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(54) **NOVEL JEWELRY PIECE ARTICLE AND METHOD OF MAKING**

NEUER SCHMUCKSTÜCKARTIKEL UND HERSTELLUNGSVERFAHREN DAFÜR

NOUVEL ARTICLE DE PIÈCE DE JOAILLERIE ET SON PROCÉDÉ DE FABRICATION

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• **ASSCHER, Mike, Edward**
NL-1074 VJ Amsterdam (NL)

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(74) Representative: **Charrier Rapp & Liebau**

Patentanwälte
Fuggerstrasse 20
86150 Augsburg (DE)

(73) Proprietor: **Stars Of Africa Corp.**

New York, NY 10036 (US)

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(72) Inventors:

• **ASSCHER, Lita, Natascha**
New York, NY 10036 (US)

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Description

BACKGROUND OF THE INVENTION

Field of the invention

[0001] The present invention relates to jewelry and more particularly to jewelry pieces or articles including rings, brooches, pendants, necklaces, bracelets, earrings, cuff links, pins, watches and the like, and to the method for making same.

Prior Art

[0002] Many designs exist for pieces of jewelry, as the public desire for new and unique pieces or articles of jewelry is great and inexhaustible. WO 99/08561 A1 discloses a piece of jewelry according to the preamble portion of claim 1.

SUMMARY OF THE INVENTION

[0003] The present invention provides a unique and novel technically designed piece or article of jewelry different from what has existed before. In a preferred embodiment, the piece of jewelry is a ring, however, the inventive concept can be carried out in a variety of jewelry pieces including, but not limited to, rings, brooches, pendants, necklaces, bracelets, earrings, cuff links, pins, watches and the like. The present invention also concerns the method of making the unique and novel technically designed piece of jewelry

[0004] The novel and unique piece or article of jewelry according to the present invention can be embodied in a ring that consists of a finger band that is formed to hold at its top a metal plate with a peripheral upstanding rim or flange. A transparent sealed dome, containing a liquid of a preselected density, specific gravity and viscosity and a plurality of small solid objects, is fixed to the metal plate surrounded by the rim or flange. The solid objects tend to float or suspend in the liquid, but being of higher density and specific gravity will slowly settle due to the viscosity of the liquid and due to gravity. If the ring is moved or the orientation is changed, the inertia of the settled objects will be disturbed and they will disperse in the liquid. When the ring becomes stationary or of very slow movement, the objects will slowly settle to the lowest point due to gravitational influences. The metal of the ring is preferably a precious metal, such as, gold, platinum, silver or alloys thereof. The objects are preferably small cut diamonds, but can also be small cut or uncut precious or semi-precious stones. In a less preferred and less expensive version of the jewelry piece, the metal can be selected from any metal used for jewelry and the objects can be of any inexpensive material that will show through the transparent dome and the liquid can be any transparent liquid having the properties so that the objects and liquid will interact in the manner described above.

[0005] The method of the invention consists of the steps of first making the base or support of the piece or article of jewelry consisting of e.g. a ring band and metal plate with upstanding peripheral rim, then preparing the transparent dome and transparent plate for sealing the dome by coating with a release agent, then after drying the release agent coating, turning the dome upside down and inserting stone, the diamonds into the interior space, then sealing the transparent plate to the dome, then filling the dome via a hole in the transparent plate with a transparent silicone fluid, then sealing the hole and the interior space of the dome, then turning the dome right side up, then placing the dome on the cast ring and plate to fit within the rim and lie on the top surface of the plate, and then adhesively sealing in a transparent manner the dome via the transparent plate to the metal plate and to the inside surface of the rim via a peripheral outer surface region of the dome.

[0006] A further object of the invention is to provide a piece or article of jewelry comprising:

- a. a metal support including a plate having an upper surface and lower surface with an upstanding peripheral rim on the upper surface that is mounted on the support to be normal to a viewer, and
- b. a sealed transparent dome filled with a liquid of a preselected specific gravity and viscosity into which is immersed a plurality of objects of given density, said dome being sealed to the upper surface of said plate and to the upstanding rim,
- c. wherein the plurality of objects will disperse in said liquid responsive to agitation or disturbance and will slowly settle by gravity to the lowest point of the dome when the agitation or disturbance ceases.

