

M. W. McCORTNEY.
Pump.

No. 221,335.

Patented Nov. 4, 1879.

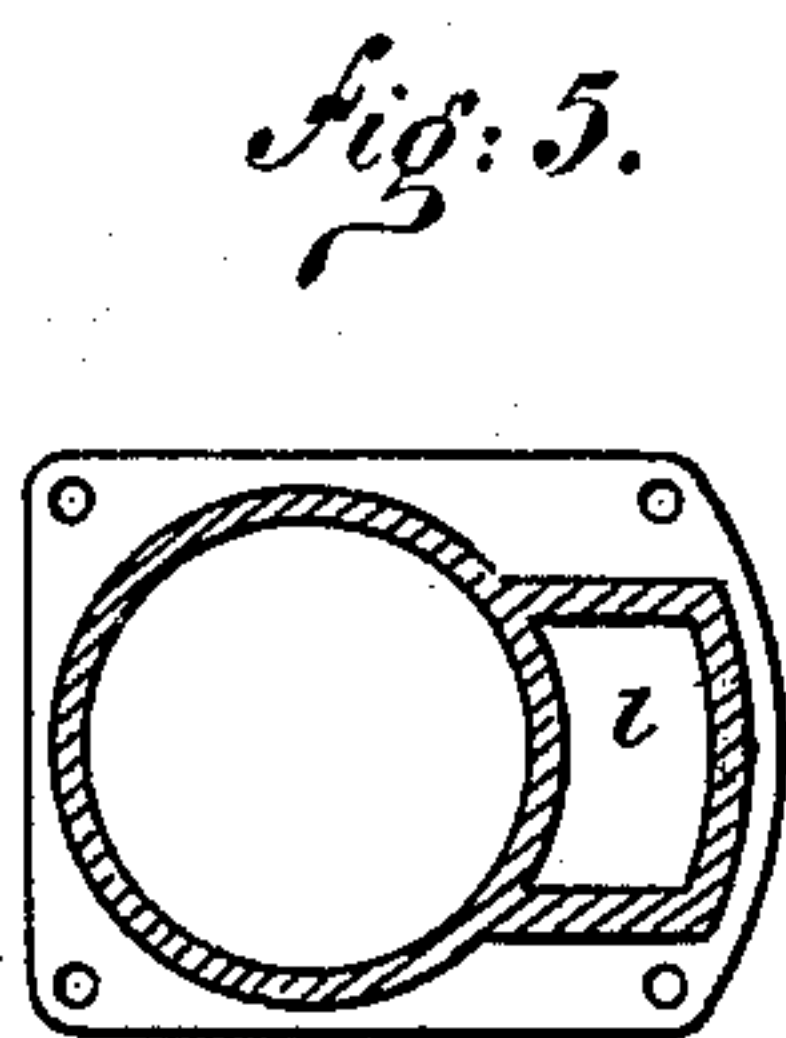
