



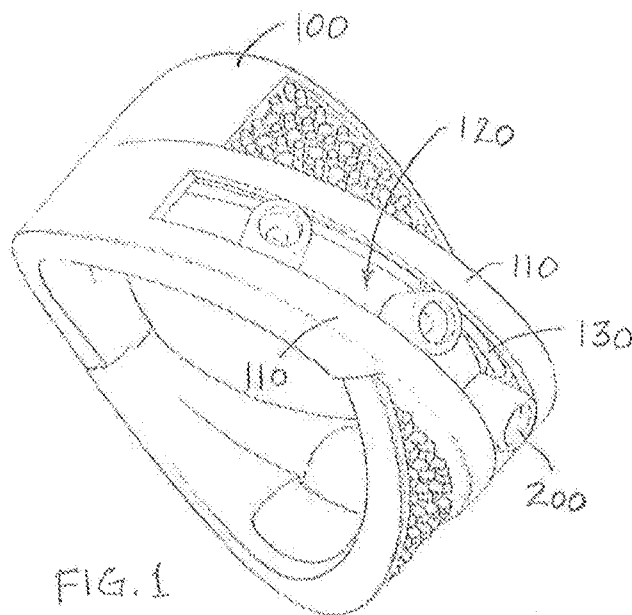
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- (71) Applicant: RENAISSANCE JEWELRY NEW YORK, INC. [US/US]; 3 East 54th Street, Suite 603, New York, NY 10022 (US).
- (72) Inventors: ROTSTEIN, Robin, Garin; 242 East 19th Street (2H), New York, NY 10003 (US). TATA, Neville, Rustom; 401, Eken Heights 21-33 Cross Road, Pali Nak, Bandra (West), Mumbai 400050 (IN).
- (74) Agent: YOHANNAN, David, R.; Kelley Drye & Warren, LLP, 3050 K Street, NW, Suite 400, Washington, DC 20007 (US).

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[Continued on next page]

(54) Title: JEWELRY WITH SLIDING COLLETS



(57) Abstract: A jewelry item which includes sliding collets is disclosed. The collets may slide along first and second elongated collet mounting structures, such as a wire, recess or flange. The collets may have one or more wings and/or one or more bosses which are received by the first and second elongated collet mounting structures. The collets may slide freely along the first and second elongated collet mounting structures.



- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

## JEWELRY WITH SLIDING COLLETS

### CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application relates to, and claims the benefit of the earlier filing date and priority of U.S. Provisional Patent Application No. 62/170,385, filed on June 3, 2015, entitled "Jewelry With Sliding Collets."

### FIELD OF THE INVENTION

[0002] The present invention relates generally to jewelry items which include sliding collets.

### BACKGROUND OF THE INVENTION

[0003] Jewelry items may include one or more collets having extensions that allow them to slide in channel slots provided in the jewelry items. The existing technique for providing sliding collets is not very durable or effective. For example, it may sometime permit "play" between the collet and the channel slots which may result in the collet pivoting within the channel slots and becoming stuck or even jammed. Conversely, the channel slots may inhibit sliding movement if any material accumulates in the channel slots. Accordingly, the channel slots may need to be regularly cleaned and polished in order to permit the collet extensions to move freely within them.

[0004] Accordingly, it is an object of some, but not necessarily all, embodiments of the present invention to reduce the tendency of "play" to exist between the collet and collet mounting structures provided in a jewelry item. It is also an object of some, but not necessarily all, embodiments of the present invention to reduce the need to clean or polish collet mounting structures. It is still further an object of some, but not necessarily all, embodiments of the present invention to allow for easier cleaning and polishing of collet mounting structures.

### SUMMARY OF THE INVENTION

[0005] Responsive to the foregoing challenges, Applicant has developed a jewelry item comprising: first and second elongated collet mounting structures; and a collet

having one or more wings or one or more bosses or one or more cutouts which are received by the first and second elongated collet mounting structures.

[0006]

[0007] It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only, and are not restrictive of the invention as claimed.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0008] In order to assist the understanding of this invention, reference will now be made to the appended drawings, in which like reference characters refer to like elements. The drawings are exemplary only, and should not be construed as limiting the invention.

[0009] Figure 1 is a pictorial view of jewelry item having dual wire mounted sliding collets in accordance with a first embodiment of the present invention.

[0010] Figure 2 is a top view of the jewelry item shown in Figure 1.

[0011] Figure 3 is a cross-sectional view of the interior of the jewelry item of Figures 1 and 2.

[0012] Figure 4 is a pictorial view of a dual wire mount which may be included in the jewelry item of Figures 1-3.

[0013] Figure 5 is a pictorial view of a collet which may be included in the jewelry item of Figures 1-4.

[0014] Figure 6 is a top view of the collet of Figures 1-3 and 5.

[0015] Figure 7 is a collet boss end-on view of the collet of Figures 1-3 and 5-6.

[0016] Figure 8 is a side view of the collet of Figures 1-3 and 5-7.

[0017] Figure 9 is a pictorial view of jewelry item having single wire and single track mounted sliding collets in accordance with a second embodiment of the present invention.

[0018] Figure 10 is a cross-sectional view of the interior of the jewelry item of Figure 9.

[0019] Figure 11 is a pictorial view of a collet which may be included in the jewelry item of Figures 9 and 10.

