F. N. BARD.

FLEXIBLE JOINT.

APPLICATION FILED MAR. 16, 1914.

1,254,566. Patented Jan. 22, 1918.

Fig. 1

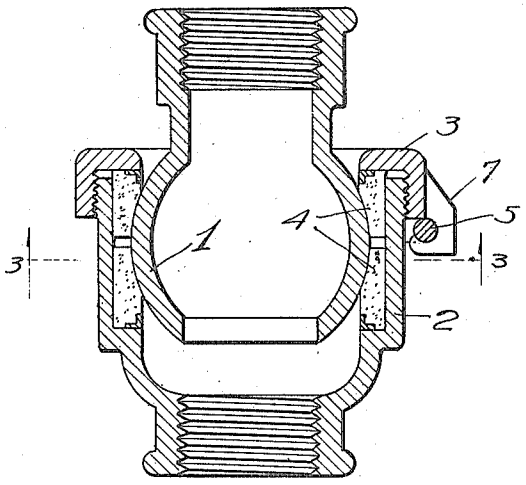


Fig. 2.

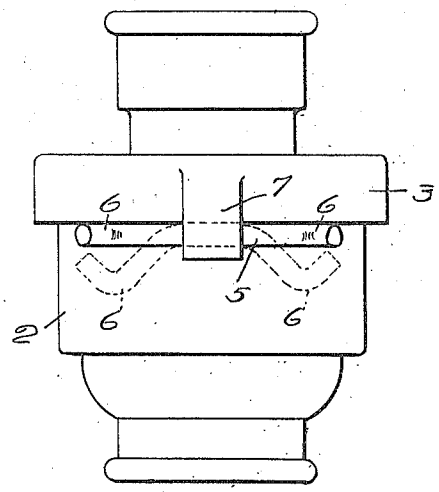


Fig. 3.

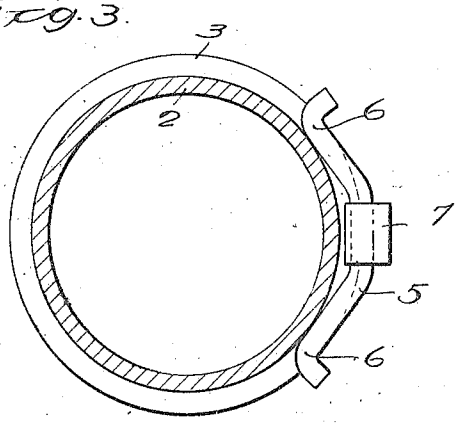


Fig. 4.

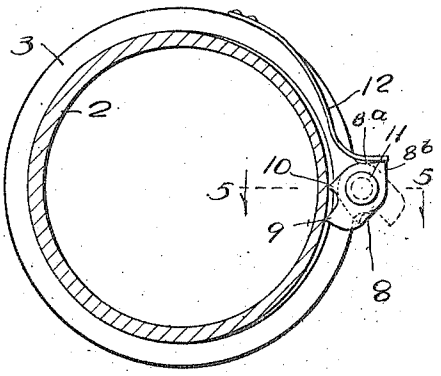
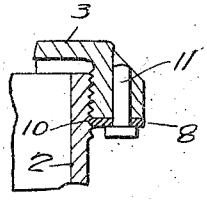


Fig. 5.



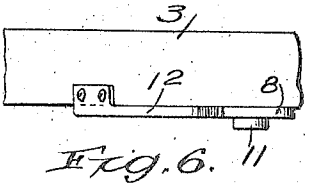


Fig. 6.

Witnesses:

Bessie S. Rice.

Inventor:

Francis N. Bard.

by Parker & Burton

his Atty.

UNITED STATES PATENT OFFICE.

FRANCIS N. BARD, OF CHICAGO, ILLINOIS.

FLEXIBLE JOINT.

1,254,566. Specification of Letters Patent. Patented Jan. 22, 1918.

Application filed March 16, 1914. Serial No. 824,903.

To all whom it may concern:

Be it known that I, FRANCIS N. BARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvements in Flexible Joints, of which the following is a specification.

This invention relates to flexible joints for pipes, hose and the like and has for its object to provide a new and improved flexible joint of this description.

The invention is illustrated in the accompanying drawings, wherein;

Figure 1 is a longitudinal sectional view of a flexible joint embodying the invention;

Fig. 2 is a side view of the device illustrated in Fig. 1;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a sectional view, similar to Fig. 3, showing a modified construction;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a side view of Fig. 4 with parts omitted showing the location of the spring.

Like numerals refer to like parts throughout the several figures.

