A. H. LOWE.

CLAMP FOR PLUMBERS' FORCE PUMPS.

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1,327,768.

Patented Jan. 13, 1920.

Fig. 2.

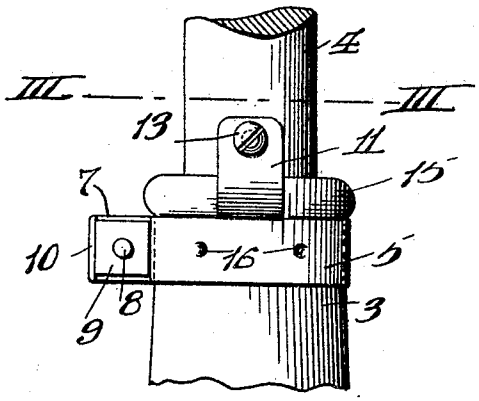


Fig. 3.

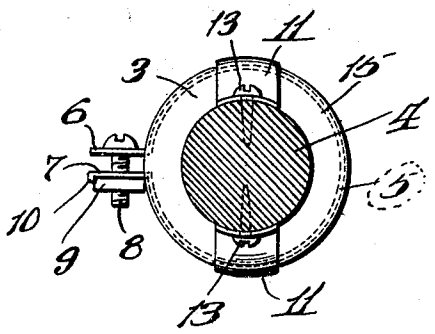


Fig. 1.

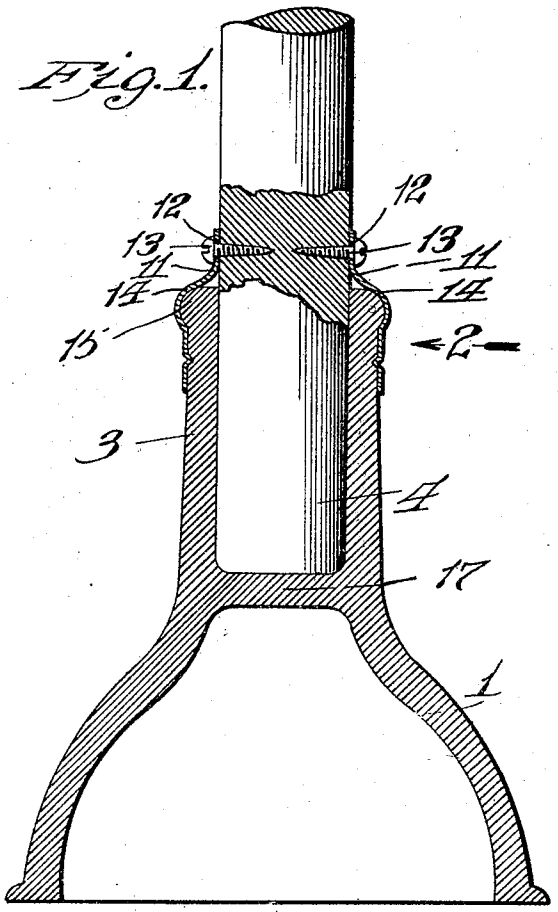
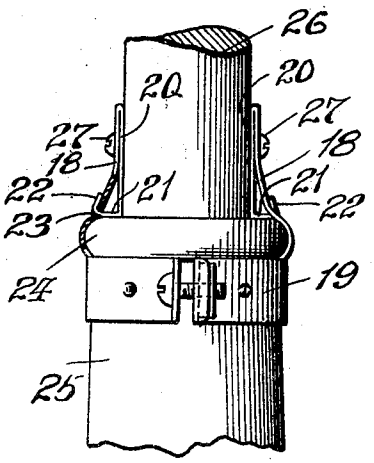


Fig. 4.



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CLAMP FOR PLUMBERS' FORCE-PUMPS.

1,327,768. Specification of Letters Patent. Patented Jan. 13, 1920.

Application filed November 22, 1917. Serial No. 203,309.

To all whom it may concern:

Be it known that I, ALBERT H. LOWE, a citizen of the United States of America, and a resident of Maplewood, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Clamps for Plumbers' Force-Pumps, of which the following is a specification.

The primary object of this invention is to provide an improved clamping member for securing a plumber's force cup or pump to the operating handle so that the cup cannot be pulled off.

Another object is to provide a clamping member for a force cup on which are formed means for preventing the cup from being forced upwardly on the handle during the forcing operation, and incidentally preventing the lower end of the handle from being forced through the cup.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawings, exemplifying the invention, and in which,

Figure 1 is a vertical section taken through a plumber's force cup showing this improved clamping member secured thereto and to the operating handle.

Fig. 2 is a fragmentary side elevation taken in the direction of the arrow 2 in Fig. 1.

Fig. 3 is a horizontal section taken on the line III—III of Fig. 2.

Fig. 4 shows this improved clamping member with a slight modification formed thereon.

Referring to the drawings, 1 designates the usual pliable rubber force cup having the tubular extension 3, in which is mounted the lower end of the operating handle 4.

In the present type of plumber's force cup or pump which comprises as afore related a rubber cup engaged at one end of an operating handle, while the cup is somewhat securely mounted to the handle by the gripping of the tubular extension over one end of the handle, which is more or less held in place by the elasticity of the rubber, it has been found that when the greatest force is used on the cup, and a complete vacuum is formed in the cup, the upward pull on the handle will pull the handle from the cup on account of the gripping of the cup produced by the vacuum formed therein.

