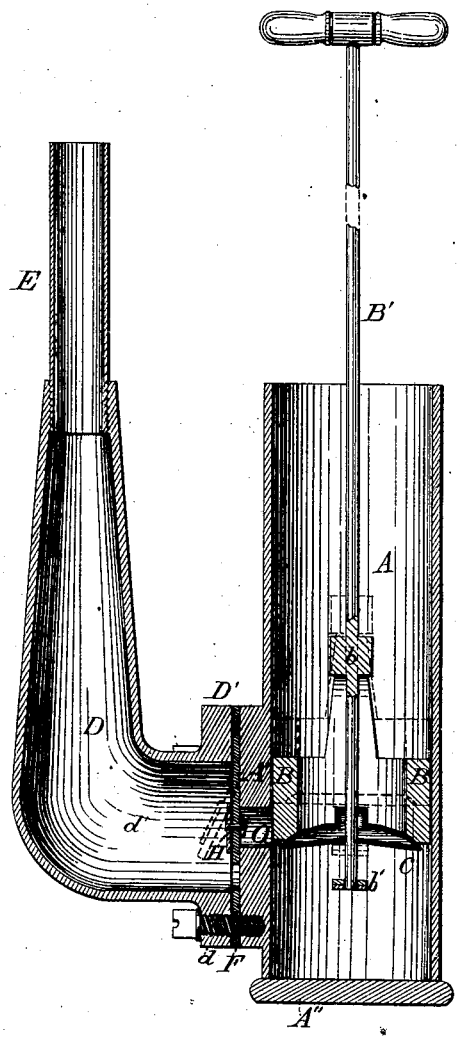
E. McCOY & O. M. HARPER.

Pump.

No. 162,402. Patented April 20, 1875.



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UNITED STATES PATENT OFFICE.

EUGENE McCOY AND OLIVER M. HARPER, OF OWATONNA, MINNESOTA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **162,402**, dated April 20, 1875; application filed December 5, 1874.

To all whom it may concern:

Be it known that we, EUGENE McCOY and OLIVER M. HARPER, of Owatonna, in the county of Steele and State of Minnesota, have invented certain new and useful Improvements in Submerged or Force Pumps; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which the pump in question is shown in central vertical section.

This invention relates to that class of devices known as submerged or force pumps, wherein, generally, the cylinder is filled at the top, and is designed to present one simply, compactly, and strongly constructed, and that is at once cheap and durable; and to this end it consists, more particularly, first, in fitting to and upon the hollow piston a sliding conical valve, as and for the purpose hereinafter to be more fully explained and set forth; and, secondly, in the special combination and arrangement, in an individual device, of the cylinder, hollow piston, conical sliding valve, elbow, and check valve, all as will now be set out in particular detail.

In the accompanying drawing, A represents the cylinder; A″, its base; B, the hollow piston, which is rigidly attached, at *b*, to the piston-rod B′. This piston is fitted in the cylinder in any suitable and effective manner. The rod B depends a little below the piston, and has at its ends a button or flange, *b′*, to form a proper seat for the sliding conical valve C, through a central aperture in which said rod passes. This valve is made solid or hollow, as the case may be, and plays freely up and down the piston-rod, which passes centrally through it. It is conical upon its upper face, so that when it is driven home upon its seat in the opening in the lower end of the hollow piston, the edges of which opening are beveled or chamfered off by the action of the water in the downward motion of the piston, a close and tight joint is formed between the valve and said piston. The elbow D, to which any suitable or convenient exit pipe or tube E may be attached at the top, is fitted in any usual or workmanlike manner upon the cylinder A, and this is now shown by means of the flange D′ and screws *d* passing through said flange and into holes in the boss or projection A′ on the lower side of cylinder A. Between the faces of these two parts suitable packing F is applied. Communication is provided for between cylinder A and elbow D through the opening G, now shown as made centrally through said boss or projection A′. Over this opening is a valve, H, so attached that it opens outwardly from said cylinder and upwardly into the horizontal part *d′* of the elbow D, which is suitably constructed to be adapted for said valve to work in.

From this description the use and operation of our said device may be readily seen. When the piston is drawn to the top of the cylinder the valve C drops below it upon its seat *d′* on the end of the piston-rod, and the current of water flows downwardly through the hollow piston into and fills the cylinder. The piston then being forced down, the said valve, on its under side, rises into its seat, and thus makes a part of the piston, in fact, and by means of the piston so made up the water is driven through the opening in the lower part of the cylinder into the adjoining elbow, and upward till it finds its escape through the exit. The valve H, opening outwardly from the cylinder, prevents any back flow of the water into the cylinder when the piston is drawn up, but allows free egress of the water when the piston is being forced down.

This general description indicates the routine of the method and detail of the operation of the device.

Our said device is constructed of any usual or convenient materials, wood or metal, and wholly or partly of the one or the other.

Having thus fully described our said invention, what we desire to secure by Letters Patent is—

1. In combination with the cylinder, the hollow piston having its inner lower edges beveled and the conical valve adapted to slide on

a portion of the piston-rod extended through and below said piston, substantially as and for the purpose set forth.

2. The submerged pump hereinbefore described, consisting of cylinder A, piston B B′, conical sliding valve C, and elbow D, communicating with said cylinder by aperture G, provided with check-valve H, all constructed and combined in manner and for the purposes set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

EUGENE McCOY.
OLIVER M. HARPER.

Witnesses:
R. S. HADLEY,
L. T. HARPER.