[0020] Figure 12 is a side view of the collet of Figures 9-11.

- [0021] Figure 13 is a top view of the collet of Figures 9-12.
- [0022] Figure 14 is a collet wing end-on view of the collet of Figures 9-13.
- [0023] Figure 15 is a pictorial view of jewelry item having dual recess mounted sliding collets in accordance with a third embodiment of the present invention.
- [0024] Figure 16 is a side view of the jewelry item of Figure 15.
- [0025] Figure 17 is a pictorial view of a collet which is included in the jewelry item of Figures 15 and 16.
- [0026] Figure 18 is a top view of the collet of Figures 15-17.
- [0027] Figure 19 is a side view of the collet of Figures 15-18.
- [0028] Figure 20 is a pictorial view of jewelry item having dual flange mounted sliding collets in accordance with a fourth embodiment of the present invention.
- [0029] Figure 21 is a rear view of the jewelry item of Figure 20.
- [0030] Figure 22 is a pictorial view of a collet which is included in the jewelry item of Figures 20 and 21.
- [0031] Figure 23 is a side view of the collet of Figures 20-22.

#### DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0032] Reference will now be made in detail to embodiments of the present invention, examples of which are illustrated in the accompanying drawings. With reference to Figs. 1-8, in a first embodiment of the invention, a jewelry item 100 may include an elongated opening 120 defined from above by sides 110. While the illustrated jewelry item 100 is a ring, it is appreciated that the jewelry item may be any jewelry item, including without limitation, a bracelet, anklet, necklace, pendant, charm, earring, nose ring, piercing, wristwatch, etc. One or more elongated wires 130 (i.e., collet mounting structures) may be secured to the jewelry item 100 below the sides 110 in the interior of the jewelry item. Preferably, the elongated wires 130 may be co-extensive and substantially parallel. The elongated wires 130 may be shielded from above by the sides 110. The elongated wires 130 may extend along the full length of the elongated opening 120, and preferably slightly beyond the ends of the elongated opening.

[0033] One or more collets 200 may be disposed in the elongated opening 120 and mounted on the one or more wires 130. The collets 200 may each include a central

recess for receiving decorative material, such as gem stones (not shown). Alternatively, the collets may be formed of material which is inherently decorative, such as gold, silver or platinum, without a central recess. Each of the collets 200 may include one or more bosses 210 which each include a central opening 212 adapted to receive an elongated wire 130. With reference to Fig. 8, there may be sufficient clearance between the wires 130 and the central openings 212 of the collets 200 to permit the collets to slide freely along the length of the wires. With reference to Figs. 5-7, the bosses 210 may have an outer width 214 which is greater than the width of the bosses at the junction with the collet 200 body. The increased outer width 214 of the bosses 210 may provide a more robust and damage-proof mounting structure for the collets 200.

[0034] With reference to Fig. 4, the wires 130 may be secured, for example by soldering, to the ends 142 of a mount 140. The mount 140 may include one or more extensions 144 provided adjacent to the wires 130, which rigidly connect the ends 142 of the mount. The extensions 144 may be sufficiently rigid to maintain the shape of the mount 140 during use in the jewelry item 100. The extensions 144 may also serve to shield the wires 130 from contact with the wearer of the jewelry item 100. Such contact could otherwise result in damage to, or breaking of, the wires 130, and result in loss of the collets 200.

[0035] The mount 140 may be snapped into a receiving track in the jewelry item 100, or secured therein by another means, such as soldering, screws, adhesive, pressure mounting, press fitting, or the like. In an alternative embodiment, the wires 130 may extend through one of the ends 142 of the mount 140, as shown in Fig. 4. The wire 130 ends that extend through the ends 142 of the mount 140 may be press fit into mating recesses provided in the jewelry item 100, thereby permitting the mount 140 to be removed and disassembled to receive additional collets 200, or to remove collets.

[0036] During use, the collets 200 may slide either freely or with manual assistance along the elongated wires 130. The term "elongated" in the present application indicates a length which permits one or more of the collets 200 to move noticeably.

[0037] With reference to Figs. 9-14, in a second embodiment of the invention, in which like reference characters refer to like elements from the first embodiment, a jewelry item 100 may include an elongated opening 120 defined from above by a first portion 110 of the jewelry item and a second portion 115 of the jewelry item. An

elongated wire 130 (i.e., collet mounting structure) may be secured to the jewelry item 100 at ends 146 below the first portion 110 in the interior of the jewelry item. An elongated recess 150 (i.e., collet mounting structure) may be provided in the second portion 115 of the jewelry item 100 substantially parallel to the elongated wire 130. The wire 130 may be shielded from above by the portion 110 of the jewelry item 100. The elongated wire 130 and elongated recess 150 may extend along the full length of the elongated opening 120, and preferably slightly beyond the ends of the elongated opening.

