(No Model.)

J. W. VAN ORDER.

FORCE PUMP.

No. 348,361. Patented Aug. 31, 1886.

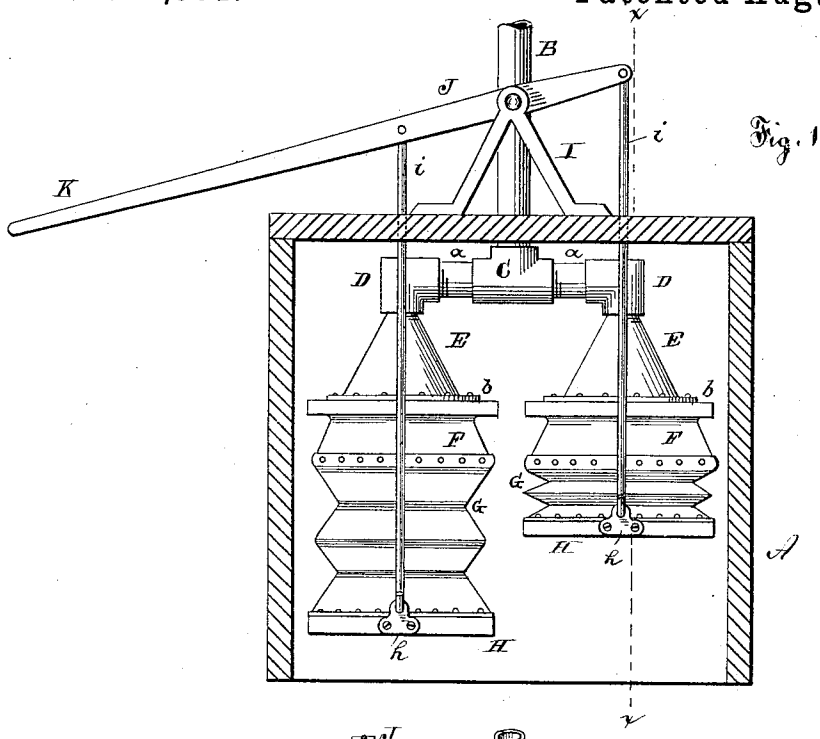

Fig. 1.

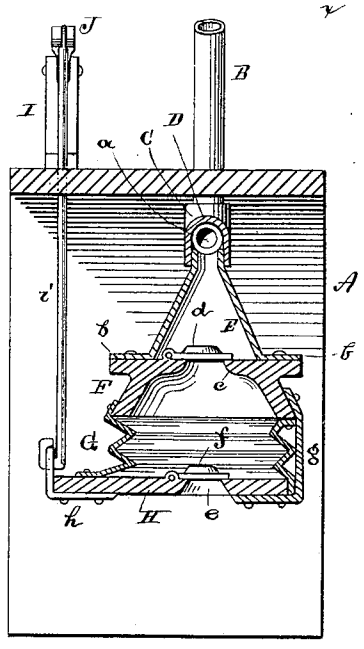

Fig. 2.

WITNESSES:

D. D. Mott

E. Sedgwick

INVENTOR:

J. W. Van Order

BY Munn & Co

ATTORNEYS.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

JACOB W. VAN ORDER, OF ARLINGTON, OREGON.

FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 348,361, dated August 31, 1886.

Application filed May 24, 1886. Serial No. 203,123. (No model.)

To all whom it may concern:

Be it known that I, JACOB W. VAN ORDER, of Arlington, county of Gilliam and State of Oregon, have invented new and useful Improvements in Force-Pumps, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front elevation. Fig. 2 is a vertical transverse section taken on line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts in both figures of the drawings.

The object of my invention is to provide a simple and efficient pump for forcing water without the employment of bored cylinders and packed pistons.

The invention consists of the combinations of parts, including their construction, substantially as hereinafter fully set forth, and pointed out in the claims.

My improved pump is designed to be submerged in the water of the well, cistern, or reservoir. In the present case I have shown it supported by a casing, A, but the working parts of the pump may be supported by suitable frame-work placed in the well or cistern and upon the ground-level. The pipe B, in which the water is discharged, is connected with a T, C, which is connected by short pipe-sections *a* with the downwardly-turned elbows D. In the elbows D are received the smaller ends of the conical water-chambers E. To flanges *b* on the lower ends of these chambers are secured the annular blocks F, which are each provided with a valve-seat, *c*. To the upper surface of each block F is hinged a valve, *d*, which closes over the opening in the valve-seat.

To the flaring lower edge of each block F are secured the bellows sides G, which are formed of flexible material, such as rubber or leather, arranged to fold together as the bellows are closed. To the lower edges of the bellows sides G are secured the bottom boards, H, each provided with a suction-opening, *e*, and with a valve, *f*, hinged to the board H, and arranged to cover the suction-opening *e*. The rear edge of each bellows-board H is connected by a flexible strap, *g*, with the annular block F, forming a hinge upon which the board H is swung in the operation of pumping. To the front edge of each bottom board, H, is secured a right-angled apertured plate, *h*.

To the top of the casing or frame-work is secured a standard, I, in which is pivoted the two-armed lever J, having one of its arms prolonged, forming a handle, K, by which the pump is operated. The arms of the lever J, on opposite sides of its pivot, are connected by rods *i* with the right-angled plates *h*. By oscillating the lever J the bellows are extended and contracted in alternation. When the bottom board, H, of one bellows descends, the suction-valve *f* opens, admitting water to the interior of the bellows, and the discharge-valve is closed, while the bottom board of the other bellows is raised, closing the suction-valve *f*, opening the discharge-valve *d*, and forcing the water up the riser.

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

1. The combination, in a force-pump, of the conical water-chamber E, the annular block F, secured to the lower end of the water-chamber and provided with the valve-seat *c*, the valve *d*, hinged to the annular block and closing over the valve-opening, the flexible bellows sides G, the bottom board, H, provided with the suction-opening *e*, the valve *f*, hinged to the bottom board and arranged to close over the suction-opening, the flexible strap *g*, secured to the bottom board, H, and connected with the annular block F, the apertured angled plate *h*, the rod *i*, and pump operating lever J, substantially as herein shown and described.

2. In a force-pump, the combination of the riser B, conical water chambers communicating with the riser, annular blocks F, secured to the water-chambers and provided with valves *b*, the flexible bellows sides G, bellows bottoms H, provided with the suction-opening *e* and suction-valve *f*, the flexible straps *g*, connected with the bottom boards and with the annular blocks, the angled plates *h*, the rods *i*, and the lever J, substantially as herein shown and described.

JACOB W. VAN ORDER.

Witnesses:
W. G. BROWN,
H. G. HURLBURT.