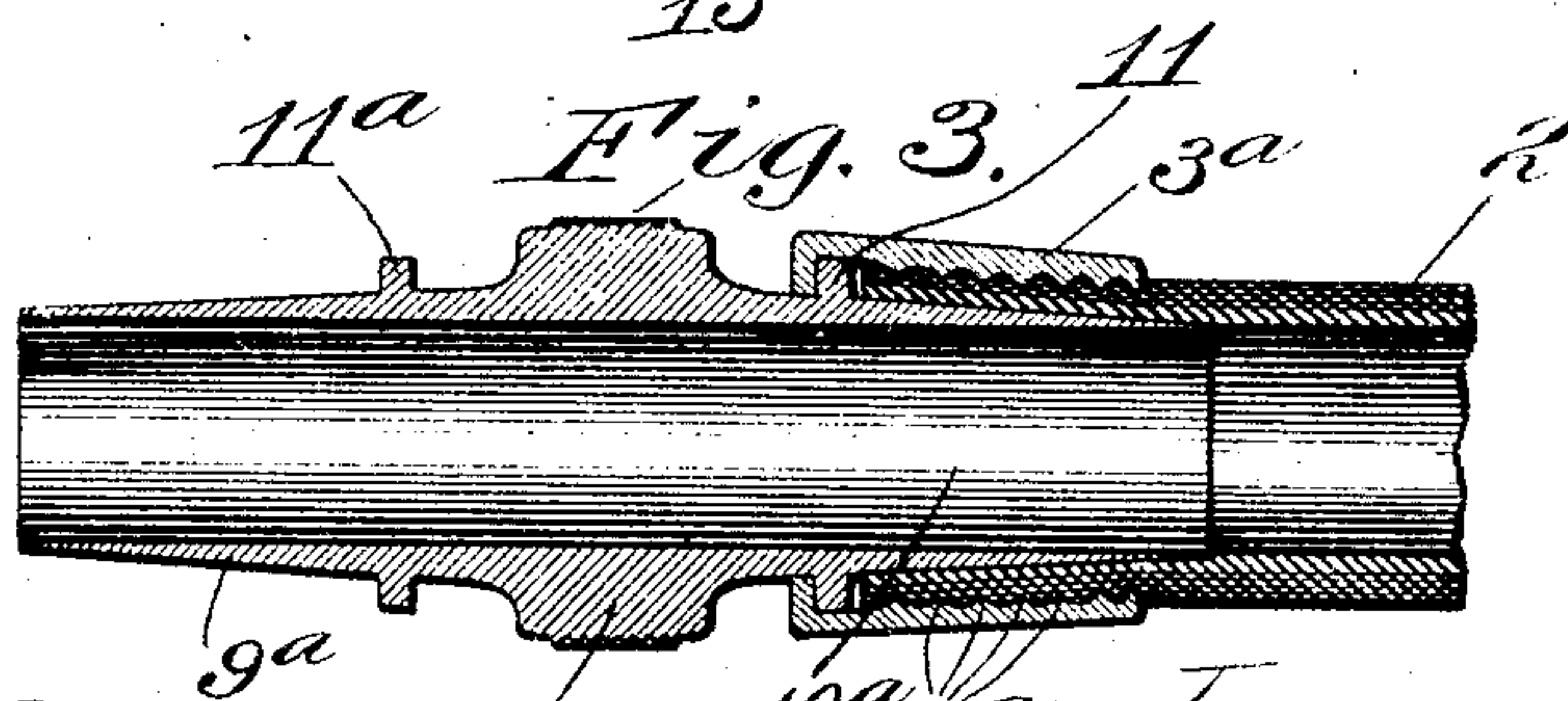