**[0038]** One or more collets 200 may be disposed in the elongated opening 120, mounted on the elongated wire 130, and secured in the elongated recess 150. The collets 200 may include a boss 210 which includes a central opening 212 adapted to receive the elongated wire 130. There may be sufficient clearance between the elongated wire 130 and the central opening 212 of the collets 200 to permit the collets to slide freely or with manual assistance along the length of the wire. Each boss 210 may have an outer width 214 that is greater than the width of the boss at the junction with the collet 200 body. The increased outer width 214 of the boss 210 may provide a more robust and damage-proof structure for securing the collets 200 to the wire 130. Each of the collets 200 may also include a wing 220. Each of the wings 220 may have an outer width 222 which is greater than the width of the wing at the junction of the wing with the collet 200. This increased outer width 222 of the wing 220 may provide a more robust and damage-proof structure for securing the collets 200 within the elongated recess 150. Each wing 220 may also have a rounded outer edge 221 which may be received by a mating concave inner surface of the elongated recess 150.

**[0039]** With reference to Figs. 15-19, in a third embodiment of the invention, in which like reference characters refer to like elements from the first and second embodiments, a jewelry item 100 may include an elongated opening 120 defined from above by portions 110. Elongated recesses 150 (i.e., collet mounting structures) may be provided in the portions 110 of the jewelry item 100 substantially parallel to each other. The elongated recesses 150 may include slightly concave inner upper and lower surfaces. The elongated recesses 150 may extend along the full length of the elongated opening 120, and preferably slightly beyond the ends of the elongated opening.

[0040] One or more collets 200 may be disposed in the elongated opening 120 and secured by the elongated recesses 150. Specifically, the collets 200 may include wings 220 which are adapted to slide within the elongated recesses 150. The wings may have an outer width 222 which is greater than the width of the wings at the junctions of the wings with the collet 200. The increased outer width 222 of the wings 220 may provide a more robust and damage-proof structure for securing the collets 200 within the elongated recesses 150. The wings 220 may also include a slightly rounded or convex upper surface 224 and lower surface 226, which mate with slightly concave inner upper and lower surfaces in the elongated recesses 150.

[0041] With reference to Figs. 20-23, in a fourth embodiment of the invention, in which like reference characters refer to like elements from the first, second and third embodiments, a jewelry item 100 may include an elongated opening 120. Elongated flanges 160 (i.e., collet mounting structures) may be provided in the jewelry item 100 substantially parallel to each other. The elongated flanges 160 may extend along the full length of the elongated opening 120, and preferably slightly beyond the ends of the elongated opening.

[0042] One or more collets 200 may be disposed in the elongated opening 120 and secured by the elongated flanges 160. Specifically, the collets 200 may include cutouts 230 which are adapted to receive and slide along the flanges 160.

[0043] As will be understood by those skilled in the art, the invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The functional elements and method steps described above are provided as illustrative examples of one technique for implementing the invention; one skilled in the art will recognize that many other implementations are possible without departing from the present invention as recited in the claims. For example, the types of jewelry items with which the invention may be used may vary, including but not limited to rings, pendants, bracelets, anklets, necklaces, etc. Further, while the collets illustrated are roughly cylindrical in shape, this shape may be varied without departing from the intended scope of the invention. Still further, it is appreciated that the collets are slidably mounted using collet mounting structures selected from the group consisting elongated wires, elongated recesses, and elongated flanges, and that the two collet mounting structures required for a jewelry item may be the same or different.

For example, a jewelry item may include one elongated wire and one elongated flange as collet mounting structures. In another example, a jewelry item may include one elongated recess and one elongated flange as collet mounting structures. Any combination of two collet mounting structures may be used. Accordingly, the disclosure of the present invention is intended to be illustrative, but not limiting, of the scope of the invention. It is intended that the present invention cover all such modifications and variations of the invention, provided they come within the scope of the appended claims and their equivalents.

**WHAT IS CLAIMED IS:**

1. A jewelry item comprising:  
first and second collet mounting structures; and  
a collet having a first wing, a first boss with a central opening or a first cutout received by the first collet mounting structure on a first collet side, and a second wing, a second boss with a central opening or a second cutout received by the second collet mounting structure on a second collet side.
2. The jewelry item of claim 1, wherein:  
the first collet mounting structure is elongated in comparison to the collet and includes a first elongated wire extending between first and second ends of the first collet mounting structure, said first elongated wire being received by the central opening in the first boss.
3. The jewelry item of claim 2, wherein the central opening in the first boss is adapted to permit the collet to slide along the first elongated wire.
4. The jewelry item of claim 2, wherein the first elongated wire has a circular cross section.
5. The jewelry item of claim 2, wherein the first elongated wire has a non-circular cross section.
6. The jewelry item of claim 2, further comprising a first rigid extension extending between the first and second ends of the first collet mounting structure and provided adjacent to the first elongated wire.
7. The jewelry item of claim 2, wherein the first and second collet mounting structures are removable as a single unit from the jewelry item.

8. The jewelry item of claim 7, wherein the single unit is press fit into the jewelry item.
9. The jewelry item of claim 2, wherein the first end of the first collet mounting structure is adapted to repeatedly connect to and disconnect from the first elongated wire.
10. The jewelry item of claim 9, wherein the first end of the first collet mounting structure includes a recess for receiving an end of the first elongated wire.
11. The jewelry item of claim 9, wherein the first end of the first collet mounting structure includes a hole through which an end of the first elongated wire extends.
12. The jewelry item of claim 2, further comprising:  
a first side structure disposed adjacent to and shielding the first elongated wire.
13. The jewelry item of claim 12, wherein:  
the second collet mounting structure is elongated in comparison to the collet and includes a second elongated wire extending between first and second ends of the second collet mounting structure, said second elongated wire being received by the central opening in the second boss.
14. The jewelry item of claim 13, further comprising a second rigid extension extending between the first and second ends of the second collet mounting structure and provided adjacent to the second elongated wire.
15. The jewelry item of claim 14, wherein the first and second collet mounting structures are removable as a single unit from the jewelry item.
16. The jewelry item of claim 15, wherein the single unit is press fit into the jewelry item.

