D. P. MANROSE.

Pump.

No. 211,414. Patented Jan. 14, 1879.

Fig. 1.

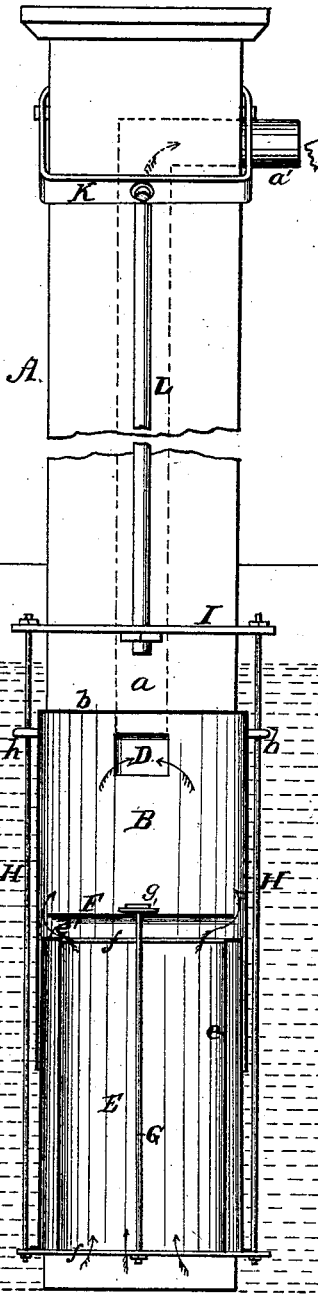

Fig. 2.

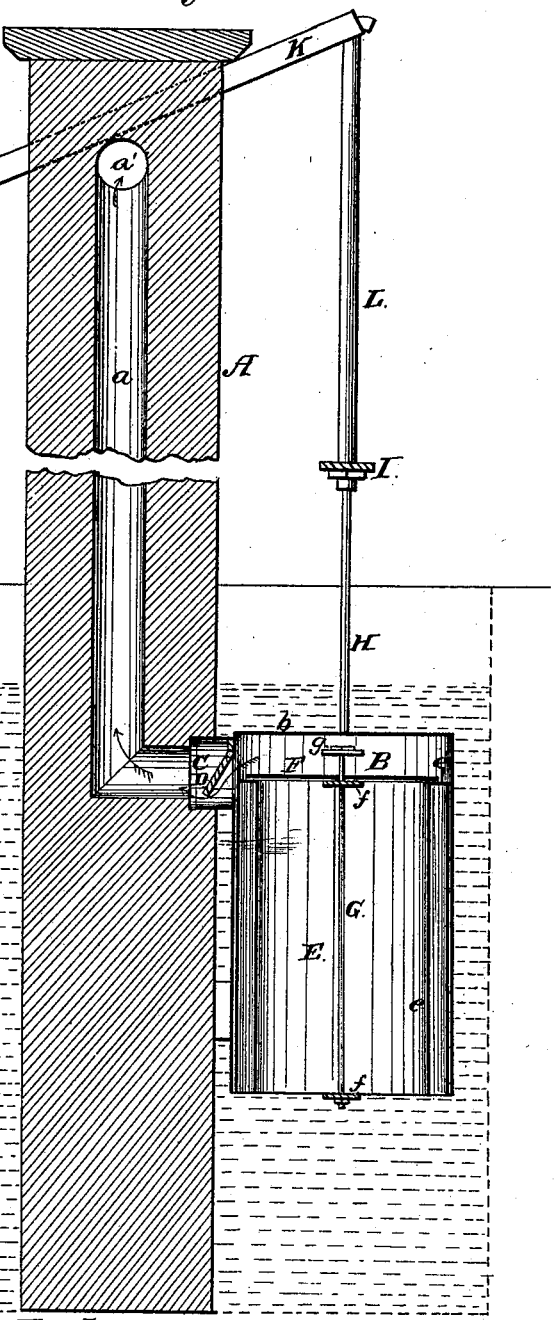

Fig. 3.