Referring now to Figs. 1, 2 and 3, I have shown a flexible joint comprising a ball 1, a casing 2, into which the ball is received and a cap, or nut 3, which is screw-threaded to the casing. The casing contains the gaskets 4, which engage the ball. When the joint is used on places where it receives jars, as for example, trains, the cap or nut 3 is liable to become loosened. In order to prevent this, I provide a locking device for the cap. As shown in Figs. 1, 2 and 3, this locking device consists of an engaging piece 5, having the bent ends 6. The piece 5 is movably connected with the cap 3 in any suitable manner. As herein shown, the cap 3 is provided with a lug 7, having a receiving space for the part 5, the part 5 being movably mounted therein. When the cap 3 is being screwed on to the casing 2, the piece 5 hangs down, as shown in the dotted lines in Fig. 2. After the cap has been properly screwed down, the piece 5 is moved to the position shown in full lines in Figs. 2 and 3, so that the bent ends 6 engage the casing 2, thereby preventing the accidental loosening of the cap 3. The piece 5 is preferably of some spring metal which will exert a pressure upon the casing 6 when in its operative position. The piece 5 may be moved in its operative position by simply striking it with a hammer and when in position holds the cap and casing against accidental separation.

In Figs. 4 and 5, I have shown a modified construction. In these figures the cap 3 has movably connected therewith an engaging piece 8, which is preferably provided with an engaging point 9 and a second engaging point 10. The piece 8 is held in position in any suitable manner, as by a rivet 11. In this construction, when the cap is screwed down, the piece 8 is held away from the casing 2 and after the cap has been screwed down, the piece 8 is moved inwardly, so as to engage the casing. The engaging piece 8 may be provided with a spring 12 for controlling it. Any suitable spring may be used. As herein shown, the spring 12 is provided at one end with a lug by means of which it is attached to the cap 3, see Fig. 6. The engaging piece 8 is provided with the faces 8^a and 8^b adapted to be engaged by the spring. When the spring engages the face 8^a it holds the engaging piece in contact with the casing 2. When the spring engages the face 8^b it holds the engaging piece out of contact with the casing 2.

It will be seen now that any loosening movement of the cap 3 tends to cause the points 9 and 10 to dig into the casing and thereby prevent the accidental removal of the cap 3.

I have shown in detail a particular construction embodying my invention, but it is of course evident that the parts may be varied in many particulars without departing from the spirit of my invention and I therefore do not limit myself to the particular construction shown.

I claim:

1. A flexible joint comprising a ball, a casing, a cap having a screw-threaded engagement with said casing and having a portion which overlaps a portion of said casing and an engaging piece pivotally connected with the overlapping portion of said cap and projecting beneath the end thereof and adapted to be moved into sliding engagement with the casing beyond the end of said cap so as to resist relative movement between them.

2. A flexible joint comprising a casing, a cap connected with said casing, an engaging piece pivotally mounted upon one of said parts and adapted to be brought into

sliding frictional engagement with the other part when they are assembled to hold the parts against relative movement.

3. A flexible joint comprising a casing having an unbroken exterior surface, a cap having a screw-threaded engagement with said casing, a piece movably mounted on said cap and extending circumferentially therealong and bent out of alinement with its point of attachment to the cap, said piece adapted to be moved so as to engage the unbroken exterior surface of the casing and resist relative movement between the cap and casing.

4. A flexible joint comprising a casing, a cap having a screw-threaded engagement with said casing, an engaging piece movably connected with said cap and having bent ends, said bent ends adapted to be brought into engagement with the exterior surface of the casing, so as to resist relative movement between the cap and casing.

5. A flexible joint comprising a casing, a cap having a screw-threaded engagement with said casing, a lug connected with said cap and provided with a receiving space, an engaging part movably mounted in said receiving space and having bent ends on opposite sides of said lug, said bent ends adapted to be brought into engagement with the casing.

6. A flexible joint comprising a cylindrical casing, a cap having a screw threaded part which overlaps a portion of said casing, an engaging piece removably connected with said cap and having a portion bent out of alinement with the point where it is connected with the cap, said bent portion when the engaging piece is in its operative position, projecting inwardly past the edge of said cap and frictionally engaging the cylindrical surface of said casing so as to frictionally resist relative movement between the cap and casing.

7. A flexible joint comprising a cylindrical casing, a cap having a screw-threaded part which overlaps a portion of said casing, an engaging piece movably connected with said cap at its lower edge, said movable engaging piece when in its operative position projecting under the edge of the cap and engaging the outer face of said casing, said engaging piece extending circumferentially along the edge of said cap and being substantially parallel with the edge of said cap.

In testimony whereof I affix my signature in the presence of two witnesses this 11th day of March, 1914.

FRANCIS N. BARD.

Witnesses:
BESSIE S. RICE,
GENEVA HIRTH.