(No Model.)

H. BLAKE.

FORCE PUMP.

No. 263,382. Patented Aug. 29, 1882.

Fig. 1.

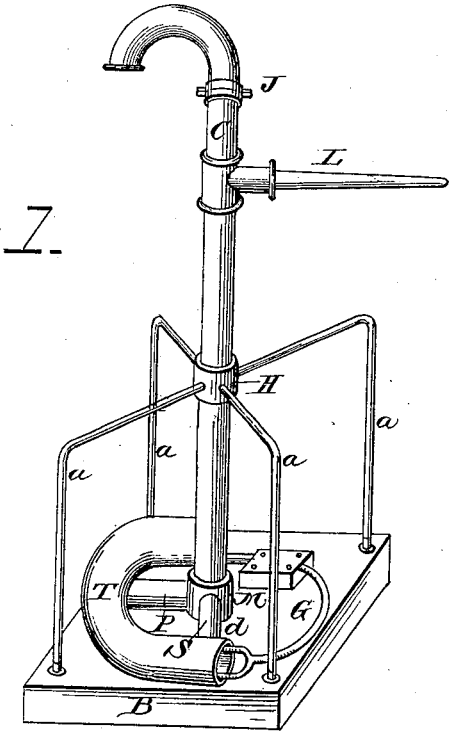


Fig. 2.

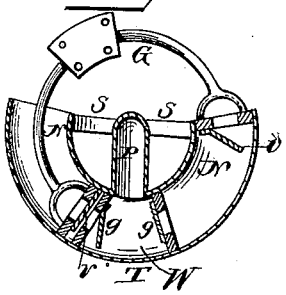
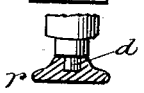


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

HIRAM BLAKE, OF KEENE, NEW HAMPSHIRE.

FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 263,382, dated August 29, 1882.

Application filed June 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, HIRAM BLAKE, a citizen of the United States, residing at Keene, in the county of Cheshire and State of New Hampshire, have invented certain new and useful Improvements in Force-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains 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.

My invention relates to improvements in forcing-pumps in which two twin rotating or oscillating force-pumps are arranged on a submerged platform in a semicircular tube, so as to discharge into one chamber, and thence up a perpendicular conducting-pipe, which at the same time is employed to operate the movements of the pump.

The object of my invention is, first, to produce a double-acting forcing-pump, which may be constructed on any desired scale, capable of being used in deep or shallow wells, ordinary cisterns, or other places where it is desired to raise water for ordinary use; second, to discharge a column of water thus raised with a force corresponding to the power employed for the purpose of watering lawns, gardens, sprinkling sidewalks and streets, quenching fires, and other like purposes; third, to embody in my invention the above features in the simplest and most durable manner, so that the machine shall not be liable to get out of repair, and can be operated with ease by any one. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the entire machine as it appears when ready for use. Fig. 2 is a sectional top view, showing the arrangement or the valves and other working parts of the machine. Fig. 3 is a section of the bearing on which the movable parts of the pump vibrate.

Similar letters refer to similar parts throughout the several views.

The rods *a a a a*, running from the corners of the bed or platform B to the bearing or hub H, constitute a frame-work for the support of the perpendicular pipe C. This frame-work may be varied in construction to suit the convenience of position and surroundings. The conducting-pipe C terminates at the bottom in the bearing M, and is provided with a gudgeon, *d*, which runs in a bearing, *r*, placed in the center of the bed B. The pipe C, extending upward to any required length, terminates in an ordinary packed and movable joint, J, for the purpose of attaching a curved spout, hose-pipe, or other apparatus for regulating the discharge of the water therefrom.

To the pipe C is firmly connected the semicircular tube or cylinder T by means of the arms S S and connecting-pipe P. The pipe P, which is an extension at a right angle of the pipe C, opens into the water-chamber W in the tube T, from which the water is forced upward and out of the pipe C, as hereinafter shown. The whole is vibrated backward and forward by means of the horizontal lever or handle L, which is attached at any convenient point on the pipe C. One or more of these levers may be employed when it is desired to enhance the motive power of the machine.

The double semicircular plunger G is firmly fixed to the platform B, so as to pass inside of the bore of the tube T while the same is rotated. On the ends of the plunger G are boxes with valves *v v*, and within the tube T the curved cylinders N N, containing valves *g g*. All these valves open inward toward the water-chamber W, as shown. Suitable packing is placed around the boxes of the plunger G.

The mode of operation is as follows, viz: When either barrel of the cylinders N N in the tube T is filled with water the valve-box of the plunger G on the side in question stands near the inner rim of the tube T, as shown in the drawings. Now, when the tube T is moved forward over the rod of the plunger G the valve *v* closes, while the valve *g* opens, and the water is forced through the valve *g* in the water-chamber W, through the pipe P, and up the conducting-pipe C. While this operation is going on the valve *g* on the opposite side closes, the valve *v* opens and fills the barrel with water, ready to be discharged into the water-chamber W by the reverse motion of the lever L.

It is obvious that the position of the parts may be reversed by fixing the tubes or cylinders and causing the plunger part to vibrate, and thus produce the same general result in substantially the same way as I have above

described. I prefer the latter form of construction for use in bodies of water containing sand and other sediment, as the packing of the tubes is easily performed and longer retained than in the first plan, and sand or sediment can be easily excluded from the pump by placing screens or filters in proper positions over the valves.

An air-chamber of ordinary construction may be placed over the connecting-pipes P, or in any other proper position on the machine, for the purpose of equalizing the discharge of water.

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

1. A double-acting forcing-pump having a double stationary semicircular plunger or piston placed horizontally with a bed or platform, with two curved vibrating cylinders, and perpendicular conducting-pipe operated by the forward and backward movement of a horizontal lever, all constructed substantially as and for the purposes specified.

2. The oscillating semicircular tube T, provided with valves *g g*, water-chamber W, connecting-pipe P, conducting-pipe C, and horizontal lever L, when constructed and operating substantially as and for the purpose set forth.

3. The double-headed stationary semicircular piston G, provided with boxes and valves *v v*, constructed and combined with a curved vibrating cylinder, substantially as and for the purposes described.

4. The curved horizontal cylinders N N, provided with valves *g g*, in combination with the water-chamber W, connecting-pipe P, and conducting-pipe C, constructed substantially as and for the purposes specified.

5. The combination, in a forcing-pump, of the double-headed stationary plunger G with the semicircular oscillating tube T, provided with the curved cylinders N N, valves *g g*, water-chamber W, connecting-pipe P, and conducting-pipe C, all constructed and operating substantially as and for the purposes specified.

6. The combination, in a forcing-pump, of the platform B, double-headed plunger G, the oscillating tube T, the curved cylinders N N, with valves *g g*, water-chamber W, connecting-pipe P, conducting-pipe C, and horizontal lever L, all constructed substantially as described, for the purposes specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HIRAM BLAKE.

Witnesses:
F. C. FAULKNER,
S. D. WINSLOW, 2d.