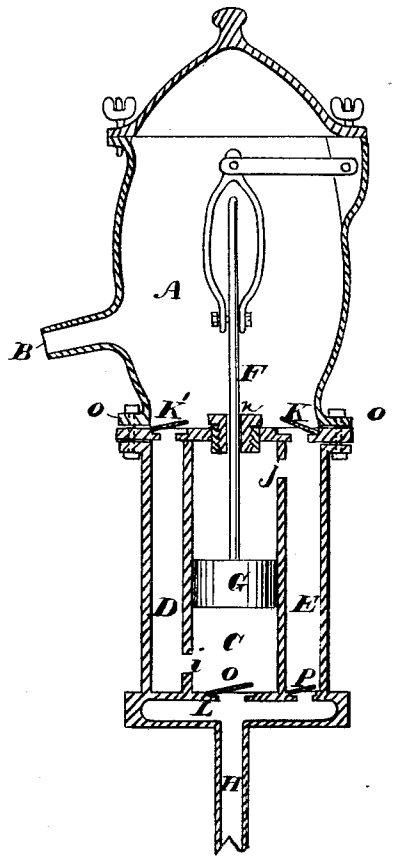
E. H. PERKINS.

DOUBLE-ACTING PUMP.

No. 185,776. Patented Dec. 26, 1876.

Fig. 1.



Witnesses

Geo. H. Strong.

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UNITED STATES PATENT OFFICE

ELIJAH H. PERKINS, OF VISALIA, CALIFORNIA.

IMPROVEMENT IN DOUBLE-ACTING PUMPS.

Specification forming part of Letters Patent No. **185,776**, dated December 26, 1876; application filed June 13, 1876.

To all whom it may concern:

Be it known that I, ELIJAH H. PERKINS, of Visalia, Tulare county, State of California, have invented an Improved Double-Acting Pump; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to double-acting pumps; and it consists, first, in locating both lower valves, one in the pipe and one in the water-way, so they will close in a vertical plane; and, secondly, in arranging the upper valves so they will be covered, together with the stuffing box, continuously by a body of water, so as to lubricate them, avoid wear from grit or sand, and prevent leakage of air, as hereinafter more specifically described and claimed.

Referring to the accompanying drawing, Figure 1 is a vertical sectional elevation of my pump.

Let A represent the air and water chamber, which constitutes the upper portion of the pump. B is the spout through which the water is discharged. The lower part of the pump consists of the piston cylinder or barrel C, and two small water-ways, E D, one of which is located on each side of the cylinder C. The upper end of the cylinder C is closed, and the piston-rod F passes up through a stuffing-box in its top, as represented. G is the piston, and H the supply-pipe. The water-way D is connected with the piston-cylinder, near its lower end, by a port, *i*, while the opposite water-way E is connected with the piston-cylinder, near its upper end, by a port, *j*. The upper end of each water-way is connected with the air-chamber by a valve, K K′. Below the cylinder C and water-way E is a chamber, L, which connects with the supply-pipe H. A valve, O, connects this chamber with the cylinder C, and another valve, *p*, connects it with the water-way E.

It will thus be seen that the upward stroke of the piston draws water into the lower part of the cylinder C, below the piston, and forces the water which is above the piston upward through the port *j* and valve K of the cylinder E, into the air-chamber, while the downward stroke draws water into the space above the piston, through the valve *p*, water-way E, and port *j*, and forces the water which is below the piston through the port *i*, water-way D, and valve K, up into the air-chamber, thus producing a steady continuous stream from the nozzle or spout B.

The cylinder C and water-ways D E I cast in one piece, separate from the air-chamber. The air-chamber I provide with a flange, *o*, at its bottom, while the lower part of the pump is provided with a corresponding flange around its upper edge. The air-chamber is then placed upon the cylinder C and the water-ways D E, and the flanges bolted together, so as to unite the two parts of the pump together. A single leather disk is placed between the two parts of the pump, so that its edge will be clamped between the flanges, and this disk entirely covers the top of the cylinder C and water-ways D E. The valves K K′ are both cut in this disk, so that a single piece of leather is used to form the packing between the flanges and the valves, thus making it convenient to get at for the purpose of repairing the valves when necessary.

I am aware of the existence of the Patent No. 47,193, of 1865, and do not claim anything therein described and shown; but,

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

1. In a double-acting force-pump, the valve P, arranged in the water-way, in combination with valve *o* in the cylinder, and the opening *i*, as set forth.

2. In a double-acting pump, the stuffing-box *n* and valves K K′, located on the same horizontal plane, in combination with and at the bottom of the chamber A, so that a body of water will remain continuously over said valves and stuffing-box, as and for the purpose specified.

In witness whereof I have hereunto set my hand and seal.

ELIJAH HENRY PERKINS. [L. S.]

Witnesses:
J. M. BACON,
J. W. CROWLEY.