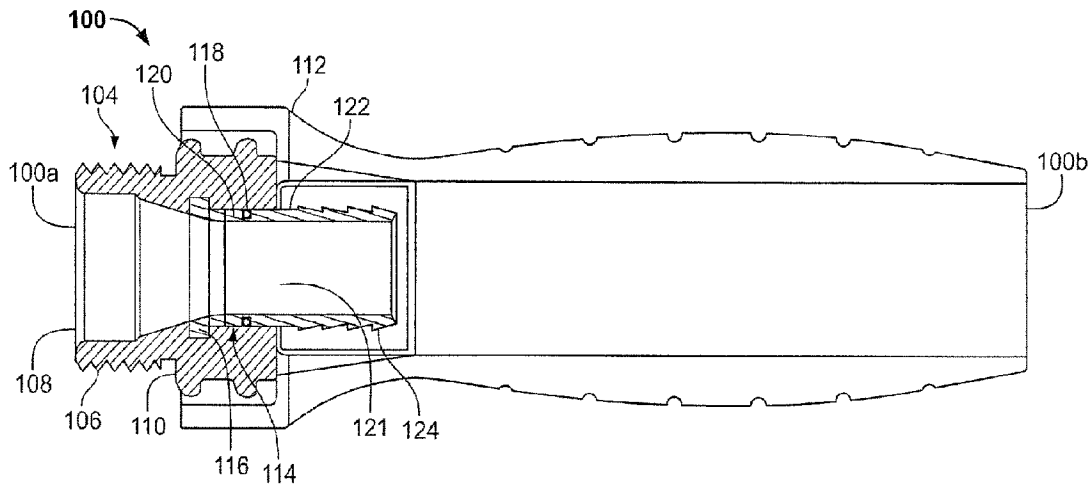




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 (54) Title: SWIVEL HOSE COUPLING WITH OUTER GRIP



(57) **Abrégé/Abstract:**

A water hose coupling having a swivel grip is provided. A first coupling portion with a male threaded end integral with a first larger diameter base is connected to a second coupling portion through a freely rotating connection. The second coupling portion includes a second larger diameter base. The second coupling portion further includes a coupling protrusion integral with the second larger diameter base. The coupling protrusion may have one or more barbs to interface with a hose or a threaded female coupling to interface with a male threaded connector. The coupling is connected to an end of a hose to which accessories may be attached. An outer sleeve is connected to the first larger diameter base of the first coupling portion and can freely rotate with the first coupling portion around the remainder of the apparatus and hose. The outer sleeve acts as an ergonomic grip for users to hold and rotate when using the hose and installing accessories.

ABSTRACT

A water hose coupling having a swivel grip is provided. A first coupling portion with a male threaded end integral with a first larger diameter base is connected to a second coupling portion through a freely rotating connection. The second coupling portion includes a second larger diameter base. The second coupling portion further includes a coupling protrusion integral with the second larger diameter base. The coupling protrusion may have one or more barbs to interface with a hose or a threaded female coupling to interface with a male threaded connector. The coupling is connected to an end of a hose to which accessories may be attached. An outer sleeve is connected to the first larger diameter base of the first coupling portion and can freely rotate with the first coupling portion around the remainder of the apparatus and hose. The outer sleeve acts as an ergonomic grip for users to hold and rotate when using the hose and installing accessories.

SWIVEL HOSE COUPLING WITH OUTER GRIP

[001] FIELD OF THE INVENTION

[002] The present invention generally relates to couplings for hoses. More specifically, the present invention relates to couplings on one end of a hose having a freely rotating end that rotates independently of the remainder of the coupling attached to the end of the hose.

Additionally, the coupling may include a sleeve grip attached to the coupling and extending over and surrounding a portion of a hose.

BACKGROUND

[003] Traditional water hoses used in gardens, as well as for industrial purposes, are composed of resilient materials, such as plastic or rubber, with reinforcements, such as metal wire, interwoven into the materials. Additionally, each end of the water hose includes a coupling. Typically one end is a female coupling and the other end is a male coupling. These couplings are traditionally made of metal, such as brass. Users of water hoses typically use more than one accessory with their water hose and, thus, must repeatedly install and remove the accessories from the water hose. Accessories for traditional water hoses can include nozzles, spray guns, sprinklers, pressure washers, extensions, wands, and various other devices.

[004] Typically, the female end includes recessed threads to accept and couple with a complementary male threaded water source. The male end of a hose also include threads on its outer projecting surface to accept and couple with a complimentary female threaded accessory or other hose coupling. The female coupling can sometimes include a freely rotating installation swivel coupling that allows it to be more easily coupled with the male water source coupling. However, the freely rotating female coupling only rotates until it is tightened on the water source's male coupling end.

[005] The installation and removal of multiple accessories can become time consuming and frustrating as fitting an accessory to the male coupling of a water hose by rotating the water hose

onto the accessory can be difficult, especially when the hose and coupling are already wet and heavy (especially if filled with water). Furthermore, the action of aligning and rotating the water hose onto the accessory can be additionally difficult when water is still flowing from the hose and leaking from the male end as the accessory is installed or removed. This is especially true for the elderly, children, and people suffering from arthritis. Additionally, rotating the coupling and accessory to properly mount or unmount the accessory to and from the hose can be cumbersome and tiring as the coupling is attached to the remainder of the water hose that resists rotational force applied to it.

[006] Similarly, the installation and removal of a water hose from a water source can be frustrating and cumbersome. Even if the water hose's female coupling rotates independently of the hose during installation it is typically still difficult to align and rotate the small coupling portions together. This can be made additionally difficult if the hose coupling and/or water source coupling is wet or water is flowing from one of the couplings. Again, this is especially true for the elderly, children, and people suffering from arthritis.

[007] Moreover, using a water hose that has been coiled for storage by pulling on the hose or an accessory attached to the hose, often-times puts strain on the user holding the accessory as the hose requires to be uncoiled as it is pulled. This action causes the hose to thrash and often kink if the user does not stop pulling and rotate the hose and accessory to allow the hose to uncoil properly. This is again time consuming and frustrating. Again, this especially affects the elderly, children, and the arthritic. Accordingly, there is a need for a device that allows for easier coiling and uncoiling of a stored water hose and accessory as well as allows for easier mounting and removal of an accessory from a water hose.

[008] Water hose grips are known in the art as shown in United States Patent No. 5,333,650 to Folkman. Grips provide a more ergonomic shape for users to hold as they utilize their water hose. Additionally, grips may add rigidity and strength to an end of a hose. Moreover, grips and swivels known in the art allow for an installation swivel. An installation swivel is one that freely rotates during the installation of a coupling to an accessory or water source, but becomes rigid and non-moving once fully tightened on the aforementioned accessory or water source coupling. Therefore, there is a need for a coupling/grip that rotates, even after installation of an accessory, with the male coupling end relative to a water hose to aid in installing and removing accessories from a male end of the water hose and aid in the use of an attached accessory. Specifically, the

aforementioned live swivel coupling/grip allows for the rotation of an installed accessory during use that will rotate independently of the attached hose. Since the hose on a non-swivel installation resists rotation by a user, additional torquing stress is placed on the user, specifically their wrist, to use the hose and attached accessory without a swivel coupling/grip. Therefore, there is a need for a live swivel coupling/grip that reduces and/or eliminates the need for additional torque from the user to compensate for the hose resisting rotation.

[009] Additionally, couplers for air hoses currently known are typically made of metal such as steel or brass and are of a cylindrical form connector connected to a source of air. The cylindrical connector is able to receive male connectors from different tools to be connected to the air source. The male connector comes in different variations but typically allow a tapered nose to interface and seal around the cylindrical connector. Additionally, the tapered nose typically includes one or more radial protrusions around the circumference of the nose to seal the connection between the male connector and the female cylindrical connector. Thus, when the male connector is inserted in the cylindrical body, there are complementary, engaging portions of the cylindrical connector to hold the male connector in its connected position. The arrangement is such that the male connector can be manually inserted or removed in a fairly quick manner without having to thread parts together.

[010] Swivel couplings used with air hoses are known in the art as shown in United States Patent No. 3,873,062 to Adams, et al. Typical, as discussed above, air hose swivel connectors utilize a tapered projection on the accessory to be connected that it received by a coupling portion having a complementary design on the air hose. The tapered projection is able to rotate along its longitudinal axis because of the locking mechanism within the receiving coupling portion on the air hose. Alternatively, air hoses use a single ball bearing end that moves within one end of a coupling portion of the air hose and connects to another push fitting coupling portion on the other end. The push fitting accepts a complementary push fitting on an air hose accessory to be mounted on the air hose.

[011] The above is not conducive to water applications as it is more likely to restrict water flow as the single ball bearing allowing movement constricts the opening available for water/air to flow through. This is not an issue in compressed air hoses as the restriction can improve the pressure of the air coming from the end of the hose. But on water applications it can

unnecessarily boost the pressure and reduce volume coming from the end of the hose which is unwanted in most water applications.

SUMMARY

[012] The present invention provides a novel coupling and sleeve device which reduces and/or eliminates the above-identified draw-backs. The device of the present invention includes a freely rotating coupling on the end of a hose. Furthermore, the preferred embodiment of the coupling of the present invention is connected to a rigid sleeve that protrudes backwards from the coupling and surrounds a portion of the hose. In the preferred embodiment, the rigid outer sleeve can freely rotate with the coupling around the end of the hose it surrounds. In some embodiments the sleeve also acts as a grip to improve the user's ability to hold the hose, especially while inserting or removing an accessory from the coupling.

