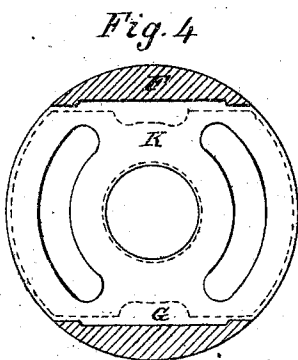
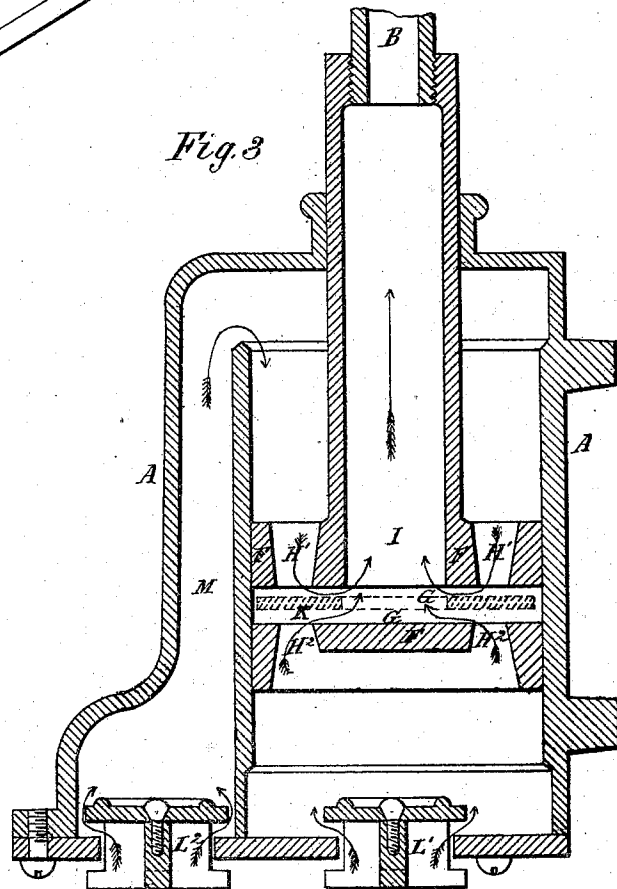
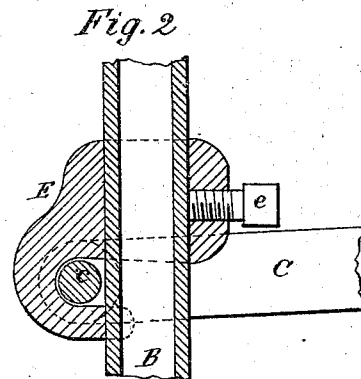
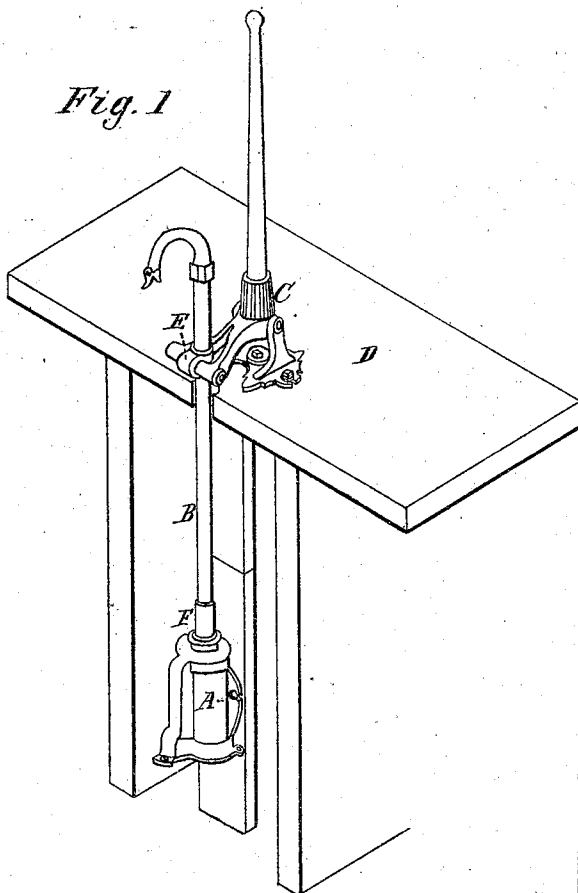


JOHN HUMPHREY.

Pump.

No. 120,070.

Patented Oct. 17, 1871.



