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(54) **JEWELRY WITH THREADED HEAD AND IMPROVED MAGNETIC ASSEMBLY**

(57) A modular magnetic jewelry system includes a jewelry body having a magnetic jewelry base and a magnetic jewelry head configured to magnetically couple with the magnetic jewelry base. The magnetic jewelry base may include a first permanent magnet, and the magnetic jewelry head may include a second permanent magnet,

and a malleable resilient gasket placed between said base and said head. The jewelry body may have a male or female threaded portion, and the head may have a threaded portion of opposite gender to said jewelry body for mating engagement therewith when the head is magnetically coupled to the magnetic base.

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Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 15/277532 filed September 27, 2016, entitled "Jewelry with Threaded Head and Magnetic Assembly," which claims priority to Indian Patent Application No. 201621025196, filed on July 22, 2016, the entire contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to jewelry with a removable head assembly, and, more particularly, jewelry with a head that is magnetically coupled.

BACKGROUND OF THE INVENTION

[0003] Many pieces of jewelry are not easily modified without the assistance of a jeweler or special tools. For example, a ring may include a precious stone that is set in a mount having bent prongs to hold the stone in the mount. The bent prongs are not intended to be reopened by a wearer of the ring during normal use. To change the precious stone of such a ring to another stone generally requires the assistance of a jeweler, which adds cost and inconvenience to an owner of the jewelry piece. Moreover, if an owner of the ring wishes to restore the original stone to the ring, additional cost and inconvenience are incurred in re-using the services of a jeweler.

SUMMARY

[0004] According to one aspect, further details of which are described in greater detail below, a jewelry system includes at least one jewelry body and a plurality of jewelry heads configured to interchangeably mount to the body. The system allows a user to quickly interchange various jewelry heads with one or more different bodies to obtain multiple body-head combinations to suit a user. For example, the bodies different types of jewelry can include a ring band, an earring post, and a pendant bezel and chain bail. The jewelry heads may have different types of settings with or without different precious and non-precious stones or materials. In addition, the heads may include metal surfaces, such as gold or silver surfaces, which can be engraved. In addition to stones, the attachments can also include enameled surfaces as well as pearls. The heads are configured to be interchanged with the bodies by the user, without having to use specialized tools or the services of a jeweler. Preferably, the heads are configured to be interchanged with the bodies by hand by the user without tools.

[0005] Each body may have a base to which a first permanent magnet may be permanently affixed. Also, each head may have a base to which a second perma-

nent magnet may be permanently affixed. The first and second magnets may be permanently affixed with glue, for example. The first magnet may be flush set with the base of the body and the second magnet may be flush set with the head. The first and second permanent magnets are configured to face each other when the head is coupled to the body. The first and second magnets are set in their respective bases in such a way that they have opposite polarity facing each other.

[0006] Also, each body and head may incorporate a secondary, non-magnetic connection. For example, to further strengthen the connection between the body and the head, the base of the body may have a male threaded portion and the head may have a mating female threaded portion to mate with the male threaded portion of the body. For example, male threads may be located along an outer sidewall of the base of the body and mating female threads may be located along an inner sidewall of the head.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

Figs. 1A and 1B are exploded assembly views of a jewelry system, embodied as a ring, in accordance with an aspect of the disclosure;

Fig. 1C is an isometric view of the ring of Fig. 1A, in an assembled state, and viewed from a top and a side of the ring shown in Fig. 1A;

Fig. 1D is an isometric view of the ring of Fig. 1B, in an assembled state, and viewed from a bottom and the side of the ring shown in Fig. 1B;

Fig. 1E is a side elevation view of the ring shown in Fig. 1C;

Fig. 1F is an elevation view of the ring of Fig. 1E viewed from a side perpendicular to the side shown in Fig. 1E;

Fig. 1G is a top elevation view of the ring shown in Fig. 1C;

Figs. 2A and 2B are exploded assembly views of another embodiment of the jewelry system;

Fig. 2C is an isometric view of the ring shown in Figs. 2A and 2B in an assembled state;

Fig. 2D is a side elevation view of the ring shown in Fig. 2C;

Figs. 3A and 3B are exploded assembly views of another embodiment of the jewelry system;

Fig. 3C is an isometric view of the ring shown in Figs. 3A and 3B in an assembled state;

Fig. 3D is a side elevation view of the ring shown in Fig. 3C;

Figs. 4A and 4B are exploded assembly views of another embodiment of the jewelry system;

Fig. 4C is an isometric view of the ring shown in Figs. 4A and 4B in an assembled state;

Fig. 4D is a side elevation view of the ring shown in Fig. 4C;

Figs. 5A and 5B are exploded assembly views of another embodiment of the jewelry system;

Fig. 5C is an isometric view of the earring shown in Figs. 5A and 5B in an assembled state;

Fig. 5D is a side elevation view of the ring shown in Fig. 5C;

Fig. 6 is an exploded assembly view of another embodiment of the jewelry system; and

Fig. 7 is an exploded assembly view including a gasket according to another embodiment of the jewelry system.

DETAILED DESCRIPTION

[0008] Figs. 1A to 1G show an embodiment of a jewelry system embodied as a reconfigurable ring 1. The ring 1 includes a body 2, which is formed generally as a ring band, and a head receiving base 3. The body 2 may be made from any precious and non-precious metal, as well as any base metal with or without a micron coating (e.g., pink, white, or yellow gold). The base 3 is configured to be affixed to a first magnet 4, such as with an adhesive. The first magnet 4 may be a powerful permanent neodymium magnet that may have a cylindrical or disc shape, as shown in Figs. 1A and 1B.

[0009] The base 3 has an outer sidewall 3a and an inner sidewall 3b. In the embodiment shown in Figs. 1A and 1B, the outer sidewall 3a and the inner sidewall 3b are cylindrical. The base 3 has a bottom wall 3c that is substantially solid, such that the inner sidewall 3b and the bottom wall 3c define a cavity 5 in the base 3 that is suitably dimensioned to receive the first magnet 4. In Fig. 1A the cavity 5 is cylindrical and has an inner diameter that is slightly larger than an outer diameter of the disc-shaped first magnet 4. The cavity 5 may be configured so that an outer surface 6 (which may be planar as shown in Figs. 1A and 1B) of the first magnet 4, sits flush with or is slightly recessed from a top edge 7 of the base 3 surrounding the magnet 4.

[0010] The ring 1 also includes a head 8 and a second magnet 9. As shown more clearly in Fig. 1B, the head 8 has a coupling base 10 that can be made from any precious and non-precious metals, as well as any base metals with coating of any color. The second magnet 9 may be of any shape, but is shown as being cylindrical or disc shaped in Figs. 1A and 1B. The base 10 of the head 8 is configured to be affixed to the second permanent magnet 9, such as with an adhesive. The base 10 has an outer sidewall 10a and an inner sidewall 10b, both of which are cylindrical in the embodiment shown in Figs. 1A and 1B. In the example shown in Figs. 1A to 1G, the outer sidewall 10a of the base 10 of the head 8 has a diameter that is equal to the diameter of the outer sidewall 3a of the base 3 of the body 2. The base 10 also has a solid bottom wall 10c.

[0011] The inner sidewall 10b and the bottom wall 10c of the head 8 define a cavity 11 that is suitably dimensioned to receive the second magnet 9. Specifically, in the example shown in Figs. 1A and 1B, the inner sidewall 10b of the head 8 has a diameter that is slightly larger than the outer diameter of the disc shaped second magnet 9. The cavity 11 is configured so that an outer surface 12 (which is planar in Fig. 1B) of the second magnet 9 sits flush with or slightly recessed from (in an edge 13 of the base 10 surrounding the cavity 11. When assembled, the outer surface 12 of the second permanent magnet 9 is arranged to face the outer surface 6 of the first permanent magnet 4. When the second magnet 9 is affixed to the head 8, the second magnet 9 is arranged so that the polarity of the second permanent magnet 9 at the surface 11 is opposite the polarity of the first permanent magnet 4 at the surface 6.

