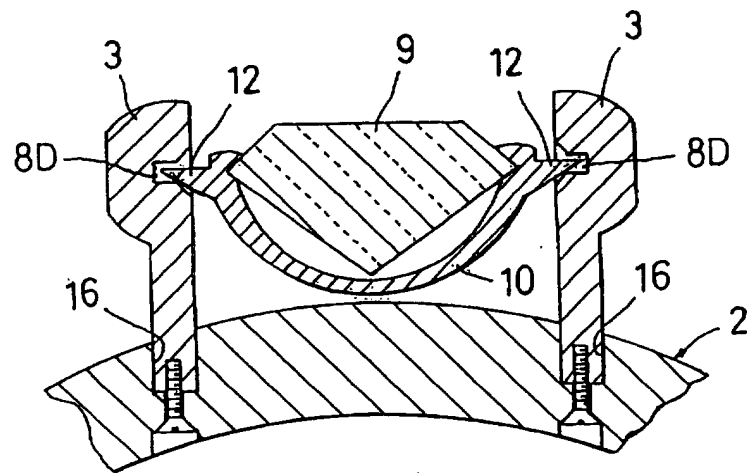


FIG. 24

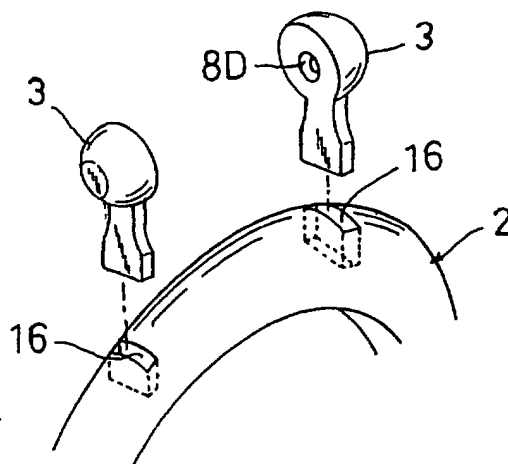


FIG. 25

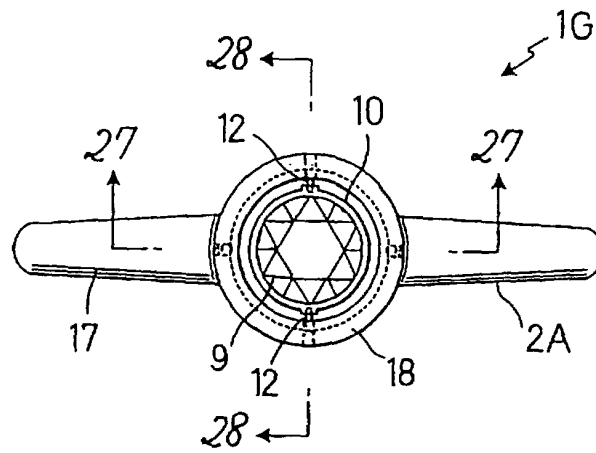


FIG. 26

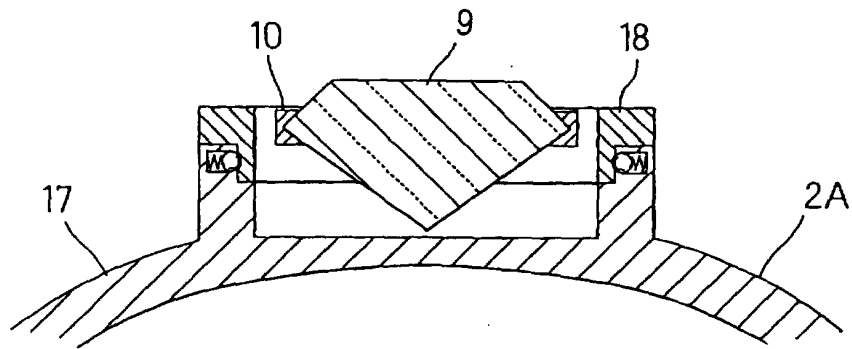


FIG. 27

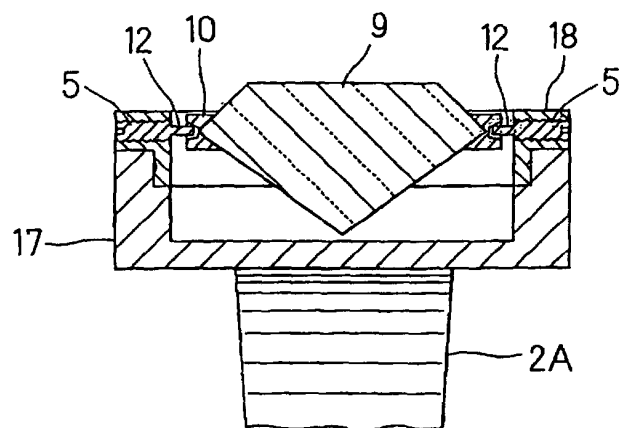


FIG. 28

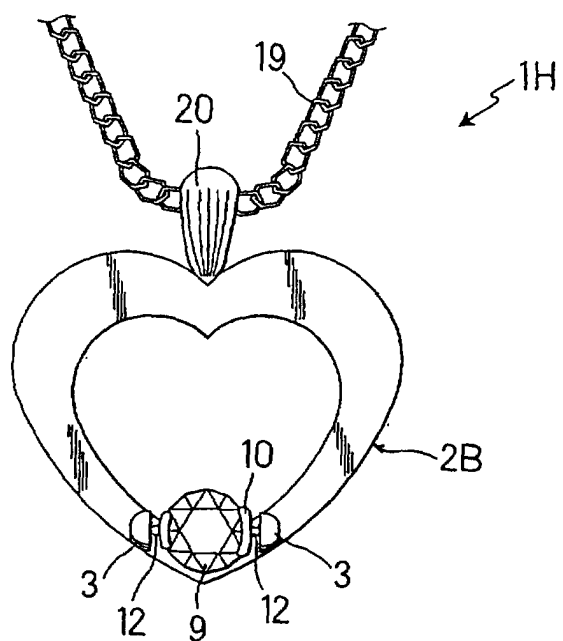


FIG. 29

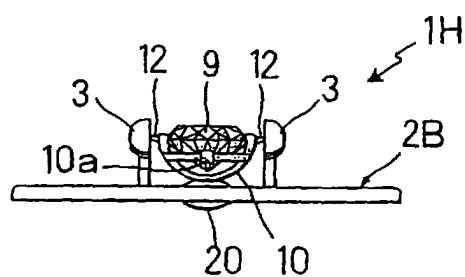


FIG. 30

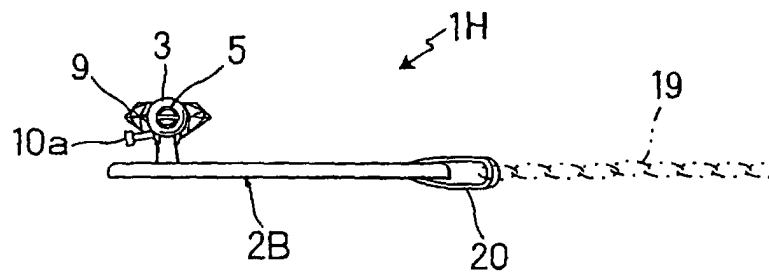


FIG. 31

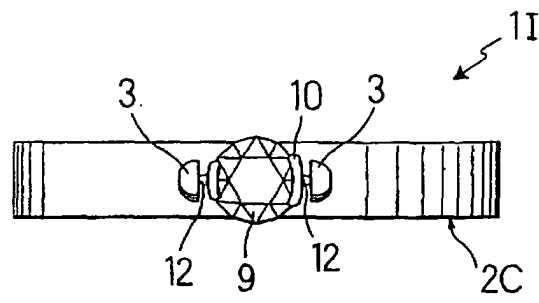


FIG. 32

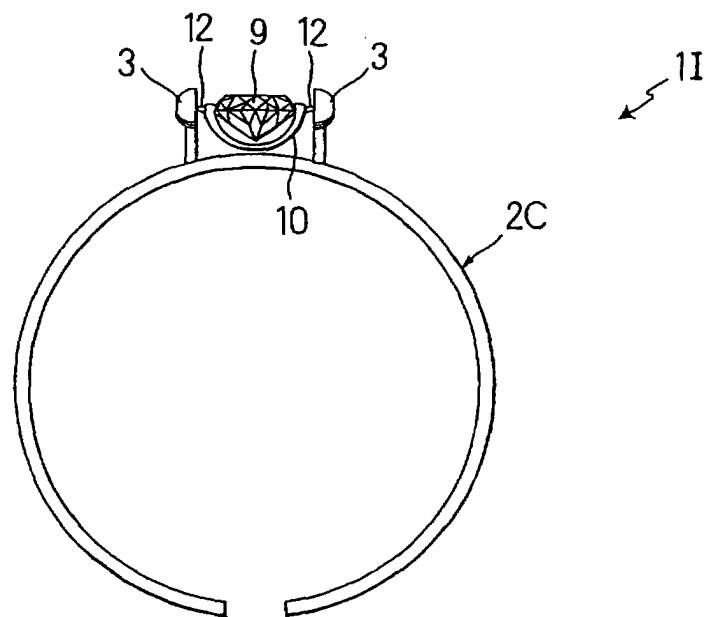


FIG. 33

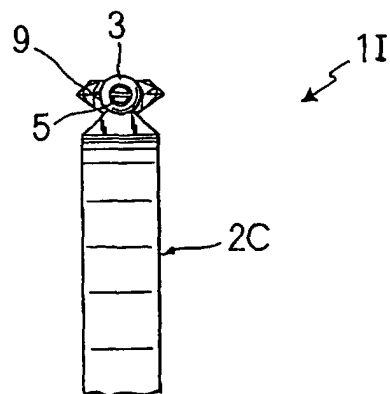


