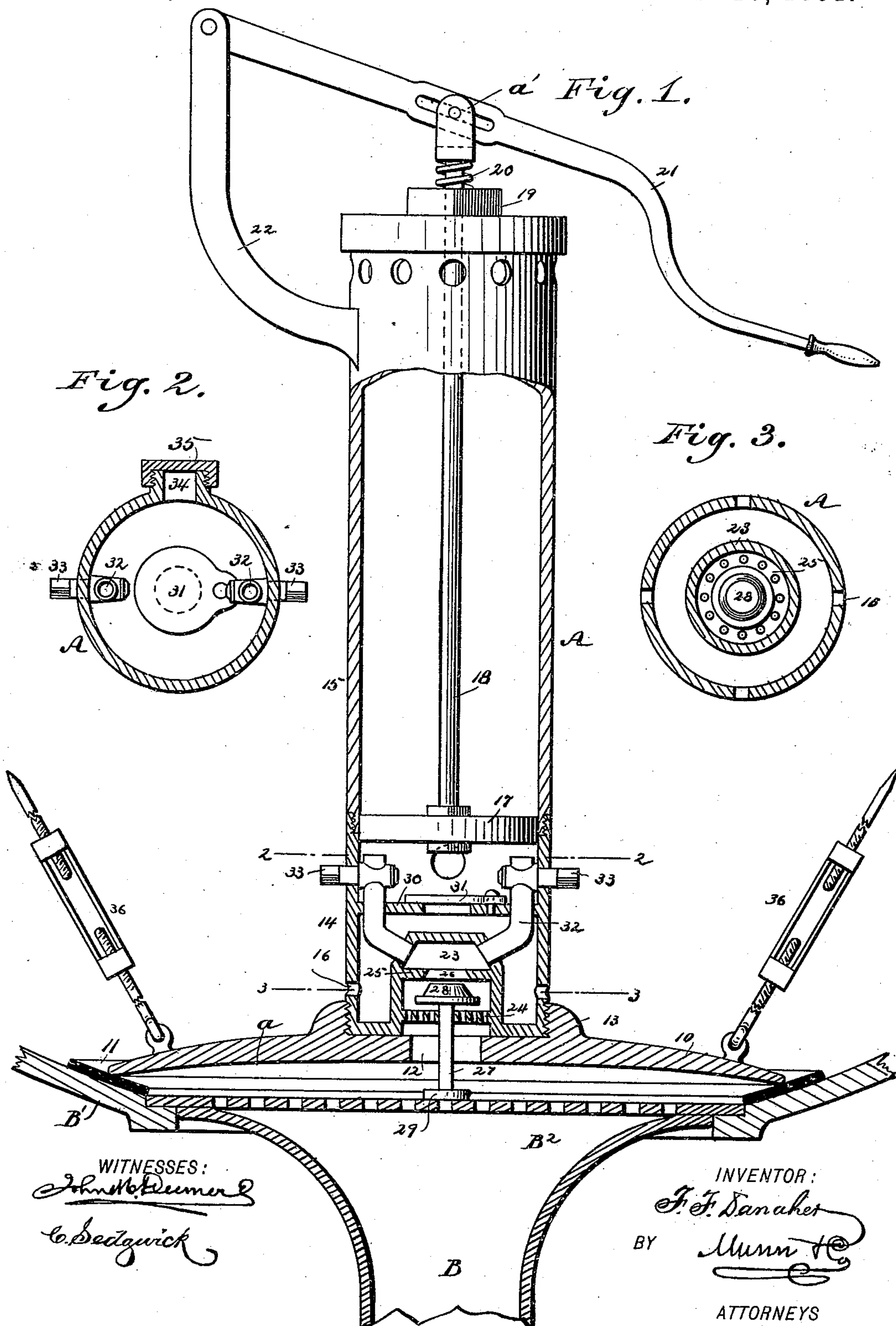


(No Model.)

F. F. DANAHER.  
FORCE PUMP.

No. 446,283.

Patented Feb. 10, 1891.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

FREDERICK F. DANAHER, OF BROOKLYN, NEW YORK.

## FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 446,283, dated February 10, 1891.

Application filed June 7, 1890. Serial No. 354,566. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK F. DANAHER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Force - Pumps, of which the following is a full, clear, and exact description.

My invention relates to an improvement in force-pumps, especially that class of pumps known as "plumbers' force-pumps," and has for its object to provide a pump of simple and durable construction capable of convenient use in connection with and expeditious application to a sink, for instance, or equivalent article.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a partial vertical section through the pump and a sink-strainer over which the pump is located. Fig. 2 is a transverse section on line 2 2 of Fig. 1, and Fig. 3 is a similar section on line 3 3 of Fig. 1.

The base 10 is preferably constructed of metal in disk form, and the underside of said base is dished or concaved, as illustrated at *a* in Fig. 1. The marginal edges of the base are adapted to rest upon a rubber gasket or washer 11, which washer may form a portion of the base if in practice it is found desirable. The base is provided with a central opening 12 and an annular flange 13 upon its upper face surrounding the opening 12, which flange is interiorly threaded to receive the lower section 14 of the body A of the pump, the upper section 15, which is the longest, being screwed or otherwise attached to the lower section.