[013] The coupling of the present invention includes a first portion and a second portion. In the preferred embodiment, the first portion comprises a circular male threaded end for attachment to accessories or other hoses, wherein the male threaded end is connected to a larger diameter first base. The preferred embodiment also includes a second portion comprising a second base that which is connected to and integral with a coupling projection that is a barbed tube. The barbed tube allows for the coupling to connect to and remain within the end of a hose. The first and second portions of the coupling are connected by a freely rotating connection that allows each portion of the coupling to freely rotate with respect to each other about a longitudinal axis therethrough.

[014] In the preferred embodiment, the freely rotating connection is established by a track integrated with either the first or second coupling portion. The track accepts one or more ball bearings inserted through an access port of the first coupling portion. The access port is subsequently sealed using a pin, screw, or other means to seal the access port. It is also contemplated that one or more friction-reducing/slick washers could be substituted or used in conjunction with the ball bearings in the track to create the freely rotating connection. In an alternative embodiment of the present invention, it is contemplated that a third coupling portion connects the first and second coupling portions and allows the first coupling portion to rotate independently of the second coupling portion.

[015] In the preferred embodiment of the present invention, an outer sleeve connects with the coupling and extends backwards from the coupling to completely surround a portion of the hose.

In at least one embodiment, this sleeve acts as a grip for the end of the hose. Furthermore, in at least one embodiment, the sleeve gives additional rigidity and strength to the portion of the tube overlapped by the sleeve. An additional benefit to this configuration is that the sleeve provides additional protection to the coupling projection from outside forces such as bending the hose or stepping on the hose. Furthermore, the sleeve also provides additional protection to the inner surface of the hose from forces applied to it by the coupling projection due to outside forces applied to the end of the hose such as bending the hose.

[016] The preferred embodiment of the present invention allows for the reduction of forces felt by a user due to the freely rotating coupling as a hose is coiled or uncoiled, as well as during general use, and also provides an improved grip for easier mounting and unmounting of hose accessories to and from a hose. The added diameter of the sleeve and ergonomic shape also provides an easier area to grip for people with decreased hand strength such as children, the elderly, the injured and/or disabled, as well as people suffering from arthritis. In fact, both of the above-identified benefits are especially helpful for senior citizens, children, and/or people with arthritis or other disabilities and/or injuries.

BRIEF DESCRIPTION OF THE DRAWINGS

[017] Fig. 1 is a perspective view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention.

[018] Fig. 2 is a cross-sectional side view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention.

[019] Fig. 3 is an exploded view of the preferred embodiment of a freely rotating hose coupling device of the present invention.

[020] Fig. 3a is a cross-sectional view of the preferred embodiment of the first coupling portion with interior track and access port with pin of a freely rotating hose coupling device of the present invention.

[021] Fig. 3b is a cross-sectional view of the preferred embodiment of a freely rotating hose coupling device of the present invention.

[022] Fig. 4 is an exploded view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention.

[023] Fig. 5 is a perspective view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention with a hose accessory attached to the male coupling end.

[024] Fig. 6 is a perspective view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention with a hose accessory attached and rotated on the male coupling end.

[025] Fig. 7 is a perspective view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention.

[026] Fig. 8 is a cross-sectional side view of an embodiment of a freely rotating hose coupling device with an outer sleeve of the present invention.

[027] Fig. 9 is a cross-sectional schematic of an embodiment of a freely rotating hose coupling device of the present invention.

[028] Fig. 10 is a cross-sectional schematic of an embodiment of a freely rotating hose coupling device of the present invention.

[029] Fig. 11 is a cross-sectional schematic of an embodiment of a freely rotating hose coupling device of the present invention.

[030] Fig. 12 is a perspective view of an embodiment of a freely rotating hose coupling device of the present invention.

[031] Fig. 13 is a cross-sectional schematic of an embodiment of a freely rotating hose coupling device of the present invention utilizing a third coupling portion in addition to a first and second coupling portion.

DETAILED DESCRIPTION

[032] The following is a detailed description of an apparatus **100** for a hose coupling (sometimes "apparatus"). One particular use of such apparatus **100** is at one or more ends of a water hose. For ease of discussion and understanding, the following detailed description may refer to the apparatus as a male swivel, male swivel end for a water hose, male hose coupling, water hose coupling, water hose coupling with attached coupling sleeve, and/or a hose coupling with attached coupling sleeve. However, it will be appreciated by one skilled in the art that an apparatus **100** of the present invention may be used in any number of circumstances, including, but not limited to, hoses used to transport liquids other than water, hose accessories, and/or other hose types.

[033] Referring to Fig. 1, an apparatus **100** of the present invention is shown. The apparatus **100** includes a first end **100a** and a second end **100b**. The first end **100a** comprises an adapter male assembly also referred to as a first coupling portion **104**. The first coupling portion **104** has a cylindrical outer surface of threads **106**. The cylindrical outer surface of threads **106** has a first inner opening **108** allowing for material contained within an attached hose **102** (shown in Fig. 4) to flow freely. The cylindrical outer surface of threads **106** is connected to a first larger diameter base **110**. The first larger diameter base **110** and the cylindrical outer surface of threads **106** constitute the traditional male end of a water hose. The first larger diameter base **110** includes a second inner opening **109** (shown in Fig. 4) to accept the male stem of a second coupling portion **114** (shown in Fig. 2) as described below. In the preferred embodiment, the first coupling portion **104** is made of metal. However it should be understood by one skilled in the art that any rigid material able to withstand the stresses associated with the chosen application for the hose **102** will suffice. As shown in Fig. 1, the first larger diameter base **110** is connected to an outer sleeve **112**. This outer sleeve **112** protrudes back for a predetermined length to the second end **100b**. The second end **100b** of the present invention is designed to accept and interface with a hose **102** having a 5/8 inch diameter, however any diameter hose **102** may be used without departing from the scope of the invention.

[034] Referring to Fig. 2, the apparatus **100** also includes a second coupling portion **114** attached to the first coupling portion **104** via a male stem wherein the connection creates a freely rotating connection **116**. The freely rotating connection **116** along with the first and second coupling portion **104** and **114** are also known as the male straight swivel end for a water hose. In the preferred embodiment, the freely rotating connection **116** includes an O-ring **118**; however, it should be appreciated by one skilled in the art that the O-ring **118** may be excluded, moved, and/or additional O-rings **118** may be placed throughout the invention without departing from the scope of the invention. The freely rotating connection **116** allows the first coupling portion **104** to rotate along a longitudinal axis around the second coupling portion **114** which constitutes a straight swivel.

[035] The second coupling portion **114** has a first end **114a** and a second end **114b**. The first end **114a** of the second coupling portion **114** includes the male stem which is integral with a second larger diameter base **120**. The second larger diameter base **120** includes a third inner opening **121** allowing for material contained within an attached hose **102** (shown in Fig. 4) to

flow freely through. The second larger diameter base **120** may taper as it extends toward the second end **114b** of the second coupling portion **114**. However, any shape suitable to the application may be used for the second coupling portion **114** without departing from the scope of the invention. Additionally, it is contemplated that the tapered end of the second coupling portion **114** could be substituted by a female, threaded protrusion (shown in Fig. 12) to connect to the male end of another device without departing from the scope of the present invention. This configuration would allow a standard, non-straight swivel hose to be adapted with the device of the present invention.

[036] The second end **114b** of the second coupling portion **114** is integral with a coupling protrusion **122**. The coupling protrusion **122** has a first end **122a** and a second end **122b**. The preferred embodiment of the present invention shows the coupling protrusion **122** having a smaller diameter than the second coupling portion **114**. However, it should be appreciated by one skilled in the art that the diameter of the coupling protrusion **122** may be modified without departing from the scope of the invention. The coupling protrusion **122** extends from the first end **122a** for a predetermined length and concludes at the second end **122b**. The preferred embodiment of the coupling protrusion **122** is a tubular shaped module having one or more barbs **124** on its outer surface. However, it should be appreciated by one skilled in the art that the coupling protrusion could be smooth, textured, knurled, threaded, etc. and take on various shapes without departing from the scope of the invention. The preferred embodiment of the present invention contemplates the second coupling portion **114** as well as the coupling protrusion **122** be made of metal. However, it should be appreciated by one skilled in the art that any rigid material able to withstand the stresses associated with the chosen application for the hose **102** will suffice.

[037] The barbs **124** of the coupling protrusion **122** act as a connecting and sealing mechanism for the apparatus' **100** connection with a hose **102** (shown in Fig. 4). Each barb **124** extends into the inner surface of a hose **102** mating the hose **102** to the apparatus **100**. Because the second coupling portion **114** and connected coupling protrusion **122** move upon a longitudinal axis independently of the first coupling protrusion **104** and outer sleeve **112**, the hose **102** connected to the second coupling portion **114** via the coupling protrusion **122** can move independently of any hose accessory attached to, or movement of, the first coupling portion **104** via the cylindrical outer surface of threads **106**.

[038] As shown in Fig. 3 an exploded view of the preferred embodiment of the present invention is shown. A freely rotating connection **116** is formed by the interfacing of the first coupling portion **104** with the second coupling portion **114**. Also shown in the embodiment, is an O-ring **118** included in the freely rotating connection **116** to aid in sealing the first and second coupling portions **104** and **114** to one another. Again, the second coupling portion **114** is shown comprising of a coupling protrusion **122** having one or more barbs **124** integral with the second larger diameter base **120**.