[0007] The piece of jewelry as described above is made with the support being a metal selected from the group consisting of gold, platinum, silver and alloys thereof, and preferably gold. The liquid is preferably silicone. The plurality of objects is preferably cut diamonds. The metal plate is circular and has a design embossed on its upper surface. The dome is preferably composed of a member selected from the group consisting of natural sapphire, synthetic sapphire, and sapphire glass, and combinations thereof. The piece or article of jewelry is preferably a ring made of gold, the metal plate is gold, the dome is sapphire, the liquid is silicone and the objects are diamonds.

[0008] The invention also provides a method of making a piece of jewelry comprising the steps of

- a. making a support including a metal plate with upstanding peripheral rim,
- b. preparing a transparent dome and a transparent plate for sealing the dome by coating with a release agent,
- c. turning the dome upside down and inserting small objects into the interior space,

- d. sealing the transparent plate to the dome,
- e. filling the dome via a hole in the transparent plate with a transparent silicone fluid of a preselected specific gravity and viscosity,
- f. sealing the hole and the interior space of the dome,
- g. placing the dome on the cast ring and plate to fit within the rim with the transparent plate lying on the top surface of the plate, and
- h. adhesively sealing in a transparent and liquid tight manner the dome via the transparent plate to the metal plate and to the inside surface of the rim via a peripheral outer surface region of the dome.

[0009] In the method described above, preferably, the material of the material of the support and metal plate is a metal selected from the group consisting of gold, platinum, silver and alloys thereof, the material of the dome is a member selected from the group consisting of natural sapphire, synthetic sapphire, and sapphire glass, and combinations thereof and the objects are cut diamonds.

[0010] Other and further object, advantages and features of the invention will become readily apparent from the following detailed description of preferred embodiments of the invention when taken in conjunction with the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

Fig. 1 is a perspective view of a first embodiment of a novel ring looking down at the top of the ring according to the present invention.

Fig. 2 is another perspective view of the novel ring shown in Fig. 1 looking down as seen from a different angle.

Fig. 3 is a perspective view of a second embodiment of a novel ring looking down at the top according to the present invention.

Fig. 4 is another perspective view of the novel ring shown in Fig. 3 looking down at a different angle.

Fig. 5 is a perspective view of a third embodiment of a novel ring looking down at the top of the ring according to the present invention.

Fig. 6 is a side view of a ring as shown in Figs. 3 and 4 according to the present invention.

Fig. 7 is a partial vertical section taken along line 7-7 along a midplane through the ring structure shown in Fig. 6.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[0012] Referring now to the drawings, the invention will be described with reference to preferred embodiments. Shown in Figs. 1 and 2 is a first embodiment, illustrated as a ring. The ring consists of a band or loop 10 through which a user's finger can pass so the ring can be worn,

usually at the base of a selected finger. The band or loop 10 at its top integrally joins an annulus 12, the plane of which lies normal to the plane of the loop 10, or expressed differently, oriented at 90 degrees so that the annulus 12 will lie flat on or with respect to a finger wearing the ring and be normal to a viewer. A circular metal plate 14 having an upstanding rim or flange 15 is fixed to annulus 12 about its circumference or perimeter. The upper surface of the plate 14 is preferably embossed with a design 16, but a design can be placed on its surface in any other manner. A sealed transparent hollow hemispherical dome 18 contains a liquid 19 of preselected density and viscosity that fills the dome 18. A plurality of cut diamonds 20 are immersed in the liquid. The dome 18 is hemispherical and is closed at its bottom by a flat plate 60 (see Fig. 7) that is adhesively attached in a transparent manner to the upper surface of the metal plate 14. As shown in Figs. 1 and 2 diamonds 22 are set into the outer surface 24 of the band or loop 10 and annulus 12.

[0013] Figs. 3 and 4 show a second embodiment of a ring according to the present invention. The ring consists of two bands or loops 30 that are joined at the bottom as indicated by reference numeral 32 and are spaced apart at the top. A circular metal plate 34 having an upstanding rim 36 is integrally fixed at diametrically portions 38 to the upper portions 40 of the two bands or loops 30. The hemispherical dome 18 that is closed at its bottom by a flat plate 60, as described in conjunction with Figs. 1 and 2, has a diameter that matches the inner diameter of the upstanding rim 36, and is adhesively attached in a transparent, liquid tight manner to the upper surface of the metal plate 34. The dome 18, as described, is filled with a liquid of preselected density and viscosity. A plurality of cut diamonds 20 are immersed in the liquid.

[0014] Fig. 5 shows a third embodiment, a ring of the same shape and configuration as the ring shown in Figs. 1 and 2, but without the diamonds 24 set into or onto the outer surface 22 of the band or loop 10.

