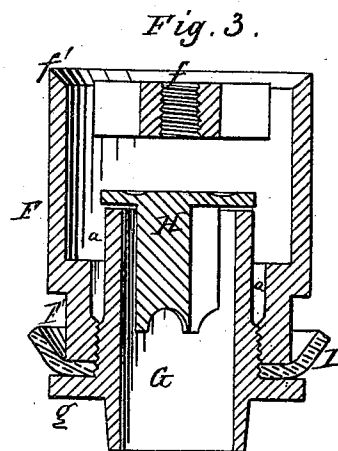
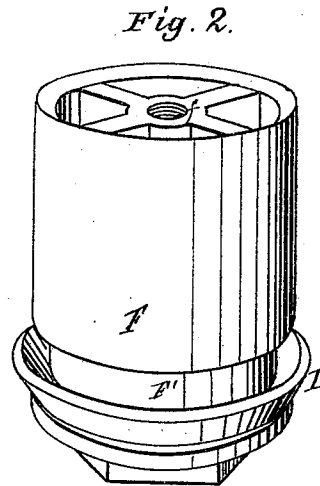
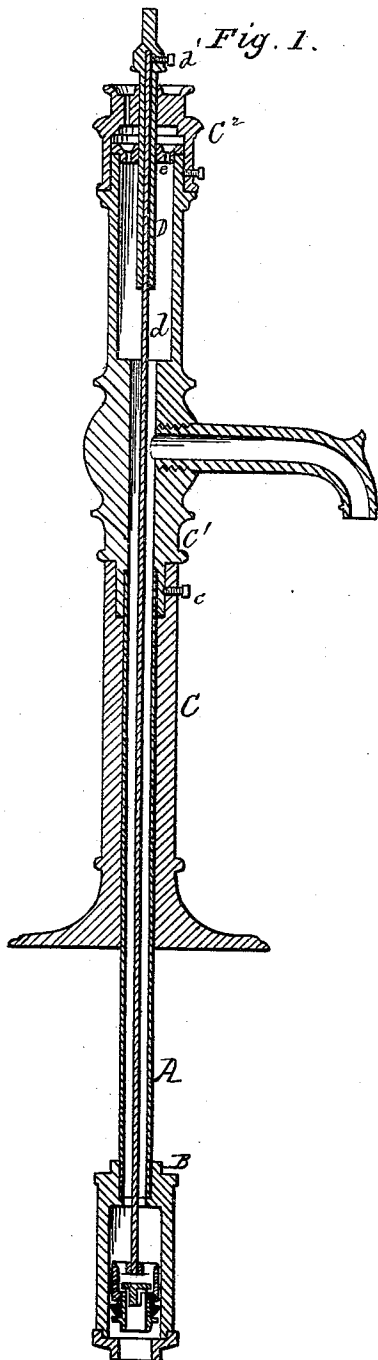


R. E. MILLS.
PUMP.

No. 179,332.

Patented June 27, 1876



Witnesses
John E. Center.
McChaffin

Inventor:
Robert E. Mills
By W. H. Ford Attorney
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Associate.

UNITED STATES PATENT OFFICE.

ROBERT E. MILLS, OF ROCKFORD, ILL., ASSIGNOR TO ELISHA L. WOODRUFF,
SAMUEL N. JONES, AND WATSON T. PIERPONT, OF SAME PLACE.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 179,332, dated June 27, 1876; application filed
August 23, 1875.

To all whom it may concern:

Be it known that I, ROBERT E. MILLS, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Pumps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents a vertical section through the pump. Fig. 2 is a side elevation of the piston or plunger enlarged; and Fig. 3 is a vertical section through said piston.

Similar letters of reference denote the same parts wherever used.

The invention consists in combining the pump-rod with the handle by means of a cylindrical tube or top piece, to which the rod is connected by a set-screw, whereby the pump-rod is stiffened and strengthened, and the necessity for accurate fitting incident to the use of the usual screw-coupling is avoided, as hereinafter described; and the invention further consists in a novel construction of the piston or plunger, which is provided with a raised valve-seat, and also with a beveled edge, for obviating the injurious action of sand or other obstructing matter on the piston, as hereinafter described.

