

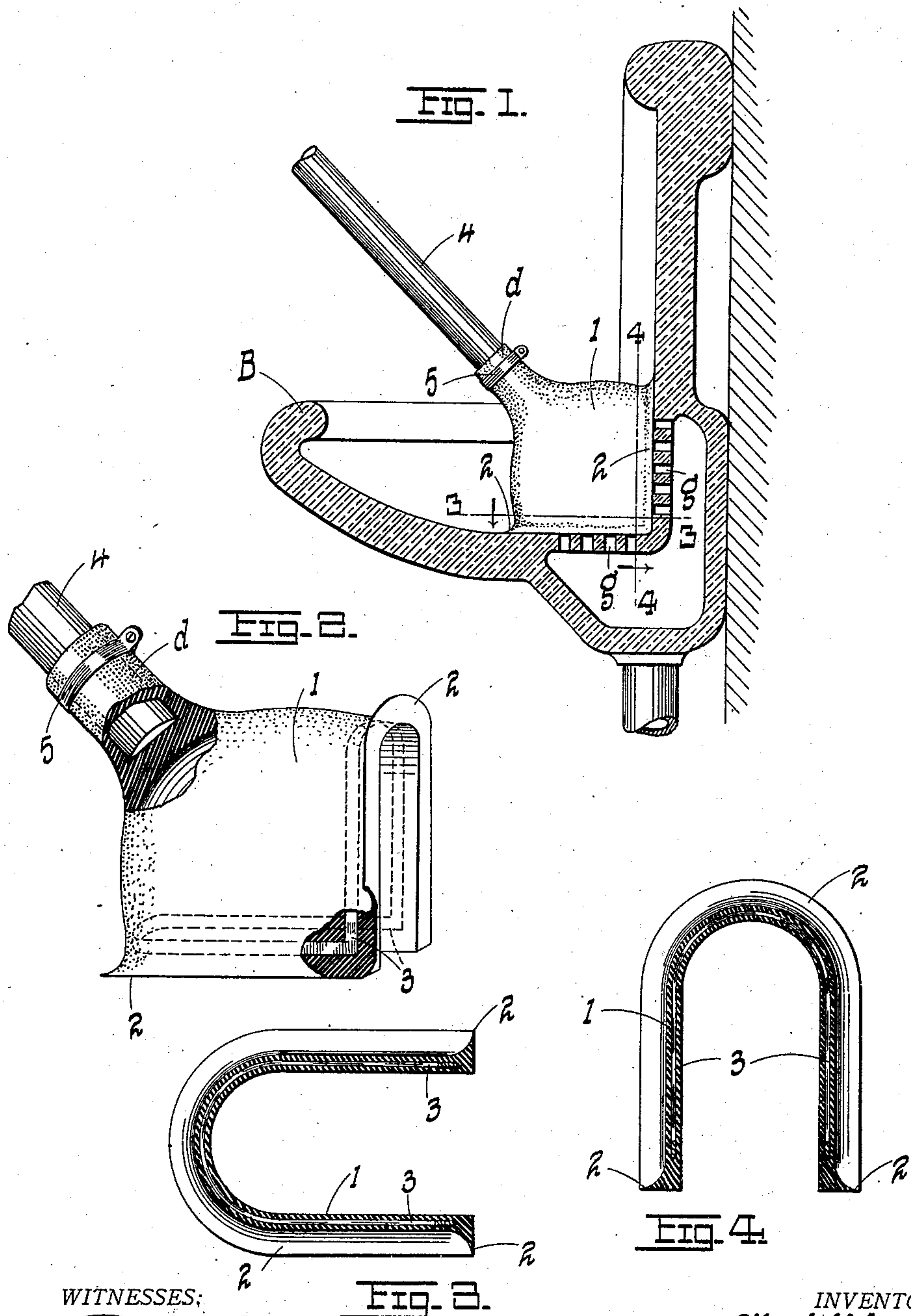
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FORCE CUP.

APPLICATION FILED JUNE 20, 1907.

915,687.

Patented Mar. 16, 1909.



WITNESSES:

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Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## FORCE-CUP.