[0015] Figs. 6 and 7 show details of the mounting of the dome 18 with respect to the ring shown in Figs. 3 and 4. Fig. 6 is a side view showing the two bands or loops 30 joined at their bottom, see reference numeral 32, the flat circular plate 34 with rim 36 and the dome 18. Fig. 7 is a partial vertical section taken along the midplane of the ring showing the details of the dome 18 and the mounting of the dome 18 with respect to the flat circular metal plate 34 with upstanding rim 36. Dome 18, as described, is a hollow hemisphere, sealed by a thin transparent plate 60 that is adhesively attached to across the open mouth 62 of the hollow dome 18. Although the dome 18 is mainly hemispherical, the region at the outside surface adjacent the open mouth 62 is planar or flat or a straight surface 66 to match and fit with the upstanding rim 36. The inner edge of the open mouth of the dome 18 is beveled 52 and matches with a bevel 54 around the upper surface of the plate 60. Plate 60 has a small tapped hole 68 into which is threaded a flat-headed screw 70, countersunk, so that its head lies in the plane of the

lower surface of the plate 60. The hole 68 enables the filling of the liquid 19 into the sealed interior space of the hemispherical dome 18. Prior to placement of and sealing of the plate 60, a plurality of cut diamonds 20 are placed in the dome 18. The plate 60 is sealed to the open mouth 62 of the dome 18 to enclose the interior space of the dome 18. Liquid is then fed via hole 68 into the interior space to fill same. The screw 70 is then threaded into the hole 68 closing same. The filling will not be 100% complete and a very small amount of air will be in the sealed interior space, but this is beneficial as allowance needs to be provided for thermal expansion and contraction of the fluid. Then the bottom plate 60 and the circular outer surface 66 of the dome 18 are adhesively attached in a liquid tight sealing manner to the top of the metal plate 34 and rim 36, respectively, in a transparent manner.

[0016] Although the ring is shown as having a circular top structure, the geometry of the jewelry piece or article can be any shape. Thus the plate 34 and dome 18 can be oblong, rectangular, or polygonal, and even irregularly shaped.

[0017] The selection of materials is very important. For a precious jewelry piece or article, the ring is made of gold, platinum, silver or an alloy thereof, with the preferred embodiment being 18 ct. gold (yellow, rose or white). The ring and circular plate 34 with rim 36, about 2 to 5 mm in height, can be cast by the lost wax process or any other method used to make jewelry, and may have pronged settings cast on the outer surface of the ring or band, as shown in Figs. 1 and 2. Also, the ring can be cast separately from the plate and then the two joined afterwards. The plate is made with an embossed upper surface showing an embossed design 16.

[0018] The dome 18 is made of sapphire glass, pure sapphire or synthetic sapphire, all of which are transparent, and can vary in size from about 10 to 25 mm outer diameter. The thickness of the dome wall can vary from about 0.5 to about 3.0 mm. The inner diameter of the dome 18 can vary from about 8 to about 24 mm. However, these dimensions are only suggestive and they can vary beyond the limits noted, as the dimensions depend on the artistic and esthetic nature of the jewelry piece, and are usually left to the designer to specify, since a critical determinant of the piece is its appeal to a wearer.

[0019] The interior surface of the dome 18 and the plate 60 is coated with a suitable release agent to insure that the contained diamonds will not stick to the interior surface of the dome 18 or the plate 60. Any suitable material can be used for this purpose. However, a preferred material is Dry-Film RA/IPA made and sold by DuPont. This material consists of isopropyl 74-76%, Poly-TFE, Omega-Hydro-Alpha-(Methylcyclohexyl) 18-19% and Poly-tetrafluoroethylene 6-7%.

[0020] The liquid used to fill the interior volume of the dome 18 is a silicone material having a specific gravity of about 0.94. A suitable material for the liquid is XIAM-ETER® PMX Silicone Fluid as sold by Dow Corning. The

viscosity of the liquid can vary from about 25 to 32 cSt. In a preferred embodiment, the viscosity is about 30 cSt. The diamonds can be of any grade and are cut to a size of from about 1.1 mm to about 1.5 mm in diameter having a weight varying from about 0.01 ct to about 0.0175 ct. Diamond has a specific gravity (density) of 3.514 to 3.518. The plate 60 and screw 70 are composed of Plexiglas, which is transparent, coated as noted above. The adhesive material used to join the dome 18 and plate 34 can be any suitable material that is transparent and will make a secure liquid tight transparent joint. A typical material for this purpose is Epoxy Structuralit as made and sold by Pancol Adhesives.