Witnesses
Geo. Tilden
Alfred. S. Davis

Inventor
John Humphrey

UNITED STATES PATENT OFFICE.

JOHN HUMPHREY, OF KEENE, NEW HAMPSHIRE, ASSIGNOR TO BRIDGEPORT MANUFACTURING COMPANY, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN PUMP-PISTONS.

Specification forming part of Letters Patent No. 120,070, dated October 17, 1871.

To all whom it may concern:

Be it known that I, JOHN HUMPHREY, of Keene, in the county of Cheshire and State of New Hampshire, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a perspective view (of reduced size) of a pump and fixtures as arranged for use in a well or cistern. Fig. 2 is a sectional view of a portion of the operating-lever and the collar connecting it to the piston-rod. Fig. 3 is a vertical section through the center of the pump, barrel, and piston. Fig. 4 is a plan view of the piston through the valve-chamber, showing the form of the valve and the water-passages.

Similar parts are marked with the letters of reference in each of the figures.

This is a double-acting force-pump of that class which discharges through a hollow rod by which the piston is operated, and in some respects it is similar to others now known and used; therefore, I shall describe more particularly the piston as my invention, the nature of which consists in constructing the piston with a diametrical mortise or valve-chamber extending horizontally through the piston and opening at opposite points on the periphery of the same, so that it may be cast in a single piece and have the valve inserted therein without the necessity of any other appliances or labor in fitting except to file or smooth the surfaces of the same.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

A represents the outer casing or barrel of the pump, which may be attached to a timber to support it and be submerged in the water of a well or cistern. B is a tubular rod, attached to the piston and used for working it; also, for a conductor or discharge-pipe. A semicircular piece at its upper end gives the water a proper direction to fall into the pail or other receptacle.

The brake mechanism which I employ for operating the piston-rod or discharge-pipe is designated by C E &c, and will be readily understood by reference to the drawings, and I will here re-

mark that the method shown of connecting the collar E with the lever C forms the subject of a separate application for Letters Patent, and I will not, therefore, here describe it in detail.

In Figs. 2 and 3, F represents the piston, which is made in a single piece with a valve-chamber, G, to which are inlet-openings H¹ H¹ H² H², and an outlet-passage, I, connecting with the hollow rod B. K is a valve, which is incased within and acts in accordance with the movement of the piston, alternately closing the upper and lower inlet-openings H¹ H¹ and H² H²; it is made of a thin piece of metal or other suitable material, shaped to the form of the chamber, and has an aperture through its center corresponding with the outlet of the piston for the egress of the water entering at the lower openings H² H².

The novelty of this piston consists of the valve-chamber opening from the edge or periphery and passing diametrically through it, so that the valve may be placed in it without any additional parts or labor in fitting other than filing or smoothing the surfaces; the barrel or cylinder of the pump covering the open ends of the chamber and keeping the valve in its place when it is inserted therein. This form of piston is less difficult to mold and cast than those having more intricate and complicated valves and passages, and the labor of fitting the parts when cast is comparatively little, thereby saving expense in their construction; it also affords more direct passage for the water with less obstruction than by many forms of valves now used, which makes the pump more simple, effective, and cheap.

To operate it, motion is given to the lever C and communicated by rod B to the piston F with its upward movement. The valve K is seated at the bottom of the chamber G, closing the lower inlet-openings H² H², admitting the water from above the piston through the upper openings H¹ H¹, which is forced upward through the outlet; in the meantime water is entering through the induction-valve L¹, which fills the cylinder below the piston, which, by the downward stroke, is forced through the openings H² H², raising valve K to close the upper inlets H¹ H¹, so that it passes through the aperture in the center of the valve K, and through the discharge-pipe, while a new supply of water is drawn in through the induc-

tion-valve L^2 and passage m to fill the cylinder again above the piston in readiness for its next upward movement, and so on discharging the contents of the cylinder at each stroke of the piston in either direction.

I do not claim a piston inclosing a double-acting valve irrespective of its construction; nor do I claim a piston constructed with an opening at one side to admit of the insertion of a valve to close one upper and one lower port, as this is shown in the United States Letters Patent granted to Nathan Stedman on the 9th day of February, 1864; but

What I claim as my invention, and desire to secure by Letters Patent, is—

A piston for pumps, provided with a diametrical valve-chamber or passage, G , extending through the piston and opening on opposite points of its periphery and with a hollow piston-stem or eduction-pipe, B , communicating with said valve-chamber, substantially as herein described.

JOHN HUMPHREY.

Witnesses:

GEO. TILDEN,
ALFRED S. DAVIS.

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