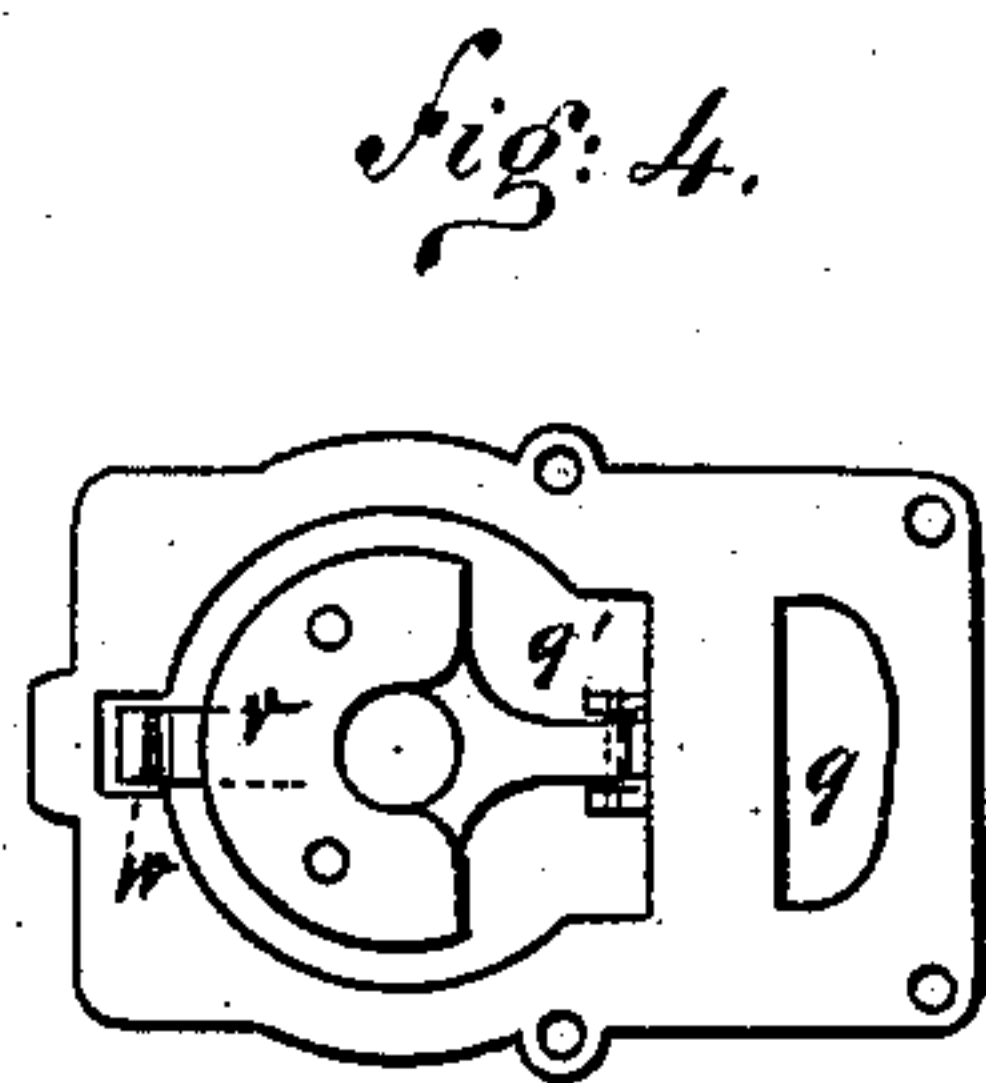
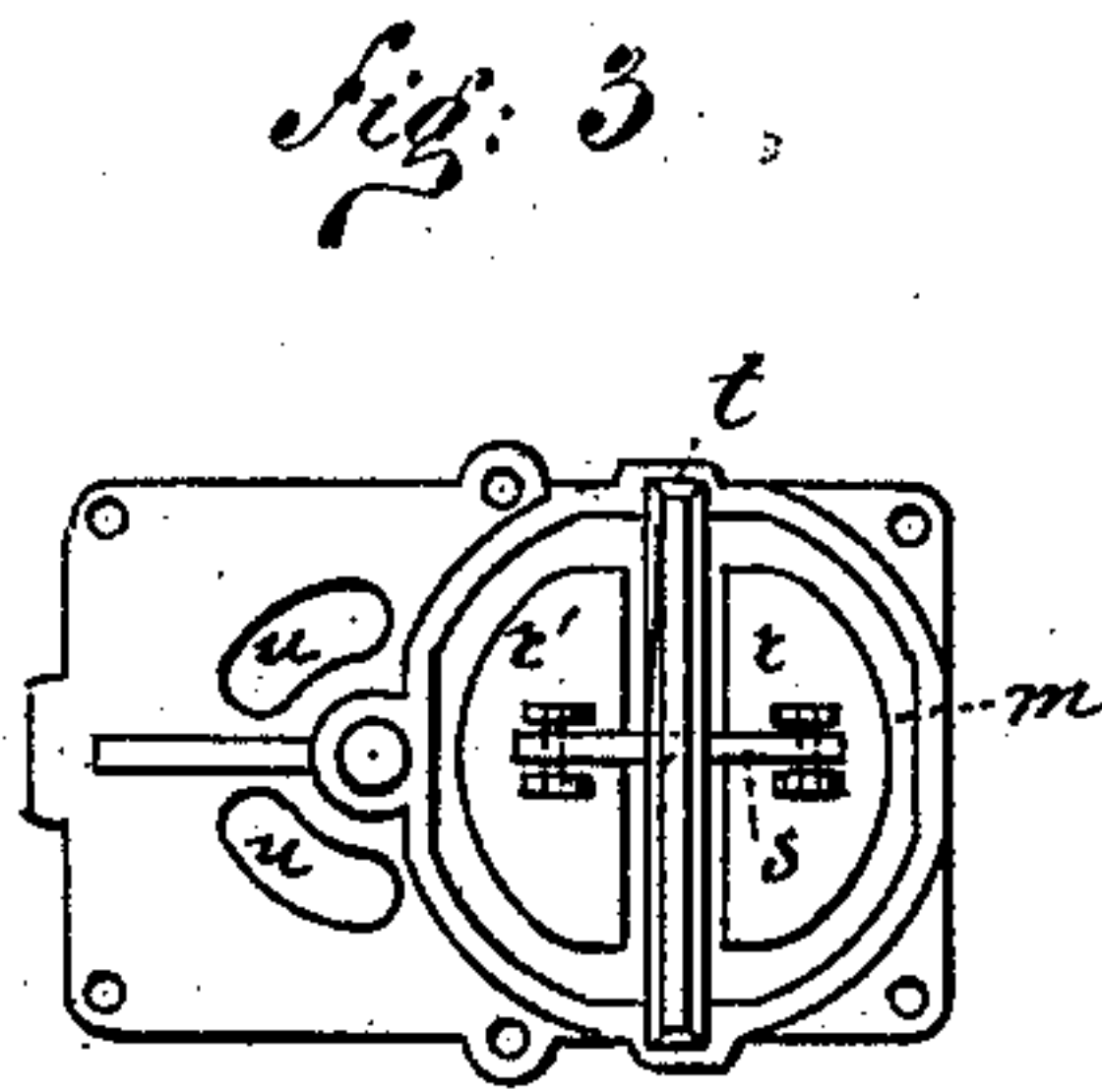