[0012] It will be appreciated that in place of using two magnets 4 and 9 to magnetically couple the body 2 to the head 8, a ferrous metal may be substituted for one of the two magnets. Also, instead of discrete magnets being affixed to the base 3 and the head 8, the base 3 (and possibly the entire body 2) and/or the head 8 may be magnetized in a case where the base 3, body 2, or head 8 are made from materials that can be permanently magnetized.

[0013] When the first permanent magnet 4 is affixed to the body 2 and the second permanent magnet 9 is affixed to the head 8 the body 2 and the head 8 may be brought together to be coupled. For example, when the head 8 and second magnet 9 are brought near the body 2 and the first magnet 4, the magnetic attraction of the magnets 4 and 9 couples the magnets together, thereby coupling the body 2 to the head 8, as shown in Figs. 1C to 1G. The head 8 can be separated from the body 2 by magnetically decoupling the magnets 4 and 9, such as by sliding or pulling the head 8 away from the body 2. When the outer surface 6 of the first magnet 4 is flush with the edge 7 of the base 3 and the outer surface 12 is flush with the edge 13 of the head 8, it is possible that when the body 2 and head 8 are coupled together, the head 8 will not be coaxially aligned with the base 3, which

may not be aesthetically pleasing to the wearer of the ring 1. Also, if the head 8 is bumped when worn, it may shift away from an initial placement relative to the body 2. Figs. 2A to 2C show an alternative embodiment of a ring 201 to that shown in Figs. 1A to 1G to facilitate aligning the head 8 with the base 3 of the body 2.

[0014] The ring 201 has the same features as ring 1, except as noted below. As shown in detail in Figs. 2A and 2B, the ring 201 has a body 202 coupled to a first magnet 204. The body 202 has a base 203 having an outer sidewall 203a and an inner sidewall 203b, both of which are shown as being cylindrical in Figs. 2A and 2B. The inner sidewall 203b of the base 203 defines a cavity 205 to receive the first magnet 204. The first magnet 204 has an outer surface 211, which, when received in the cavity 205, is recessed leftward (in Fig. 1A) of an edge 207 of the base 203 surrounding the cavity 205. The first magnet 204 is recessed to provide room in the cavity 205 to receive a stem 212 of a head 208 in the cavity 205 when the head 208 is coupled to the body 202, as will be described in greater detail below.

[0015] As shown in greater detail in Fig. 2B, the stem 212 defines a cavity 213 to receive a second magnet 209. The stem 212 has an inner sidewall 212a and an outer sidewall 212b, both of which are cylindrical in Figs. 2A and 2B. The inner sidewall 212a of the stem 212 defines the inner surface of the cavity 213 and has a diameter that is slightly larger than the diameter of the second magnet 209. The second magnet 209 is set in the cavity 213 so that an outer side 214 of the second magnet 209 is flush with or slightly to the right (in Fig. 2B) an edge 215 surrounding the cavity 213.

[0016] The head 208 has an annular flange 216 extending radially outward from the outer sidewall 212b of the stem 212 to an outer peripheral edge 217 of the head 208. The diameter of the outer sidewall 212b of the stem 212 is slightly smaller than the inner diameter of the cavity 205 of the base 203 so that the stem 212 and the second magnet 209 can be received in the cavity 205.

[0017] After affixing the second magnet 209 to the head 208 and after affixing the first magnet 204 to the body 202, the second magnet 209 can be brought near the first magnet 204 to couple those magnets and the head 208 and the body 202 together. Specifically, when the magnets 204 and 209 are coupled together, the flange 216 of the head 208 seats against the edge 207 of the base 203, as shown in Figs. 2C and 2D. The stem 212 extends longitudinally a certain amount from the head 208 that is less than or equal to the distance that the first magnet 204 is recessed in the body 203 to ensure that the annular flange 216 of the head 208 seats flush against the edge 207 of the base 203 when the head 208 is coupled to the base 203. Also, the diameter of the outer peripheral edge 217 of the head 208 is equal to the diameter of the outer sidewall 203a of the base 203 so that outer sidewall 203a and the peripheral edge 217 of the head 208 align with each other. Notably, the diameter of the outer sidewall of the stem 212b is slightly smaller

than the diameter of the inner sidewall 203b of the base 203, such that when the stem 212 is received in the cavity 205, the head 208 will not shift laterally (parallel to the surface 214 of the second magnet 209) relative to the base 203.

[0018] Also, Fig. 2D shows a side view of the ring 201. Notches 217a and 217b are defined, respectively, in the base 203 of the body 202 and in the head 208. When the notches 217a and 217b align, as shown in Fig. 2D, the notches 217a and 217b combine to form an enlarged cavity 217 between the edge 207 of the base 203 and the flange 216 of the head 208. The cavity 217 may be sized to receive a portion of a user's fingernail so that the user can insert their fingernail in the notch 217 to pry the head 208 away from the base 203, thereby decoupling the head 208 from the body 202.

[0019] While the embodiments of the rings 1 and 201 include generally circular shaped heads and bodies, other shapes are possible. For example, Figs. 3A to 3D show a ring 301 having the same coupling arrangement as ring 201, but having a head 308 and base 303 that have heart shaped outer sidewalls. The ring 301 is shown having magnets 304 and 309 that correspond, respectively, to magnets 204 and 209 of ring 201.

[0020] Moreover, while the rings 1, 201, and 301 illustrate a single head and a single base to couple to that head, other embodiments are possible that may include multiple heads and bases. For example, Figs. 4A to 4D illustrate an embodiment of a ring 401 with two sets of heads/bases 403a/408a and 403b/408b. Each set of head and base 403a/408a and 403b/408b may be coupled in the same way as described above in connection with ring 201, i.e., using sets of magnets 404a/409a and 404b/409b.

[0021] Also, while the examples of the jewelry system described above are rings, the jewelry system may be embodied as other types of jewelry, such as earrings, pendants, bracelets. For example, Figs. 5A to 5D illustrate an earring 501 that has bases 503a and 503b that are magnetically coupled, respectively, to corresponding heads 508a and 508b. First and second magnets 504b and 509b are used to couple head 508b to base 503b and first and second magnets 504a and 509a are used to couple head 508a to base 503a, in the same manner as first and second magnet pairs described above for rings 201 and 401. Heads 508a and 508b may be the same as heads 408a and 408b of ring 401 and may be interchanged therewith.

[0022] Base 508b has a post 507 extending away from the base 503b. The base 508a has a curved rod 502 extending from the base 503a to a post receiving end 502b having an aperture configured to receive the post 507 as shown in Figs. 5A to 5D. When the earring 501 is assembled as shown in Figs. 5C and 5D, the free end of the post 507 may be inserted through an pierced ear hole in a user's ear and secured thereto with an earring back (not shown) received over the free end of the post 507.

[0023] Also, each body and head in the above-described embodiments may incorporate a secondary, non-magnetic connection. For example, as shown in Fig. 6, a ring 601, similar in appearance to ring 1, incorporates a magnetic coupling arrangement and also incorporates a threaded connection between a body 602 and a head 608. The body 602 has a base 603 having an outer sidewall 603a that bears male threads 603c. The base 603 has an inner sidewall 603b that is suitably dimensioned to receive a first magnet 604. An outer side 606 of the first magnet 604 may sit flush with an edge 607 of the base 903 or may be recessed with respect to the edge 607.

[0024] The head 608 has a base 610 having an inner threaded sidewall 610a that defines a cavity 611 for receiving a second magnet 609 therein. The threaded inner sidewall of the head 608 is configured to mate with the outer threaded sidewall 603a of the base 603. The cavity 611 is dimensioned so that when the second magnet 609 is seated in the cavity, an outer side 612 of the second magnet 609 is recessed from an outer edge 613 of the base 610. When the first magnet 604 is affixed to the base 603 forming a magnetic body 602 and the second magnet 609 is affixed to the head 608 forming a magnetic head 608, and the magnetic body 602 and head 608 are magnetically coupled together, a user can twist the head 608 relative to the base 603 to engage the mating threads of the head 608 and base 603 to further couple the head 608 to the body 602. When a user wants to change the head 608 or otherwise remove the head 608 from the body 602, a user unscrews the head 608 from the base 603 to decouple the threads therebetween and then pulls the head 608 from the base 603 against the magnetic force of attraction therebetween to separate the head 608 from the body 602.

