(No Model.)

J. H. LAWLESS.

PLUMBER'S FORCE PUMP.

No. 477,808. Patented June 28, 1892.

Fig: 1.

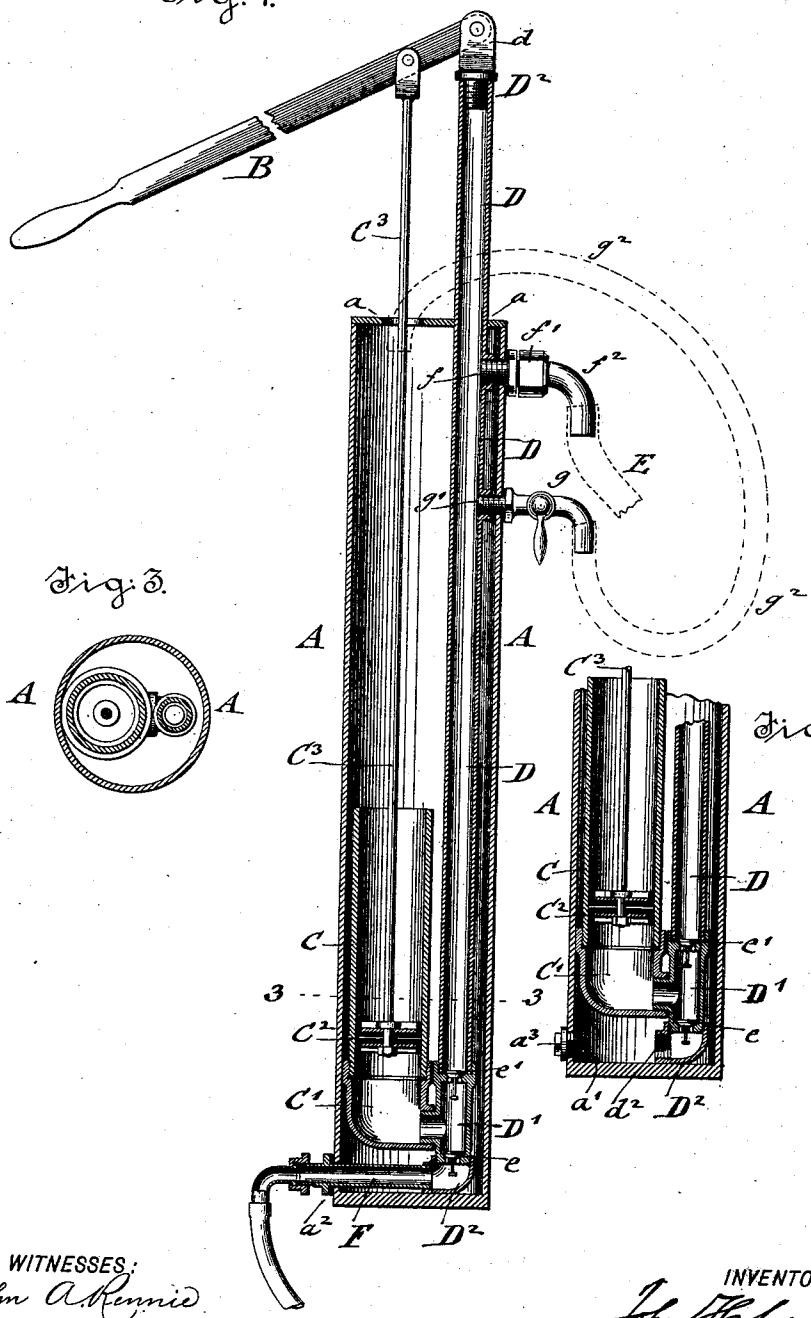

Fig: 3.

Fig: 2.

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PLUMBER'S FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 477,808, dated June 28, 1892.

Application filed March 17, 1892. Serial No. 425,251. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. LAWLESS, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Plumber's Force-Pumps, of which the following is a specification.