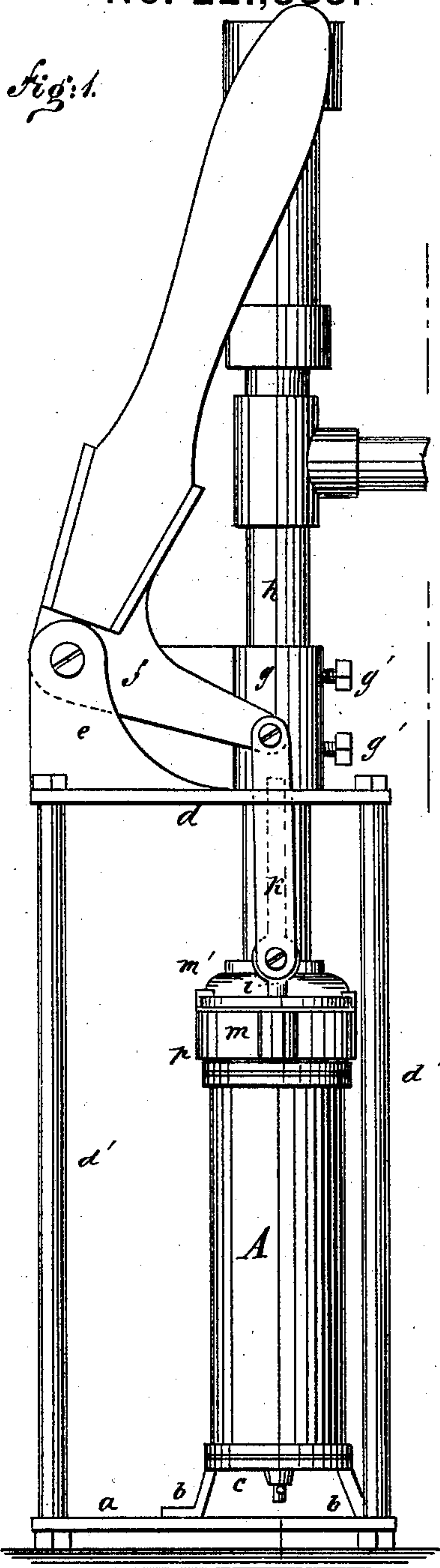
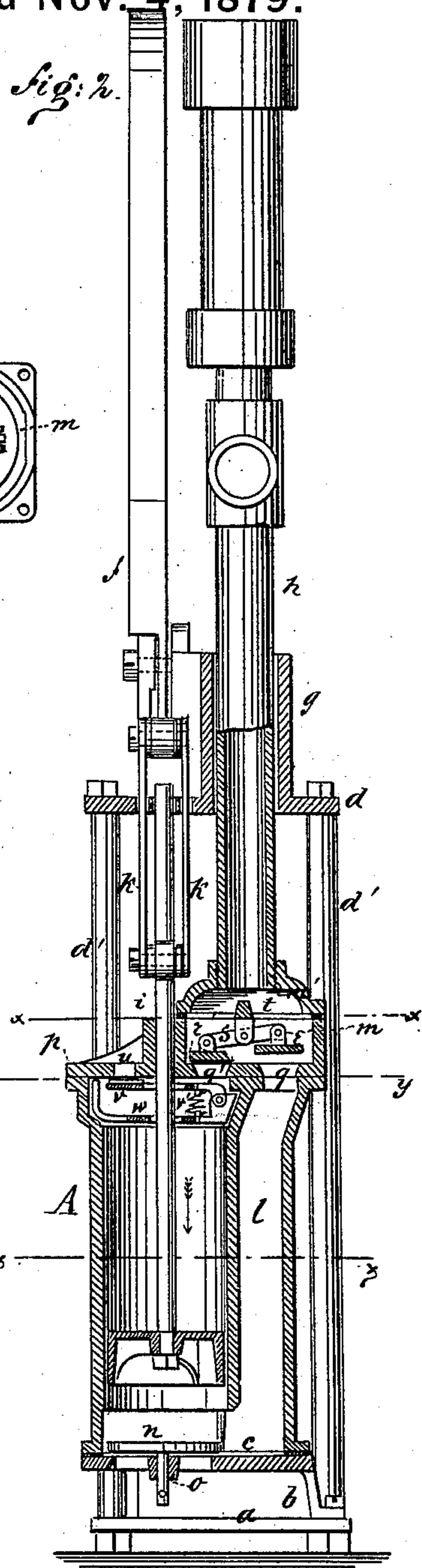