17. The jewelry item of claim 13, further comprising:  
a second side structure disposed adjacent to and shielding the second elongated wire.
18. The jewelry item of claim 1, wherein:  
the collet has a first boss with a central opening and a second wing;  
the first collet mounting structure includes an elongated wire extending between first and second ends of the first collet mounting structure, said first elongated wire being received by the central opening in the first boss; and  
the second collet mounting structure includes an elongated recess, said second wing being received by the elongated recess.
19. The jewelry item of claim 18, further comprising a first rigid extension extending between the first and second ends of the first collet mounting structure and provided adjacent to the first elongated wire.
20. The jewelry item of claim 1, wherein:  
the first and second collet mounting structures are elongated in comparison to the collet;  
the collet has a first wing and a second wing; and  
the first and second collet mounting structures are elongated recesses which receive the first wing and the second wing, respectively.
21. The jewelry item of claim 1, wherein:  
the first and second collet mounting structures are elongated in comparison to the collet;  
the collet has a first cutout and a second cutout; and  
the first and second collet mounting structures are elongated flanges which receive the first cutout and the second cutout, respectively.

22. The jewelry item of claim 1, wherein:  
the collet has a first boss with a central opening and a second cutout;  
the first collet mounting structure includes an elongated wire extending between first and second ends of the first collet mounting structure, said first elongated wire being received by the central opening in the first boss; and  
the second collet mounting structure includes an elongated flange which receives the second cutout.

23. The jewelry item of claim 22, further comprising a first rigid extension extending between the first and second ends of the first collet mounting structure and provided adjacent to the first elongated wire.