[0021] For lesser preferred embodiments, such as a semi-precious jewelry piece, the ring can be made of a gold-plated base metal, such as nickel or chromium. It may also be made of any material used for jewelry, such as, silver, nickel, chromium or the like. The dome 18 can be any other transparent crystalline or non-crystalline material useable for jewelry. The plate 60 can be made of any suitable transparent material.

[0022] The method of the invention consists of the steps of first casting the metal components of the piece of jewelry, namely, ring and plate 34 with rim 36, then preparing the transparent dome 18 and plate 60 by coating with a release agent, then after drying the release agent coating, turning the dome upside down and inserting the diamonds into the interior space, then sealing the transparent plate 60 to the interior edge of the dome, as described, then filling the dome via the hole 68 with the transparent silicone fluid, then inserting and sealing the screw 70 to seal the interior space of the dome, then turning the dome right side up or not, then placing the dome on the cast ring and plate 34, or vice versa, so that plate 60 and dome 18 fit within the rim 36 and lie against the top surface of the plate 34, and then adhesively sealing in a transparent, liquid tight manner surface 66 of the dome 18 and the plate 60 to the inside surface of the rim 36 and to the circular plate 34, respectively.

[0023] Although the invention, as defined by the claims, has been described and shown in terms of preferred embodiments, nevertheless changes and modifications will be evident to those of ordinary skill in the art, which do not depart from the scope and teachings of the invention. Such changes and modifications are deemed to fall within the purview of the appended claims to the invention.

Claims

1. A piece of jewelry comprising:

a metal support including a plate (14; 34) having an upper surface and lower surface with an up-standing peripheral rim (15; 36) on the upper surface that is mounted on the support to be normal to a viewer, and

characterized in that the piece of jewelry further comprising
 a sealed transparent dome (18) filled with a liquid (19) of a preselected specific gravity and viscosity into which is immersed a plurality of objects (20) of given density, said dome (18) being sealed to the upper surface of said plate (14; 34) and to the upstanding rim,

wherein the plurality of objects (20) will disperse in said liquid (19) responsive to agitation or disturbance and will slowly settle by gravity to the lowest point of the dome (18) when the agitation or disturbance ceases.

2. The piece of jewelry according to claim 1 wherein the support is a metal selected from the group consisting of gold, platinum, silver and alloys thereof.
3. The piece of jewelry according to claim 2 wherein the support is made of gold.
4. The piece of jewelry according to claim 1 wherein the liquid (19) is silicone.
5. The piece of jewelry according to claim 1 wherein the plurality of objects (20) are cut diamonds.
6. The piece of jewelry according to claim 1 wherein the metal plate (14; 34) is circular and has a design embossed on its upper surface.
7. The piece of jewelry according to claim 1 wherein the dome (18) is composed of a member selected from the group consisting of natural sapphire, synthetic sapphire, and sapphire glass, and combinations thereof.
8. The piece of jewelry according to claim 1 wherein the piece is a ring made of gold, the metal plate (14; 34) is gold, the dome (18) is sapphire, the liquid (19) is silicone and the objects (20) are diamonds.
9. The method of making a piece of jewelry according to one of the preceding claims comprising the steps of
 - a. making a support including a metal plate (14; 34) with upstanding peripheral rim (15; 36),
 - b. preparing a transparent dome (18) and a transparent plate (60) for sealing the dome (18) by coating with a release agent,
 - c. turning the dome (18) upside down and inserting small objects (20) into the interior space,
 - d. sealing the transparent plate (60) to the dome (18),
 - e. filling the dome (18) via a hole (68) in the transparent plate (60) with a transparent silicone fluid

(19) of a preselected specific gravity and viscosity,
 f. sealing the hole (68) and the interior space of the dome (18),
 g. placing the dome (18) on the cast ring and plate (14; 34) to fit within the rim (15; 36) with the transparent plate (60) lying on the top surface of the plate (14; 34), and
 h. adhesively sealing in a transparent and liquid tight manner the dome (18) via the transparent plate (60) to the metal plate (14; 34) and to the inside surface of the rim (15; 36) via a peripheral outer surface region of the dome.