Above the flange 13 a series of apertures 16 is produced in the lower section 14 of the body, and in the upper section 15 of said body a piston or plunger 17 is held to slide, closely contacting with the wall of the upper section, the said piston or plunger being provided with an attached rod 18, which passes through a suitable gland 19, located, prefer-

ably, at the center of the closed top of the upper body-section. The piston or plunger rod 18 projects some distance beyond the head of the upper section of the body, and the upper extremity of said rod is enlarged, as illustrated at *a'* in Fig. 1, and between the enlarged portion of the rod and the gland a spring 20 is located. The head of the plunger or piston rod is pivotally attached to a lever 21 at or near the center of the latter, one end of which lever is provided with a handle, and the opposite end is pivoted to a bracket 22, attached to or forming a portion of the upper body-section 15.

The lower body-section 14 has formed therein an interior chamber 23, the bottom 24 of which chamber is perforated and is located immediately over the opening 12 in the base.

Within the chamber 23 a partition 25 is formed, dividing the said chamber into two compartments, which partition has formed in its center, preferably, a conical opening 26, connecting the compartments. In the central portion of the perforated bottom 24 of the chamber 23 the stem 27 of a valve 28 is held to slide; the said valve being located above the perforated bottom 24 and between it and the partition 25, the opening 26 in the partition forming a seat for the valve, and the valve-stem has attached to its lower end a button 29 or its equivalent.

Above the chamber 23 a horizontal partition or diaphragm 30 is formed in the lower section of the body, which partition is provided with a central opening covered by a leaf-valve 31, hinged at one end to the upper surface of the partition, as best shown in Figs. 1 and 2.

Two or more pipes 32 are located within the lower section of the body, which pipes pass down through the partition or diaphragm 30 and enter the upper compartment of the chamber 23. Each pipe 32 is provided with a valve of any suitable form, the stems 33 of which valves are preferably made to extend through and beyond the body. The lower section of the body is also provided upon one side with a nipple 34, communicating with the interior of the section, which nipple is ordinarily covered by a cap 35. To the upper surface of the base 10 two or more turn-buckles 36 are attached.



In operation, if the waste-pipe B of a sink B', for instance, is to be cleaned, the base of the pump is placed over the strainer B<sup>2</sup> of the sink, as illustrated in Fig. 1. The outer rods of the turn-buckles are then clamped in any suitable manner to the edges of the sink and the turn-buckles manipulated until the base is forced down sufficiently upon the gasket 11 to form a water-tight joint. The sink is then filled with water to a predetermined height, and the lever 21 is manipulated to draw upward the piston 17, which creates a suction and causes the water entering the openings 16 to follow the piston upward through the opening in the partition 30, the suction serving to open the valve 31. A great portion of the water is thus carried upward and retained in the section 15 of the body. Upon the downward pressure of the piston, as the valve 31 is closed the water is compelled, under heavy pressure, to enter the pipes 32, and after passing through the pipes the water enters the upper compartment of the chamber 23, forces downward the valve 28, thereby uncovering the opening 26, whereupon the water, still under pressure, is forced through the perforations of the bottom 24 of the chamber 23 down through the opening 12 of the base and the apertures of the sink-strainer into the waste-pipe. Any back-pressure in the waste-pipe B acts upon the valve 28 and seats said valve in the opening 26, and thus any backwater is prevented from entering the body of the pump.

I desire it to be distinctly understood that while specific construction has been shown and described I do not confine myself thereto, as equivalent construction may be substituted without departing from the spirit of the invention. For instance, the body of the pump need not be made in sections, or other forms of valves may be substituted and a clamping device of any suitable or approved construction may be substituted for the turn-buckles shown and described.

If it is desired to force the water above the pump, the cap 25 is removed, and a hose is screwed upon the nipple 34. The valve-stems 33 are operated from the exterior of the pump to close the upper ends of the pipes 32, whereupon when the upper portion of the body is filled with water and the piston carried downward the water under pressure can find an exit only through the nipple 34 into the hose. Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a pump of the character described, the combination, with a cup-base having a central opening, a body attached to the base

surrounding the opening, and a piston held to slide in the body, of a chamber formed in the lower portion of the body, provided with an apertured bottom located over the opening of the base, and a transverse partition having an opening therein, a valve held to slide in the chamber between the bottom and the partition, a diaphragm located in the body above the chamber, provided with a valved opening, and tubes passed downward through the diaphragm and into the interior chamber of the body, as and for the purpose specified.

2. In a device of the character described, the combination, with a cup base provided with a marginal flexible packing and a central opening, a hollow body attached to the base above the opening, provided with apertures near the base, a piston held to slide in said body, and a chamber formed within the body, provided with a perforated bottom located above the opening of the base and a transverse partition above the bottom provided with an opening, of a valve capable of closing the opening in the partition, a diaphragm horizontally located within the body above the chamber, provided with a central opening, and a leaf-valve closing said opening, and pipes passed downward through the diaphragm into the chamber above the partition therein, as and for the purpose specified.

3. The combination, with a cup-shaped base provided with a central opening, a hollow body attached to said base over the opening, provided with apertures near its bottom and a nipple upon the exterior having communication with the interior, a chamber formed within the bottom of the body, provided with an apertured floor, and a horizontal partition above the floor having an opening produced therein, of a valve located within the chamber between its floor and the partition, a diaphragm located within the body above the chamber, provided with an opening, a valve adapted to lift upward covering the opening in the diaphragm and pipes passed downward through the diaphragm into the chamber, and valves located in the said pipes above the diaphragm, as and for the purpose specified.

4. In a device of the character described, a base having a dished under face provided with a central opening, a marginal gasket, means for attachment to a pump, and clamping devices attached to its outer face, as and for the purpose specified.

FREDK. F. DANAHER.

Witnesses:

CHRIS J. DONOHUE,  
A. R. THOMPSON.