[0025] An ordinary screw or press fit may lack adequate seal protection and tightening. To overcome this problem a malleable annular gasket can be placed between the edge of the base and the edge of the head. In one exemplary embodiment, as shown in Fig. 7, the gasket comprises an annularly shaped spacer, 700, which can be applied to each alternate mechanism (1, 201, 301, 401, and 501) described in the Figs. 1A to 6, thereby granting both insurmountable sealing and fastening power to the fastener while providing metal-to-metal contact lock. The resilient, malleable annular gasket 700 can be made of rubber, plastic, neoprene, urethane, fiber or the like. The gasket fits with tight precision around the edges of the base and the head or screw surface on the base and the head; thus, forming a sealant layer between the fastener and any type of harsh environment, to protect the magnet mechanism. The gasket 700 provides resistance against various chemical and environmental factors, such as water, sweat, dust or the like. This gasket is designed for multiple-directional sealing: axially, radially and angularly. The gasket provides ultimate deterrence in the roughest conditions; thus, creating needful fortification for the top head.

[0026] There have been described and illustrated herein several embodiments of a jewelry system and methods of assembling and disassembling jewelry. While particular embodiments of the invention have been described, it is not intended that the invention be limited thereto, as it is intended that the invention be as broad in scope as the art will allow and that the specification be read likewise. Thus, while particular types of jewelry have been disclosed, it will be appreciated that the jewelry system may be used with other types of jewelry as well. In addition, while particular types of magnets have been disclosed, it will be understood that other types of magnets can be used. For example, and not by way of limitation, alnico magnets, ceramic magnets, ferrite magnets, samarium cobalt magnets. It will therefore be appreciated by those skilled in the art that yet other modifications could be made to the provided invention without deviating from its spirit and scope as claimed.

Claims

1. A modular jewelry system comprising:

at least one a jewelry body having a magnetic jewelry bases that includes a first magnetic surface;

at least one a magnetic jewelry heads configured to magnetically couple with said magnetic jewelry base, which includes a second magnetic surface, wherein said jewelry body has a male or female threaded portion, and said head has a threaded portion having threads of opposite gender to said threaded portion of said jewelry body for mating engagement therewith when said head is magnetically coupled to said magnetic base.

2. The system according to claim 1, wherein said magnetic jewelry base includes a first permanent magnet and said magnetic jewelry head includes a second permanent magnet.

3. The system according to claim 1 or 2, wherein when said first permanent magnet is received in said first cavity, an outer side of said first permanent magnet has a first polarity and when said second permanent magnet is received in said second cavity, an outer side of said second permanent magnet has a second polarity that is opposite said first polarity, and wherein said outer side of said first permanent magnet and said outer side of said second permanent magnet face each other when said head is coupled to said body.

4. The system according to any preceding claim, wherein said jewelry body is configured as at least one of a ring, a pendant, a bracelet, and an earring.

5. The system according to any preceding claim, wherein said magnetic jewelry base defines a first cavity configured to receive therein said first magnetic surface, and said magnetic jewelry head defines a second cavity configured to receive therein said second magnetic surface. 5

6. The system according to any preceding claim, wherein a cavity is formed between the base and the head the cavity being configured to receive a finger-nail of a user to pry said head away from said base when said head and base are coupled together. 10

7. The system according to any preceding claim comprising a gasket placed between said magnetic jewelry base) and magnetic jewelry head wherein said jewelry base has a male or female threaded portion, and said head has a threaded portion having threads of opposite gender to said threaded portion of said jewelry base for mating engagement therewith when said head is magnetically coupled to said magnetic base, while the gasket seals with tight precision a space between said magnetic portions of said base and said head. 15
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8. The system according to claim 1 or 8, wherein said gasket is a resilient, malleable base and the said magnetic head, and threaded annularly shaped spacer. 30

9. A method of configuring jewelry comprising:
 - providing a jewelry body having a magnetic jewelry base and a male or female threaded portion; 35
 - providing a magnetic jewelry head configured to magnetically couple with said magnetic jewelry base and having a threaded portion of opposite gender to said male or female threaded portion of said jewelry body for mating therewith; 40
 - magnetically coupling said magnetic jewelry base to said magnetic jewelry head; and
 - threadably coupling said magnetically coupled jewelry base and said jewelry head. 45

10. The method according to claim 9, further comprising threadably decoupling said magnetically coupled jewelry base and Said jewelry head; and magnetically decoupling said threadably decoupled magnetic jewelry base from said magnetic jewelry head to separate said jewelry body from said jewelry head. 50