10. The method according to claim 9 wherein the material of the support and metal plate (14; 34) is a metal selected from the group consisting of gold, platinum, silver and alloys thereof, and the material of the dome (18) is a member selected from the group consisting of natural sapphire, synthetic sapphire, and sapphire glass, and combinations thereof.

Patentansprüche

1. Schmuckstück umfassend:

eine Metallhalterung enthaltend eine Platte (14; 34) mit einer oberen Oberfläche und einer unteren Oberfläche, mit einem nach oben stehenden peripheren Rand (15; 36) an der oberen Oberfläche, welche derart an der Halterung angebracht ist, um lotrecht zu einem Betrachter zu sein, und

dadurch gekennzeichnet, dass das Schmuckstück weiter umfasst eine abgedichtete, transparente Kuppel (18), welche mit einer Flüssigkeit mit einem vorgegebenen spezifischen Gewicht und Viskosität gefüllt ist, in welche eine Vielzahl von Objekten (20) einer vorgegebenen Dichte eingetaucht sind, die Kuppel (18) ist mit der oberen Oberfläche der Platte (14; 34) und dem nach oben stehenden Rand abgedichtet, wobei sich die Vielzahl von Objekten (20) in der Flüssigkeit (19) als Reaktion auf Bewegung oder Unruhe verstreuen und sich gravitationsbedingt langsam zu dem niedrigsten Punkt der Kuppel (18) absetzen, wenn die Bewegung oder Unruhe verschwindet.

2. Schmuckstück nach Anspruch 1, wobei die Halterung aus einem Metall besteht, das aus der Gruppe bestehend aus Gold, Platin, Silber oder Legierungen hiervon ausgewählt ist.
3. Schmuckstück nach Anspruch 2, wobei die Halterung aus Gold gemacht ist.

4. Schmuckstück nach Anspruch 1, wobei die Flüssigkeit (19) Silikon ist.
5. Schmuckstück nach Anspruch 1, wobei die Vielzahl von Objekten (20) geschliffene Diamanten sind.
6. Schmuckstück nach Anspruch 1, wobei die Metallplatte (14; 34) kreisförmig ist und eine Gestaltung auf ihrer oberen Oberfläche geprägt hat.
7. Schmuckstück nach Anspruch 1, wobei die Kuppel (18) aus einem Element gebildet ist, das aus der Gruppe bestehend aus natürlichem Saphir, synthetischem Saphir, oder Saphirglas oder Kombinationen hiervon ausgewählt ist.
8. Schmuckstück nach Anspruch 1, wobei das Schmuckstück ein aus Gold hergestellter Ring ist, wobei die Metallplatte (14; 34) aus Gold ist, die Kuppel (18) aus Saphir ist, die Flüssigkeit (19) Silikon ist und die Objekte (20) Diamanten sind.
9. Verfahren zum Herstellen eines Schmuckstücks nach einem der voranstehenden Ansprüche umfassend die Schritte:
 - a. Herstellen einer Halterung enthaltend eine Metallplatte (14; 34) mit nach oben stehendem peripheren Rand (15; 36),
 - b. Herstellen einer transparenten Kuppel (18) und einer transparenten Platte (16) zum Abdichten der Kuppel (18) mittels einer Beschichtung mit einem Antiadhäsionsmittel,
 - c. Umdrehen der Kuppel (18), so dass sie auf dem Kopf steht, und Einbringen kleiner Objekte (20) in den Innenraum,
 - d. Versiegeln der transparenten Platte (16) auf der Kuppel (18),
 - e. Befüllen der Kuppel (18) über ein in der transparenten Platte (16) befindliches Loch (68) mit einer durchsichtigen Silikonflüssigkeit (19) eines vorgegebenen spezifischen Gewichts und Viskosität,
 - f. Versiegeln des Lochs (68) und des Innenraums der Kuppel (18),
 - g. Anordnen der Kuppel (18) auf dem zusammengearbeiteten Ring und Platte (14; 34), um sich in den Rand (15; 36) einzufügen, wobei die transparente Platte (60) auf der oberen Oberfläche der Platte (14; 34) liegt, und
 - h. klebendes Versiegeln der Kuppel (18) mittels der transparenten Platte (60) an die Metallplatte (14; 34) und mittels eines peripheren äußeren Oberflächenbereichs der Kuppel an die innen-seitige Oberfläche des Rands (15; 36) in einer transparenten und flüssigkeitsdichten Weise.
10. Verfahren nach Anspruch 9, wobei das Material der

Halterung und der Metallplatte (14; 34) ein Metall ist, das aus der Gruppe bestehend aus Gold, Platin, Silber oder Legierungen hiervon ausgewählt ist, und dass das Material der Kuppel (18) ein Element ist, das aus der Gruppe bestehend aus Natursaphir, synthetischem Saphir, oder Saphirglas, oder Kombinationen hiervon ausgewählt ist.

