

H. L. HOUGHTON.

Rotary-Pumps.

No. 153,566.

Patented July 28, 1874.

Fig. 2.

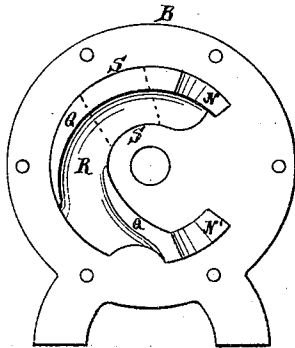


Fig. 1.

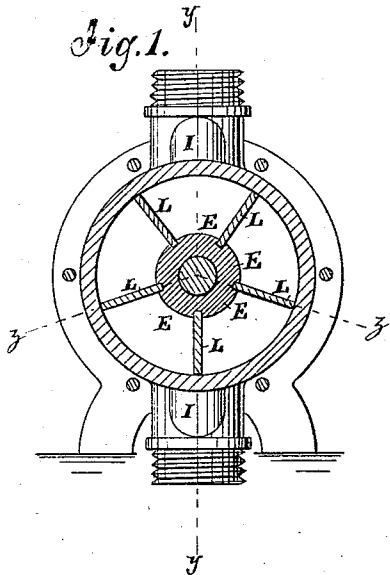


Fig. 3.

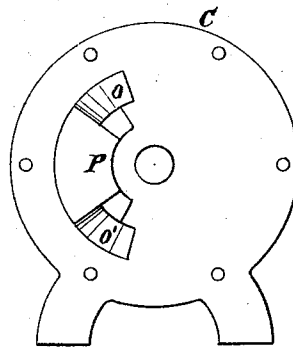


Fig. 4.

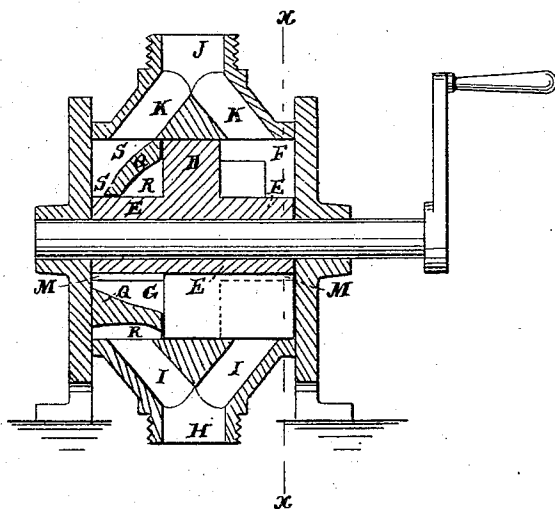
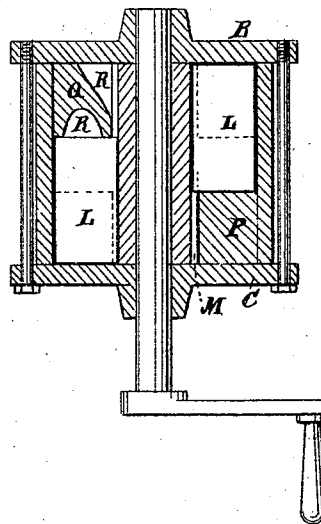


Fig. 5.



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HIRAM L. HOUGHTON, OF CHARLESTOWN, NEW HAMPSHIRE.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. **153,566**, dated July 28, 1874; application filed June 27, 1874.

To all whom it may concern:

Be it known that I, HIRAM L. HOUGHTON, of Charlestown, Sullivan county, New Hampshire, have invented a new and Improved Rotary Pump, of which the following is a specification:

My invention consists of a hollow cylinder with closed ends, containing a rotary disk in the middle portion, which carries blades in longitudinal and radial slots in it, and in the shaft, which blades are shifted forward and backward by cams on each end of the cylinder to cause them to press the cut-off and rims over the suction-pipe, and carry the water up to, and deliver it at, the discharge-pipe. The suction-pipe is divided, and a branch enters into that chamber in which the blades are thrown to pass the cut-off in the principal pumping-chamber, and a passage is formed through the cut-off to a branch of the discharge-pipe, whereby whatever effect may be obtained by the blades in that chamber is utilized.

Figure 1 is a sectional elevation of the pump, taken on the line *xx*, Fig. 4. Fig. 2 is an inside elevation of one of the cylinder-heads, showing the cam on that side for working the blades. Fig. 3 is an inside elevation of the other cylinder-head, showing the cam on that side. Fig. 4 is a longitudinal sectional elevation taken on the line *yy*, Fig. 1; and Fig. 5 is a longitudinal sectional elevation taken on the line *zz*, Fig. 1.

Similar letters of reference indicate corresponding parts.

A is a hollow cylinder, which is preferably arranged horizontally with heads B C for closing, and containing a revolving disk, D, dividing it in the middle, and having a hub, E, extending each way to the ends of the cylinder. The chambers F G, of equal dimensions, thus

formed, are connected alike with the suction-pipe H by branches I, and with the discharge-pipe J by branches K, and the water is to be drawn up through them, and forced out at the discharge-pipe by the blades L, fitted in longitudinal and radial slots in the disk, and in corresponding grooves in the hub. These blades are as long as the breadth of one chamber and the thickness of the hub, and they are caused to slide laterally in these slots and grooves by cams N N' O O' to pass the cut-offs P Q. The right-hand chamber, Fig. 4, is the principal pumping-chamber; it contains the cut-off P and cams O O', which allow the blades to run about three-fifths of the revolution in the chamber—that is, from the advance side at the suction-pipe to the after side of the discharge—so as to work full stroke, while they only run in the other chamber long enough to pass the cut-off P; but as they effect a considerable impelling force during the time they run in this chamber, I propose to utilize it to aid in raising water, and therefore make a channel, R S, through the cut-off Q, in connection with the branch suction and discharge pipe connections, and thus utilize the useful effect of the blades in this chamber, which is commonly lost in pumps of this kind.

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

In combination with a double-chambered cylinder, F G, having reciprocating blades L and cam cut-offs P Q, the latter, Q, having a passage through it, and the branched suction and discharge pipes, all constructed and connected substantially as specified.

HIRAM L. HOUGHTON.

Witnesses:

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