11. The method according to claim 9, providing a gasket between said magnetic base and said magnetic jewelry head. 55

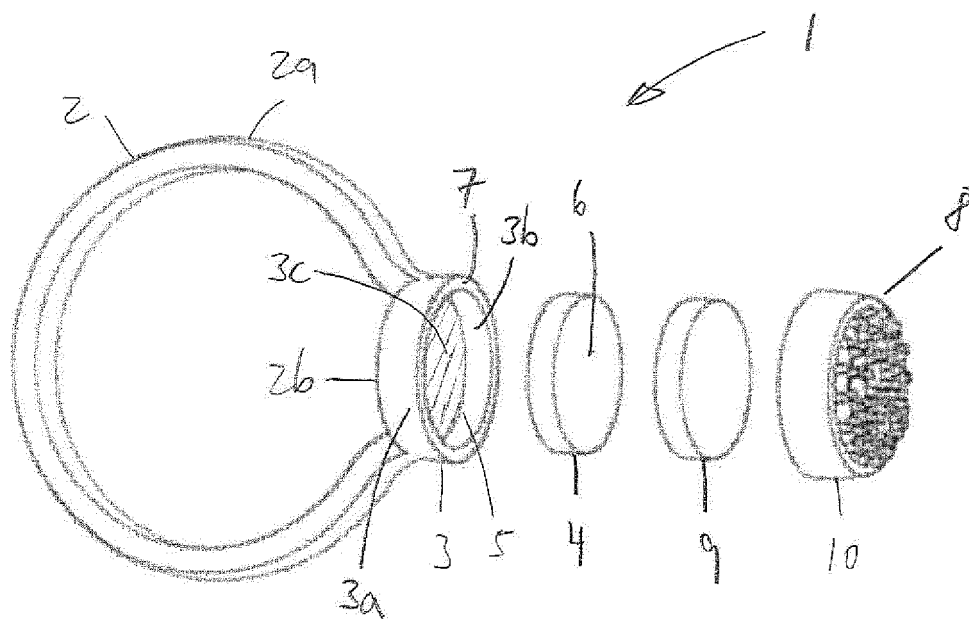


FIG. 1A

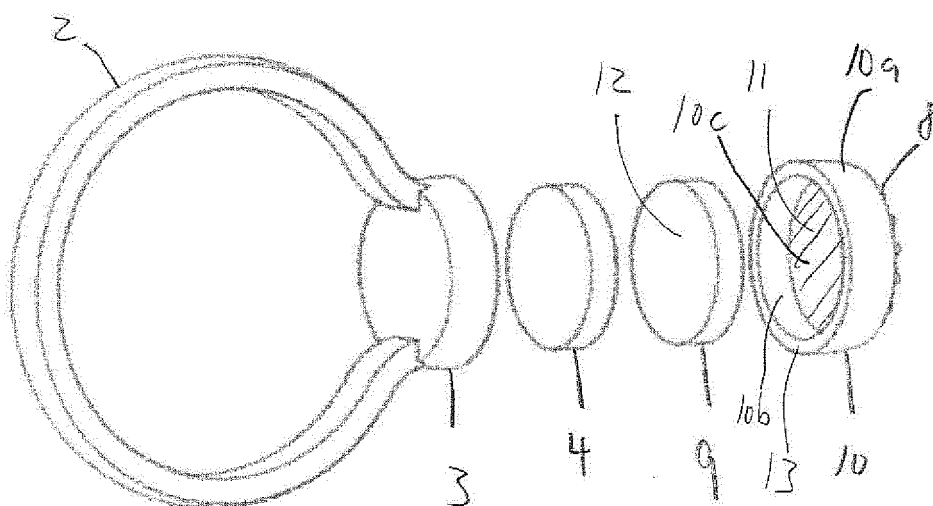


FIG. 1B

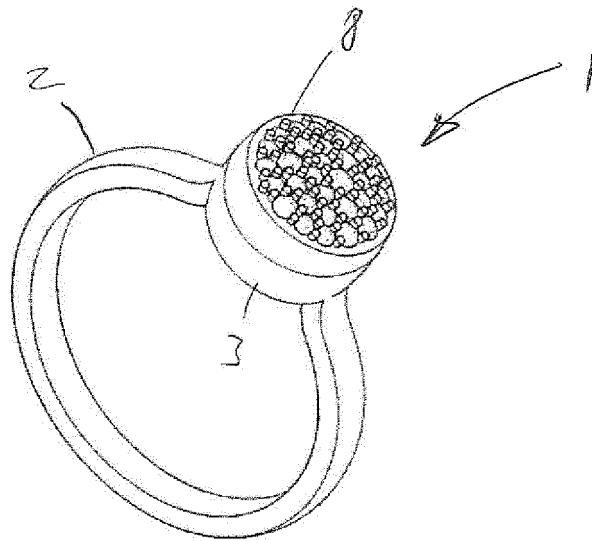


FIG. 1C