10 Revendications

1. Pièce de joaillerie comprenant:

un support métallique comportant une plaque (14 ; 34) comprenant une surface supérieure et une surface inférieure, avec un rebord périphérique vertical (15 ; 36) sur la surface supérieure qui est monté sur le support de manière à être perpendiculaire à un observateur, et **caractérisée** en que la pièce de joaillerie comprend en outre :

un dôme transparent étanche (18) rempli d'un liquide (19) de poids volumique et de viscosité présélectionnés, dans lequel est immergée une pluralité d'objets (20) de densité donnée, ledit dôme (18) étant scellé sur la surface supérieure de ladite plaque (14 ; 34) et sur le rebord vertical, dans laquelle la pluralité d'objets (20) est dispersée dans ledit liquide (19) en fonction d'une agitation ou perturbation, et se dépose lentement par gravité au point le plus bas du dôme (18) lorsque les agitation ou perturbation cessent.

2. Pièce de joaillerie selon la revendication 1, dans laquelle le support est un métal sélectionné à partir du groupe constitué par l'or, le platine, l'argent et des alliages de ceux-ci.

3. Pièce de joaillerie selon la revendication 2, dans laquelle le support est réalisé en or.

4. Pièce de joaillerie selon la revendication 1, dans laquelle le liquide (19) est du silicone.

5. Pièce de joaillerie selon la revendication 1, dans laquelle la pluralité d'objets (20) est constituée de diamants taillés.

6. Pièce de joaillerie selon la revendication 1, dans laquelle la plaque métallique (14 ; 34) est circulaire et présente une forme emboutie sur sa surface supérieure.

7. Pièce de joaillerie selon la revendication 1, dans laquelle le dôme (18) est composé d'un élément sé-

lectionné à partir du groupe constitué par du saphir naturel, du saphir synthétique et du verre saphir et des mélanges de ceux-ci.

8. Pièce de joaillerie selon la revendication 1, dans laquelle la pièce est une bague réalisée en or, la plaque métallique (14 ; 34) est en or, le dôme (18) est en saphir, le liquide (19) est du silicone et les objets (20) sont des diamants. 5
9. Procédé de fabrication d'une pièce de joaillerie selon l'une des revendications précédentes comprenant les étapes de : 10
 - a. réalisation d'un support comportant une plaque métallique (14 ; 34) avec rebord périphérique vertical (15 ; 36), 15
 - b. préparation d'un dôme transparent (18) et d'une plaque transparente (60) destinée à sceller le dôme (18) par dépôt d'un agent de séparation, 20
 - c. retournement du dôme (18) face supérieure vers le bas et insertion de petits objets (20) dans l'espace intérieur,
 - d. scellement de la plaque transparente (60) sur le dôme (18), 25
 - e. remplissage du dôme (18) à travers un orifice (68) sur la plaque transparente (60) avec un fluide de silicone transparent (19) de poids volumique et de viscosité présélectionnés, 30
 - f. scellement de l'orifice (68) et de l'espace intérieur du dôme (18),
 - g. mise en place du dôme (18) sur la bague moulée et la plaque (14 ; 34) afin qu'il s'adapte à l'intérieur du rebord (15 ; 36), la plaque transparente (60) reposant sur la surface supérieure de la plaque (14 ; 34), et 35
 - h. scellement adhésif du dôme (18) de manière transparente et étanche aux liquides via la plaque transparente (60) à la plaque métallique (14 ; 34) et à la surface interne du rebord (15 ; 36) via une zone de la surface périphérique externe du dôme. 40
10. Procédé selon la revendication 9, dans lequel le matériau du support et de la plaque métallique (14 ; 34) est un métal sélectionné à partir du groupe constitué par l'or, le platine, l'argent et des alliages de ceux-ci, et le matériau du dôme (18) est un élément sélectionné à partir du groupe constitué par du saphir naturel, du saphir synthétique et du verre saphir et des mélanges de ceux-ci. 45