No. 915,687.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed June 20, 1907. Serial No. 379,929.

*To all whom it may concern:*

Be it known that we, ALBERT H. LOWE and GUY STEPHENSON, citizens of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Force-Cups, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in force-cups; and it consists in the novel construction of cup more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a vertical cross section of a toilet bowl showing our invention in side elevation, applied to the grating of the bowl; Fig. 2 is a perspective of the cup; Fig. 3 is a horizontal section on the line 3—3 of Fig. 1; and Fig. 4 is a vertical cross section on the line 4—4 of Fig. 1.

The object of our invention is to provide a sucker pump or force-cup for a class of bowls in which a section of the discharge opening or grating is located along the vertical wall of the bowl, the ordinary circular cup not being available for this disposition of opening.

A further object is to construct a cup which will not collapse under the pressure to which it is normally subjected in the expulsion of the air from within it prior to, and during the pumping operation.

In detail the invention may be described as follows:

Referring to the drawings, B, represents a toilet bowl or urinal having an angular grating for the draining thereof, this being a common construction with the more improved type of bowls. As is well understood in the art, the discharge pipe becomes clogged from time to time with solid substances, such as paper, tobacco quids, tooth-picks, matches, and the like, which material must be loosened to allow for perfect drainage. It is the object of our invention to dislodge such foreign material with the use of our suction cup or force-cup as commonly known in the trade. This cup comprises a cup or hood 1 arched on top, and having an arched or U-shaped open bottom and front (Figs. 3, 4), the edges of the open portions being provided with an outwardly deflected yielding flange 2 which engages the vertical and horizontal walls of the bowl at points exterior to the grating *g*. The arched walls of the cup are provided, and reinforced with a stiffening

metal band 3 disposed parallel to the edges of the open faces of the cup, the band being embedded in the walls (which as well known are composed of rubber) and disposed a suitable distance from the flange 2.

In applying the cup, the pressure exerted thereon to expel the air must necessarily be in a direction which will distribute the strains to the best advantage, and in the form of cup shown we find that a diagonal application of the pressure insures the best results, and we accordingly provide the cup with a diagonally disposed handle 4 inserted in a socket *d* at the upper outer corner of the cup, the handle being subsequently secured in place by a clamp 5. Pressure upon the handle in the general direction of its disposition serves to expel the air from the cup, whereupon the flanges will be forced by atmospheric pressure firmly against the walls of the bowl around the grating; and by a reciprocating movement of the handle which results in corresponding dilations and contractions of the cup, the column of air within the drain pipe will be set in motion and the solid particles referred to will become dislodged.

Having described our invention what we claim is:

1. A force-cup comprising a cup having an open arched front and bottom adapted to engage the contiguous angularly disposed walls of a bowl, substantially as set forth.

2. A force-cup comprising a cup having an open arched front and bottom, and a handle disposed diagonally to the planes of the edges of said openings, substantially as set forth.

3. A force-cup comprising a cup having an open arched front and bottom, a marginal outwardly deflected flange disposed about the edges of the openings aforesaid, a stiffening band formed with the walls of the cup and disposed at a substantially uniform distance from the flange, and a handle at the outer diagonal corner of the cup disposed at an incline to the planes of the edges of said openings, substantially as set forth.

4. A force-cup comprising a cup having an open arched front and bottom, a marginal outwardly deflected flange adapted to engage the contiguous angularly disposed walls of a bowl, and a stiffening band embedded in the walls of the cup and disposed at a uniform distance from said flange, substantially as set forth.



5. A force-cup comprising a cup having yielding walls and terminating in an outwardly deflected yielding marginal flange adapted to engage the walls of the opening  
5 over which the cup is deposited, a stiffening band disposed along the walls of the body portion of the cup in contiguity to and above the flange, whereby the flange is left free to respond to atmospheric pressure, and the

cup is held against collapse, substantially 10 as set forth.

In testimony whereof we affix our signatures, in presence of two witnesses.

ALBERT H. LOWE.  
GUY STEPHENSON.

Witnesses:

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Jos. A. MICHEL.