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(54) **ROTATING JEWELRY CLOSURE**

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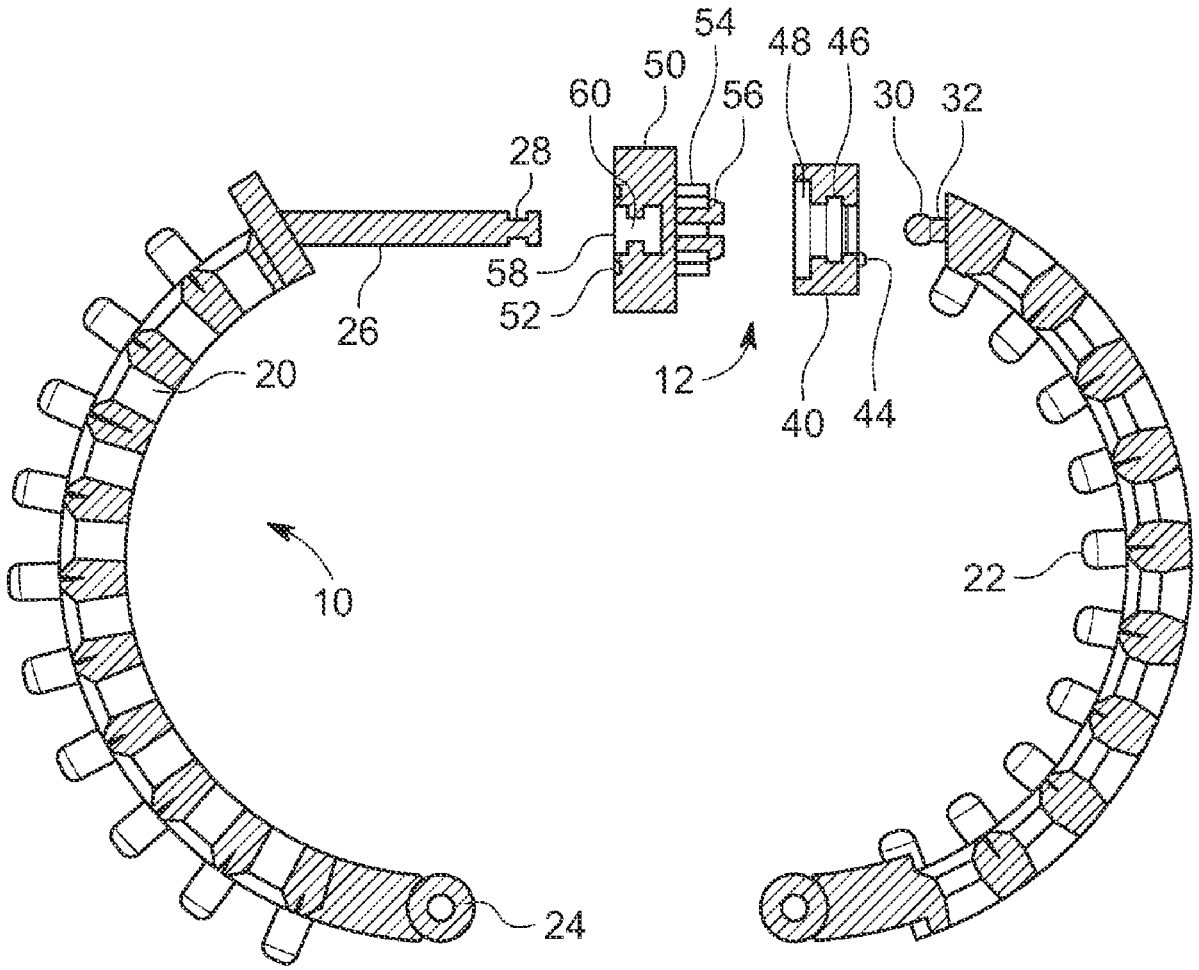
(57) **ABSTRACT**

A jewelry item has a first side including a first and second end with a stem and locking notch and a second side including a third and fourth end with a mounting stem and ball joint. The second end of the first side is connected to the fourth end of the second side. A closure has a collar rotatably connected to a rotatable connection element. The collar is connected to the third end and located between the third end and the rotatable connection element. In an open configuration, the stem with the locking notch of the first side can be inserted within a locking cavity of the rotatable connection element. In a closed configuration, the rotatable connection element is configured to be rotated to engage the locking notch of the stem, preventing removal of the stem from the rotatable connection element.