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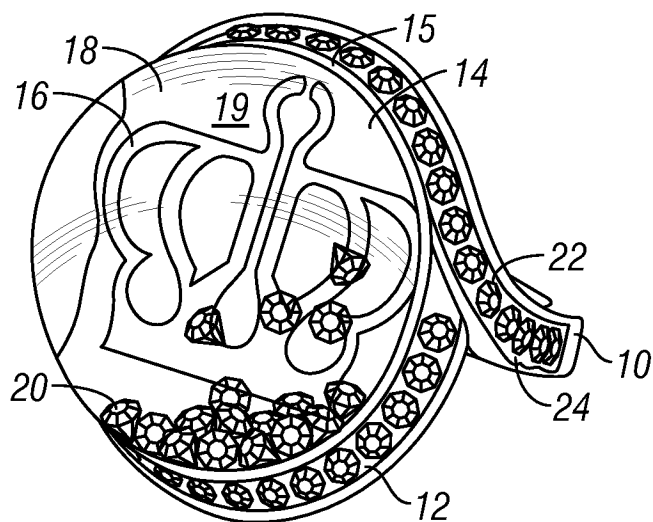


FIG. 1

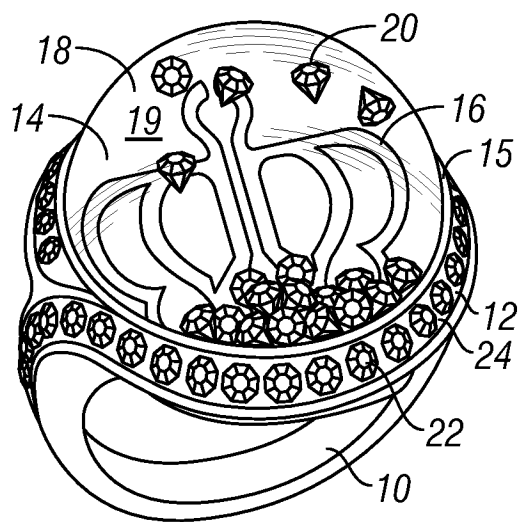


FIG. 2

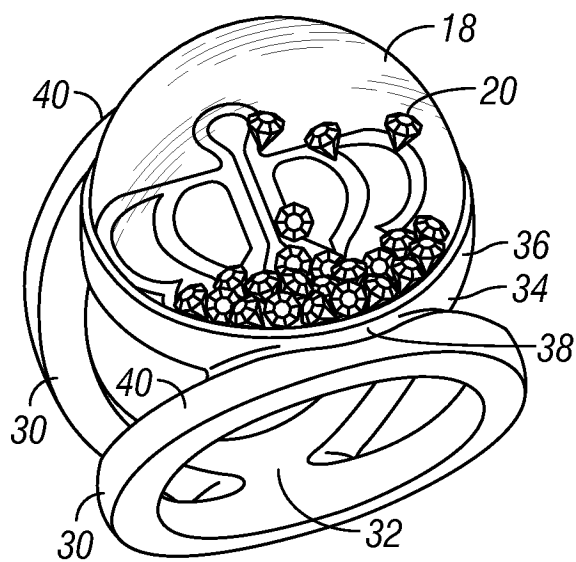


FIG. 3

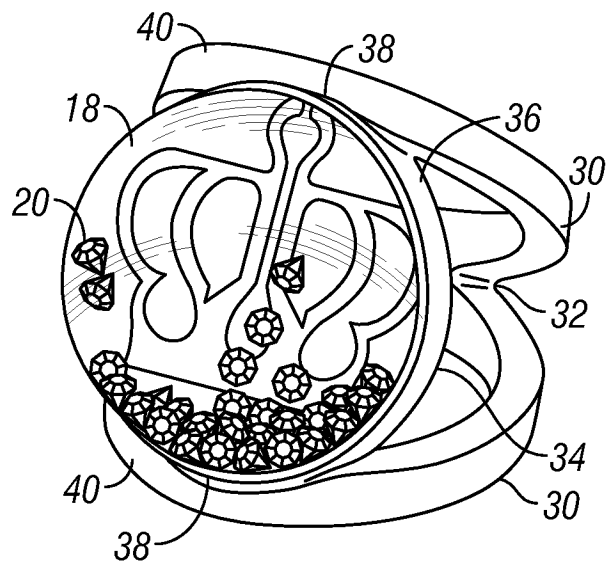


FIG. 4

