(No Model.)

J. H. LUTHER.

HOSE COUPLING.

No. 274,951. Patented Apr. 3, 1883.

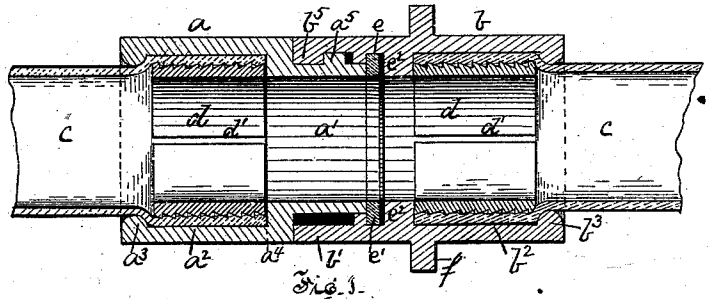


Fig. 1.

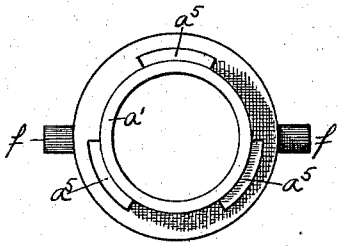


Fig. 2.

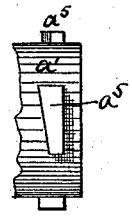


Fig. 6.

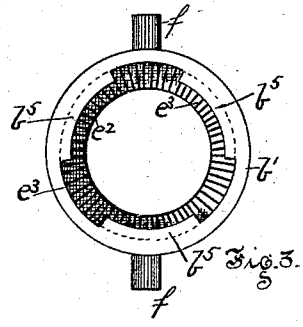


Fig. 3.

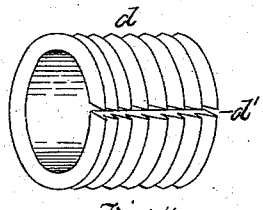


Fig. 4.

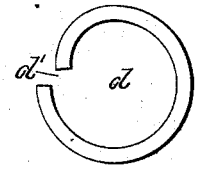


Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES H. LUTHER, OF KARNS CITY, PENNSYLVANIA.

HOSE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 274,951, dated April 3, 1883.

Application filed October 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. LUTHER, of Karns City, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Hose-Couplings; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal section of my improved hose-coupling, and shows the attachment of the ends of sections of hose to the coupling parts. Figs. 2 and 3 are end views of the two parts of the coupling. Fig. 4 is a perspective view of the split threaded ferrule or annulus which secures the end of the hose in the coupling. Fig. 5 is an end view of the same before insertion into the coupling, and Fig. 6 is a side view of the entering end of the male part of the coupling.

The male and female ends of the coupling are shown at *a* and *b*. They are secured to the ends of their respective sections of hose in the following manner: The piece *a* is bored out back of the entering section a' to a diameter which is large enough to receive the end of the hose *c* and the securing-ferrule *d* inside of it without reducing the straight bore of the coupling-piece.

At the extreme rear end of the piece *a* is an inwardly-projecting flange or annulus, a^3, the corners of which are turned off so as to present a rounding surface. The enlarged portion a^2 terminates at its front end in a square shoulder, a^4, against which shoulder the end of the hose *c* abuts.

The parts are put together by inserting the ends of the hose *c*, with the securing-piece *d* inside of it, until it comes against the shoulder a^4. I then insert an expanding-tool through the front end of the coupling-piece and expand or spread the securing-piece *d*, which is split, as at d', longitudinally for that purpose, until its ratchet-shaped thread is embedded firmly in the inner surface of the end of the hose, and its diameter exceeds that of the shoulder or annulus a^3, and until it makes a tight joint between the hose and the enlarged portion a^2. Thus secured, it is impossible to draw out the hose from the coupling-piece *a* or to detach the latter from the hose *c* without first reducing the diameter of the securing-piece *d*, for the reason that the securing-piece *d* cannot pass the shoulder a^3, and the hose *c* cannot be drawn out against the cutting-edges of the ratchet-shaped thread on the securing-piece. While I prefer the ratchet-shaped thread, I do not limit myself thereto, nor to the use of any thread upon the outer surface of the securing-piece *d*, but claim broadly an expansible securing-piece which may be forced outward against the hose, so as to cause it to be firmly packed between the adjacent surfaces of the securing-piece and of the coupling-piece. The coupling-piece *b* is constructed and secured in like manner, the parts b^2 b^3 corresponding to the parts a^2 a^3.

On the outer surface of the entering section a' are inclined lugs a^5, preferably three in number, and arranged at equal distances on the circumference a short distance back from the end. On the inner surface of the bowl-piece b', and at the outer end of the same, are inclined projecting lugs b^5, similar to and designed to engage with the lugs a^5. At the inner end of the bowl-piece b' is a groove, *e*, and back of the groove *e* is a seat, e^2. The purpose of the groove *e* is to receive a packing-ring, e', made of leather or other suitable material, which is designed to be loosely inserted in the groove *e*. The face of the seat e^2 is corrugated or grooved, as at e^3, Fig. 3, so as to admit the water behind the packing-ring e', for the purpose of holding it up firmly against the square end of the entering piece a' by the head or pressure of the water. This feature is especially valuable, in that it makes a tight joint, even when the locking-lugs on the coupling do not draw the end of the entering part a' against the packing-ring, so as to force it against the seat e^2. It is necessary, however, in all cases, that the end of the entering piece a' shall project into the bowl-piece b' far enough to be flush with the outer edge of the groove *e*, so that when the pressure of the water comes upon the packing-ring e' it shall be forced forward against the end of the entering piece a'.

Projecting from the outside of the sections *a* and *b* are lugs *f*, which are designed for affording means for turning the couplings.

I have spoken of the packing-ring as being loosely inserted in its containing-groove and as seating against the end of the entering pipe. I do not, however, limit myself to the use of a packing-ring which has an actual movement in its containing-groove, for the reason that when the seat e^2 is grooved, as described, the water can find access to the back of the packing-ring, even when it fills the groove sufficiently to prevent any movement therein. By "loose" I mean a packing-ring which does not pack to make a tight joint by being compressed tightly between rigid surfaces.

I do not limit myself to the use of my improved coupling for hose, but claim it generally for water and similar pipes.

The flange or annulus a^3 is rounded for the purpose of preventing it cutting the hose when securing in the coupling-piece by the securing-piece *d*. In Fig. 5 I show the securing-piece *d* in the shape in which it is when inserted into the coupling.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a hose-coupling, of a bowl-section having a packing-groove, and an entering section, the end of which comes flush with the outer side of the packing-groove, with a packing-ring of less thickness than the width of the groove, substantially as and for the purposes described.

2. The combination of a hose-coupling having an inwardly-projecting shoulder or annulus at its rear end with a section of hose and an expansible threaded securing collar or annulus, substantially as and for the purposes described.

3. A hose-coupling consisting of an entering section provided with inclined lugs, a bowl-section provided with inside inclined lugs for engaging the lugs on the entering section, a loose washer placed in a groove and seating against the end of the entering section by the pressure of the water in the pipe, and hose-sections secured to the coupling-pieces by internal expanded collars, substantially as and for the purposes described.

4. The combination, with a hose-coupling formed with a corrugated or grooved seat, of a packing-ring adapted to fit said seat, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 12th day of October, A. D. 1882.

JAMES H. LUTHER.

Witnesses:
W. B. CORWIN,
F. B. KERR.