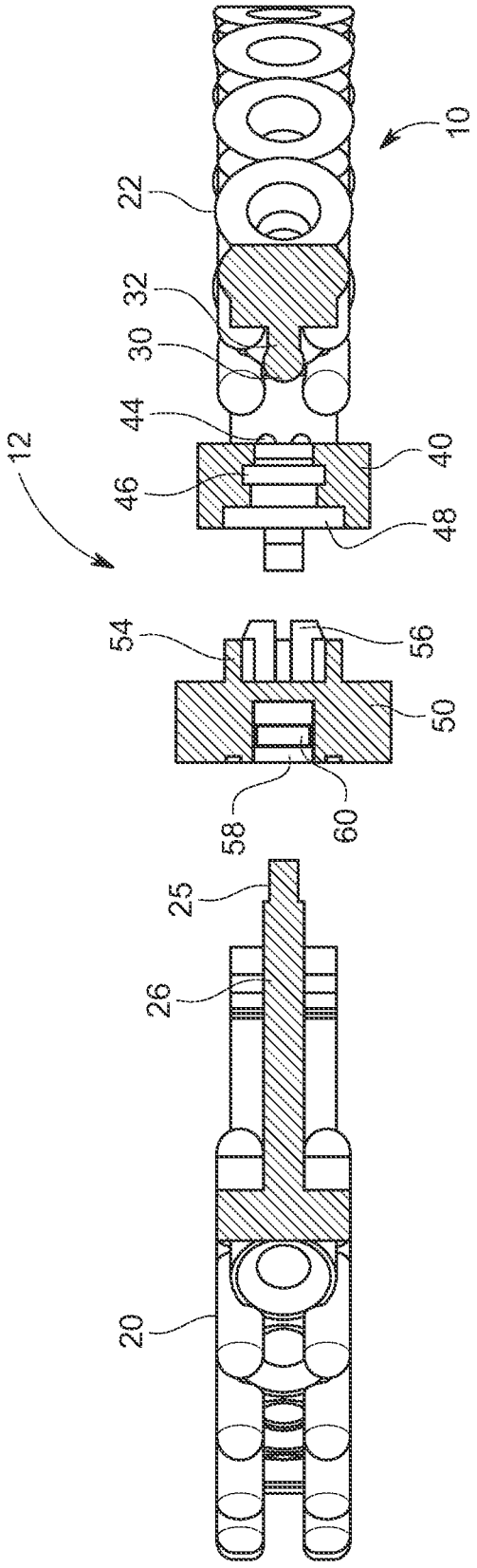


FIG. 1A

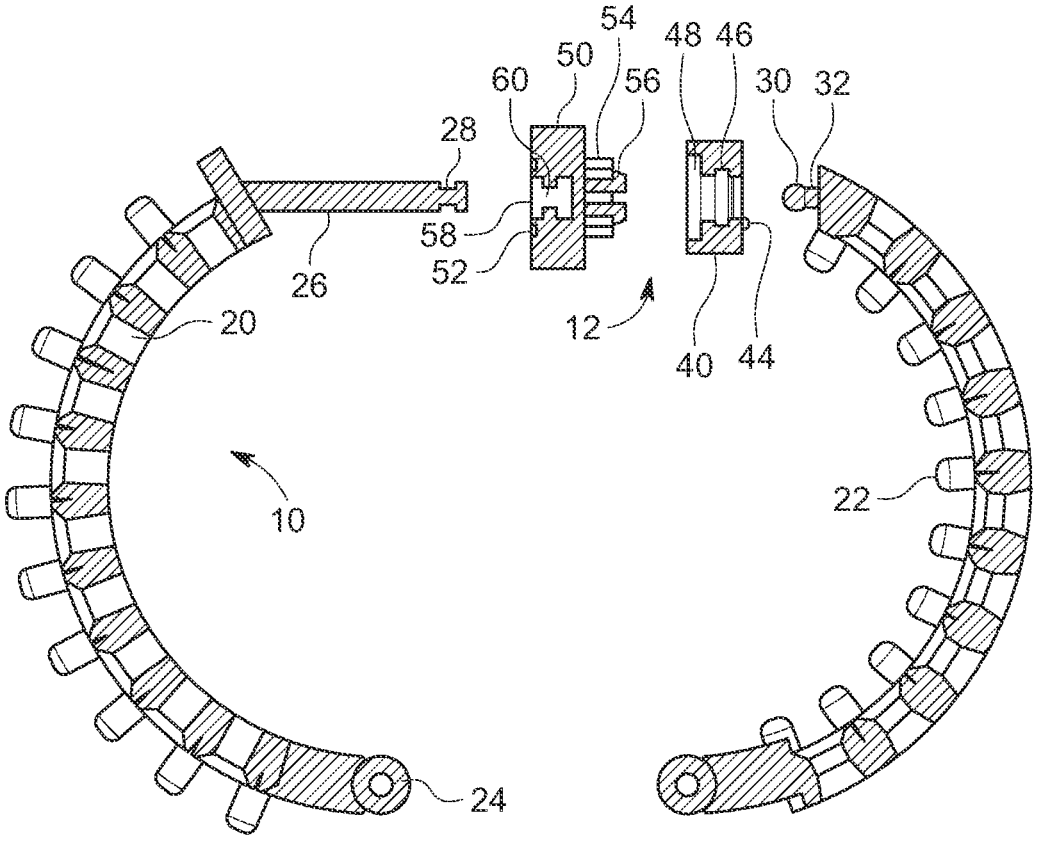


FIG. 1B

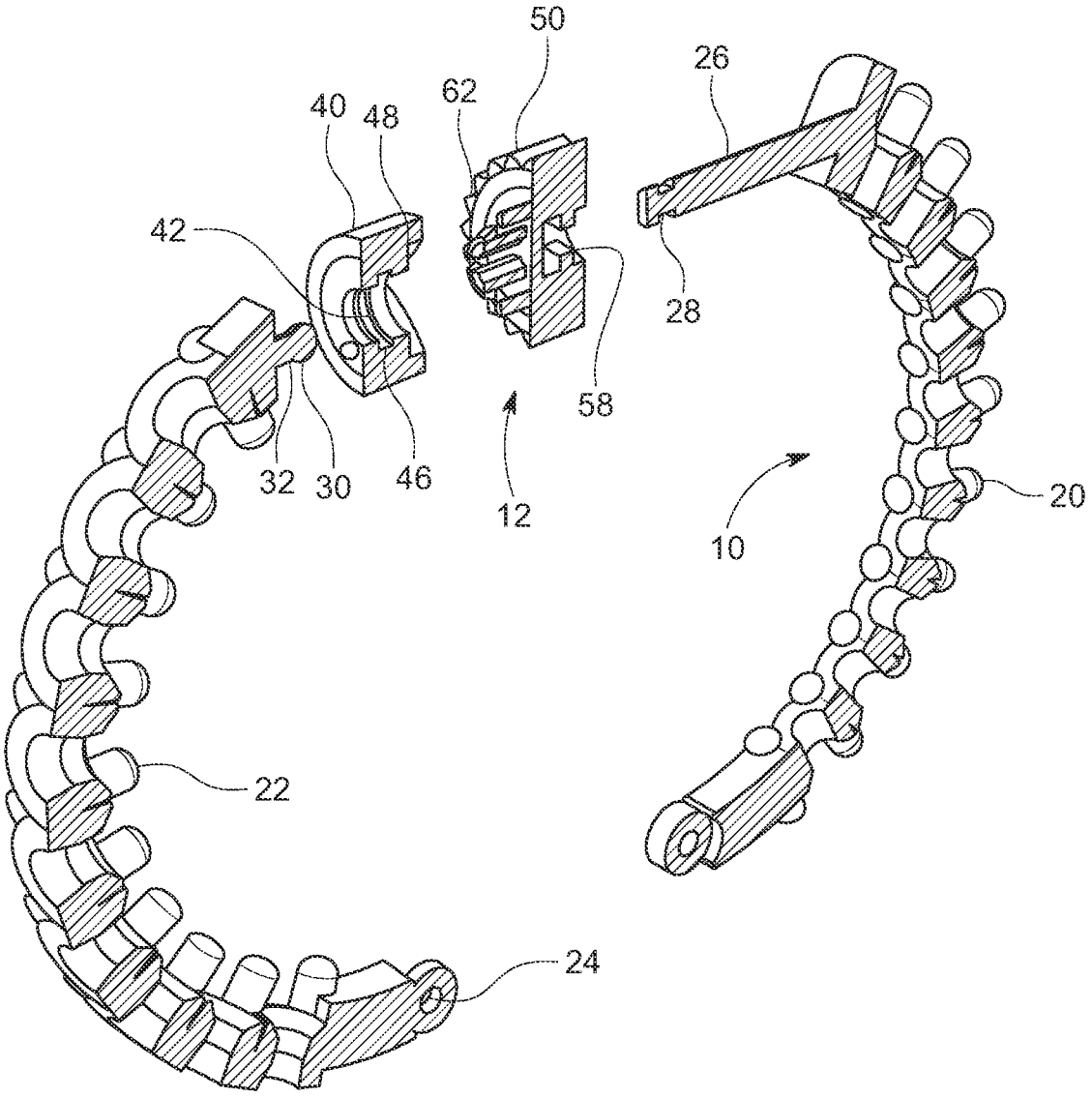


FIG. 1C

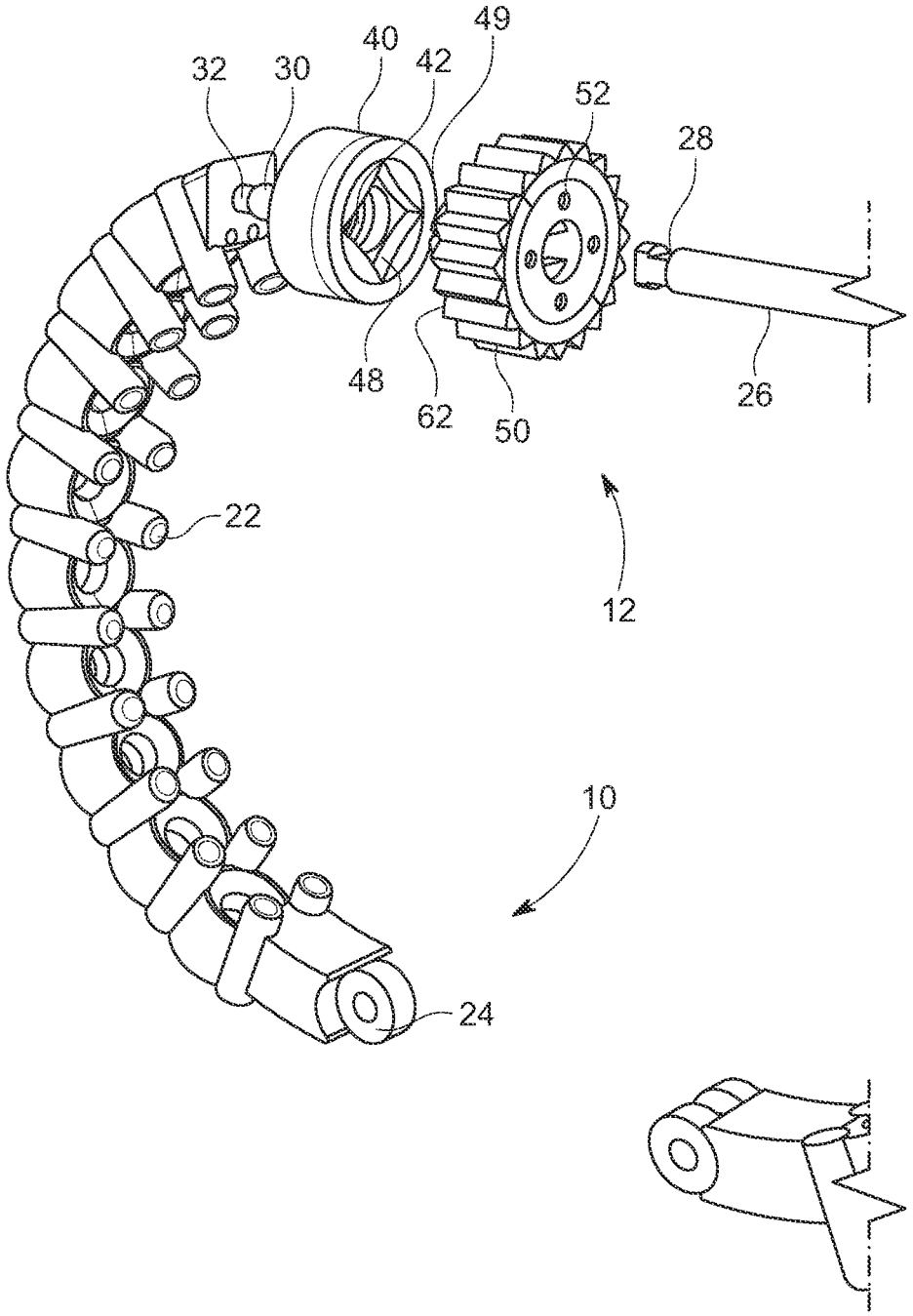


FIG. 1D

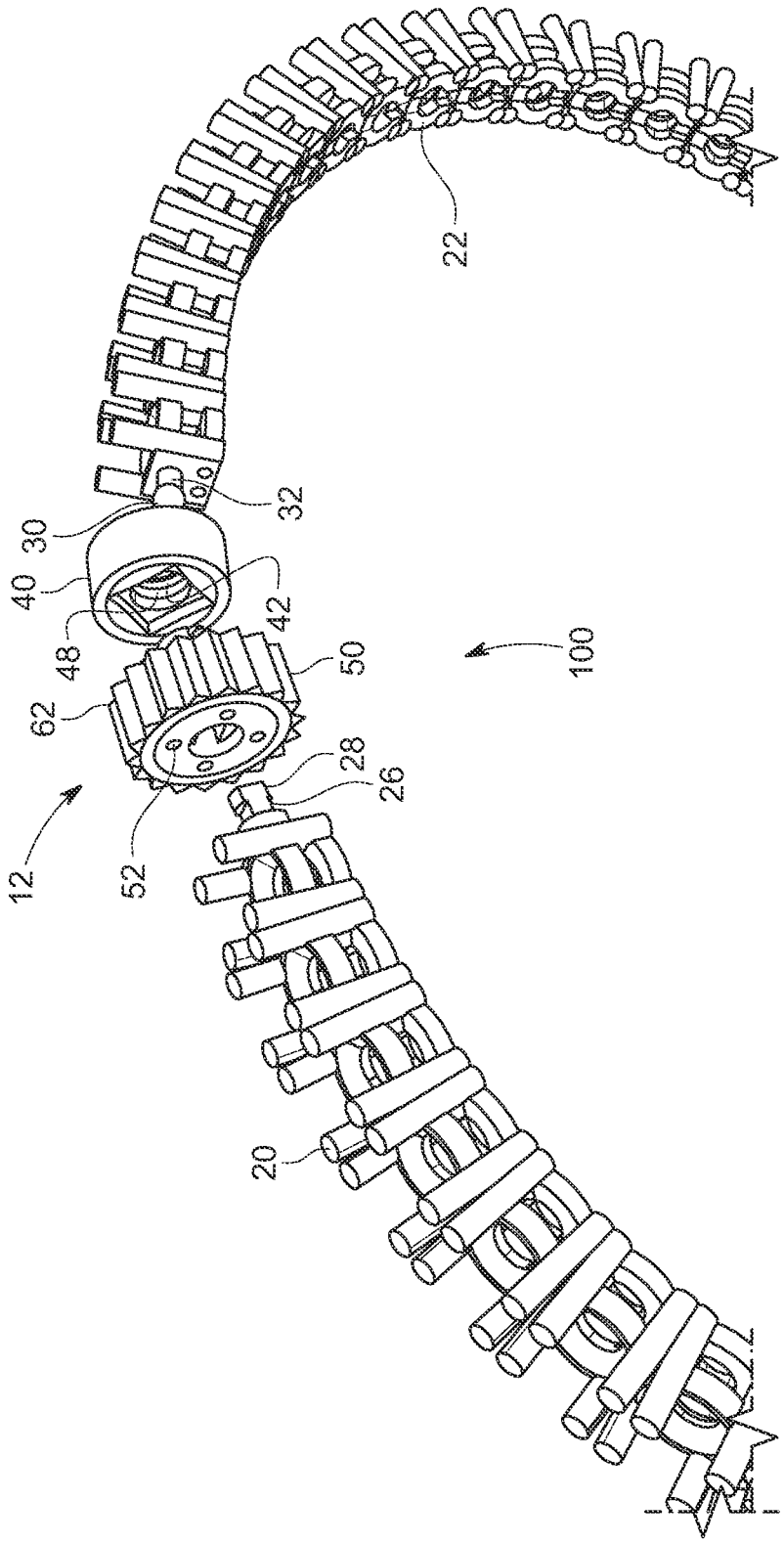


FIG. 2A

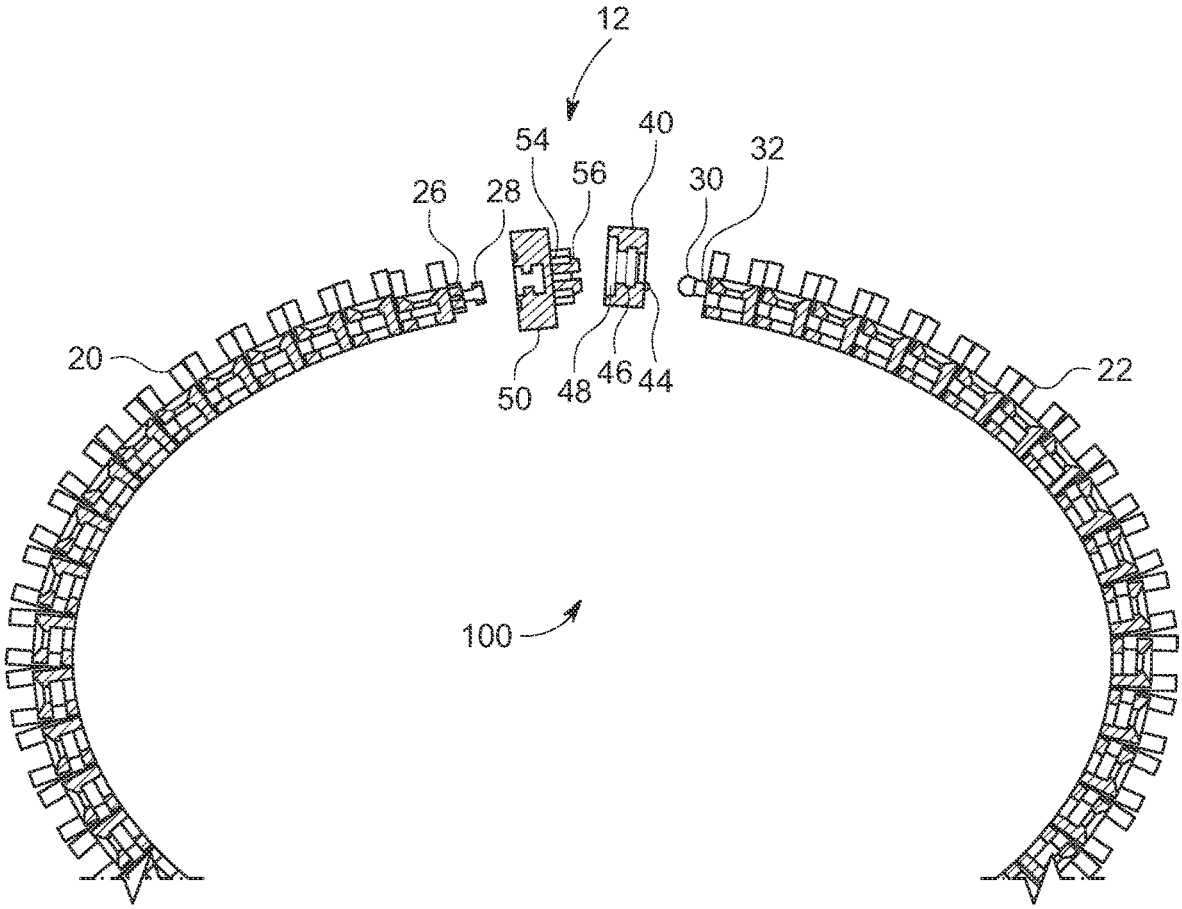


FIG. 2B

ROTATING JEWELRY CLOSURE

FIELD OF THE INVENTION

[0001] This application relates to the field of jewelry. More particularly, the present application relates to the field of jewelry closures of connection elements.

BACKGROUND

[0002] In the field of jewelry, particularly with earrings, bracelets and necklaces, there are many types of closures or backings that are used in the prior art. For example, with earrings, the most common type of backing is the push-back which has a friction end stopper that is placed on the stem after it pressed through the piercing. These push-backs can come in many forms such as a butterfly shape, bell, or disc end-stopper. A drawback with this type of closure is that in some cases it is hard to fit the closure onto the stem, and also such independent push-backs are often lost or misplaced.