[039] Additionally, Fig. 3 illustrates the preferred embodiment and the integration of an interior track in the first coupling portion **104**. The interior track can accept one or more ball bearings, friction-reducing/slick washers, and/or similar friction reducing components **117** to aid in the ease of the rotation of the freely rotating connection **116**. In the preferred embodiment, the interior track is entirely encapsulated by the male stem of the second coupling portion **114** and the first larger diameter base **110** of the first coupling portion **104**. The track is accessed by an access port/opening **115** in the first larger diameter base **110**. The access port **115** of the preferred embodiment of the present invention allows for the insertion of one or more ball bearings **117** once the first and second coupling portions **104** and **114** have been connected. In the preferred embodiment, the access port **115** is sealed by a corresponding locking/covering pins **119**. However, it should be appreciated by one skilled in the art that multiple access ports **115** and/or locking pins **119** or other covering mechanisms can be utilized without departing from the scope of the invention. It should also be appreciated by one skilled in the art that any friction reducing component may be adapted and used within the hose coupling **100** without departing from the scope of the present invention.

[040] Referring now to Fig. 3a, a cross-sectional view of the first coupling portion **104** of the preferred embodiment is shown. Again, the interior track for accepting one or more ball bearings **117** is shown within the first larger diameter base **110** of the first coupling portion **104**. It should be appreciated by one skilled in the art that the placement of the track within the apparatus **100** may be positioned in various parts of the coupling portions **104** and **114** without departing from the scope of the invention. Additionally illustrated in Fig. 3a is the access port **115** on the left side of the first larger diameter base **110** of the first coupling portion **104**. Inserted and sealing the access port **115** is a pin **119** so that the ball bearings are not able to escape the interior track once placed within said interior track. As depicted in Fig. 3a, the ball

bearings **117** within the track cannot escape the track via the first or second interior opening **108** and **109** as the male stem of the second coupling portion **114** encapsulates that track and the ball bearings **117** within.

[041] Looking now to Fig. 3b, the preferred embodiment of the apparatus **100** is shown in a cross-sectional side view. The first coupling portion **104** is again shown connected with the male stem of the second coupling portion **114** creating a freely rotating connection **116**. The freely rotating connection of the preferred embodiment is enhanced by utilizing a track between the first and second coupling portions **104** and **114** that holds one or more ball bearings, friction-reducing/slick washers, or similar friction reducing components **117**. The friction reducing component(s) **117** can be inserted into the apparatus **100** via an access port **115** depicted at the top of the figure. The access port **115** is then sealed by a pin **119** of complimentary design so that the friction reducing components **117** cannot escape the track. This enhanced freely rotating connection **116** along with the first and second coupling portion **104** and **114** are also known as the male straight swivel end for a water hose. In the preferred embodiment, the freely rotating connection **116** includes an O-ring **118**; however, it should be appreciated by one skilled in the art that the O-ring **118** may be excluded, moved, and/or multiple O-rings **118** may be utilized without departing from the scope of the invention. The freely rotating connection **116** allows the first coupling portion **104** to rotate along a longitudinal axis around the second coupling portion **114** which constitutes a straight swivel.

[042] Here again, in the preferred embodiment, the second coupling portion **114** has a first end **114a** and a second end **114b**. The first end **114a** of the second coupling portion **114** includes the male stem which is integral with a second larger diameter base **120**. The second larger diameter base **120** includes a third inner opening **121** allowing for material contained within an attached hose **102** (shown in Fig. 4) to flow freely through to the first inner opening **108**. The second larger diameter base **120** may taper as it extends toward the second end **114b** of the second coupling portion **114**. However, any shape suitable to the application may be used for the second coupling portion **114** without departing from the scope of the invention. Additionally, it is contemplated that the tapered end of the second coupling portion **114** could be substituted by a female, threaded protrusion (Fig. 12) to connect to the male end of another device without departing from the scope of the present invention. This configuration would allow a standard, non-straight swivel hose to be adapted with the device of the present invention.

[043] The second end **114b** of the second coupling portion **114** of the preferred embodiment forms a coupling protrusion **122**. The coupling protrusion **122** has a first end **122a** and a second end **122b**. The first end **122a** of the coupling protrusion **122** is integral with the second larger diameter base **120** of the second coupling portion **114**. The preferred embodiment of the present invention shows the coupling protrusion **122** having a smaller diameter than the second coupling portion **114**. However, it should be appreciated by one skilled in the art that the diameter of the coupling protrusion **122** may be modified without departing from the scope of the invention. The coupling protrusion **122** extends from the first end **122a** for a predetermined length and concludes at the second end **122b**. The coupling protrusion **122** is a tubular shaped module having one or more barbs **124** on its outer surface. The preferred embodiment of the present invention contemplates the second coupling portion **114** as well as the coupling protrusion **122** be made of metal. However, it should be appreciated by one skilled in the art that any rigid material able to withstand the stresses associated with the chosen application for the hose **102** will suffice.

[044] The barbs **124** of the coupling protrusion **122** act as a connecting and sealing mechanism for the apparatus' **100** connection with a hose **102** (shown in Fig. 4). Each barb **124** extends into the inner surface of a hose **102** mating the hose **102** to the apparatus **100**. Because the second coupling portion **114** and connected coupling protrusion **122** move upon a longitudinal axis independently of the first coupling protrusion **104** and outer sleeve **112**, the hose **102** connected to the second coupling portion **114** via the coupling protrusion **122** can move independently of any hose accessory attached to, or movement of, the first coupling portion **104** via the cylindrical outer surface of threads **106**.

[045] Referring now to Fig. 4, an exploded view of an embodiment of the present invention is shown. Again, a freely rotating connection **116** connects the first coupling portion **104** with the second coupling portion **114**. Also shown in the embodiment, is an O-ring **118** included in the freely rotating connection **116** to aid in sealing the first and second coupling portions **104** and **114** to one another. Again, the second coupling portion **114** is shown connected to a coupling protrusion **122** having one or more barbs **124**. In the embodiment illustrated in Fig. 4 a ferrule **126** is shown to further enhance the connection and seal between the hose **102** and the second coupling portion **114** via the coupling protrusion **122** with one or more barbs **124**. The ferrule

126 is used as would be understood by one skilled in the art and may be utilized with any of the embodiments of the invention described herein.

[046] It is contemplated that the outer sleeve completely surrounds a portion of the attached water hose. However, it should be appreciated by one skilled in the art that various configurations of the outer sleeve are possible that may or may not completely surround a portion of the attached water hose without departing from the scope of the invention. Additionally, Fig. 5 illustrates an accessory water hose nozzle attached to the apparatus **100**. Fig. 6 illustrates the same accessory water hose nozzle rotated 90 degrees while still attached to the apparatus **100**. The water hose coupling **100** may be used with any accessories traditionally used with water hoses, including, but not limited to, nozzles, spray guns, sprinklers, pressure washers, extensions, wands, and various other devices. In addition, it is contemplated that the water hose coupling **100** may be utilized to attach an additional hose in order to provide a swivel connection therebetween.

[047] Referring to Fig. 7, an apparatus **100** of the present invention with a connected hose is shown. The apparatus **100** includes a first end **100a** and a second end **100b**. The first end **100a** comprises an adapter male assembly also referred to as a first coupling portion **104**. The first coupling portion **104** has a cylindrical outer surface of threads **106**. The cylindrical outer surface of threads **106** has a first inner opening **108** allowing for material contained within an attached hose **102** (shown in Fig. 4) to flow freely. The cylindrical outer surface of threads **106** is connected to a first larger diameter base **110**. The first larger diameter base **110** and the cylindrical outer surface of threads **106** constitute the traditional male end of a water hose. The first larger diameter base **110** includes a second inner opening **109** (shown in Fig. 4) to accept the male stem of the second coupling portion **114**. As shown in Fig. 1, the first larger diameter base **110** is connected to an outer sleeve **112**. This outer sleeve **112** protrudes back for a predetermined length to the second end **100b**. The second end **100b** of the present invention is designed to accept and interface with a hose **102** having a 5/8 inch diameter, however any diameter hose **102** may be used without departing from the scope of the invention.

[048] Looking now to Fig. 8, it may be seen that the first larger diameter base **110** of the first coupling portion **104**, the freely rotating connection **116**, the O-ring **118**, the second coupling portion **114**, the coupling protrusion **122**, and a portion of the hose **102** are all surrounded by the outer sleeve **112**. Additionally, the ferrule **126** illustrated in Fig. 4 is also surrounded by the

outer sleeve **112**. Hence, the rigid structure of the outer sleeve **112** provides additional protection to the enclosed portion of the apparatus **100** as well as to the inner lining of the hose **102**. The outer sleeve **112** essentially moves the bending point of the hose **102** further from the end of the hose **102**. This especially protects the coupling protrusion **122** from damage due to external forces applied to the hose **102** such as bending or stepping on the hose **102**.

Additionally, this also protects the inner surface of the hose **102** and the hose **102** itself from damage due to puncture or other stresses from the rigid coupling protrusion **122** and barbs **124** in contact with the inner surface of the hose **102**.