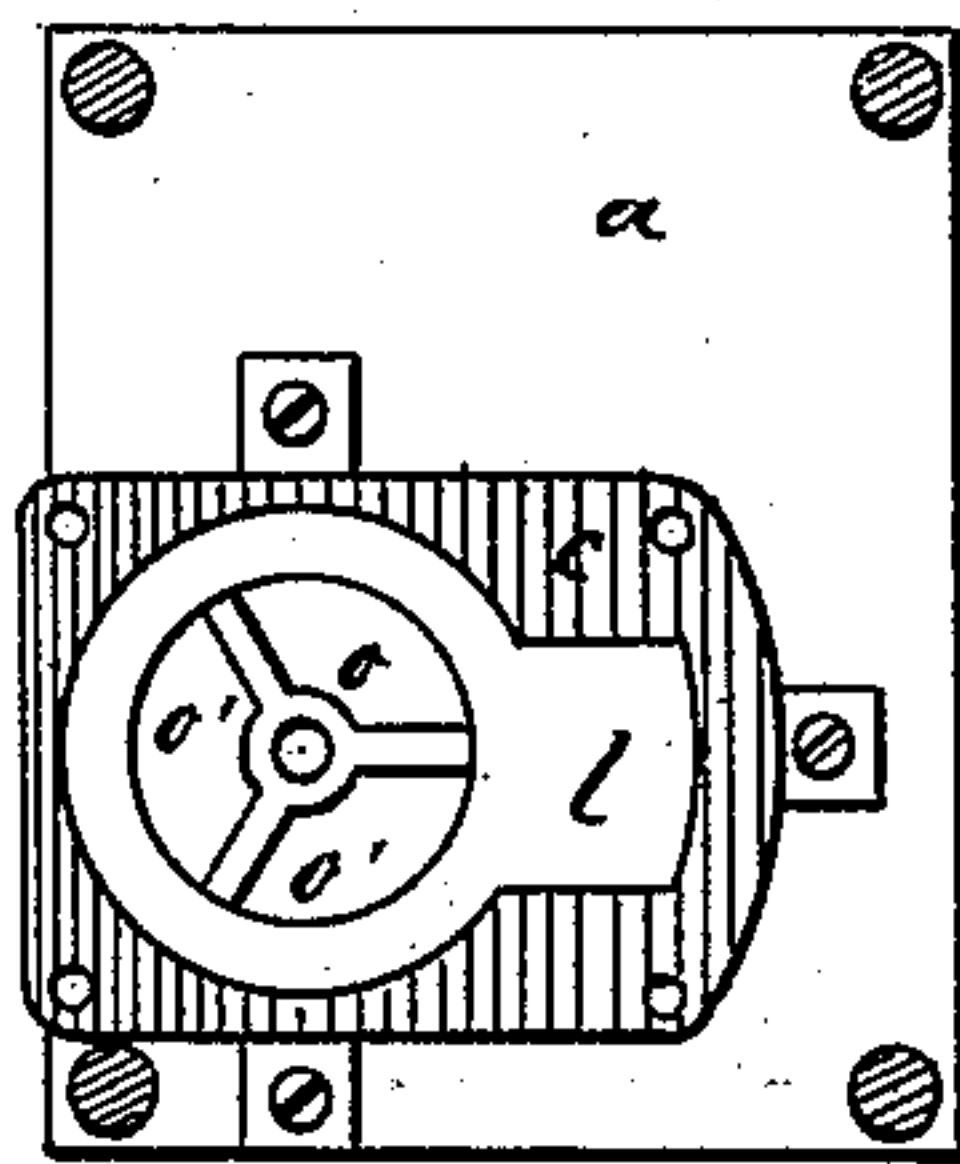