If the operator has been working on a trap or other type of passage way in which the construction is somewhat of a goose-neck type, it has been found that the cup is jammed in such a position that it is a laborious matter to remove the cup so as to again mount it on the operating handle. This improved clamping member therefore is to provide a securing means for securing the force cup to the handle in such a manner so that the same cannot be pulled off.

This improved clamp comprises a circular metallic band 5 having a pair of drawing ears 6 and 7 extending therefrom, each of said ears having an opposed opening formed therein for the reception of a bolt 8. A nut 9 is mounted on said bolt adjacent the outer wall of the ear 7, and formed on said ear 7 is an abutting portion 10 which is engaged by one of the faces of the nut 9 and forming a lock for said nut against turning thereon.

Extending upwardly from said band 5 are a pair of oppositely disposed handle engaging members 11, each of said members having an oppositely disposed opening 12 formed therein, each opening being for the reception of a screw 13, said screws securing the members 11 to the handle 4.

From an inspection of Fig. 1 it is to be noted that the members 11 adjacent the band 5 are curved or bulged outwardly, each of said members then inclining inwardly toward the handle 4, thereby forming shoulders 14, said shoulders engaging over the beaded portion 15 of the tubular extension 3 of the force cup 1.

Formed on the band 5 are a plurality of circularly arranged inwardly dented portions 16 which are adapted to press into the tubular extension 3.

When a clamping member of this improved character has been mounted in place, the band 5 being secured over the tubular member 3 beneath the beaded portion 15 and the screw 8 being properly engaged and tightened through the ears 6 and 8 and into the nut 9, and the screws 13 holding the engaging members 11 securely against the handle 4, the force cup 1 is so rigidly secured to the operating handle that no matter in what peculiarly formed positions the work is to be carried on, the reciprocating or plunging operation cannot withdraw the cup from its handle.

In addition to the aforesaid pulling of the handle from the force cup either by a vacuum being formed in the cup, or by the cup buckling on an outward stroke, it quite frequently occurs that the engaging end of the handle is driven through the upper portion 17 of the cup, thereby ruining the cup as regards forming a forcing pressure.

Attention is called to the shoulders 14 which are formed on the members 11, said shoulders tending to bear against the beaded edge 15 of the cup when the device is in operation, in which the driving strain of the lower end of the handle will be transferred to the beaded portion 15 of the tubular extension, thereby preventing the lower end of the handle being forced through the upper portion 17 of the cup 1.

In order to further carry out the construction of a proper bearing shoulder relative to preventing the lower end of the handle being forced through the force cup, attention is called to Fig. 4 which shows the handle engaging members 18 which extend upwardly from the band 19, having downwardly bent portions 20 which terminate into horizontally arranged shoulders 21, and leading from each of said shoulders is a tongue 22, each of said tongues engaging in a respective opening 23, each of said openings being formed in the upwardly extending portions of the members 18. In this instance the shoulders 21 formed on the members 18 will bear on the beaded portion 24 of the cup 25 when forcing strain is applied to the handle 26.

In securing this clamping member to the handle 26, a screw 27 is passed through the members 18 and through the downwardly extending portions 20 thereof, as shown in said Fig. 4.

From the disclosure shown in the drawings, and from the aforesaid description, it is to be noted that the manner of work to be carried out by a clamping member of this character as relating to a plumber's force pump is to securely fasten the force cup to the operating handle against pulling off strain, and in addition thereto, to prevent the operating handle from being forced into the cup and destroying it by tearing an opening therein.

What I claim is:

1. The combination of a handle, a force cup having a flexible tubular extension, and a clamping member having drawing means, said handle adapted to be engaged in said tubular extension, and secured to said tubular extension by said clamping member, and means provided by said clamping member comprising a pair of shoulders for engagement with the end of said tubular extension for preventing said handle from being driven through the end of said tubular extension.

2. In a force pump, a handle, a forcing cup mounted on said handle, a clamping member secured to said cup over the portion thereof engaging said handle, an extending portion bearing a shoulder leading from said clamping member to said handle, and means for securing said extending portion to said handle whereby the shoulder thereof will endwise bear against the end of the handle engaging portion of said cup.

3. In a force pump, a handle, a forcing cup having a tubular extension for engagement with said handle, a clamping portion mounted over the tubular extension of said cup, an extending portion formed integral with said clamping member for engagement with said handle, means for securing said extending portion to said handle, and a shoulder for engagement with the upper end of said tubular extension of said cup for preventing said handle from being forced into said cup.

4. A securing member for a force pump comprising a clamping band, drawing means carried by said band for tightening said band around the tubular extension of said pump, and a pair of extending portions, each bearing a shoulder formed integral with said band for securing said band to the handle of said pump, each of said shoulders adapted to bear against the end of the tubular extension of said pump.

5. A securing member for a force pump having a tubular extension comprising a clamping band, means for tightening said clamping band around the tubular extension, a pair of extending portions formed integral with said clamping band for securing said clamping band to the handle of said force pump, and a shoulder formed on each of said extending portions engaging over the upper edge of said tubular extension, for preventing the handle from being driven through the end wall of the tubular extension.

6. The combination of a handle, a force cup having a flexible tubular extension, and a securing member, said handle adapted to be engaged in said tubular extension and secured to said tubular extension by said member, and means provided by said member engaging said handle and the upper end of said tubular extension for preventing said handle from being driven through the end of said tubular extension.

ALBERT H. LOWE.