[049] As described previously, the outer sleeve **112** of the preferred embodiment is connected to the first larger diameter base **110** of the first coupling portion **104**. Thus, the outer sleeve **112** is able to move freely along a longitudinal axis with the first coupling portion **104** around the rest of the apparatus **100** and the surrounded portion of the hose **128**. Thus, the outer sleeve **112** and first coupling portion **104** may swivel independently of the rest of the apparatus **100** and hose **102**. The preferred embodiment of the present invention contemplates a contoured outer sleeve **112** molded in a fashion to function as an ergonomic grip for a user. The outer sleeve **112** of the preferred embodiment includes an indented outer grip surface **113** which aids the user's hold on the apparatus **112** and hose **102**. The outer grip surface **113** along with the ergonomic shape of the outer sleeve **112** in the preferred embodiment allows the user to maintain their grasp and control of the hose **102**. However, it should be appreciated by one skilled in the art that the outer sleeve **112** and outer grip surface **113** can take on many forms and be made of many materials without departing from the scope of the invention.

[050] As described previously, the outer sleeve **112** is able to swivel together with the first coupling portion **104** along a longitudinal axis around the remainder of the apparatus **100** as well as the hose **102**. This enhances a user's ability to align and rotate the male end of the first coupling portion **104** onto a water hose accessory by giving the user a larger area to rotate as well as providing an ergonomic grip. The ergonomic grip is provided by the shape of the outer sleeve **112** and the outer indented surface **113** allowing the user to more easily rotate the male threaded end of the first coupling portion **104** with respect to the accessory to be mounted. Thus, installing and removing accessories, such as coupling the hose **102** to a pressure washer, is easier for a user of the present invention. In addition, the ability of the outer sleeve **112** and first coupling portion **104** to rotate freely around the remainder of the apparatus **100** and hose **102**

allows for the easier coiling and uncoiling of a hose **102** and any attached accessory and also reduces thrashing of the hose **102** as it is moved from one location to another by the user.

[051] Figs. 9, 10 and 11 depict contemplated alternative embodiments of the apparatus **100** in cross-sectional schematic views. Fig. 9 depicts the preferred embodiment of the present invention but includes an O-ring **118** behind the interior track and ball bearings **117** rather than in front at the first end **114a** of the second coupling portion **114**. Fig. 9 further depicts the second coupling portion **114** without a second larger diameter base **120**, thus allowing the part to be machined from a smaller bar stock and utilizing less materials, thus saving costs. Fig. 10 illustrates an alternative embodiment utilizing friction-reducing/slick washers or similar ring type friction reducing agents **117**. In the alternative embodiment one or more friction reducing/slick washers **117** are placed between the point of contact of the first and second coupling portions **104** and **114**. Again, it should be appreciated by one skilled in the art, that any friction reducing component, such as ball bearings, may be used in conjunction with or as a substitute for the friction-reducing/slick washers **117** without departing from the scope of the present invention. Furthermore, in this embodiment the pin/plugging-nut **119** is placed within and surrounding the first inner opening **108** of the male threaded portion **106** of the first coupling protrusion **104**. However, it should be appreciated by one skilled in the art that any form of locking mechanism that allows water to flow freely through it may be used without departing from the scope of the present invention. An additional friction-reducing/slick washer **117** is depicted behind the plug, but it should be appreciated by one skilled in the art that the friction-reducing/slick washers **117** can be placed in various locations to reduce the friction between the freely rotating connection **116** without departing from the scope of the present invention. Additionally, Fig. 11 depicts an alternative embodiment wherein the tapered coupling protrusion **122** of the preferred embodiment is substituted with a female coupling protrusion to allow a non-swivel hose to be adapted with the swivel hose coupling **100** of the present invention. Additionally, Fig. 11 depicts an alternative embodiment wherein the ball bearings **117** are integrated within the apparatus **100** during manufacture and, thus, do not require an access port **115** or pin **119** to lock the ball bearings within the apparatus **100**. The first and second coupling portions **104** and **114** of the embodiment depicted in Fig. 11 are held together by one or more snap rings **127** within a complimentary groove. However, it should be appreciated by one skilled in the art that any

connecting mechanism may be used with or without a corresponding groove without departing from the scope of the present invention.

[052] Looking to Fig. 12, a perspective view of an alternative embodiment of the apparatus **100** is shown. In this alternative embodiment the first coupling portion **104** interfaces and connects with a second coupling portion **114** via the first coupling portion's **104** first larger diameter base **110**. This creates a freely rotating connection **116** as discussed above. However, differentiated from the second coupling portion **114** of the preferred embodiment, the second coupling portion **114** does not taper to a barbed end **114b** to accept a hose **102**. Rather, in this alternative embodiment, the second larger diameter base **120** of the second coupling portion **114** is integral with a female coupling protrusion. The female coupling protrusion includes a third inner opening **121** to allow for the water from any connected hose **102** to freely flow through the device **100**. Furthermore, the female coupling protrusion includes threads to accept the male end of a hose connector. It is further contemplated that the female coupling protrusion include a snap-ring/O-ring adapted on the innermost groove of the female coupling protrusion so as to aid in creating a seal with an interfaced male connector. The female coupling protrusion is contemplated to be of standard 3/4 inch size as typically used for water hose couplings, however any diameter female coupling protrusion may be used without departing from the scope of the invention.

[053] Looking now to Fig. 13, depicted is an alternative embodiment of the apparatus **100** utilizing a third/intermediary coupling portion **130** to create a freely rotating connection **116** between the first and second coupling portions **104** and **114**. However, it should be appreciated by one skilled in the art that various numbers of intermediary parts can be used to connect the first and second coupling portions **104** and **114** to create a freely rotating connection **116** without departing from the scope of the invention. The alternative embodiment of Fig. 13 depicts the first coupling portion **104** interfacing and connecting with a third coupling portion **130**. The third coupling portion **130** encapsulates the track of the first coupling portion **104** that holds the ball bearings **117** as discussed above. Additionally, the third coupling portion **130** includes an O-ring **118**, however it should be appreciated by one skilled in the art that the O-ring **118** can have numerous placements or be removed without departing from the scope of the invention. The third coupling portion **130** also interfaces and connects with the second coupling portion **114**. In this embodiment, the second coupling portion **114** consists of the female coupling

protrusion or tapered coupling protrusion **122** to interface with a male threaded connector or hose **102**, respectively.

[054] Although various representative embodiments of this invention have been described above with a certain degree of particularity, those skilled in the art could make numerous alterations to the disclosed embodiments without departing from the spirit or scope of the inventive subject matter set forth in the specification and claims. Joinder references (e.g. attached, adhered, joined) are to be construed broadly and may include intermediate members between a connection of elements and relative movement between elements. As such, joinder references do not necessarily infer that two elements are directly connected and in fixed relation to each other. Moreover, network connection references are to be construed broadly and may include intermediate members or devices between a network connection of elements. As such, network connection references do not necessarily infer that two elements are in direct communication with each other. In some instances, in methodologies directly or indirectly set forth herein, various steps and operations are described in one possible order of operation, but those skilled in the art will recognize that steps and operations may be rearranged, replaced, or eliminated without necessarily departing from the spirit and scope of the present invention. It is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative only and not limiting. Changes in detail or structure may be made without departing from the spirit of the invention as defined in the appended claims.

[055] Although the present invention has been described with reference to the embodiments outlined above, various alternatives, modifications, variations, improvements and/or substantial equivalents, whether known or that are or may be presently foreseen, may become apparent to those having at least ordinary skill in the art. Listing the steps of a method in a certain order does not constitute any limitation on the order of the steps of the method. Accordingly, the embodiments of the invention set forth above are intended to be illustrative, not limiting. Persons skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention. Therefore, the invention is intended to embrace all known or earlier developed alternatives, modifications, variations, improvements, and/or substantial equivalents.

CLAIMS:

1. A hose coupling comprising:
 - a. a first coupling portion;
 - b. a second coupling portion;
 - c. a freely rotating connection connecting said first and second coupling portions;
 - d. wherein said second coupling portion further comprises a coupling projection connecting said hose coupling to at least one of a hose and a threaded male connector; and
 - e. an outer coupling sleeve configured to rotate with said first coupling portion and extending fully over said freely rotating connection.

2. The hose coupling of claim 1, wherein said outer coupling sleeve is able to freely rotate with said first coupling portion around at least one of said second coupling portion and said water hose.

3. The hose coupling of claim 1, wherein at least one of said first coupling portion and said second coupling portion further comprises an interior track.

4. The hose coupling of claim 3, wherein said interior track receives and holds at least one friction reducing member.

5. The hose coupling of claim 4, wherein said at least one friction reducing member comprises at least one of at least one ball bearing and at least one friction-reducing washer.

6. The hose coupling of claim 4, wherein said interior track is accessible by an access port on said first coupling portion wherein a sealing member closes said access port to retain said at least one friction reducing member within said hose coupling.

7. The hose coupling of claim 6, wherein said interior track is fully encapsulated by interfacing said second coupling portion with said first coupling portion wherein said fully

encapsulated track, holding said at least one friction reducing member, allows said first coupling portion to freely rotate in relation to said second coupling portion along their longitudinal axis.

8. The hose coupling of claim 1, wherein said first coupling portion comprises a circular male threaded end for a hose having an inner circular opening, said circular male threaded end attached to a larger diameter first base having an inner circular opening, said larger diameter first base having a larger diameter than said circular male threaded end.

9. The hose coupling of claim 8, wherein said second coupling portion comprises a second base of the same diameter as said first base including an inner circular opening, said second base integral with a male connecting stem.

10. The hose coupling of claim 9, wherein said freely rotating connection connects said first coupling portion with said male connecting stem of said second coupling portion.