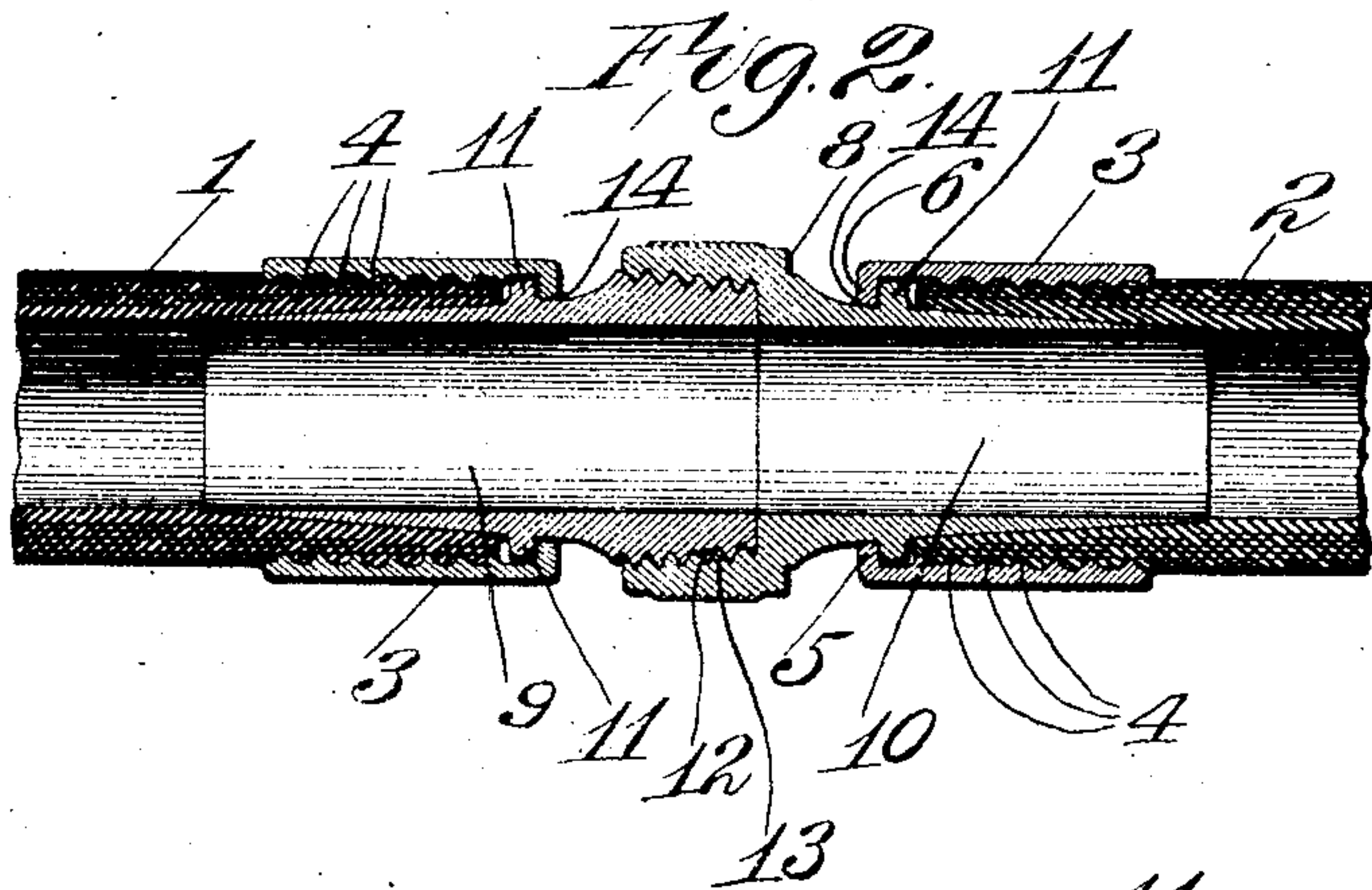