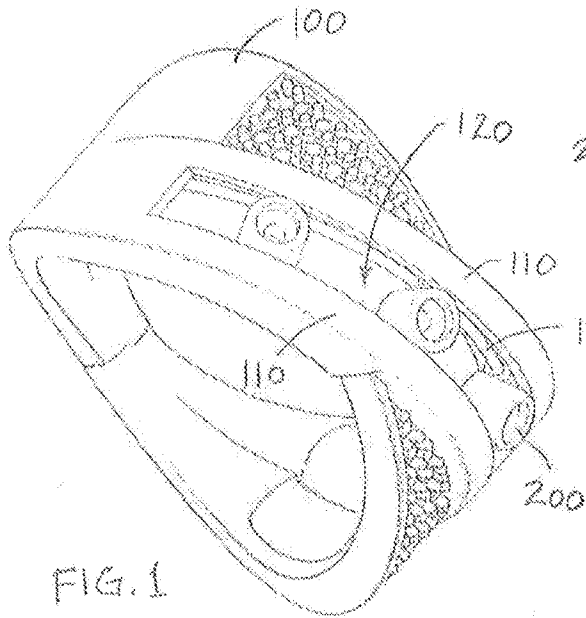


FIG. 1

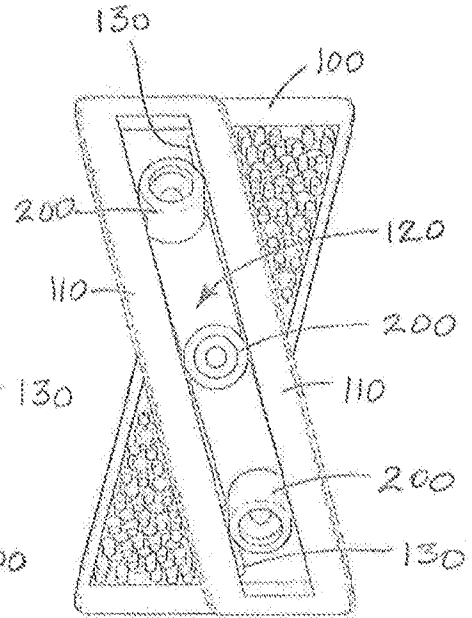


FIG. 2

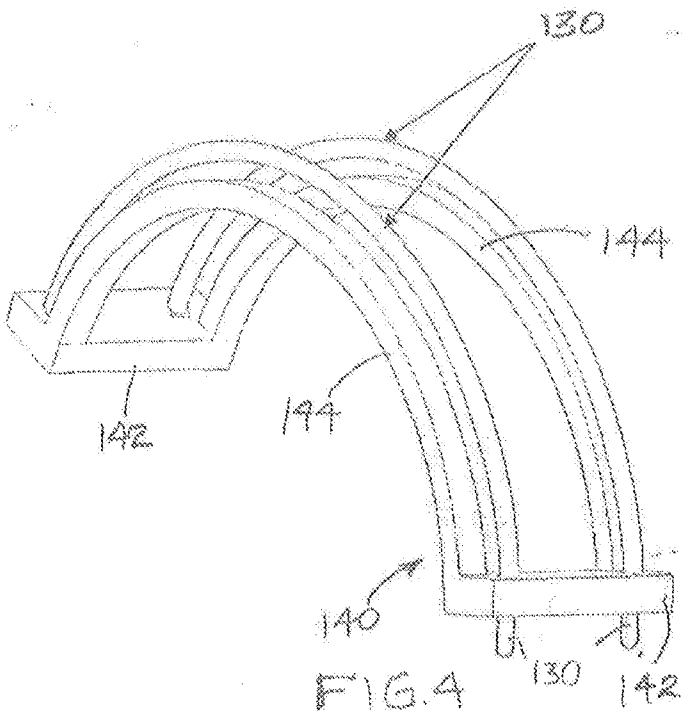


FIG. 4

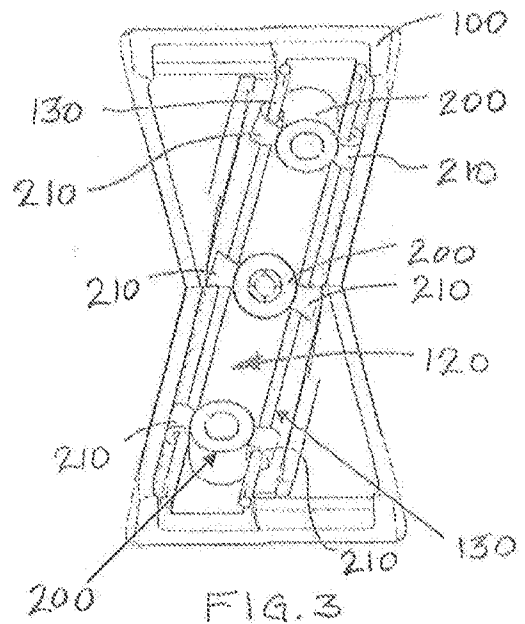


FIG. 3

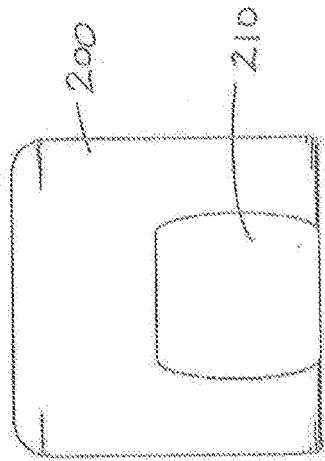


FIG. 7

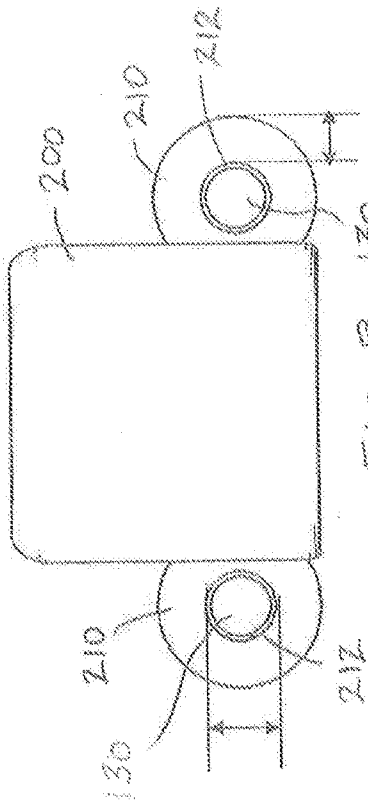


FIG. 8

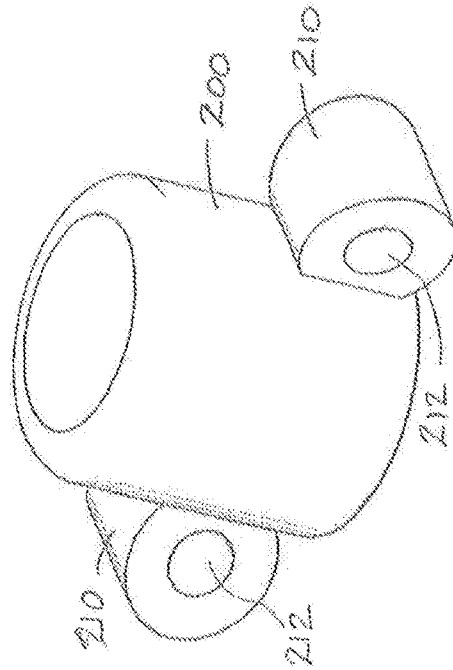


FIG. 5

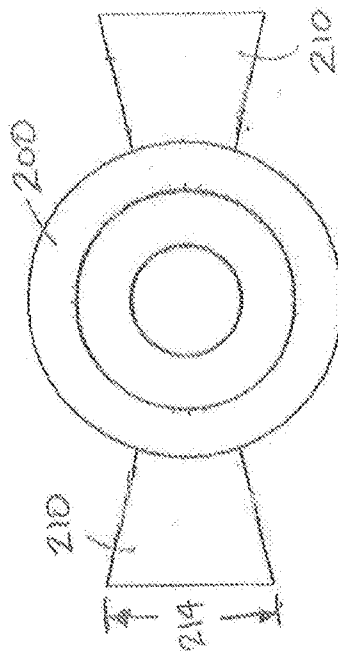


FIG. 6

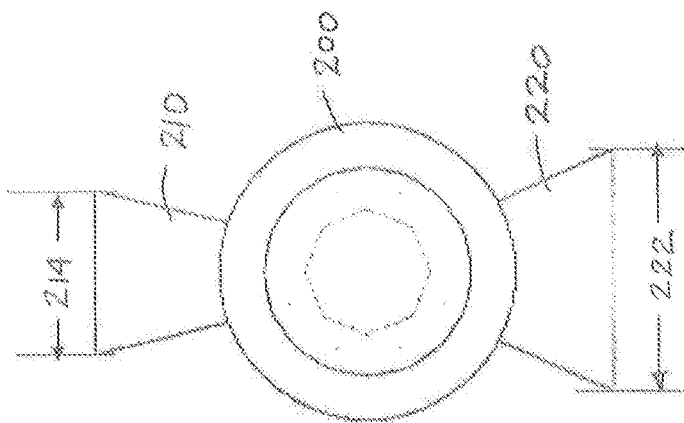


FIG. 13

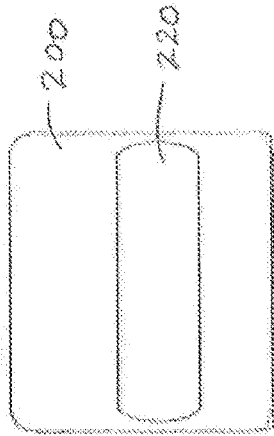


FIG. 14

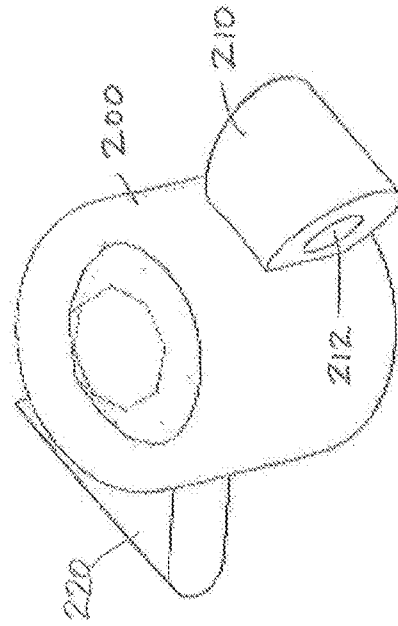


FIG. 11

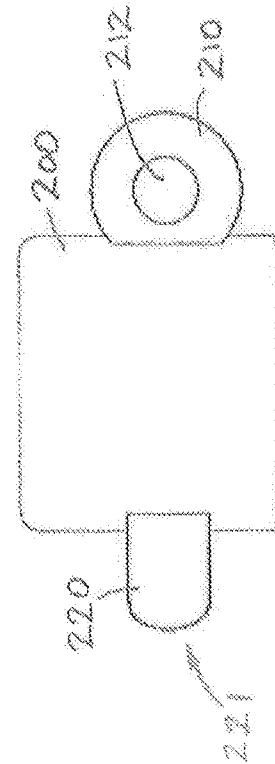


FIG. 12

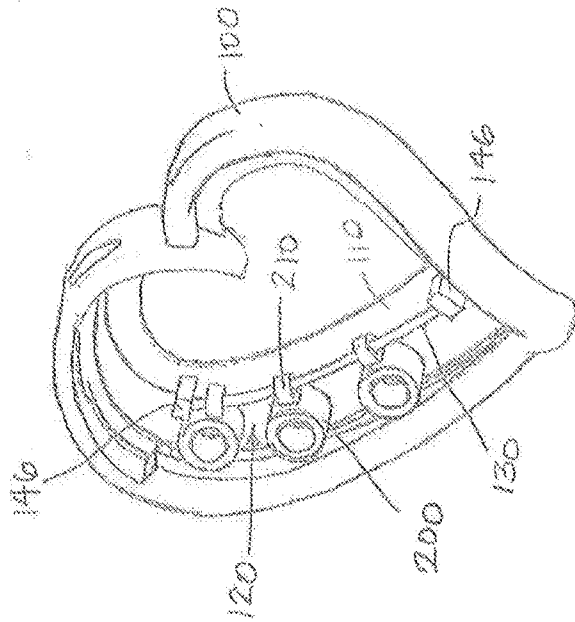