11. The hose coupling of claim 1, further comprising at least one liquid sealing member forming a seal between at least two of said first coupling portion, said second coupling portion and said hose.

12. The hose coupling of claim 11, wherein said at least one liquid sealing member comprises at least one O-ring to seal water within at least one of said hose coupling and said hose.

13. The hose coupling of claim 1, wherein at least one intermediary coupling portion connects said first and second coupling portions and allows said first coupling portion to rotate independently of said second coupling portion.

14. The hose coupling of claim 13, further comprising at least one liquid sealing member forming a seal between at least two of said first coupling portion, said at least one intermediary coupling portion, said second coupling portion and said hose.

15. The hose coupling of claim 1, wherein said freely rotating connection is completely enclosed by said first coupling portion.

16. A hose coupling comprising:

- a. a first coupling portion;
- b. a second coupling portion;
- c. a freely rotating connection connecting said first and second coupling portions wherein said freely rotating connection is completely enclosed by said first coupling portion;
- d. wherein said second coupling portion further comprises a coupling projection connecting said hose coupling to at least one of a hose and a threaded male connector; and
- e. an outer coupling sleeve configured to rotate with said first coupling portion and extending fully over said freely rotating connection.

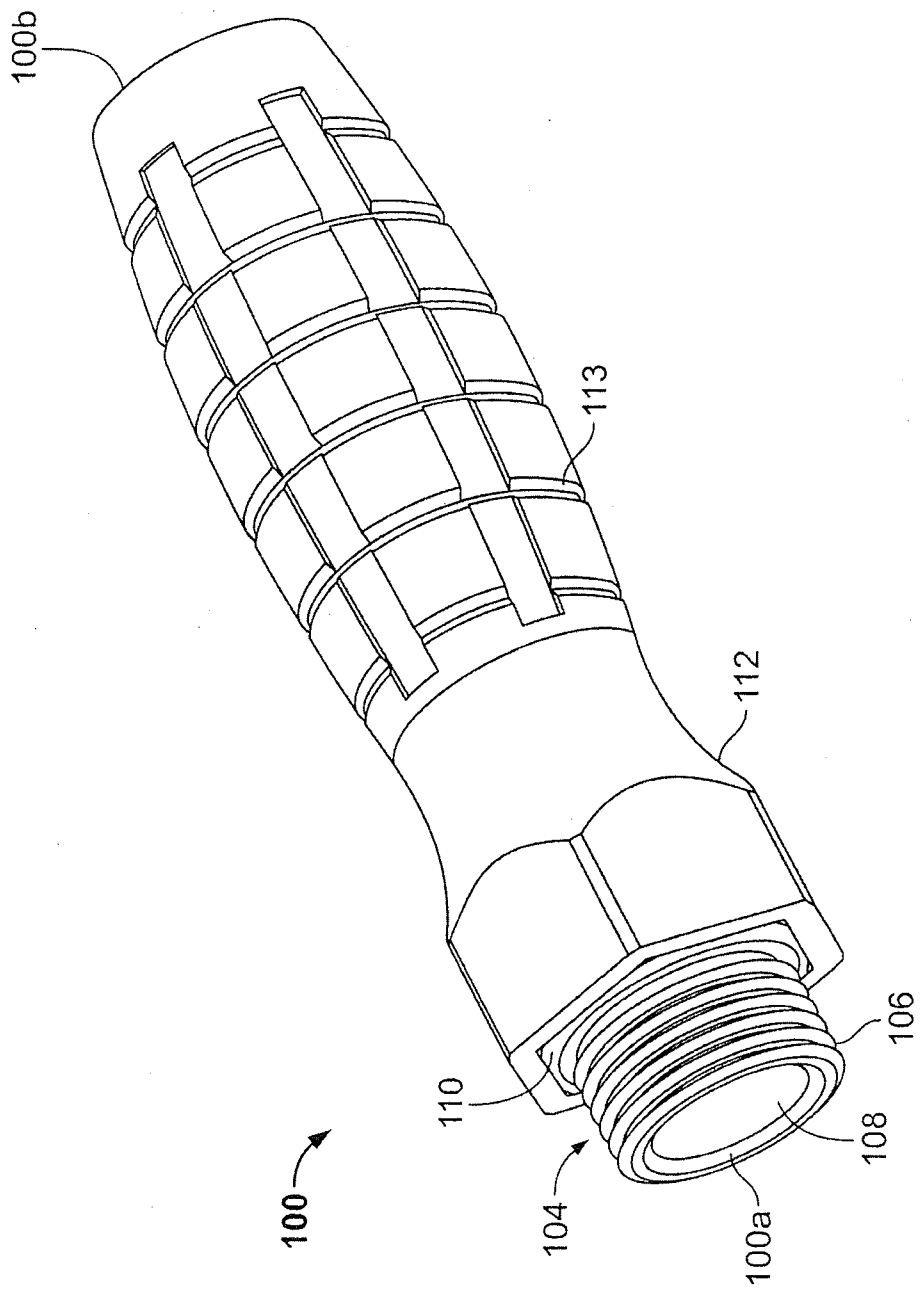


FIG. 1

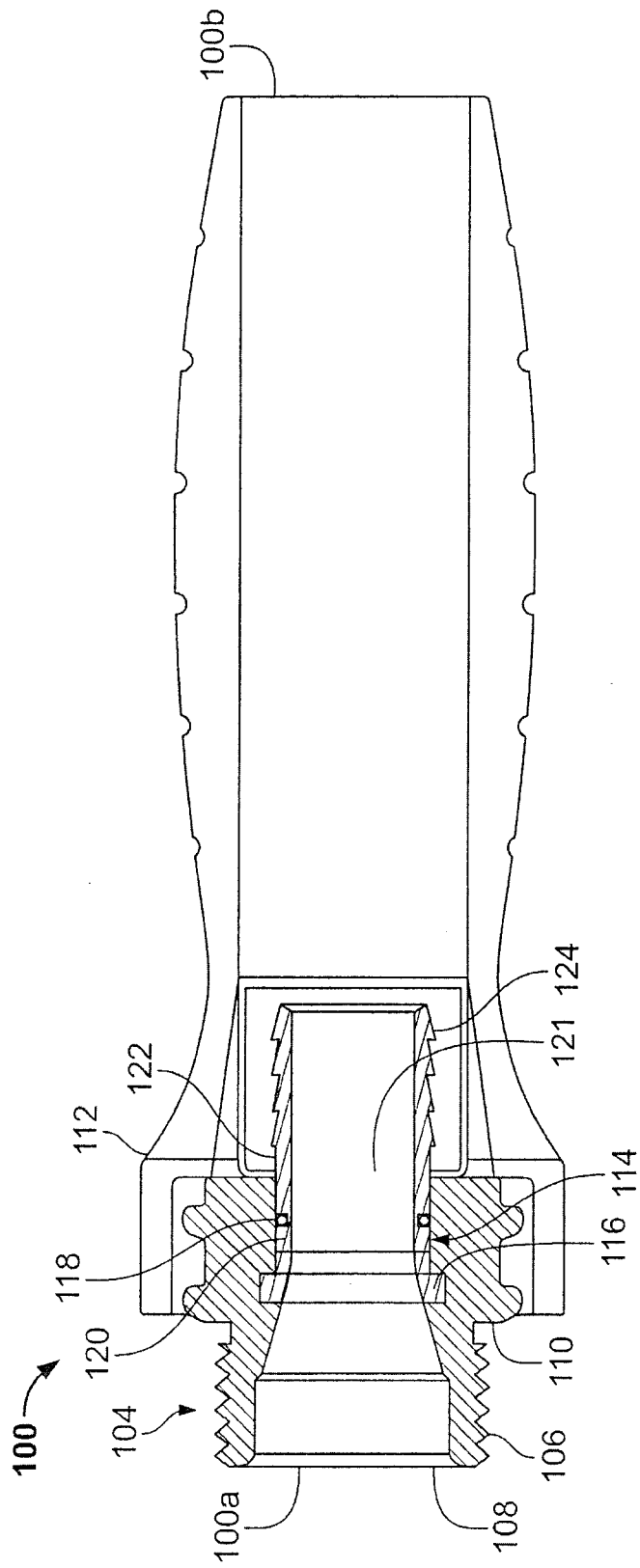


FIG. 2

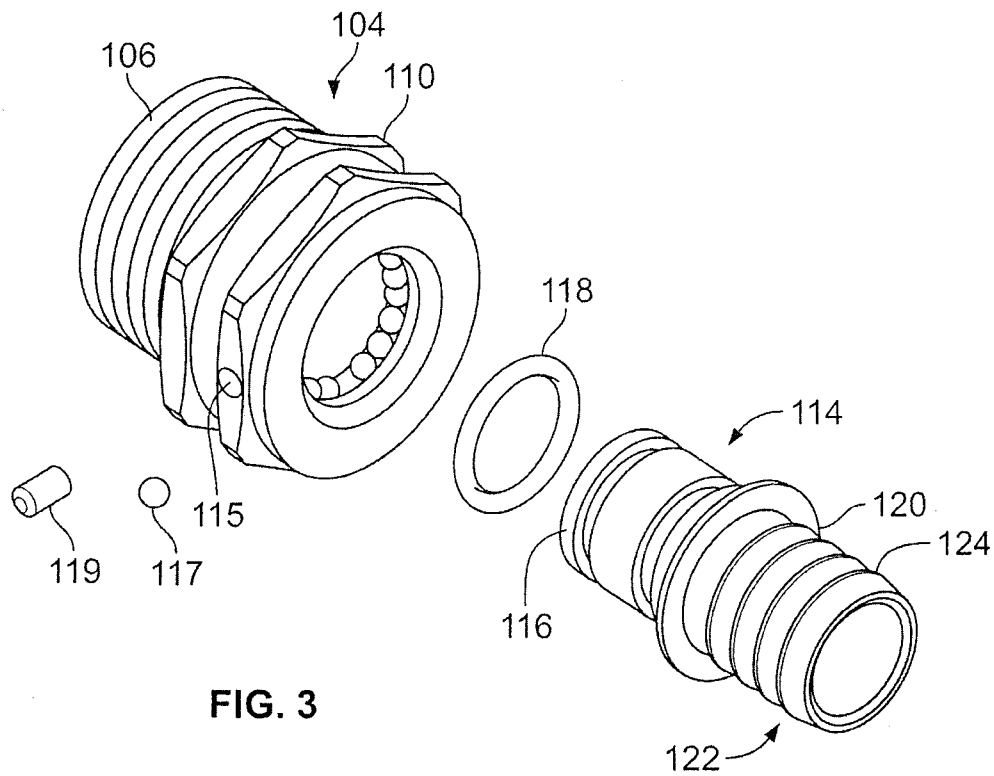


FIG. 3

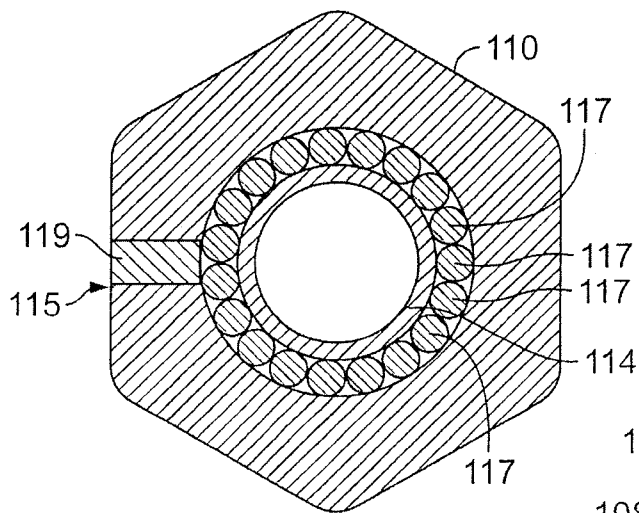


FIG. 3A

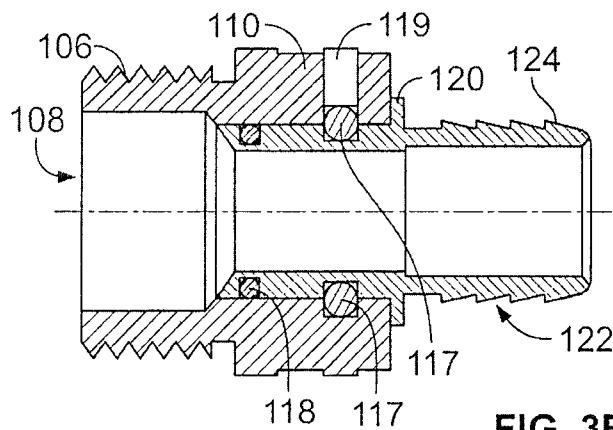


FIG. 3B

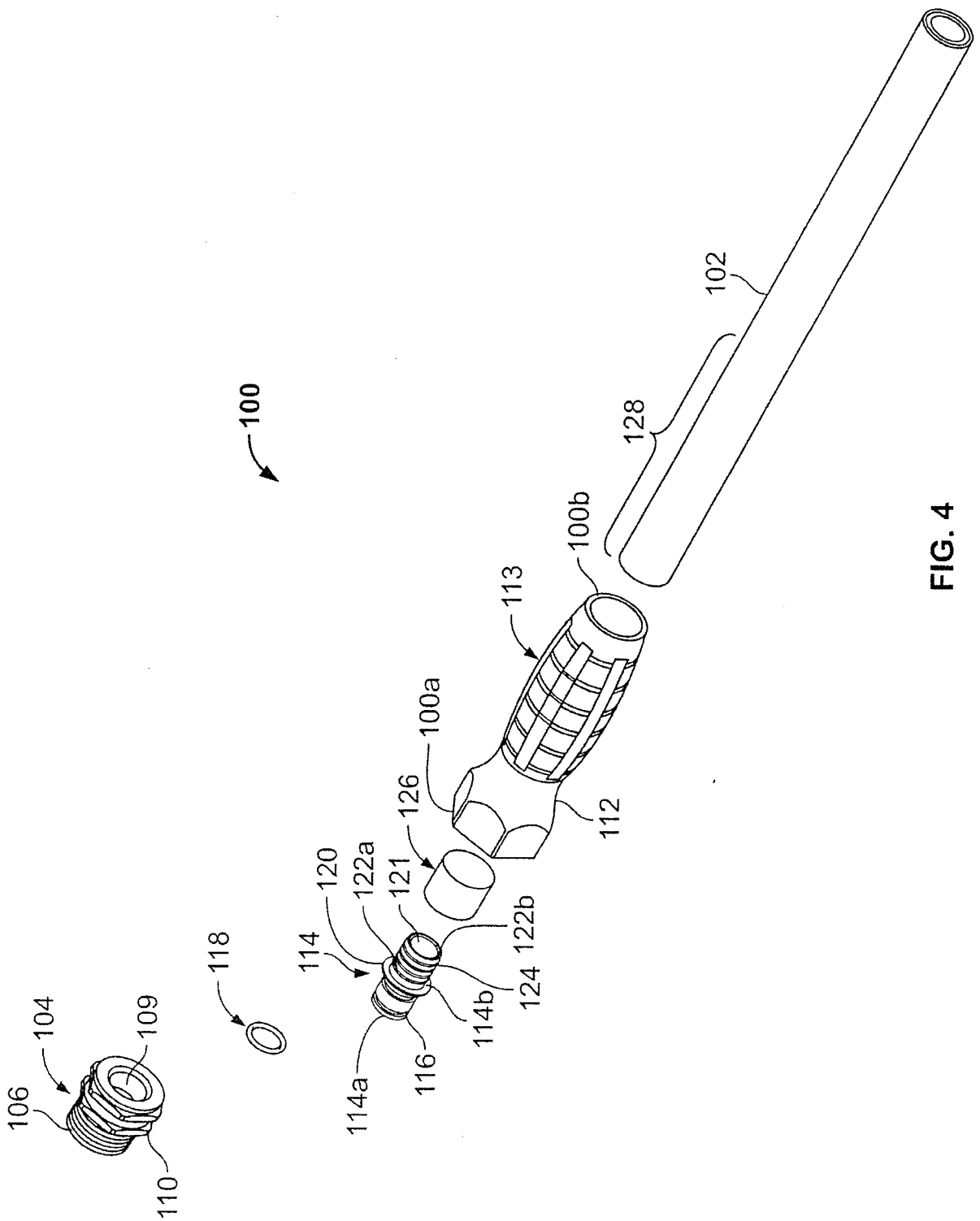


FIG. 4

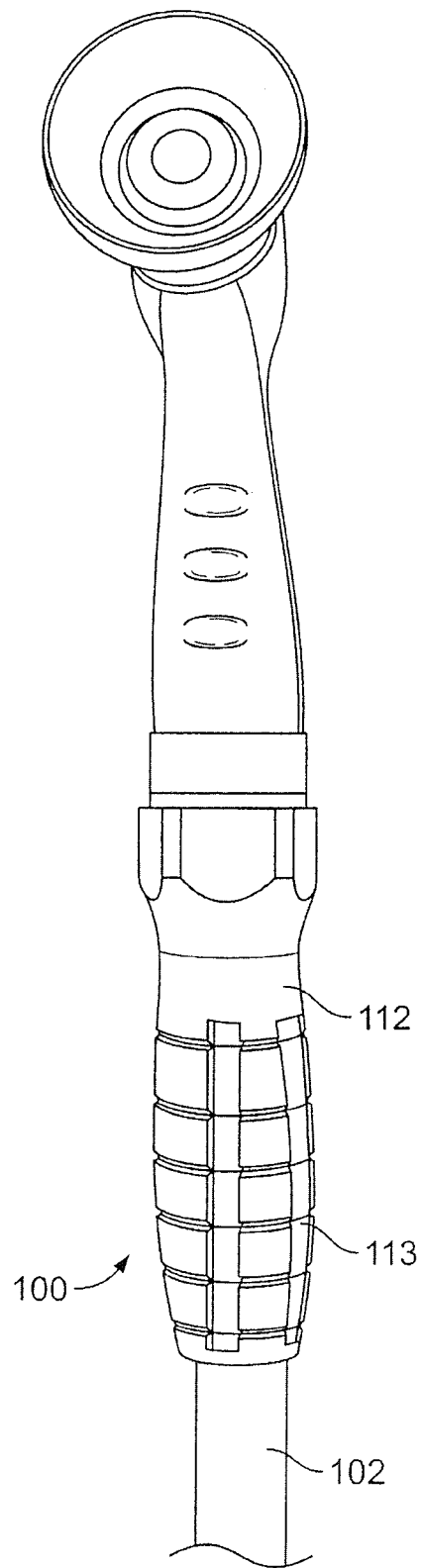


FIG. 5

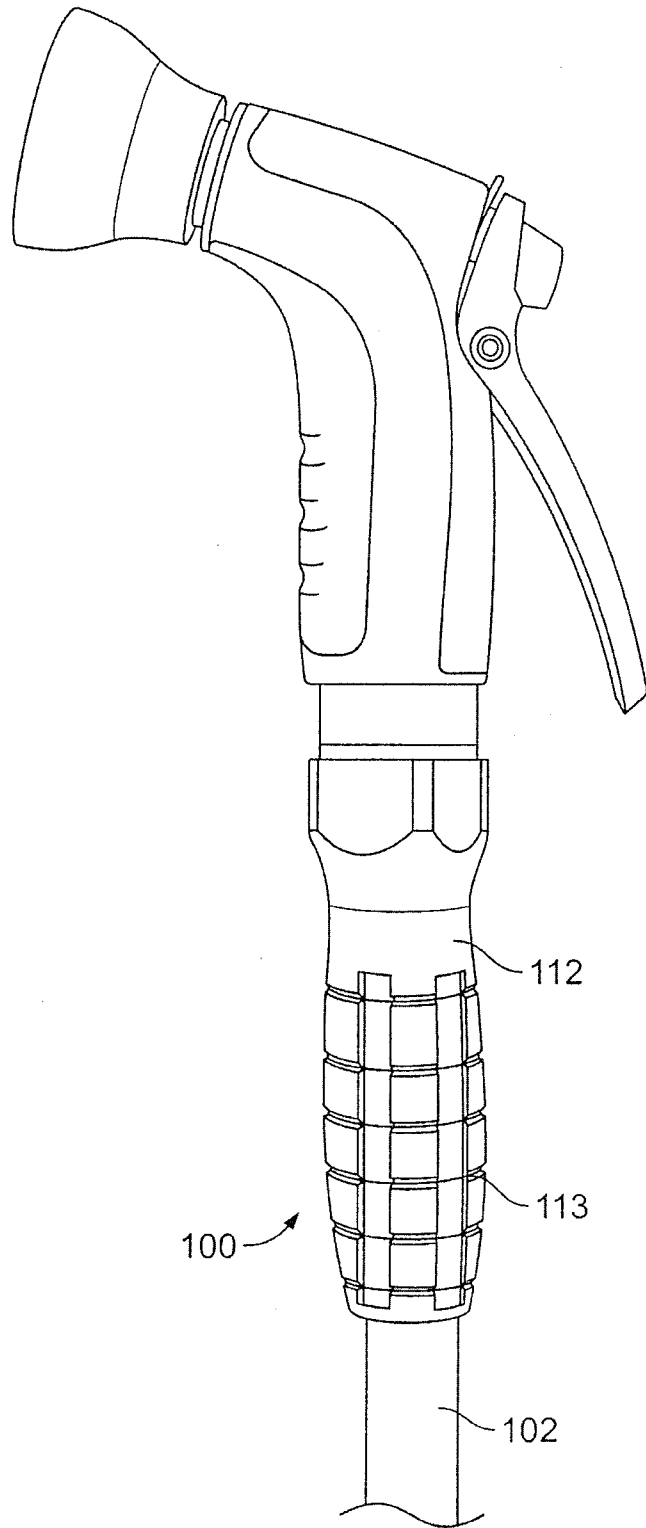
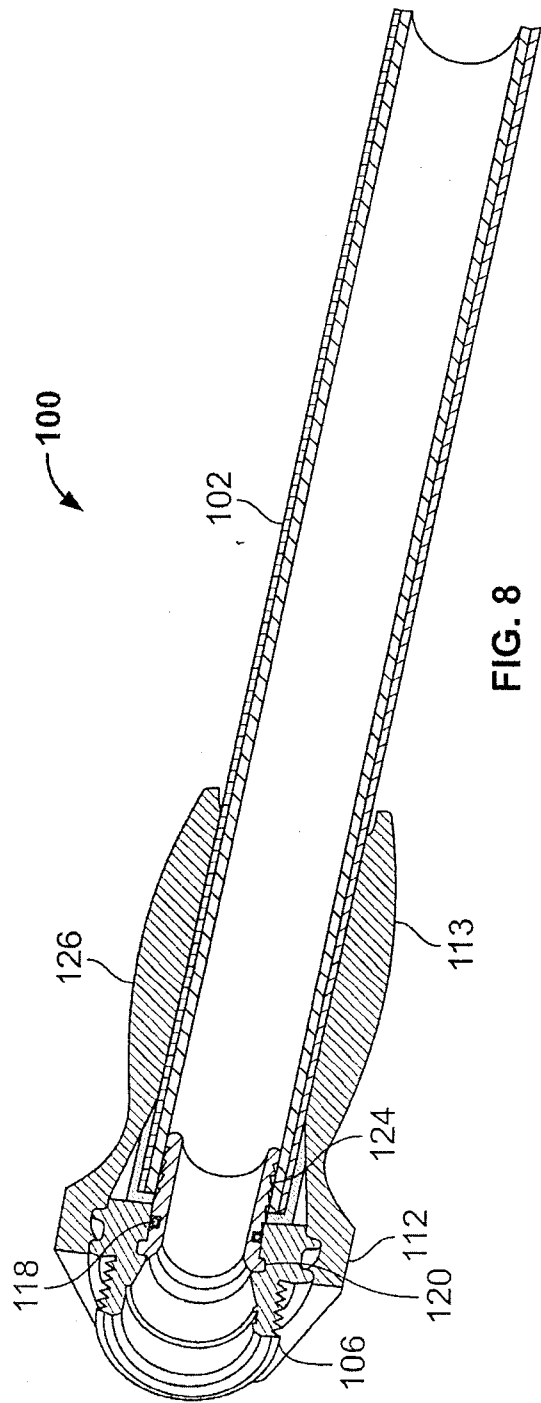
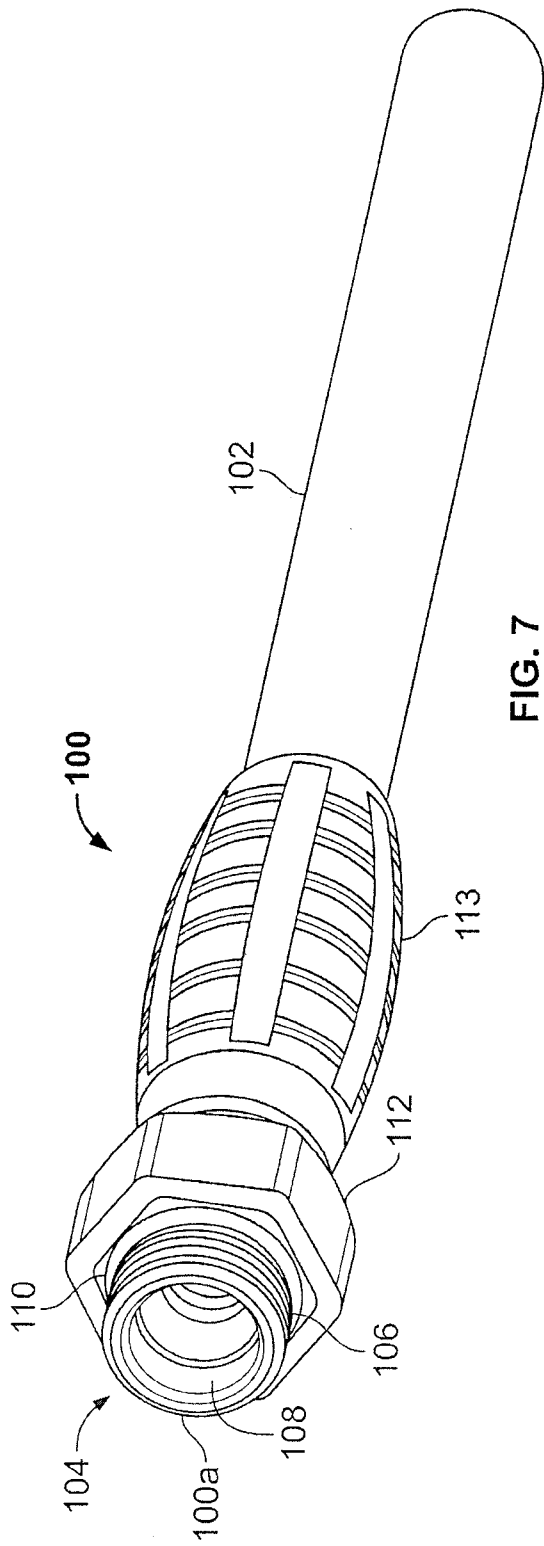