[0003] Another type of earing closure is the kidney closing which can take the shape of the stem extending an elongated loop that closes by latching the end behind a small hook. Here a pendant can hang on the kidney-closing and kept in place by a recess, but if left open the pendant can slide out of the closure. Another open stem closing is the fishhook closing which looks essentially similar to a fishing hook. Where the kidney closure is a closed-loop when closed, a fishhook type is somewhat similar but is always be open and could potentially result in the earing falling out.

[0004] Another earing closure is the endless closure where a post extends from one end of a hoop and, after passing through the piercing, enters a cavity on the other side of the hoop, making an apparently seamless hoop. This provides a very streamlined closure, but it can be hard to fit the post into the small opening on the other side of the hoop.

[0005] There are other common earring closures for non-pierced ears such a clip-on closures or friction closures, but they are not applicable to pierced earring closures.

[0006] Regarding closures for larger jewelry items such as bracelets or necklaces, there are numerous other known closures. A first type of common closure is a ball or bead clasp, which is a round, spherical jewelry fastener. Another common clasp is the barrel clasp which is small barrel or torpedo-shaped closure which fastens two ends together through a screw, box or hook-insert mechanism.

[0007] A box clasp is another form of closure that uses a tab or insert that is inserted into a decorative box. A fishhook clasp is another form of clasp that has a hook designed to be inserted into an oval shaped casing and can be used for lighter weight jewelry. This is similar to a basic hook clasp that simply has a curved piece for catching onto a loop or circle on the opposing side of jewelry.

[0008] Other types of bracelet or necklace clasps include the lobster clasp which resembles a pinching style lobster claw that is spring loaded to clamp onto an opposing loop. Another spring-loaded closure is the push button clasp that clicks into place when an opposing stem or ball joint is inserted into a spring clasp, later