FIG. 9

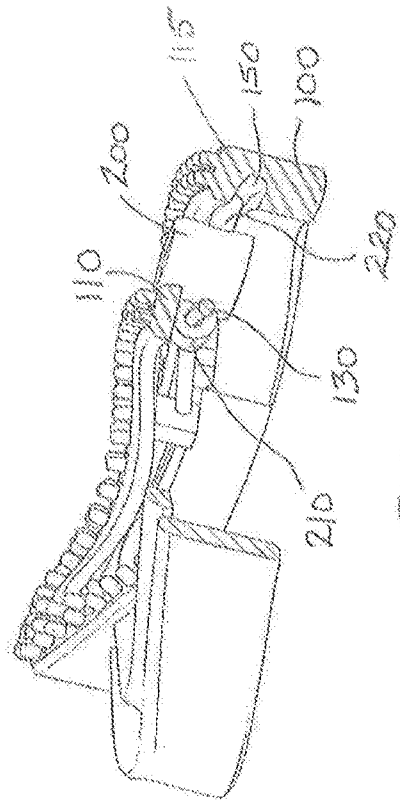


FIG. 10

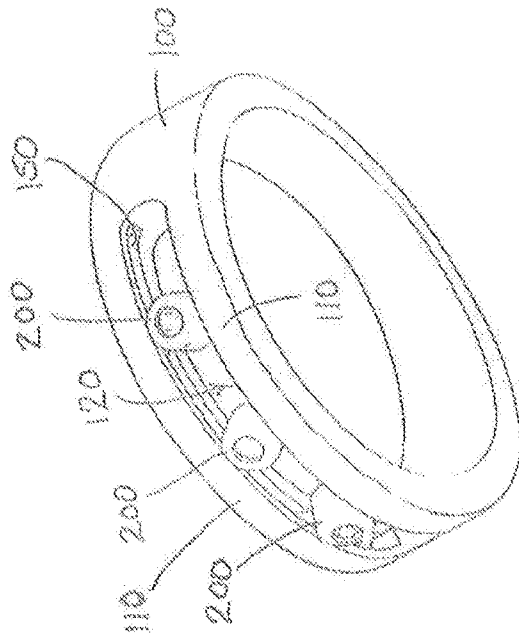


FIG. 15

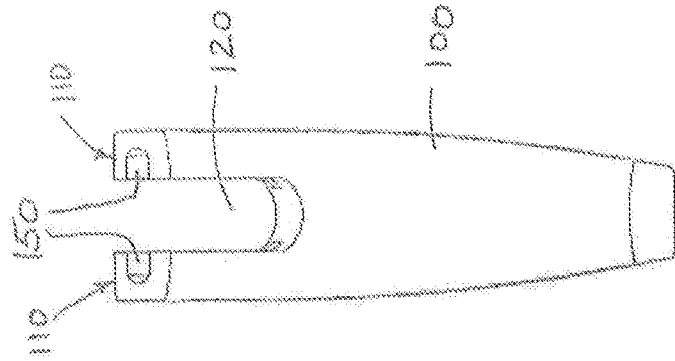


FIG. 16

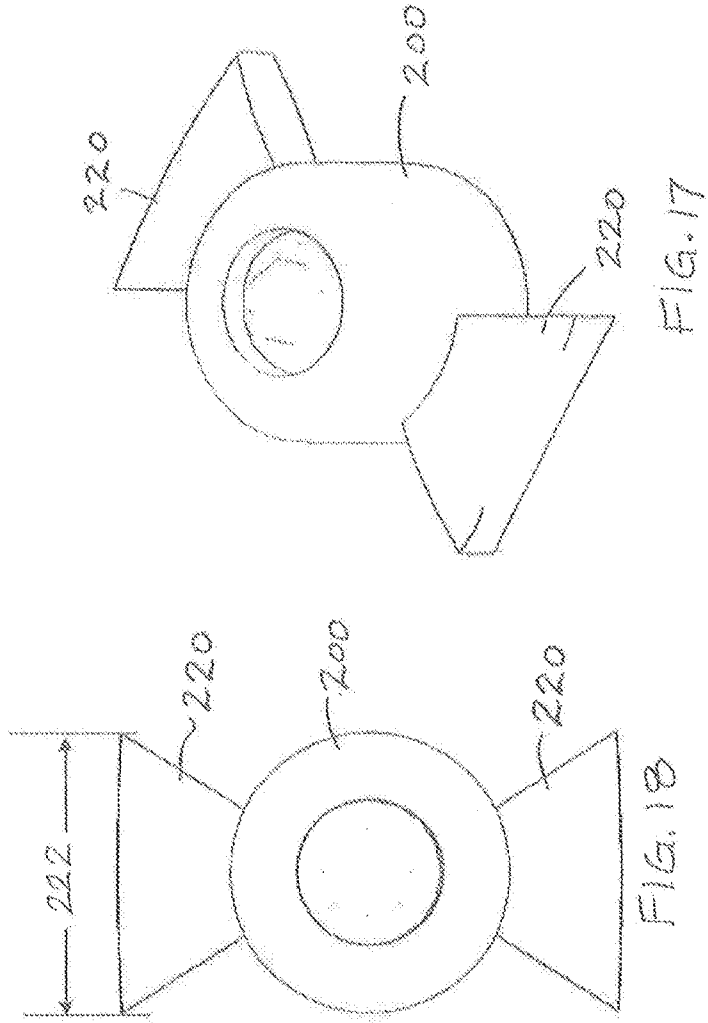


FIG. 18

FIG. 17

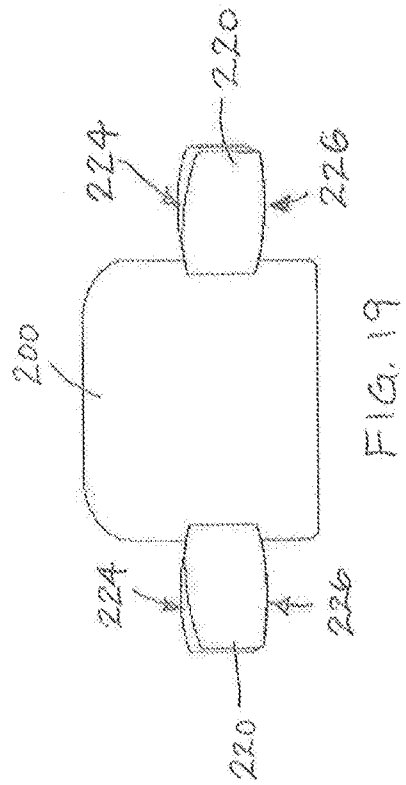


FIG. 19

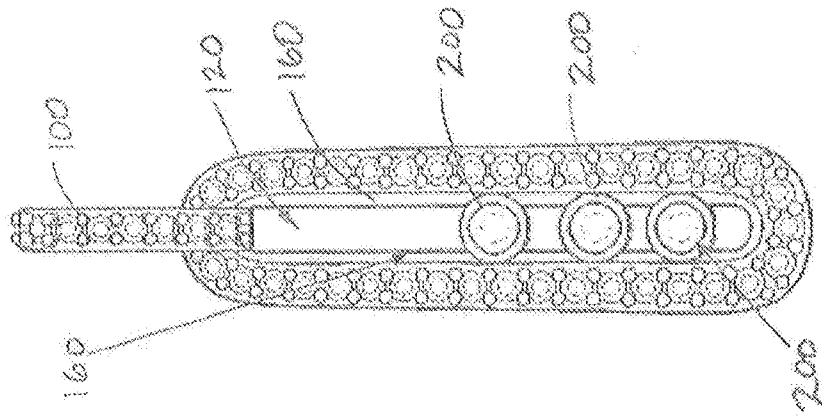


FIG. 20

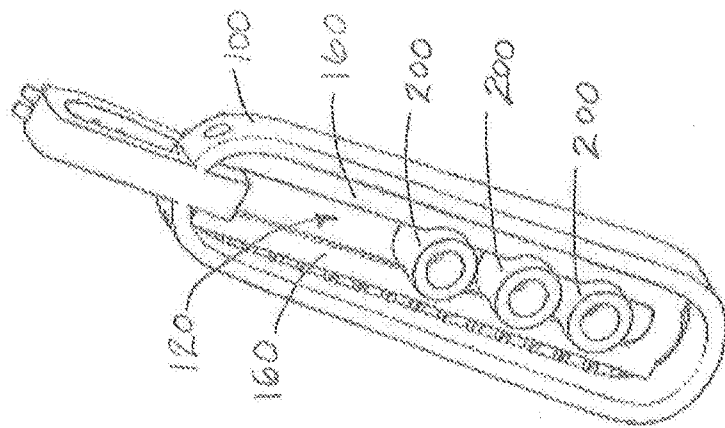


FIG. 21

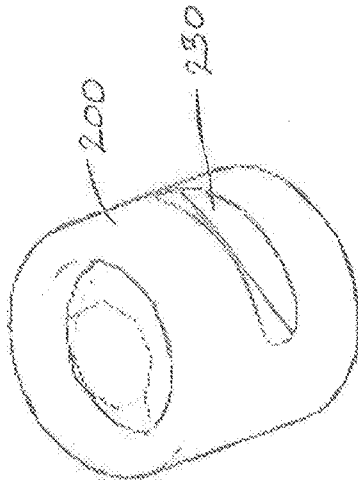


FIG. 22

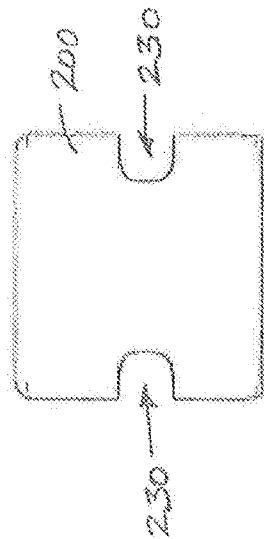


FIG. 23

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 16/35775