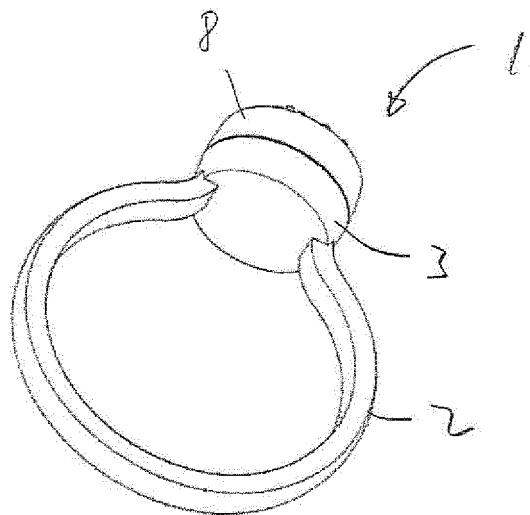


FIG. 1D

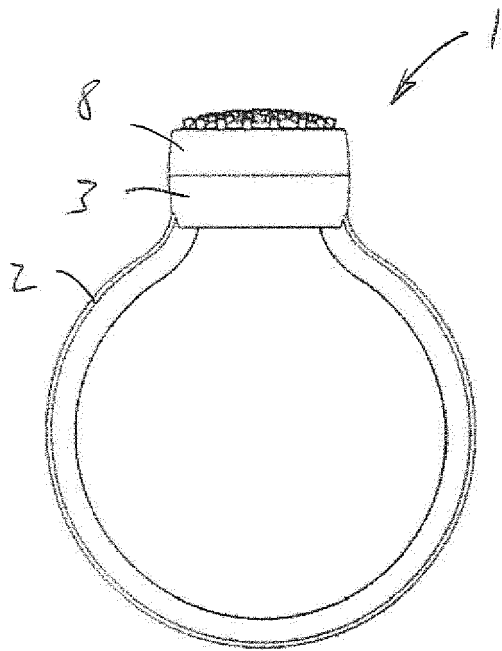


FIG. 1E

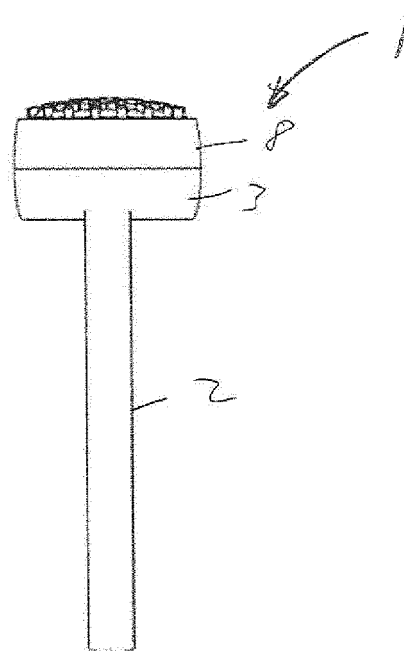


FIG. 1F

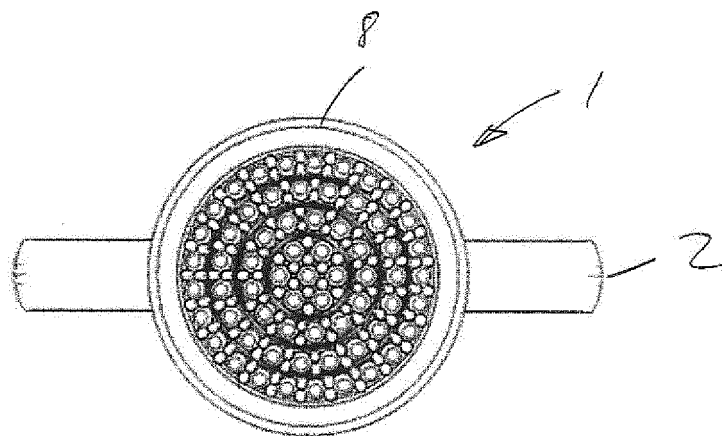


FIG. 1G

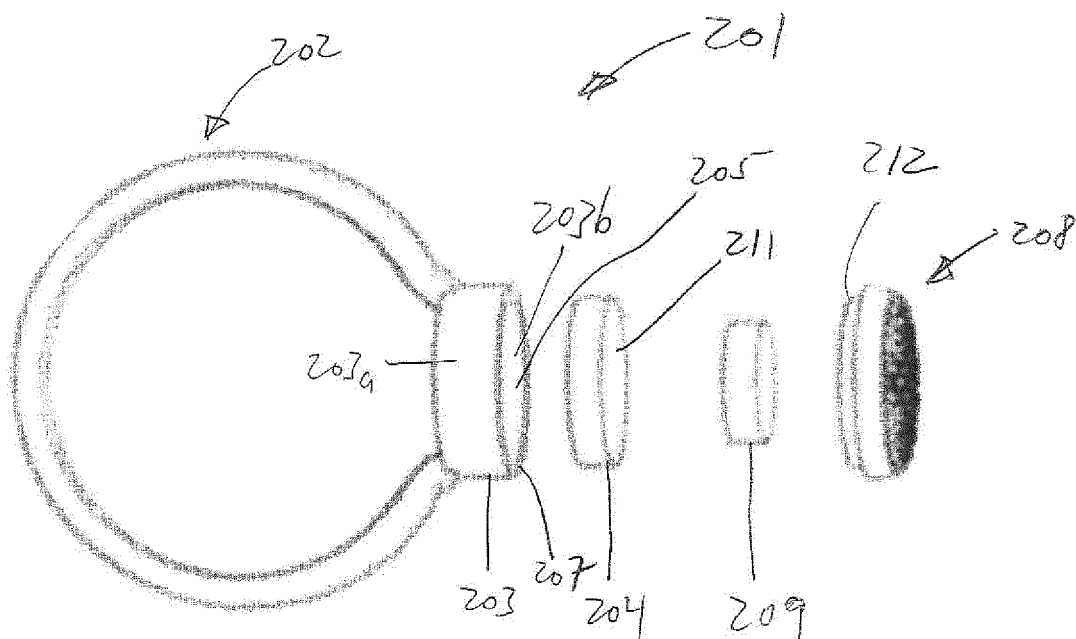


FIG. 2A

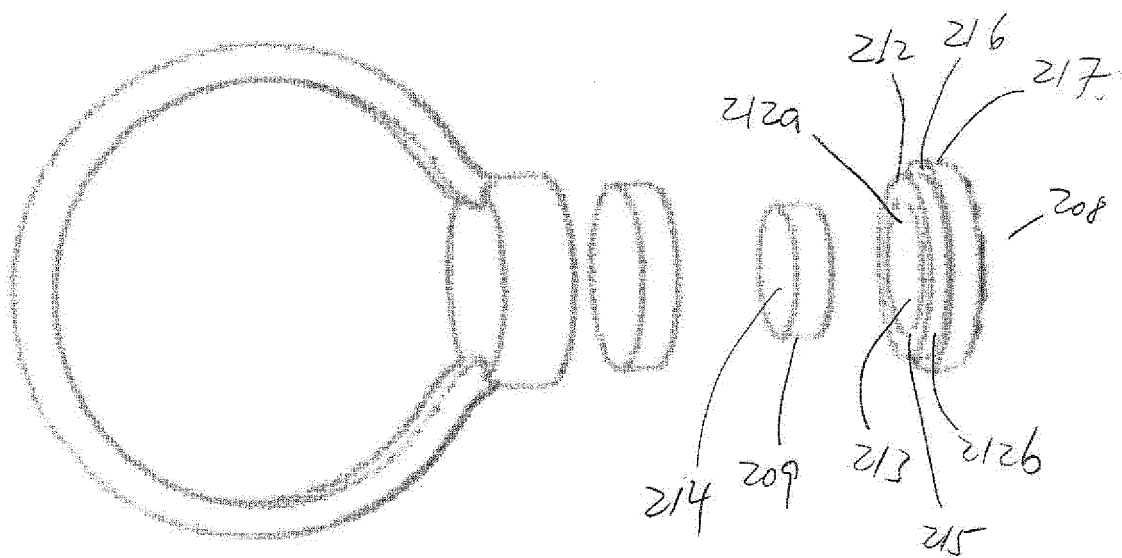


FIG. 2B