released by pressing the button. A swivel clasp is another form of closure that is the same as lobster clasp but with a 360° swivel. There is also the basic springing clasp which is a loop with a spring-loaded slide that is retracted to allow an opposing hoop to connect.

[0009] Another type of clasp used on certain types of material bracelets, like leather bracelets is a buckle clasp which is essentially the same a belt buckle. A concealed clasp is another rarer form of jewelry closure that is hidden within a design but otherwise functions the same as other clasps functionally, for example, a hidden box clasp. Another less common closure is the ladder clasp which has what appears as a two-spoke ladder, that is folded over against an opposing side with a notch that can be fit into one of the spokes of the ladder for an adjustably sized fit.

[0010] Again, other closure types for bracelets and necklaces can include slide clasps, with two bars that slide into a locked position with one another. Magnetic clasps are very basic and simply connect with two opposing magnets. A toggle clasp is a two-piece closure in the form of a bar on one side and a hoop on the other. The bar is angled and passed lengthwise through the hoop and then arranged in a wide manner so as not to be able to pass back through the same hoop to complete the connection.

[0011] However, despite these numerous types of closures for both earrings as well as necklaces and bracelets, they all tend to suffer from at least one of three different drawbacks, and occasionally two or even all three.

[0012] Because jewelry tends to be small, the closures are even smaller. Many people, particularly the elderly and those with arthritis or poor vision, have great difficulty in manipulating the small parts needed to open the closures, make the connection, and then close the closure. See for example the basic spring clasp which requires manipulation of a small spring and threading a small eyelet over an open hoop.

[0013] Another major drawback to the prior art closures is that many of the designs simply don't hold very well or do not lock at all which can lead to lost jewelry. See for example the basic push-back earing closures or the fish-hook style stems.