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - A44C 17/00, A44C 17/02 (2016.01) CPC - A44C 17/00, A44C 17/02, A44C 17/0241, A44C 17/025, A44C 17/0283, A44C 17/0291 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8): A44C 17/* (2016.01) CPC: A44C 17/*		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched IPC(8): A44C* (2016.01) CPC: A44C*		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase, Google Patents, Google Web Keywords: sliding, slide, track, wire, cable, string, pendant, bead, bracelet, jewelry, pin, barrette, hair		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2014/032075 A1 (FOTIA) 03 March 2014 (03.03.2014), entire document	1-5, 7, 9-11
Y		6, 8, 12-19, 22-23
X	US 7,210,258 B2 (LANTI) 01 May 2007 (01.05.2007), entire document	1, 20
X	US 5,896,757 A (KHARLOUBIAN) 27 April 1999 (27.04.1999), entire document	1, 21
Y	US 2014/0318180 A1 (CABE) 30 October 2014 (30.10.2014), entire document	6, 8, 12-17
Y	WO 93/02585 A1 (FLACH) 18 February 1993 (18.02.1993), entire document	18-19, 22-23
A	WO 93/09691 A1 (HEIDEN) 27 May 1993 (27.05.1993), entire document	1-23
A	US 2012/0151963 A1 (DOBASHI) 21 June 2012 (21.06.2012), entire document	1-23
A	US 2003/0106338 A1 (KLINGENBERG) 12 June 2003 (12.06.2003), entire document	1-23
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
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