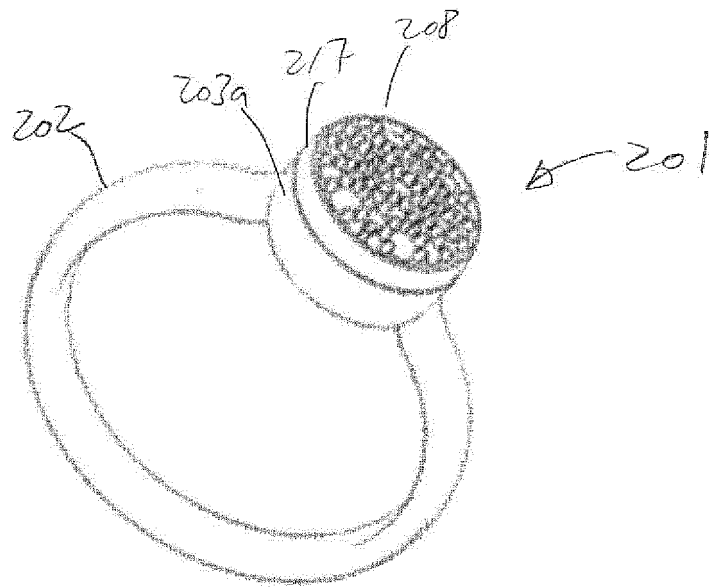


FIG. 2C

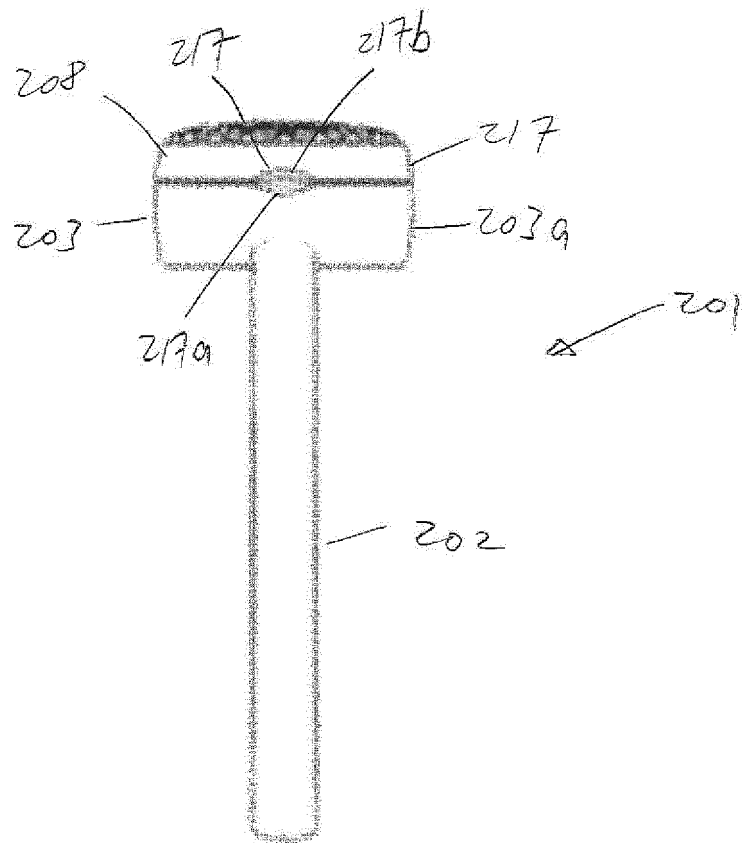


FIG. 2D

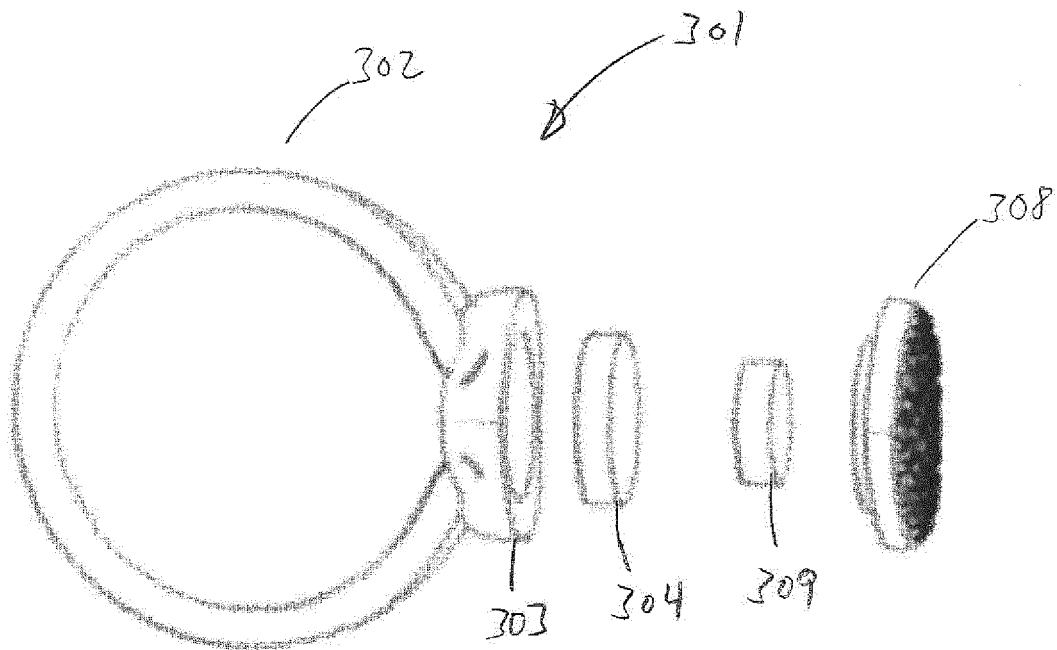


FIG. 3A

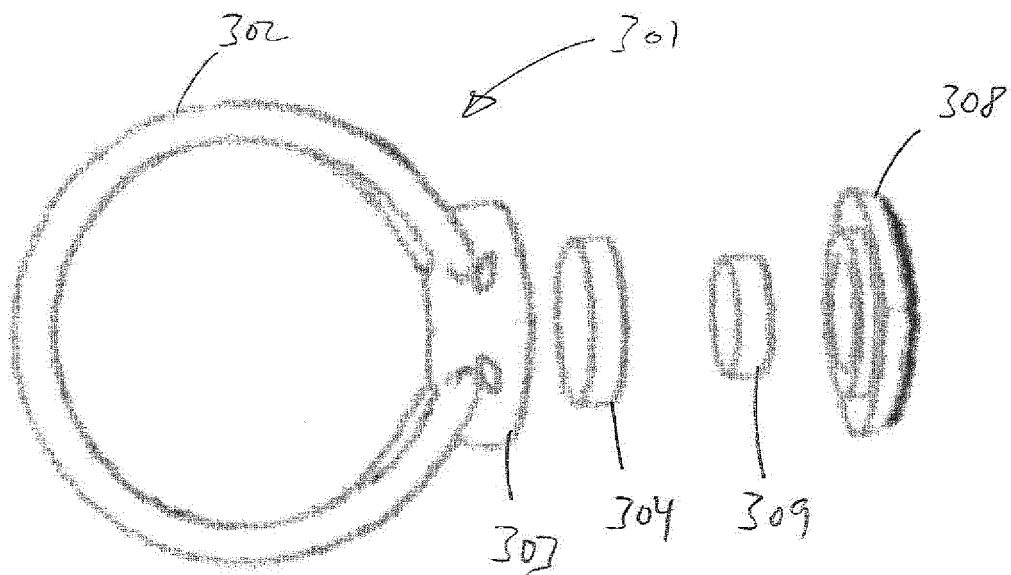


FIG. 3B

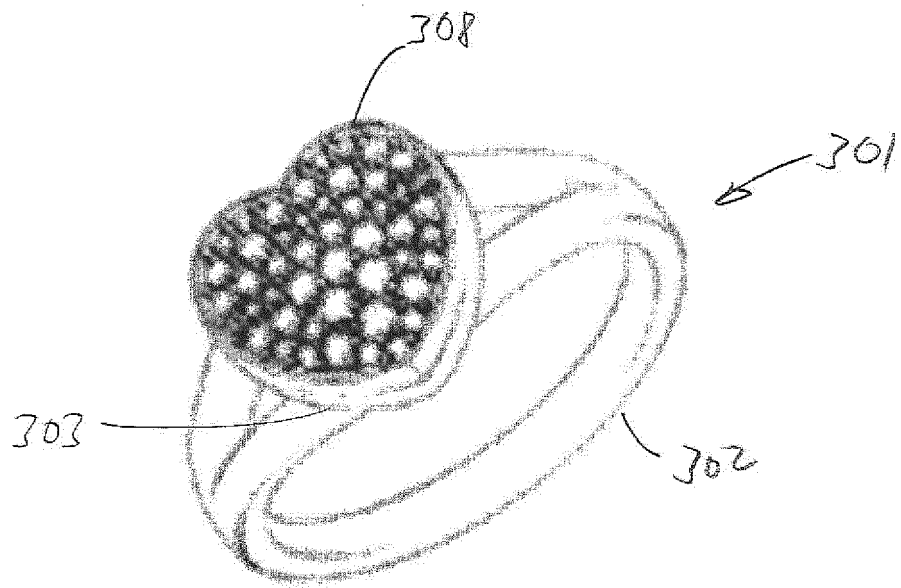


FIG. 3C

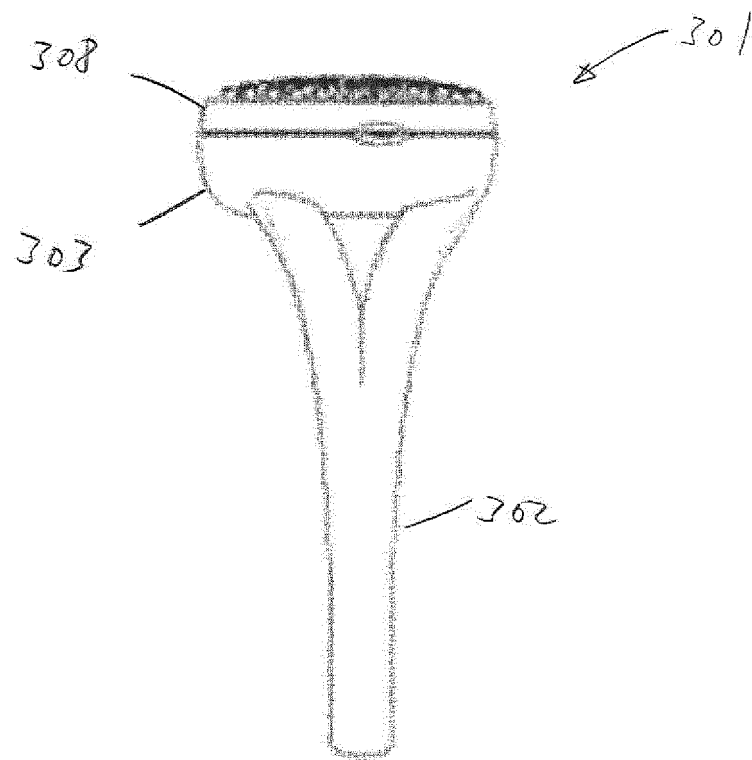


