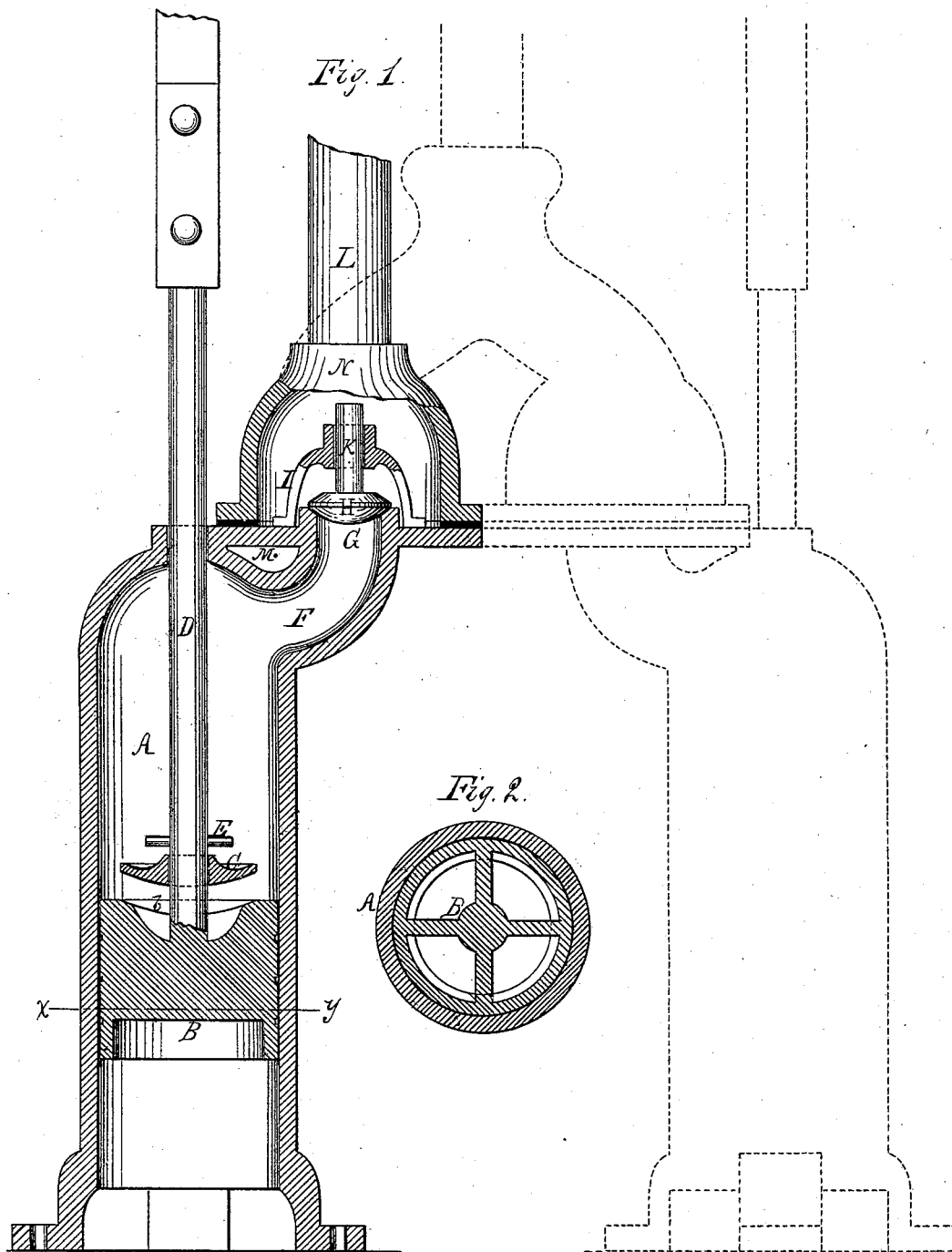


C. G. GROVE.
Pump.

No. 215,737.

Patented May 27, 1879.



WITNESSES
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W. E. Gibson

INVENTOR
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UNITED STATES PATENT OFFICE.

CASSIUS G. GROVE, OF MOUNT PLEASANT, MICHIGAN.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **215,737**, dated May 27, 1879; application filed May 3, 1879.

To all whom it may concern:

Be it known that I, CASSIUS G. GROVE, of Mount Pleasant, in the county of Isabella and State of Michigan, 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 the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents in full lines a vertical longitudinal section of my improved pump, the dotted lines representing a second pump of the same construction to be used in connection with first when a double working pump is desired, the discharge-pipes of both pumps in the latter case being connected, as shown. Fig. 2 is a cross-section of the cylinder and piston, taken on the line *xy* of Fig. 1.

A is the pump-cylinder, open at the bottom, and having cast thereon a suitable base for its support in the well. The top of the cylinder is perforated for the passage of the piston-rod D. On one side of the upper part of the cylinder is cast the discharge-neck F, the upper part of which forms the seat G for the check-valve H. The neck G is braced to the cylinder by the web M, which also forms a base for the lower end of the discharge-pipe L, and for the spider I, which forms the guide for the check-valve stem K, the whole protected by the cap or cover N, which is in one piece, and is attached to the upper part of the discharge-neck F by bolts or otherwise.

B is the hollow piston, cast with a spider in its interior, for its attachment to the piston-rod D. The exterior of the piston is grooved, as shown, to form a water-packing. The upper part of the piston has a concave valve-seat, *b*, for the valve C, which surrounds and moves freely upon the piston-rod D, its motion being limited by the pin or stop E, and its lower face being convex to fit the concave valve-seat.

The pump may be of any size required, and the piston-rod may be reciprocated by hand, steam, or other power, as desired.

The pump being submerged in the water of the well, upon the descent of the piston the valve C rises, permitting that part of the cylinder above it to become filled with water. As the piston commences to ascend the valve C closes, and the water is forced through the discharge-neck F and valve H into the discharge-pipe L. As soon as the piston again commences its descent the check-valve H closes, thereby retaining the water left in the discharge-pipe.

The great advantages of my improved pump are its cheapness, compactness, and durability, the cylinder, piston, and valves being of metal, and as the pump is submerged in use no packing is required. The cylinder, its base, discharge-neck, and web M are easily cast in one piece.

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

1. In combination with the cylinder A, having the top, the discharge-neck F, and web M cast in one piece therewith, the discharge-pipe L and spider I, as and for the purpose set forth.

2. The cylinder A, having discharge-neck F and web M, the grooved hollow piston B, with concave valve-seat *b*, and convex-faced valve C, moving freely on piston-rod D, in combination with the discharge-pipe L and check-valve H, substantially as described, and for the purposes set forth.

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

CASSIUS G. GROVE.

Witnesses:

B. T. HANLEY,
E. HAYWOOD.