FIG. 34

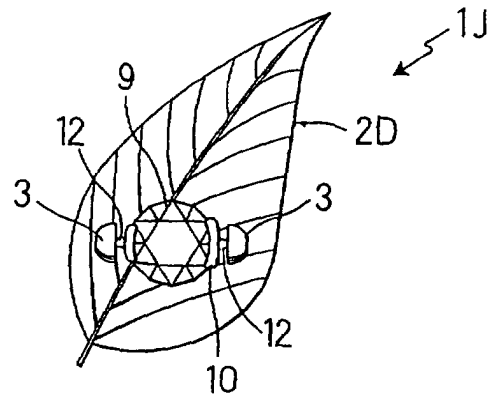


FIG. 35

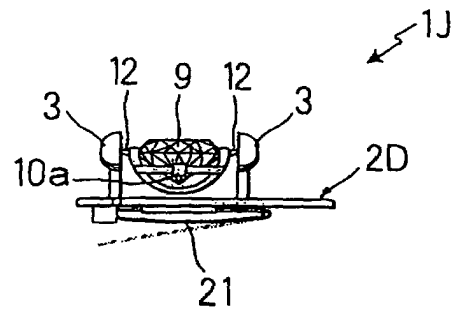


FIG. 36

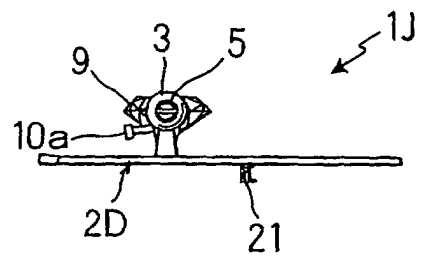


FIG. 37

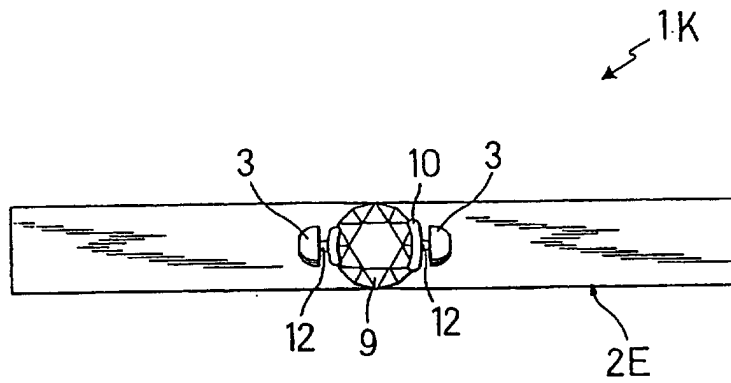


FIG. 38

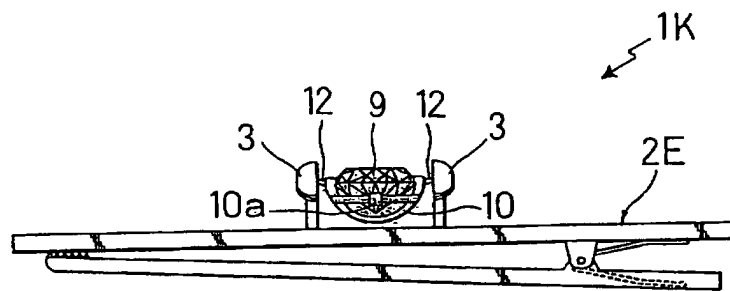


FIG. 39

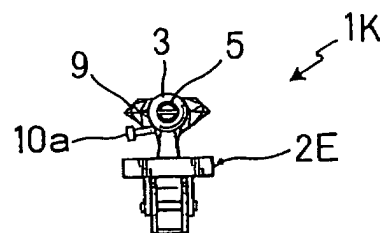


FIG. 40

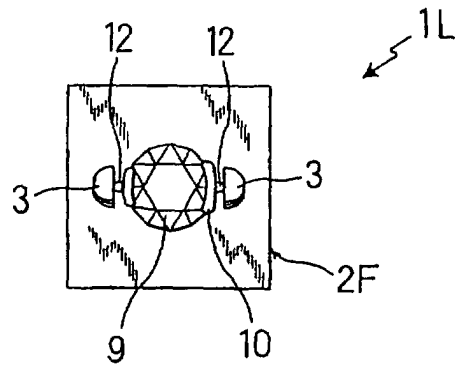


FIG. 41

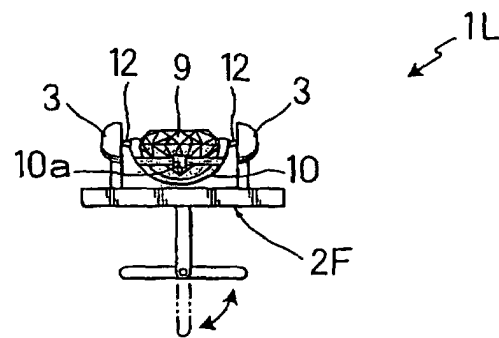


FIG. 42

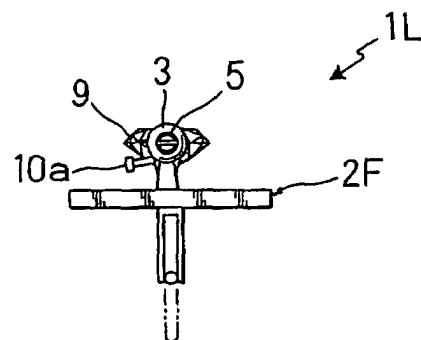


FIG. 43

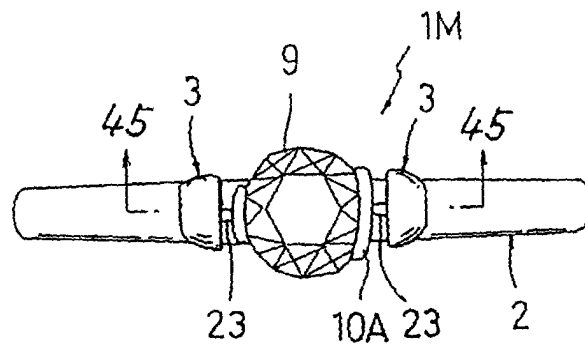


FIG. 44