[0014] Another drawback with prior art closures is that some of the more secure closures tend to be complicated to construct and include parts that can wear out over time. This is particularly true of all spring-loaded closures because the spring can either wear out over time because it is usually very small, and also such springs can become displaced making the closure inoperative.

OBJECTS AND SUMMARY

[0015] The present arrangement looks to overcome the drawbacks associated with the prior art and provide a jewelry closure that can be used on both earrings as well as bracelets and necklaces, and possibly other forms of jewelry that is constructed in a way to make it easy to open and close, manufactured in a sturdy yet relatively less complicated manner, and further provides a secure connection with no chance of losing the jewelry item or parts of the closure.

[0016] Such an arrangement includes a stem with a notch on a first side of the jewelry item. On the other side a ball joint is provided. A collar is disposed over the ball joint, with the ball joint exposed on the other side. A rotatable connection element is pressed against the collar and snap locks onto the ball joint in a manner securing both the collar and the rotatable connection element to the other side of the jewelry item. Inside the rotatable connection element are two parallel catches with a space in between them for receiving the notched stem.

[0017] To close the closure, the notched stem is placed into the rotatable connection element with the stem passing through the two parallel catches inside. Then the wearer locks the closure by rotating the rotatable connection element. In doing so the two parallel catches engage the notch on the stem and prevent the closure from opening. To open the closure, the rotatable connection element in the opposite direction, re-orienting the parallel catches to release the notch on the stem, allowing the stem to be removed, opening the closure.

[0018] To this end a jewelry item and closure is provided having a first side of the jewelry item with a stem and locking notch and a second side of the jewelry item having a mounting stem and ball.

[0019] The closure has a collar with a hollow cavity for fitting over the mounting stem and said ball. A rotatable connection element connects with the ball of the second side of the jewelry item, affixing the collar and the rotatable connection element with the second side of the jewelry.

[0020] In an open configuration, the stem with the locking notch of the first side of the jewelry can be inserted within a locking cavity of the rotatable connection element. In a closed configuration, the rotatable connection element is configured to be rotated to engage the locking notch of the stem, preventing removal of the stem from the rotatable connection element.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The present invention can be best understood through the following description and accompanying drawing, wherein:

[0022] FIG. **1***a* illustrates a top view of an earring and a closure in accordance with one embodiment of the present invention;

[0023] FIG. **1***b* illustrates a side view of the earring and the closure in accordance with one embodiment of the present invention;

[0024] FIG. **1***c* illustrates a cut away perspective view of the earring and the closure in accordance with one embodiment of the present invention;

[0025] FIG. **1***d* illustrates a close up of the earring and closure from FIGS. **1***a*-**1***c*, in accordance with one embodiment of the present invention; and

[0026] FIGS. **2***a* and **2***b* illustrates the closure from FIGS. **1***a*-**1***c* in use on a bracelet, in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION

[0027] FIGS. **1***a*-**1***d* illustrate various views of an earring **10** having a closure **12** in accordance with one embodiment. It is noted that the present examples shown in these figures is for an earring, but the closure described herein may be equally applicable to different jewelry items such as necklaces or bracelets as shown for Example in FIGS. **2***a* and **2***b* (bracelet).

[0028] As shown in FIGS. **1***a*-**1***d*, earring **10** has a first side **20** and a second side **22** connected at the bottom through a hinged pivot connection **24**. First side **20** of earring **20** has a stem **26** that has a locking notch **28** oriented as point of reduced thickness in the form of two cut aways on opposing side of stem **26**. Second side **22** of earring **10** has a ball **30** located on a short mounting stem **32**.

[0029] Turning to the independent components of closure **12**, a collar **40** includes a hollow cavity **42** passing entirely therethrough for allowing ball **30** and mounting stem **32** of second side **32** to pass therein. On the side surface of collar **40** facing the second side **22** of earing **10**, there are two alignment knobs **44** so that collar **40** aligns correctly against and does not rotate relative to second side **22**. Collar **40** also has a recess **46** located approximately in the middle of hollow cavity **42** and extending around the entire inner circumference of cavity **42**, the function of which is disclosed in more detail below. Finally, collar **40** has a square/diamond recess **48** on the side of collar **40** facing towards first side **20** of earring **10** to assist in connecting with a rotatable connection element **50** as explained in more detail below.

[0030] The other independent component of closure **12** is rotatable connection element **50**. Rotatable connection element **50** has four spring/pin cavities **52** configured to receive connection springs **49** when collar **40** and rotatable connection element **50** are placed against one another as explained below. Rotatable connection element **50** also has four (4) snap connectors **54** that are deformable and configured to encapsulate ball **30** within cavity **42**. For example, when rotatable connection element **50** is placed flush against collar **40**, snap connectors **54** pass within cavity **42** encapsulate ball **30**, affixing both rotatable connection element **50** and collar **40** to second side **22** of earing **10**. As shown in FIGS. **1***a*-**1***d*, each of the four (4) snap connectors **54** have a catch tab **56** that fits within recess **46** of collar **40** allowing rotatable connection element **50** to securely rotate within collar **40**, but without coming disconnected from second side **22** of earing **10**, allowing rotatable connection element **50** to rotate around ball joint **30**. It is noted that connection springs **49** may be placed through the four spring cavities **52** and into square/diamond recess **48** of collar **40**, e.g., into the points of the square, to provide a rotation limiter to rotatable connection element to approximately 90 degrees and to provide a friction feedback to the user so that they can feel when the rotatable connection element **50** has been returned enough to lock closure **12** as explained below.