In the accompanying drawings, A represents the pump-tube of the desired length, made in sections or otherwise, in any usual manner, and extending from the forcing-cylinder B, at its lower end, to the section C¹ of the pump-stock, with which the spout or discharge-pipe is connected, as shown in Fig. 1. The stock is composed of the base or standard C the perforation through which is enlarged at its upper end, to receive the lower end of the discharging-section C¹ fitting therein, and fastened by a set-screw, *c*, adapting said parts to be readily connected or disconnected, as desired. The bore of the section C¹ above the discharge-outlet is enlarged, forming a reservoir, the upper end of which is covered by a perforated plate or cap, *e*, which also serves as a guide or bearing for the pump-rod, hereinafter described. The upper end of section C¹ has a cap-section, C², fitting upon it, made in the form of an in-

verted cup, or of a cylinder closed at its upper end, except as it is provided with a central perforation for the pump-rod, and a series of small perforations surrounding said pump-rod, for admitting air. The cap-section C² and cover-plate *e* guide and steady the action of the pump-rod, and they also serve to exclude dust and dirt, while, at the same time, by being perforated, as explained, they permit the priming of the pump when required. *d* represents the pump-rod, united to the piston or plunger at its lower end, by the usual screw-thread or any other suitable connection, and at its upper end with a tubular coupling-rod, D. This tube is made of considerable length, passing through and fitting snugly in the perforation in the cap-section C², and cap-plate *e*, as explained, sufficiently far to remain and to move therein the entire length of its throw, and the rod *d* entering said tube passes also through said bearing-section and plate, and is secured at a point outside of the former by a set or thumb screw, *d'*. By this construction and mode of uniting the parts, the pump-rod can be readily and quickly applied, and the necessity for the nice fitting usual at this point is avoided, as when the rod *d* is in place, it is necessary only to cut it off at the required point, slip on the tubular head D, and to tighten the screw *d'*, until it firmly grasps the rod; whereas, by the usual method, after the rod has been cut at the required length, it has been necessary to cut a screw-thread thereon, for uniting it to the head. The tube D serves to materially stiffen and strengthen the pump-rod, and can be connected with the pump-handle in any of the usual modes of connecting the rod with said handle. The cylinder B may be either submerged or otherwise, as preferred, the supply opening or openings thereto being covered by a suction or inlet-valve of any usual or preferred construction. F represents the body of the piston or plunger arranged within the cylinder. It is made in the form of a hollow cylinder, closely fitting the cylinder B for the greater portion of its length, with a rabbet at its lower end, forming a seat for the packing. The upper end of this hollow piston F is cross-barred, a nut, *f*, being formed at the central

intersection of the bars for the reception of the screw at the lower end of the pump-rod. The reduced lower end of the hollow piston F is provided with an internal screw-thread or nut, for the reception of a screw formed on the periphery of a hollow cylindrical valve-seat, G. This valve-seat projects into the piston F, beyond and above the screw-thread and the rabbet F', leaving an annular space, *a a*, in which sand and dirt may accumulate, and not interfere with the action of the valve H, located upon the upper projecting end of the sleeve or seat G. The sleeve G, below the screw-thread, is provided with a rib, *g*, between which and the lower end of the hollow piston is the packing I, which is clamped by the action of the screw, uniting the valve-seat with the piston. The packing I is made, in annular form, of leather, of greater external diameter than the piston, and compressed, when the piston is inserted in the cylinder, into the rabbet formed at F', at the lower end of the piston. The upper end or edge of the piston, at *f'*, is beveled inward, and any sand or dirt which might otherwise lodge thereon, and come in contact with the inner surface of the cylinder B, or get between said cylinder and the piston, by means of this beveled edge, and the action of the water thereon, is washed inward and deposited in the annular space *a a'*, surrounding the raised valve-seat.

Parts of the pump not particularly de-

scribed may be constructed in any usual or preferred way.

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

1. The combination, with the discharging-section C¹ of the pump-stock, of the perforated cap-plate *c* and perforated cover C², for guiding the movements of the pump-rod, and permitting the priming of the pump, substantially as described.

2. The tubular coupling-piece D, surrounding the upper end of the pump-rod *d*, and united thereto by the set-screw, substantially as described.

3. The plunger F having its top edge *f'* inwardly inclined, and its lower end provided with a recess, F', in combination with the raised valve-seat G, as and for the purpose described.

4. The plunger F having the radial arms, and the nut *f* formed at the intersection of said arms to receive the plunger-rod, its sides extending above the radial arms, in combination with the raised and movable valve-seat G, as and for the purpose described.

This specification signed and witnessed this 7th day of August, 1875.

ROBERT E. MILLS.

Witnesses:

G. W. FORD,

CHARLES S. FORD.