M. BLOCK.

FORCE PUMP.

APPLICATION FILED APR. 17, 1916.

1,193,476. Patented Aug. 1, 1916.

Fig. 1.

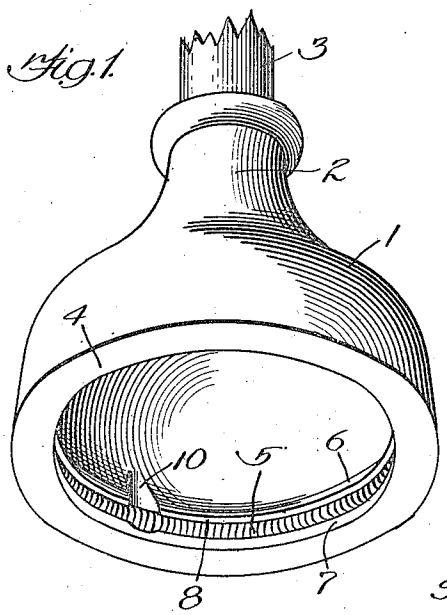


Fig. 2.

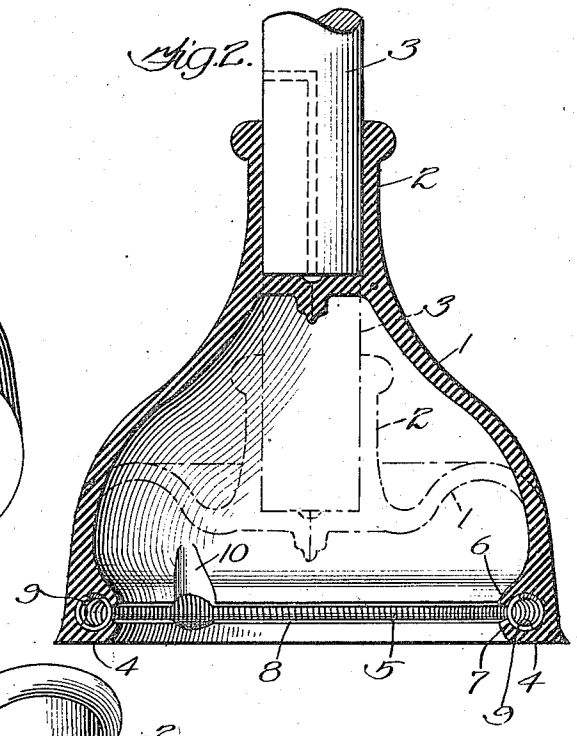


Fig. 3.

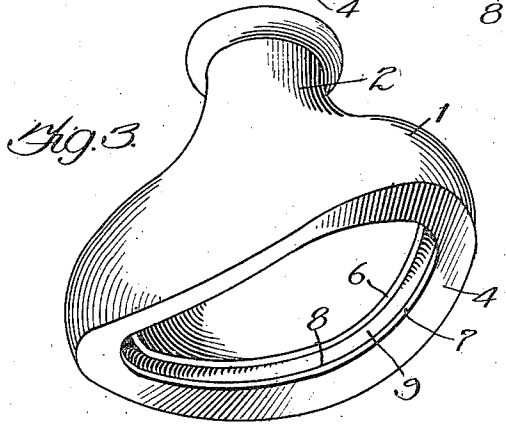
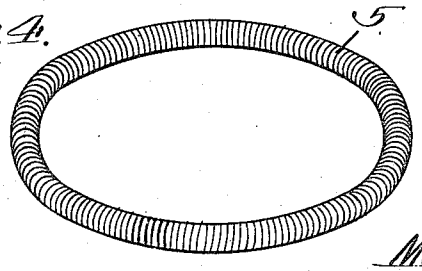


Fig. 4.



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UNITED STATES PATENT OFFICE.

MANDEL BLOCK, OF CHICAGO, ILLINOIS, ASSIGNOR TO ILLINOIS FORCE CUP & SPECIALTY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FORCE-PUMP.

1,193,476. Specification of Letters Patent. Patented Aug. 1, 1916.

Application filed April 17, 1916. Serial No. 91,551.