[0031] On the opposing side of rotatable connection element **50** facing first side **20** of earing **10**, is a locking cavity **58** having two parallel locking bars **60**. Locking cavity **58** is dimensioned to receive stem **26** and locking notch **28** of first side **20** of earing **10**. When rotatable connection element **50** is oriented in a first unlocked position, parallel locking bars allow stem **26** to fit fully within locking cavity **58** when first side **20** and second side **22** are pressed together via pivot connection **24**. However, when rotatable connection element **50** is turned about ball **30** approximately 90 degrees to a locking position, with spring **49** and square/diamond recess **48** providing friction feedback to the user, parallel locking bars **60** rotate to catch on locking notch **28**, preventing stem **26** from leaving locking cavity **58**. In order to facilitate turning of rotatable connection element **50** the outer circumference has engagement ridges **62** to help grasp with the user's fingertips.

[0032] Each of the components of earing **10** and closure **12** has a set of exemplary dimensions. These dimensions are for illustration purposes only for an exemplary sized earing **10** as shown. However, it is understood that other dimensions may be used in keeping with the functions of the various components of earring **10** and closure **12**. For example, stem **26** can be approximately 0.95 mm in width/

diameter, with locking notch **28** having an opening width of approximately 0.60 mm. Collar **40** may have width of 3.05 mm and a thickness of about 1.35 mm. Rotatable connection element **50** is slightly larger than collar **40** and can be approximately 4.0 mm wide and approximately 1.90 mm thick. Four (4) snap connectors **54** of rotatable connection element **50** can be approximately 1.75 mm wide to fit within cavity **42** of collar **40**. On the other side of rotatable connection element **50**, parallel locking bars **60** within locking cavity **58** can be about 0.48 mm wide to engage/disengage with locking notch **28**. The depth of locking cavity **58** can extend an additional 0.60 mm beyond locking bars **60** to accept the remainder of stem **26** that extends beyond locking notch **28**.

[0033] In another embodiment shown in FIGS. **2***a* and **2***b*, a bracelet **100** is shown using the same closure **12** as described above in FIGS. **1***a*-**1***d*, with all the same components and functions. A similar closure **12** may also be used for other jewelry items such as necklace or other applicable jewelry items.

[0034] While only certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes or equivalents will now occur to those skilled in the art. It is therefore, to be understood that this application is intended to cover all such modifications and changes that fall within the true spirit of the invention.

What is claimed is:

1. A jewelry item and closure comprising:

a first side of said jewelry item with a stem and locking notch;

a second side of said jewelry item having a mounting stem and ball;

said closure having:

a collar with a hollow cavity for fitting over said mounting stem and said ball; and

a rotatable connection element connecting with said ball of said second side of said jewelry item, affixing said collar and said rotatable connection element with said second side of said jewelry,

wherein, in an open configuration, said stem with said locking notch of said first side of said jewelry can be inserted within a locking cavity of said rotatable connection element, and wherein in a closed configuration, said rotatable connection element is configured to be rotated to engage said locking notch of said stem, preventing removal of said stem from said rotatable connection element.

2. The jewelry item and closure as claimed in claim **1**, wherein said collar has two alignment nobs facing said second side of said jewelry item.

3. The jewelry item and closure as claimed in claim **1**, wherein said collar has a recess located approximately in the middle of hollow cavity, configured to accept rotatable connection element.

4. The jewelry item and closure as claimed in claim **3**, wherein said rotatable connection element has a plurality of deformable snap connectors that fit within said cavity of said collar to connect with said ball on said second side of said jewelry item.

5. The jewelry item and closure as claimed in claim **4**, wherein said rotatable connection element has four deformable snap connectors.

6. The jewelry item and closure as claimed in claim **4**, wherein each of said plurality of deformable snap connectors has a catch tab for engaging within said recess of said collar, such that said rotatable connection element is simultaneously connected to said ball of said second side of said jewelry item and rotatable relative to said collar.

7. The jewelry item and closure as claimed in claim **1**, wherein said collar has a square/diamond recess on a side facing said first side of said jewelry item and said rotatable connection element.

8. The jewelry item and closure as claimed in claim **7**, wherein said rotatable connection element has a plurality of spring cavities configured to receive connection springs that pass therethrough and into said square/diamond recess of said collar providing a rotation limiter to rotatable connection element, relative to said collar of approximately 90 degrees.

* * * * *