Attest:
F. B. Brock
D. G. Stuart

Inventor:
David P. Manrose
by A. McCallum
Attorney

UNITED STATES PATENT OFFICE.

DAVID P. MANROSE, OF RIVERTON, IOWA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **211,414**, dated January 14, 1879; application filed November 23, 1878.

To all whom it may concern:

Be it known that I, DAVID P. MANROSE, of Riverton, in the county of Fremont and State of Iowa, 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 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to pumps; and consists in a force-pump of novel construction, adapted for use as a submerged pump in deep wells, the advantages being that the ordinary valves are dispensed with, and the lifting of the water is accomplished with great ease, the main features of the device being two hollow cylinders, operating one within the other, and a disk which operates as a valve, all as hereinafter more fully set forth and described.

In the accompanying drawing, Figure 1 is an elevation, showing the pump-cylinders in section and in position when the inner movable cylinder has reached the limit of its downward stroke. Fig. 2 is a side view of the pump, shown in section, and with the parts arranged at the limit of the upward stroke. Fig. 3 is a detail view of the hinged valve.

Referring to the parts by letters, A represents the pump-stock, which is generally made of wood and of any suitable length, according to the depth of the well. It is bored out with a hole, *a*, in the usual manner, which connects with a spout, *a'*, at the top, and with the pump-cylinders at its lower end.

B is a cylinder having a close head, *b*, at its upper end, while its lower end is entirely open. This cylinder B is securely fastened to the side of the pump-stock in any suitable and convenient manner, and its upper portion is connected with the bore of the pump-stock by a short tube, C, in which there is a hinged valve, D, which opens toward the pump-stock. I prefer to use the form of hinged valve shown by Fig. 3 in this position, the same being made of metal, and consequently less liable to get out of order than a leather valve, or one held in place by a spring; but it will be evident to those skilled in the art that any ordinary clack-valve may be used, its only office being to prevent the back-flow of the water in the well-tube.

E is a cylinder arranged within the cylinder B, both ends being open or without heads. It also has an inner shell, *e*, which is connected at the upper end with the wall of the cylinder E by a ring or annular plate, *e'*, thereby forming a seat for the disk-valve F. *f f* are guides or cross-bars secured across the top and bottom of the cylinder E. G is a rod which passes through the bars *f f* and through the disk F. Its upper end is provided with a button or enlargement, *g*, and its lower end is secured to the lower cross-bar, *f*, by a nut, or in any other suitable manner.

H H are rods, the lower ends of which are secured to the outer extremities of the lower cross-bar, *f*, and which pass up through loops or eyes *h*, secured to the outside of the cylinder B, their upper ends being secured to a cross-bar, I. K is the brake-lever, and L the rod, which connects it with the cross-bar I.

The operation of the pump is as follows: When the handle of the brake-lever is raised the inner cylinder, E, through its connection therewith by means of the rod L, cross-bar I, and rods H, is moved downward through the water, the downward movement raising the disk-valve F and allowing the water to pass into the cylinder B, the direction of the flow of the water being clearly indicated by the arrows in Fig. 1 of the drawings.

When the handle of the brake-lever is forced downward the cylinder E is drawn upward, and the disk-valve F immediately closing, the water in cylinder B is forced up through the bore in the pump-stock, the valve D opening to allow it to pass, but immediately closing to retain the water in the well-tube, when the cylinder E is again lowered on the downward stroke.

In deep wells the cylinders should be large and the well-tubes of relatively small bore; but in wells where the water has not to be lifted any great height, smaller cylinders or well-tubes of larger bore may be used.

The cylinders should be located close to the bottom of the well, but not so near the bottom

as to agitate the water to such a degree as to disturb the earth or sand at the bottom of the well, and thereby render the water impure.

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

The combination, with the pump-stock A, having the bore *a*, of the outer stationary cylinder, B, open at its lower end, closed at its upper end, and provided with the valve D, inner double movable cylinder, E, open at both ends and provided with the valve-seat *e'*, disk F, and the operating mechanism for the movable cylinder, substantially as described, and for the purpose set forth.

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

DAVID P. MANROSE.

Witnesses:

ORANGE PARRET,

C. E. ECKMAN.