FIG. 3D

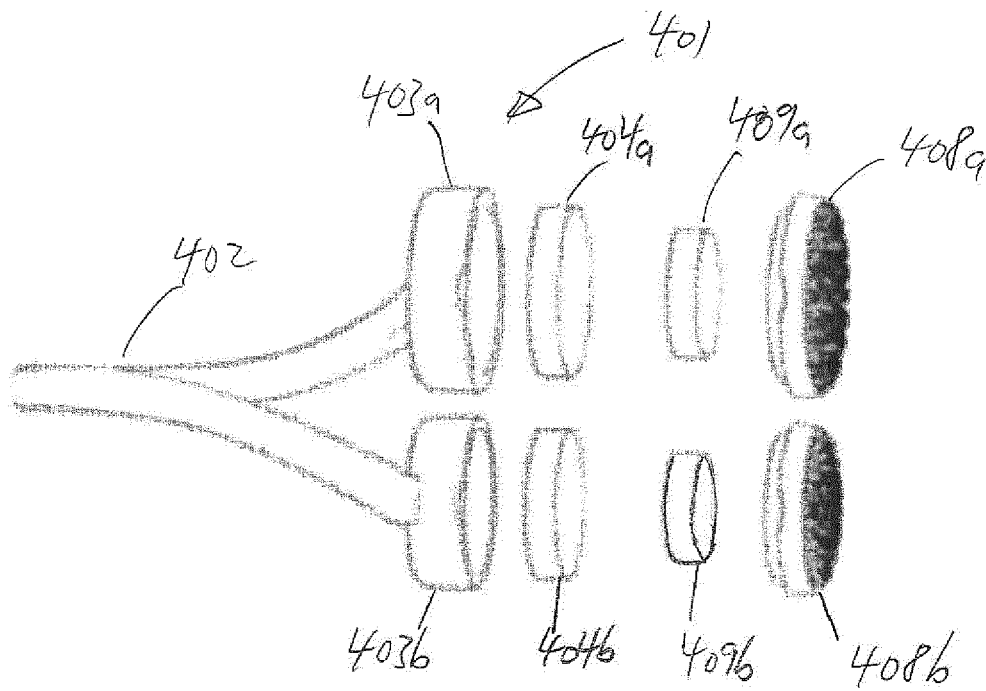


FIG. 4A

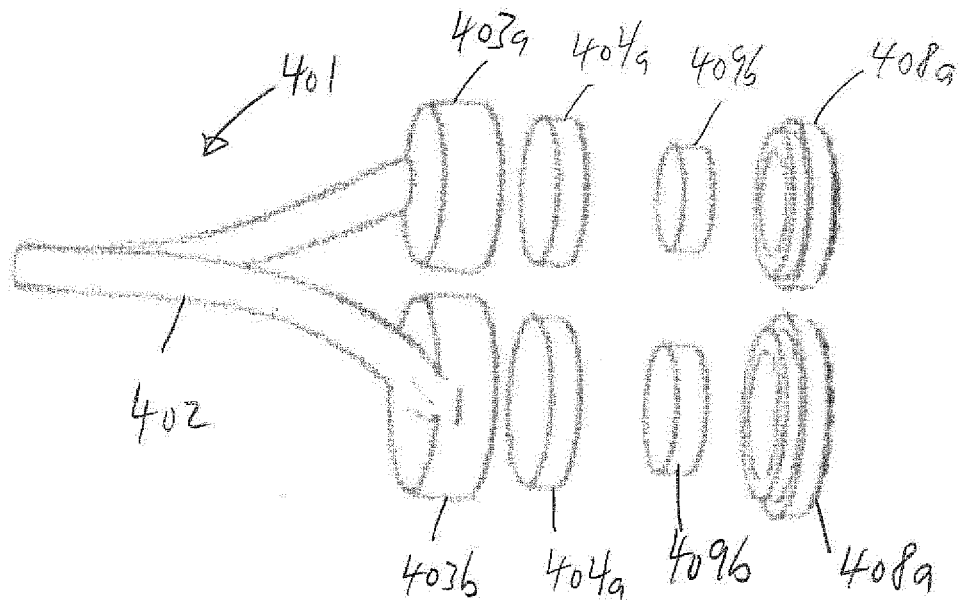


FIG. 4B

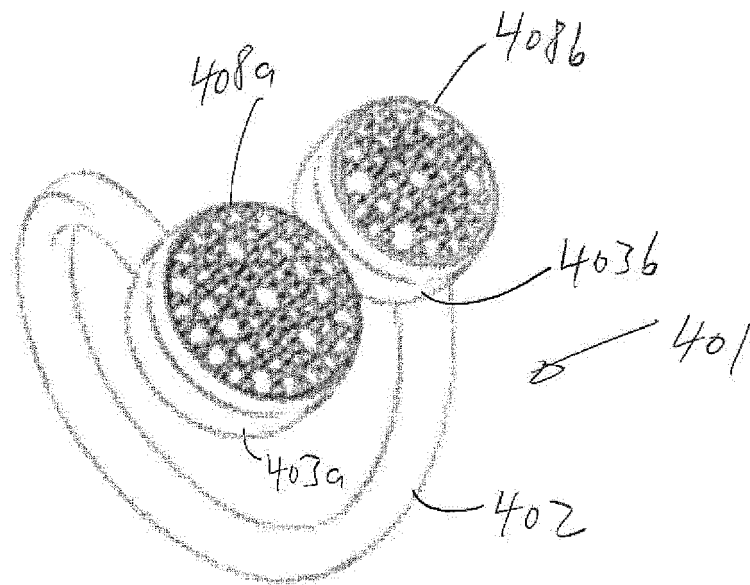


FIG. 4C

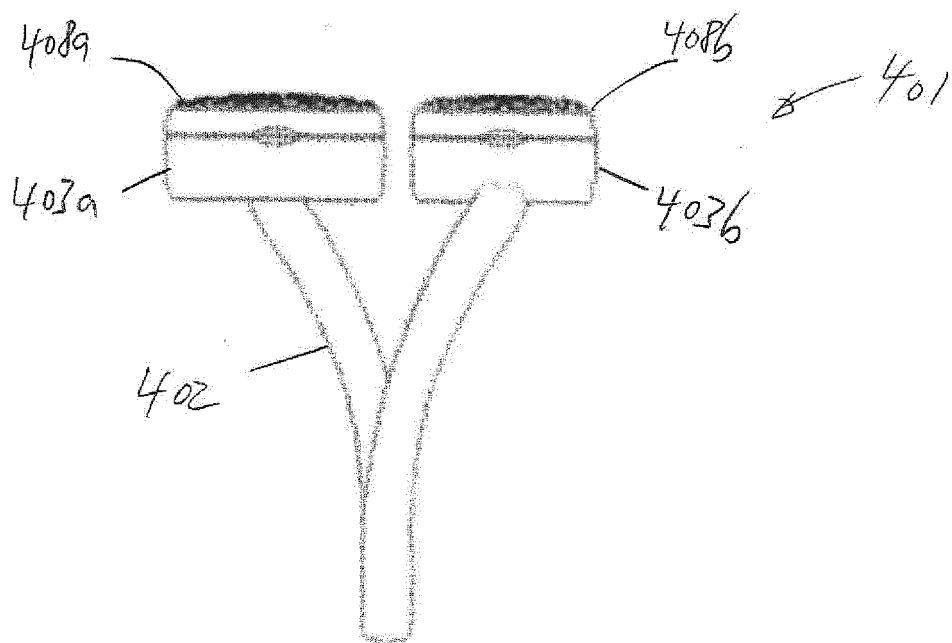
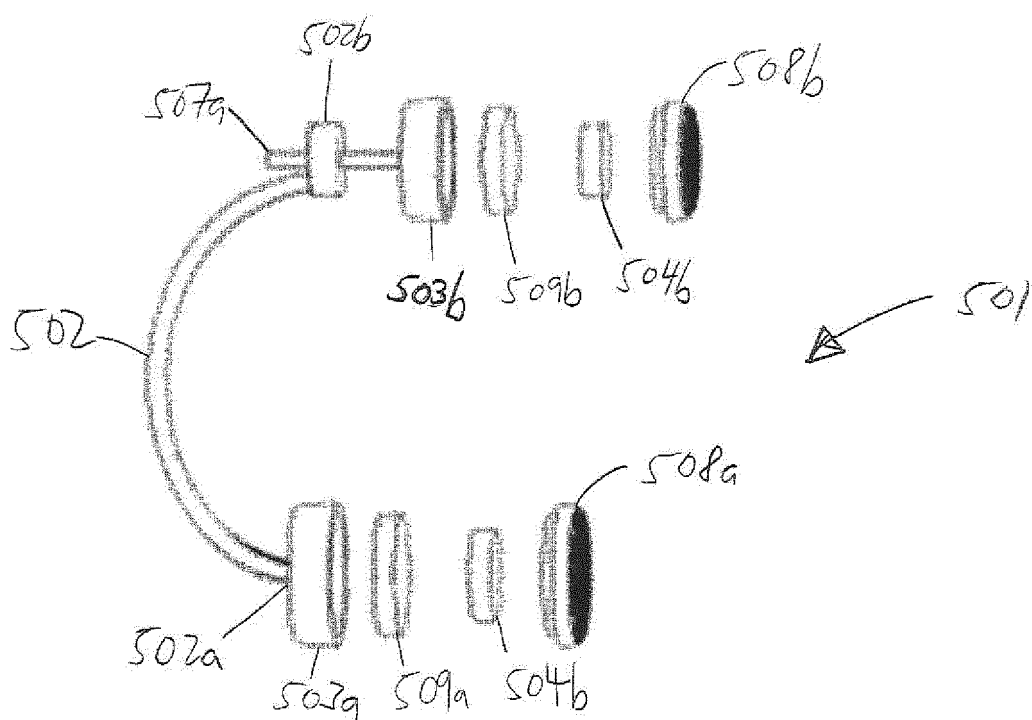
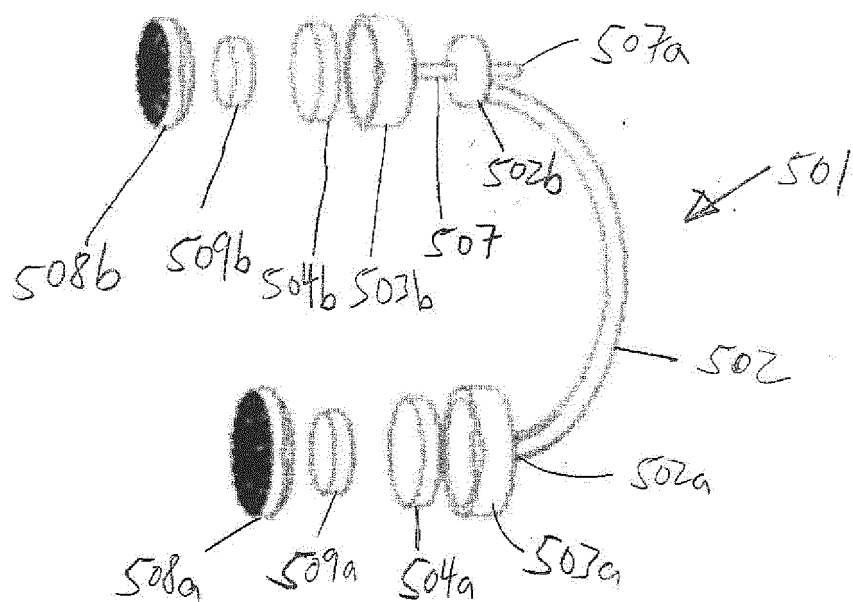