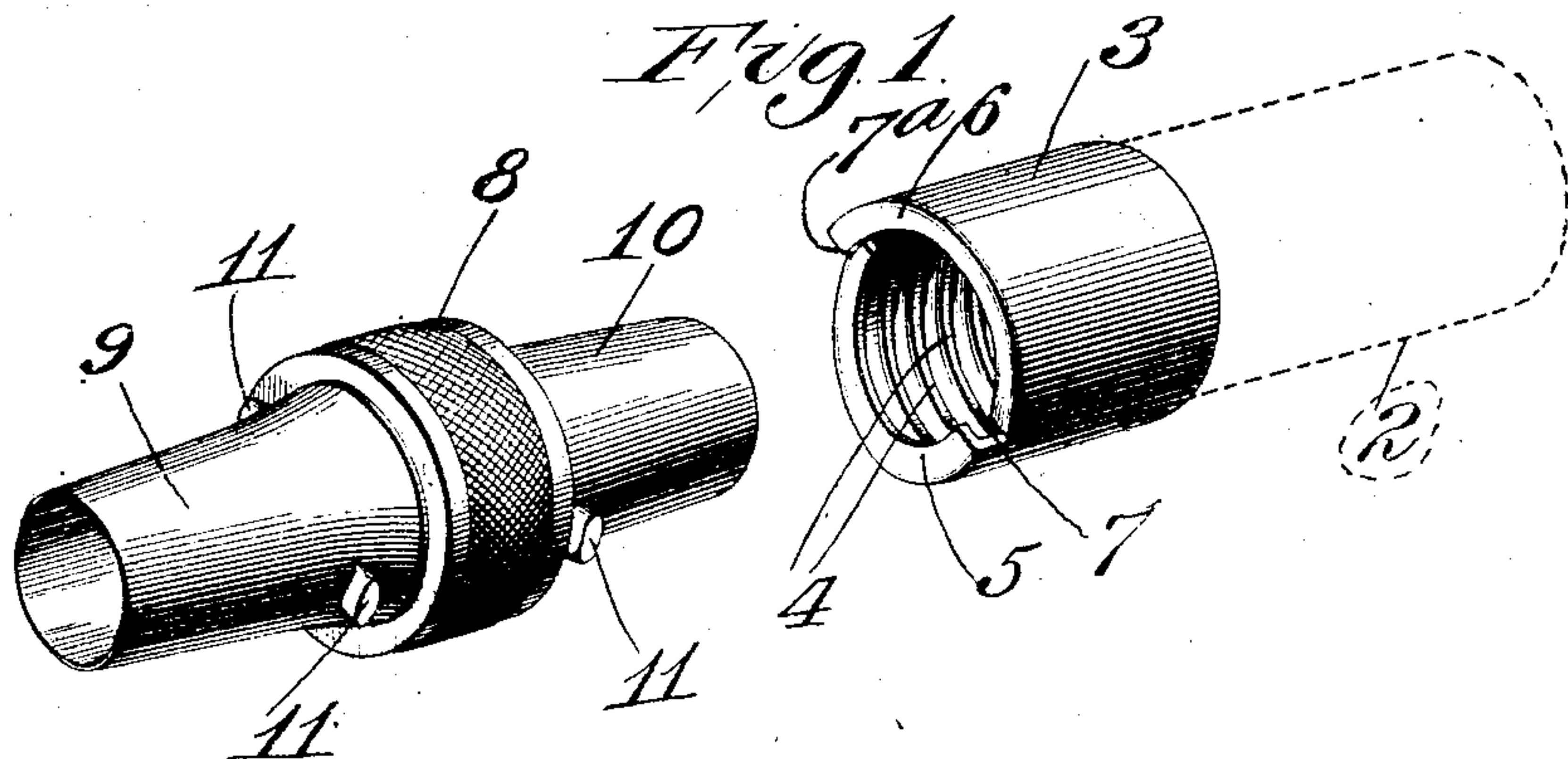