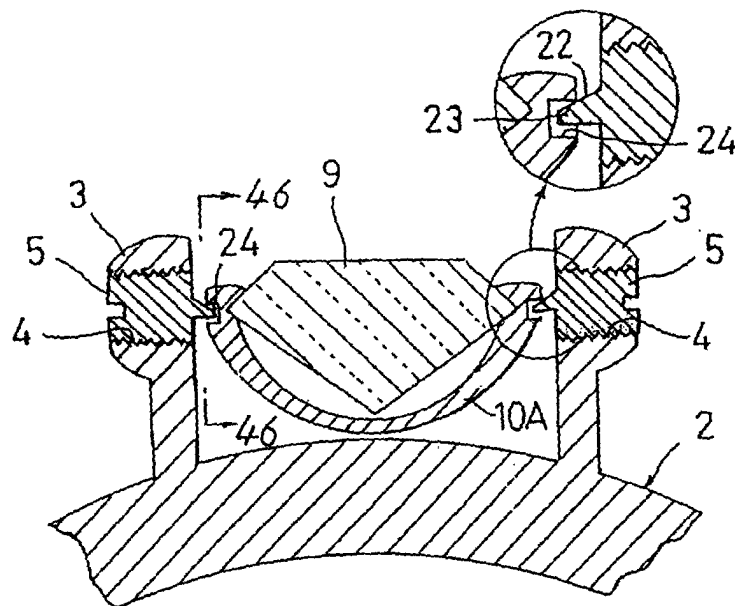


FIG. 45

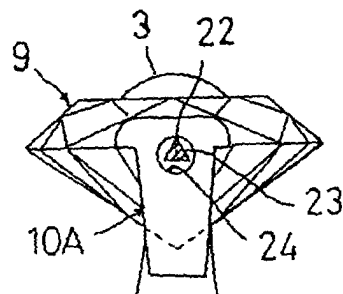


FIG. 46

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP02/02528

A. CLASSIFICATION OF SUBJECT MATTER Int.Cl ⁷ A44C9/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int.Cl ⁷ A44C1/00-3/00, A44C7/00-27/00		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1926-1996 Jitsuyo Shinan Toroku Koho 1996-2002 Kokai Jitsuyo Shinan Koho 1971-2002 Toroku Jitsuyo Shinan Koho 1994-2002		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) esp@cenet US, PATENT AND TRADE MARK OFFICE PATENT FULL TEXT & DATA BASE, WPI, accessory, circlet, ring, support, attachment, gem, jewel, axis, shaft, spindle, inclined plane, slant, slope, taper, A44C		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A X	JP 3033119 U (K.K. Yushin System), 21 January, 1997 (21.01.97), All pages; all drawings (Family: none)	1-3 4
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 09 April, 2002 (09.04.02)		Date of mailing of the international search report 23 April, 2002 (23.04.02)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1998)