FIG. 4D



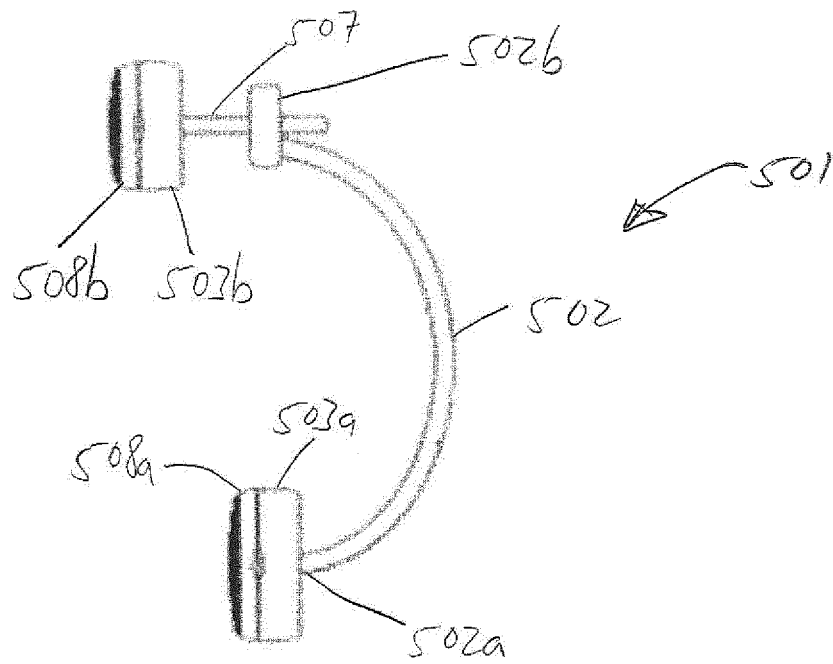


FIG. 5C

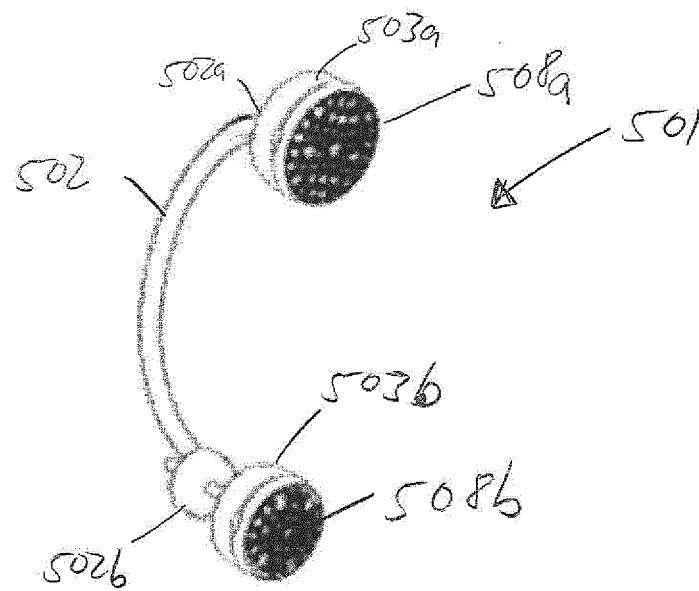


FIG. 5D

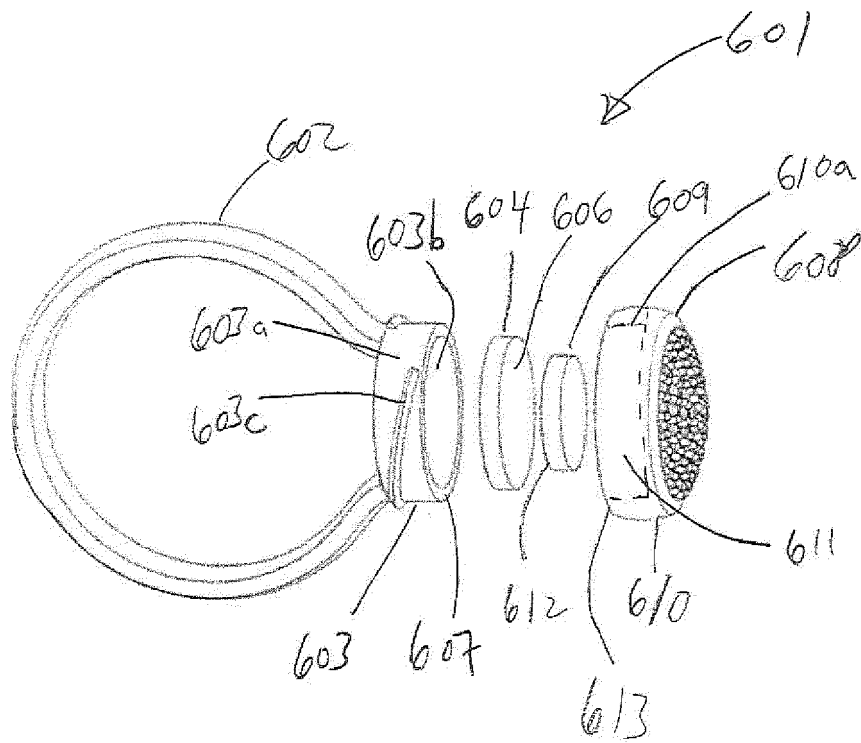


FIG. 6

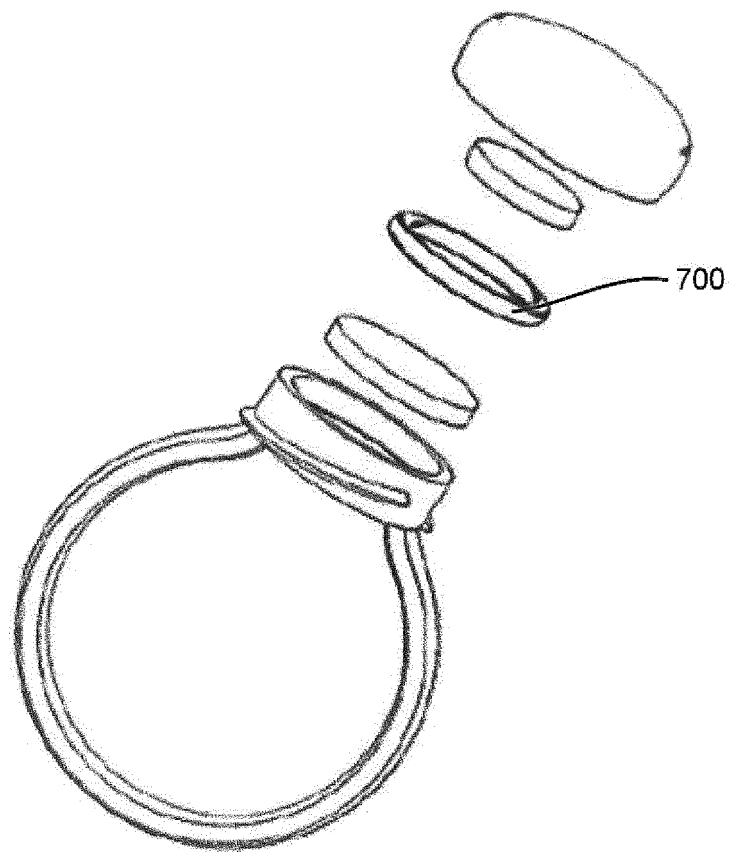


FIG. 7



EUROPEAN SEARCH REPORT

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