To all whom it may concern:

Be it known that I, MANDEL BLOCK, 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 Improvement in Force-Pumps, of which the following is a specification.

My invention relates to force pumps such as are used by plumbers to remove obstructions from pipes by forcing water through them. Such pumps are used, for example, in a domestic sink or bowl when the drain pipe becomes stopped up. The method employed is to place the domelike body of the device over the receiving mouth of the drain pipe, the lower rim of the device resting upon the surface surrounding the mouth of the pipe. This is presumed to make an air tight closure and the plumber may then, by pushing down or collapsing the body, force air or water down through the pipe, thus forcibly removing the obstruction. These rubber force pumps have been known for years and are fairly satisfactory when the rubber is new, but in practice the rubber rapidly deteriorates and soon renders the device inoperable. It will be understood that in order to be operative, there must be a close air tight connection between the rim of the pump and the surface of the sink, and a very slight leakage at any point will make the device useless. After the known devices have been kept a little while, their rims become warped from any one of several causes. It may be from use, but more frequently the warping is due to pressure received during storage, either while in the possession of the journeyman plumber or in the possession of the supply house.

The object of my invention is to remedy these difficulties; and I accomplish it by improving the construction at the base of the domelike body as shown in the accompanying drawings, in which

Figure 1 is a perspective view of the device. Fig. 2 is an axial section thereof. Fig. 3 is a perspective view of the device showing how it tends to warp when not provided with the stiffening element. Fig. 4 is a perspective of the preferred form of the stiffening element.

Similar numerals refer to similar parts throughout the several views.

The body 1 of the device is of impervious, resilient material, usually rubber. At the top it has a socket 2 for receiving the lower end of the handle 3 by which it is manipulated. This rubber body is domelike in general appearance and has a rim 4 which is flat on the bottom so as to make close contact with the surface of the sink or bowl. A slight distance above the bottom surface I embed a stiffening element 5 which in the preferred form consists of a coiled spring, the ends of which are brought together to form a torus. This stiffening element may be molded into the device during the manufacture of the body or an annular groove may be formed in the rim and the stiffening element inserted afterward. In the drawings, I have illustrated the latter construction, the body having two lips 6, 7 with a comparatively narrow slot 8 between them, thus holding the stiffening element firmly in place in the annular chamber 9. Under these circumstances it is desirable to form a recess 10 at one or more points within the body to enable the operator to grasp the stiffening element to remove it.

In use, the spring torus holds the rim in shape so that it makes a true circle and the bottom lies in a true plane, at the same time permitting the device to accommodate itself to inaccuracies of surface. But one of the greatest advantages arises from the fact that the torus holds the rim true when not in use and hence prevents it from getting out of shape. Heretofore large quantities of such devices have been thrown away as useless even before they had ever been actually put to use; with my construction, however, the device holds its shape almost indefinitely and makes very close contact with the surface to which it is applied. As a result of my invention, not only is the efficiency of the device when in use increased, but the life is indefinitely prolonged.

It follows from the construction of the stiffening element 5 in the form shown that it is slightly stretchable or expansible as well as flexible. The same is true of the rubber body 1, and hence the parts readily accommodate themselves to each other, even though there may be some slight discrepancy in the diameter, as manufactured.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A force pump for plumbers having a dome-like body with an annular base, said

body being impervious, resilient material, means for depressing the upper portion of the body, and an annular stiffening element for stiffening the base of said dome-like body, said stiffening element being also slightly expansible, whereby its diameter may be slightly varied.

2. A device of the class described, consisting of a domelike rubber body, a handle at the top for collapsing it, and a helical spring bent to form a torus and being embedded in the base slightly above the extreme bottom, whereby there is a portion of rubber beneath the spring and separating the spring from the object upon which the device rests.

3. A plumber's force pump comprising a domelike body of rubber, a handle for collapsing it, and a spring torus made from a wire helix, said body having an annular chamber formed in the base and communicating, through a slot, with the inside of the body, whereby the torus may be inserted or removed after the domelike body has been formed.

In witness whereof, I have hereunto subscribed my name.

MANDEL BLOCK.