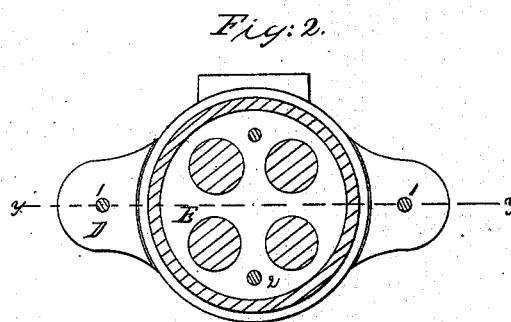
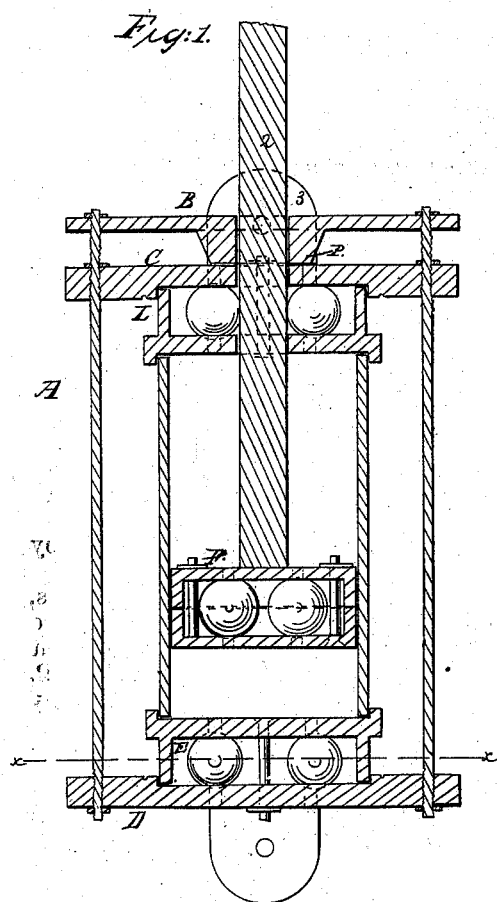


A. Balding,
Double-Acting Pump,

N^o 49,212.

Patented Aug. 8, 1865.



Witnesses:

C. L. Felt
Henry Adams

Inventor:

A. Balding,
By Munn & Co.
Attys

UNITED STATES PATENT OFFICE.

A. BALDING, OF FLORA, ILLINOIS.

IMPROVEMENT IN SUBMERGED FORCE-PUMPS.

Specification forming part of Letters Patent No. 49,212, dated August 8, 1865.

To all whom it may concern:

Be it known that I, A. BALDING, of Flora, in the county of Clay and State of Illinois, have invented a new and useful Improvement in Double-Acting Force-Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows an elevation of a longitudinal section of my pump in the line *y* of Fig. 2, Fig. 2 showing a plan of a horizontal section through the lower valve-chamber, E.

Similar letters of reference indicate like parts.

A is the pump. It has ears 3 secured to the heads C and D, whereby to attach the pump to any fixture above the reach of sediment and impurities near the bottom of any reservoir in which it is to be used.

The several parts of the pump are secured together by means of rods 1, which also pass through the guide B, through which the piston passes.

The pump may be made of any material that is suitable. I have shown it as made of glass. The ball-valves are to be of glass or other substance not liable to corrosion. The lower head, D, of the cylinder is cut away so as to receive the ends of the lower valve-chamber, E, which is bolted to the head by screw-bolts 2. The

head D and the top of the valve-chamber E are to be perforated, as shown in dotted outline, and supplied with balls, as also the other valve-chambers.

The head C is also made to receive the ends of the upper valve chamber, D, which is constructed like the chamber E. A hollow piston-rod, 2, passes through the center of the valve-chamber D, and has attached to its inner end a piston, F, perforated and provided with valves like those at each end of the cylinder. The piston F is properly fastened together by bolts, as shown.

A boss, through which the piston-rod passes, extends from the guide-piece B to the surface of the upper head, C, and the joint between it and the head is made water-tight by packing P.

The operation of the pump will be readily understood from the drawings.

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

The combination of the upper and lower chambers provided respectively with the ball-valves and openings, and the hollow piston-rod and chambered piston, the latter also provided with ball-valves and openings, the whole arranged and constructed as described and represented.

A. BALDING.

Witnesses:

GEORGE HARTER,
JAMES W. EWING.