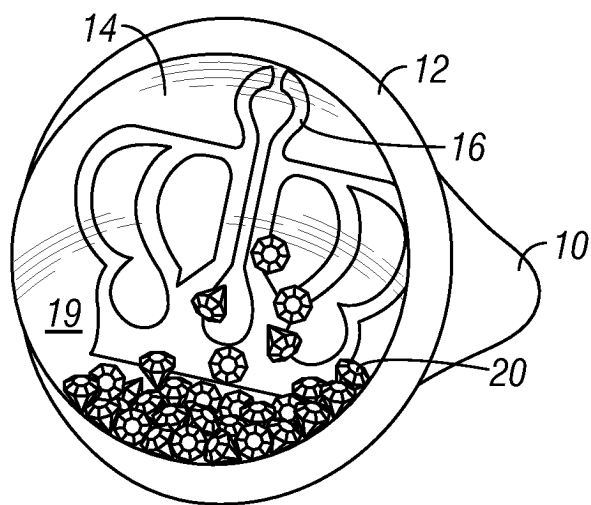


FIG. 5

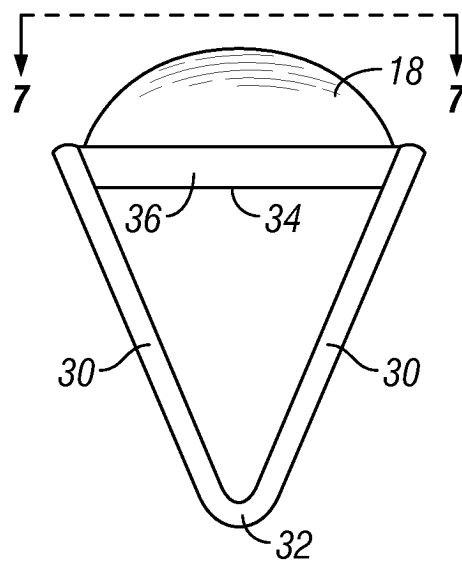


FIG. 6

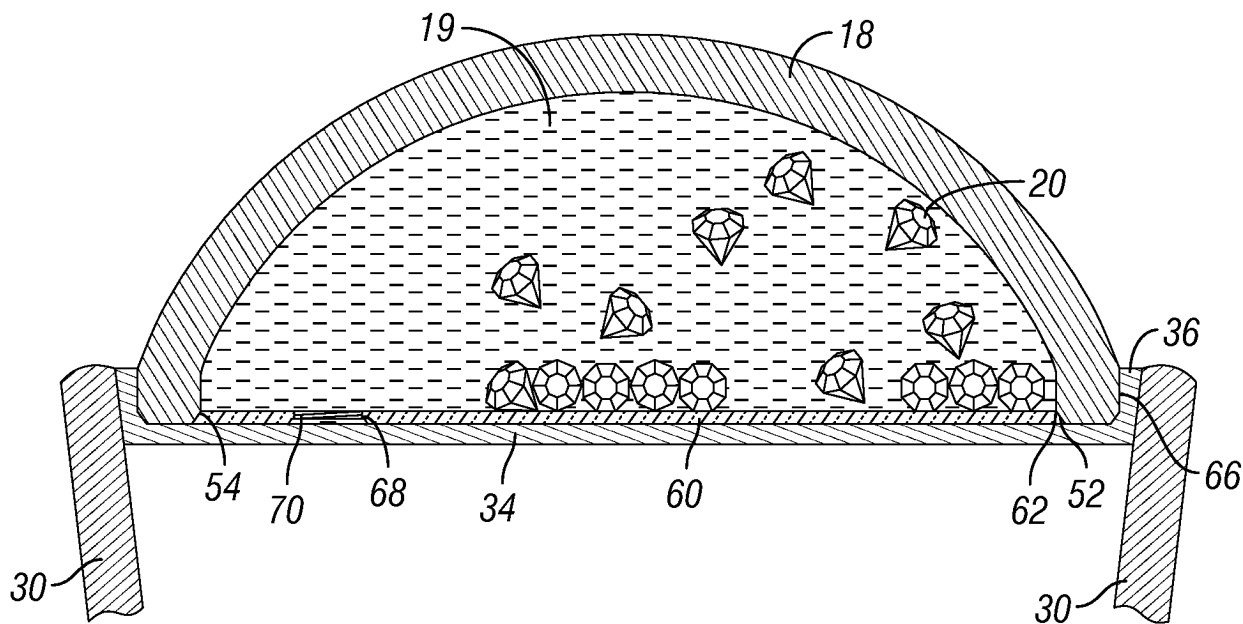


FIG. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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