Fig: 6.



WITNESSES:

Chas. Vida.
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INVENTOR:

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UNITED STATES PATENT OFFICE.

MARTIN W. McCORTNEY, OF MOUNT PLEASANT, MICHIGAN.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **221,335**, dated November 4, 1879; application filed July 3, 1879.

To all whom it may concern:

Be it known that I, MARTIN W. McCORTNEY, of Mount Pleasant, in the county of Isabella and State of Michigan, have invented a new and Improved Double-Acting Pump, of which the following is a specification.

My invention relates to a single-cylinder double-acting force-pump for wells, of novel construction, having its valves and connections fitted in a simple and durable manner, and so as to be readily accessible.

The invention will be described in connection with the accompanying drawings, wherein—

Figure 1 is a side elevation of the pump. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section on the line *xx* of Fig. 2. Fig. 4 is a similar section on line *yy*. Fig. 5 is a similar section on line *zz*. Fig. 6 is a plan view of the bottom plate which supports the pump-barrel.

Similar letters of reference indicate corresponding parts.

The pump-barrel *A* is supported in a vertical position upon a bottom or sole plate, *a*, by legs *b* that project from the cylinder-head *c*, and are bolted to plate *a*. Thereby space is given beneath the cylinder for access of water to the inlet-valve that is seated in the head *c*.

d is a top plate supported above the barrel *A* by rods *d'*, and formed with lugs *e e*, in which the pump-handle *f* is hung, and with a socket, *g*, through which passes the discharge-pipe *h*. In the side of the socket *g* are set-screws *g'*, by which the pipe *h* is clamped.

The plate *d* is apertured for the passage of the piston-rod *i*, the plate thereby forming a guide for the rod; and the plate is also apertured for the passage of the links *kk* that connect the pump-handle with the piston.

By the above-described construction the parts are all supported by the plates *a d*, and the wooden platform that covers the well, as usual, is relieved from the strain of the handle.

The barrel or cylinder *A* is formed with a water-passage, *l*, at one side and lengthwise of the cylinder, which passage opens at its lower end into the cylinder, and at its upper end into a valve-chamber, *m*, which is covered

by a cap, *m'*, and to which the discharge-pipe *h* is connected.

The lower inlet-valve, *n*, is seated upon the lower cylinder-head, *c*, which head is formed with an annular opening. The valve is centered by the apertured center socket, *o*, that is sustained in place by depressed ribs *o'*, and through which the valve-stem passes. A cross-pin through the valve-stem prevents it from rising too far.

The valve-chamber *m* is cast in one piece with the upper head, *p*, of the cylinder. In the bottom of the chamber *m* are openings *q q'*, the former leading to the water-passage *l*, and the latter to the cylinder *A*. These openings are fitted with disk-valves *r r'*, which are hung at opposite ends of a rocking lever, *s*, whereby these valves move in opposite directions—that is to say, when one is open the other is shut.

The lever *s* is hung on a bar, *t*, that rests upon the upper edge of the sides of chamber *m*, and is retained in place by the cap *m'*, which is mortised to set over the bar *t*. In the head *p* are the upper inlet-openings, *u*, which are closed by a swinging valve, *v*, fitted beneath them, as next described.

The valve *v* is hung by arms in lugs at one end of a cross-bar, *w*, and is prevented from falling by a spring, *v'*, that is fitted between bar *w* and the valve. The hole for the pivot-pin of the valves is elongated, so that the valve may be forced up squarely against the inlet-openings.

The bar *w* is held in place at one end by entering a mortise formed in the side of cylinder *A*, (see Fig. 4,) and at the other end by a lug or projection over which the cross-bar sets. The head *p* prevents the bar *w* from rising, and the bar and valve may be readily inserted and removed when the head *p* is off. The valve *v* and bar *w* are apertured for the passage of the piston-rod *i*.

In operating, the cylinder *A* will be immersed below the water; the downward movement of the piston will open the valve *v* for inlet of water, close the check-valve *r'* and bottom valve *n*, and the water below the piston-head will be forced by the passage *l* and opening *q* to the discharge-pipe. The upward

movement of the piston will close valve *v*, open valve *u*, and the water above the piston will be forced by the passage *q'* and chamber *m* to the discharge-pipe, the valve *r* at the same time closing the opening *q*.

This construction renders all parts of the pump durable and accessible, and furnishes a double-acting force-pump adapted for raising water from wells by hand-power and in a continuous stream.

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

1. In a double-acting pump, the rocking lever *s*, carrying the eduction-valves *r r'*, the sustaining-bar *t*, and mortised cap *m'*, com-

bined together and with the chamber *m*, substantially as and for the purposes set forth.

2. In a double-acting pump, the head *p*, having inlet-openings *u*, the swinging valve *v*, and cross-bar *w*, combined together and with the barrel or cylinder *A*, substantially as and for the purposes set forth.

3. The hinged inlet-valve *v*, the sustaining-bar *w*, and spring *v'*, in combination with the pump-cylinder *A*, formed with lugs or mortises for retaining the bar *w*, and fitted with the cap *p*, as and for the purposes specified.

MARTIN WALTER McCORTNEY.

Witnesses:

D. P. HANSON,

H. M. McCORTNEY.