No. 786,507.

PATENTED APR. 4, 1905.

C. L. MANN.  
TUBE COUPLING.  
APPLICATION FILED FEB. 8, 1904.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## TUBE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 786,507, dated April 4, 1905.

Application filed February 8, 1904. Serial No. 192,519.

*To all whom it may concern:*

Be it known that I, CHARLES L. MANN, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Tube-Couplings, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a detail perspective view of a detached coupling member and one of the cooperating parts carried by the end of a tube. Fig. 2 is a vertical longitudinal sectional view through a line of tubes with the coupling applied, and Fig. 3 is a fragmentary sectional view of slightly-modified form of coupling.

This invention relates to tube-couplings, and is particularly adapted for use in connecting the adjacent ends of hose-pipe sections.

One of the objects of the invention is to provide an inexpensive and efficient means for facilitating the coupling of two adjacent tubes; and to this end the invention consists in certain novel arrangements and details of construction, which will be specifically referred to hereinafter.

1 and 2 designate the respective tube-sections, which preferably consist of the ordinary hose-tubing, and each tube carries a terminally-disposed socket member 3. The socket member is preferably in the form of a ferrule which fits over the ends of the tube and which may be secured thereto by the internal threads 4. The attaching end of each member 3 is provided with oppositely-disposed flanges 5 and 6, forming cam-guides for the reception of the coupling member to be described hereinafter. A simple form of the tubular sleeve or ferrule is provided by oppositely slitting the ferrule, as at 7 and 7<sup>a</sup>, and then flanging the edges by any suitable means, so that the raised shoulders are at diametrically opposite points for the reception of the lugs or projections on the coupling member. The coupling member is designated by the reference-numeral 8, and it is provided with tapered ends 9 and 10, the intermediate

portion having a roughened surface to afford a firm grip in connecting it to the ends of the respective tubes. The coupling member 8 is also provided with lugs or projections 11, there being oppositely-disposed projections on each tapered portion, and in actual practice I prefer to construct each portion 9 or 10 of substantially the same form as the other, so that the coupling will be reversible and either end can be inserted in the respective tubes, so as to facilitate the coupling of the tubes.

In Fig. 2 the coupling is illustrated as comprising two parts intermediately connected by the threads 12 on the part 9 engaging the threads 13 on the part 10. However, it is obvious that the coupling can be constructed of a single piece, if desired.

In applying the coupling the tapered ends can be inserted into the respective tubes after having placed the ferrules there, and the lugs 11 will be caused to engage the inner faces of the flanges 5 and 6 by imparting a slight rotary movement to the coupling. The tubes 1 and 2 will be drawn upon the tapered portions, as clearly illustrated in Fig. 2, so that the outer walls of the tubes will be forced into engagement with the threads on the ferrules 3, causing the threads to firmly engage the outer walls of the tubes to hold the parts in rigid connection. The rotary movement of the coupling 8 will at the same time draw the ferrules toward the center of the coupling until their edges 14 firmly engage the tapered walls of the parts 9 and 10, so that the coupling will be firmly locked against detachment.

The entire coupling can be quickly removed by giving it a slight reverse turn and withdrawing it from engagement with the tubes. In the event that the coupling is made of two parts, each part 9 and 10 can be secured so as to afford a permanent attachment to the respective tube ends, and the tubes can then be connected by screwing one part 10 upon the other in an obvious manner.

When the coupling is made of a single part, the tubes can be connected by inserting either end in either tube, inasmuch as the coupling is reversible and is provided with like connect-



ing parts. When the hose becomes worn or unfit for use, the ferrules can easily be removed for attachment to additional hose-sections by merely withdrawing the coupling and then unscrewing said ferrules; but when the coupling is in its coupled position, as shown in Fig. 2, the ends of the tubes will be so tightly compressed between the outer walls of the coupling and the inner walls of the ferrules as to avoid any liability of the parts becoming detached.

In Fig. 3 I have illustrated a slightly-modified form of ferrule or socket member (designated by the reference-numeral 3<sup>a</sup>) in which the inner wall 4<sup>a</sup> is inclined or approximately wedge-shaped in cross-section, so as to be substantially parallel with the outer wall of the coupling member 8. This form is preferably to be used in connection with the larger sizes of tubing, so that a clamping effect will be produced coextensive with the contacting walls of the ferrule and coupling member, so as to obviate the liability of the end of the tube becoming detached; otherwise the manner of constructing and assembling the parts will be the same as above described. This form of ferrule can be cast or otherwise made.

While this coupling has been described as being applicable to tubing and hose, it is of course obvious that the ferrule might be attached to a plug or hydrant to form an efficient connection therefor.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a tube-coupling, the combination of a pair of sleeves having inclined inwardly-disposed curved flanges forming cam-grooves, the entrances to the grooves being in line with a portion of the grooves, and a coupling member having lugs for engagement with the grooves; substantially as described.

2. A tube-coupling including a sleeve having inwardly-disposed helical flanges, one end of each flange being in a plane higher than the plane of a portion of the adjacent flange and one end of each flange being at the extreme end of the sleeve, and a coupling member having means for engaging the flanges; substantially as described.

3. A tube-coupling including a coupling member and a sleeve having inwardly-disposed helical flanges, the outer edge of one flange comprising a guide for introducing the coupling member into engagement with the inner face of the opposite flange; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 3d day of February, 1904.

CHARLES L. MANN.

Witnesses:

B. F. FUNK,  
GEORGE BAKEWELL.