This invention relates to certain improvements in the plumber's force-pump for which Letters Patent were granted to me, No. 357,717, dated February 15, 1887, by which improvement the pump is adapted in a more efficient manner for the purpose of removing obstructions from the service-pipes of buildings without any shocks or hammering action in the stand-pipe of the pump itself and by which the pump can also be used as a lifting-pump for removing water from basements or cellars by a simple attachment thereto; and the invention consists of a plumber's force-pump which comprises an exterior reservoir of a suitable size, a pump in said reservoir, a stand-pipe located in said reservoir and connected with the pump, a valve-chamber having valves for establishing communication between the pump-cylinder and reservoir and the pump-cylinder and stand-pipe, respectively, a discharge-pipe at the upper end of the stand-pipe, an interiorly-threaded shoe at the lower end of the valve-chamber, and a detachable pipe-section that is inserted through an opening near the base of the reservoir into said shoe, provided with an exterior collar, and connected with a suction-pipe whenever the pump is used as a suction and force pump for pumping water out of basements or cellars.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved plumber's force-pump arranged so that it can be used as a suction and force pump for pumping water from basements and cellars. Fig. 2 is a vertical transverse section of the lower part of the pump, showing the same arranged for use for removing obstructions in the service-pipes; and Fig. 3 is a horizontal section on line 3 3, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a cylindrical reservoir of suitable size, in the lower part of which is located a force-pump C, the cylinder of which is screwed into a shoe or base part C′, which is connected at its lower part with the lower part or valve-chamber D′ of a stand-pipe D, which extends through the reservoir and through an opening in the top or cover of the same to some distance above the reservoir. The upper end of the stand-pipe D is tightly closed by a screw-cap D^2, which is provided with ears d, to which the lever B is pivoted by which the pump is operated. The piston-rod C^3 is connected with the piston C^2 and pivoted at its upper end to the lever B, so as to be moved up and down by the same. The piston C^2 is packed with cup-leathers, as shown in Fig. 1, and attached rigidly to the lower end of the piston-rod C^3, the leather packing giving sufficiently to compensate for the slight oscillations of the piston-rod. The cap or cover a of the reservoir A is provided with a slot for the piston-rod C^3, said slot being large enough to give the play required by the oscillations of the piston-rod C^3. The stand-pipe D is screwed at its lower end into the cylindrical valve-chamber D′, which is provided with valve-seats near its upper and lower ends and with valves e and e', the lower valve establishing communication between the pump-cylinder and reservoir, while the upper valve establishes communication between the pump-cylinder and stand-pipe. When the pump is operated, water is drawn into the pump-cylinder C by the upward motion of the piston through the lower valve e, while the upper valve e' is closed by the pressure of the water in the stand-pipe and by the suction exerted on the same during the upward motion of the pump-piston. When the piston is moved in downward direction, the lower valve e is closed and the upper valve e' lifted, so that the water in the pump-cylinder is forced into the stand-pipe D. The stand-pipe D is connected by an opening f at its upper end and a coupling f' with a bent discharge-pipe f^2, which is connected by a suitable hose E to the faucet of the service-pipe that is to be cleaned from sediment or obstructions. The discharge-pipe f^2 is located at the upper end of the reservoir A, while below the same a faucet g, that is screwed in an opening g' of the reservoir, is arranged, which faucet is connected with a rubber tube g^2, that is inserted into the upper end of the reservoir when the

latter is to be filled preparatory to using the pump or into a basin or sink when it is desired to produce the discharge of the sediment or obstruction from the service-pipe. The stand-pipe D is extended to a sufficient height above the discharge-pipe f^2 so that an air-chamber of sufficient size is formed therein, by which the hammering action of the water in the stand-pipe, which formed an objectionable feature in my prior patent above referred to, is obviated and the smooth and easy flow of the water through the stand-pipe is obtained. The lower end of the valve-chamber D′ is provided with a shoe or foot D^2, having an interiorly-threaded discharge-opening d^2, through which when the pump is used as a force-pump for removing obstructions in the service-pipes the water passes from the reservoir into the pump. When the pump, however, is desired to be used as a suction and force pump for pumping water from basements or cellars, a coupling-pipe F is introduced through an opening a' near the bottom of the reservoir A and screwed into the opening d^2 of the foot D^2 until a collar a^2 on the coupling-pipe abuts against the reservoir, a washer being preferably introduced between the collar and reservoir, so as to produce the tight closing of the opening a'.

To the exterior end of the coupling-pipe F is applied a hose F′, which is of sufficient length to be placed in position in the basement or cellar. When the coupling-pipe is removed, the opening a' is closed by a screw-plug a^3, as shown in Fig. 2.

The operation of my improved force-pump for plumbers is the same as described in my prior patent heretofore referred to, with the exception that, owing to the arrangement of the air-chamber above the discharge-pipe, the pump is operated not only with greater efficacy, but mainly with greater facility and without the annoying hammering action of the water in the stand-pipe. When the pump is to be used as a suction and force pump, the coupling-pipe F is inserted and screwed into the foot D^2 of the stand-pipe D and the hose F′ connected thereto. The faucet g is then closed, as during the suction and force action of the pump the same is not required. The hose E on the discharge-pipe is conducted to a gutter or other suitable place. The pump is then operated and the water lifted and conducted away in the ordinary manner.

In place of filling the reservoir from the service-pipe in case the same is choked by some obstruction the same can also be filled from a bucket filled with water, in which the plug at the lower part of the reservoir is removed or the end of the hose F′ placed into the bucket and the required quantity of water drawn into the pump.

By this attachment my improved force-pump can be readily changed into a suction and force pump for pumping water from basements or cellars and the unhandy sheet-metal lifting-pumps usually used by plumbers can be dispensed with and a much more convenient pump furnished in place of the same, which, owing to its small size, can be operated at any suitable point without the least inconvenience.

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

The combination, with a reservoir, of an opening in its lower part, a pump in said reservoir, a stand-pipe also located in the reservoir, a valve-chamber at the lower end of the stand-pipe, having valves for establishing communication between the pump-cylinder and the reservoir and stand-pipe, respectively, a discharge-pipe connected with the stand-pipe at the upper part of the reservoir, a foot attached to the lower end of the valve-chamber, a coupling-pipe inserted into the foot of the stand-pipe and provided with an exterior collar for closing the opening in the base of the reservoir, and a suction-pipe connected with the outer end of the coupling-pipe, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN H. LAWLESS.

Witnesses:
PAUL GOEPEL,
CHARLES SCHROEDER.