FIG. 6



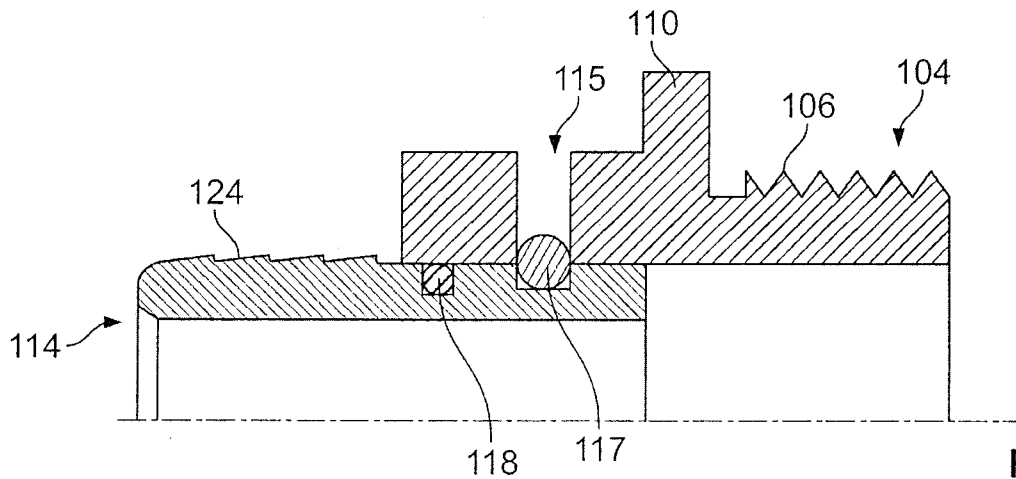


FIG. 9

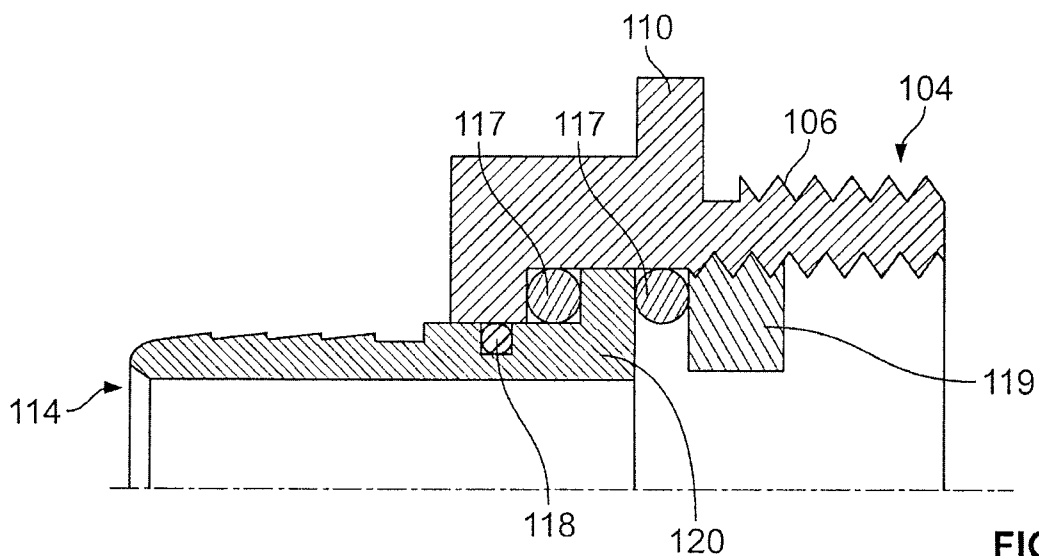


FIG. 10

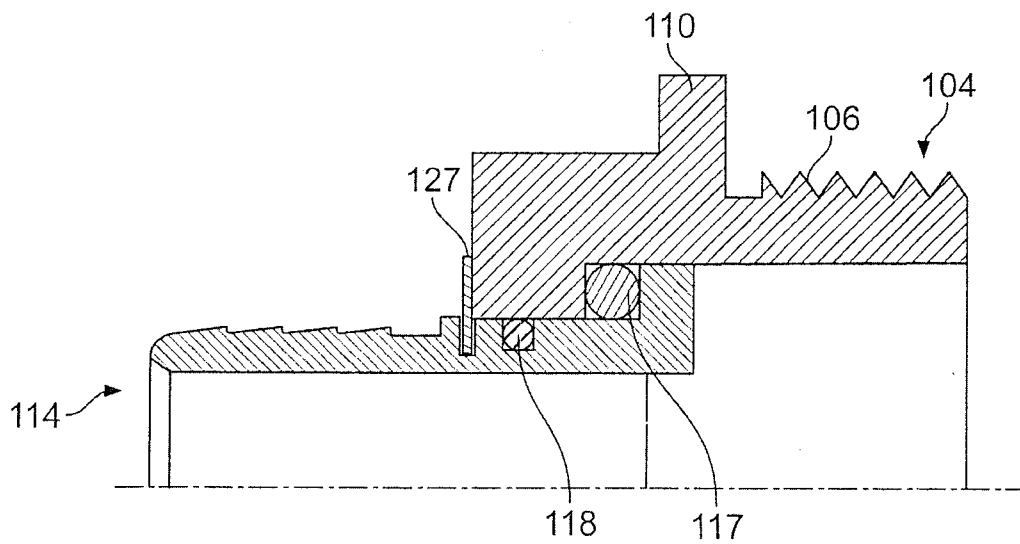


FIG. 11

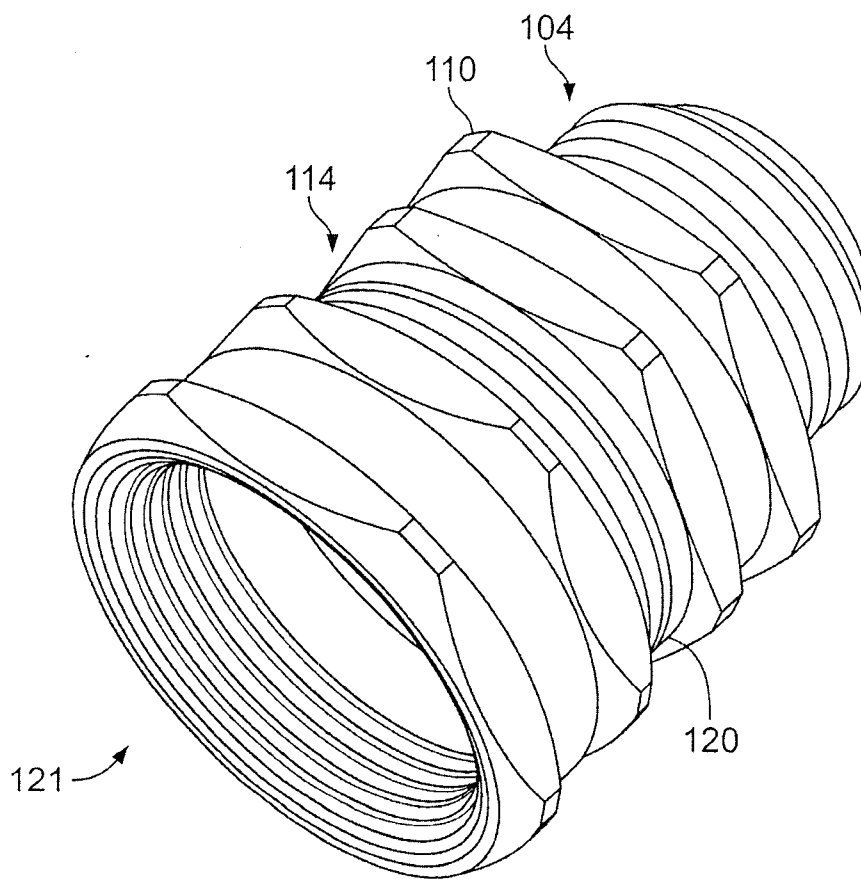


FIG. 12

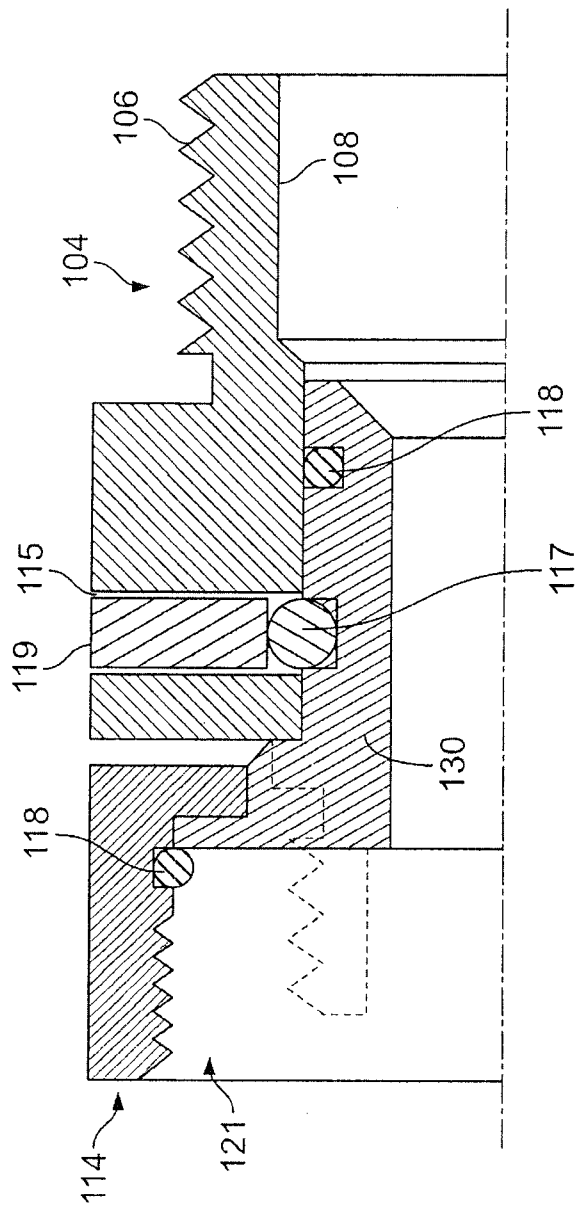


FIG. 13

