H. J. & L. C. HUMPHREY.

Double Acting Pump.

No. 204,973. Patented June 18, 1878.

Fig. 1.

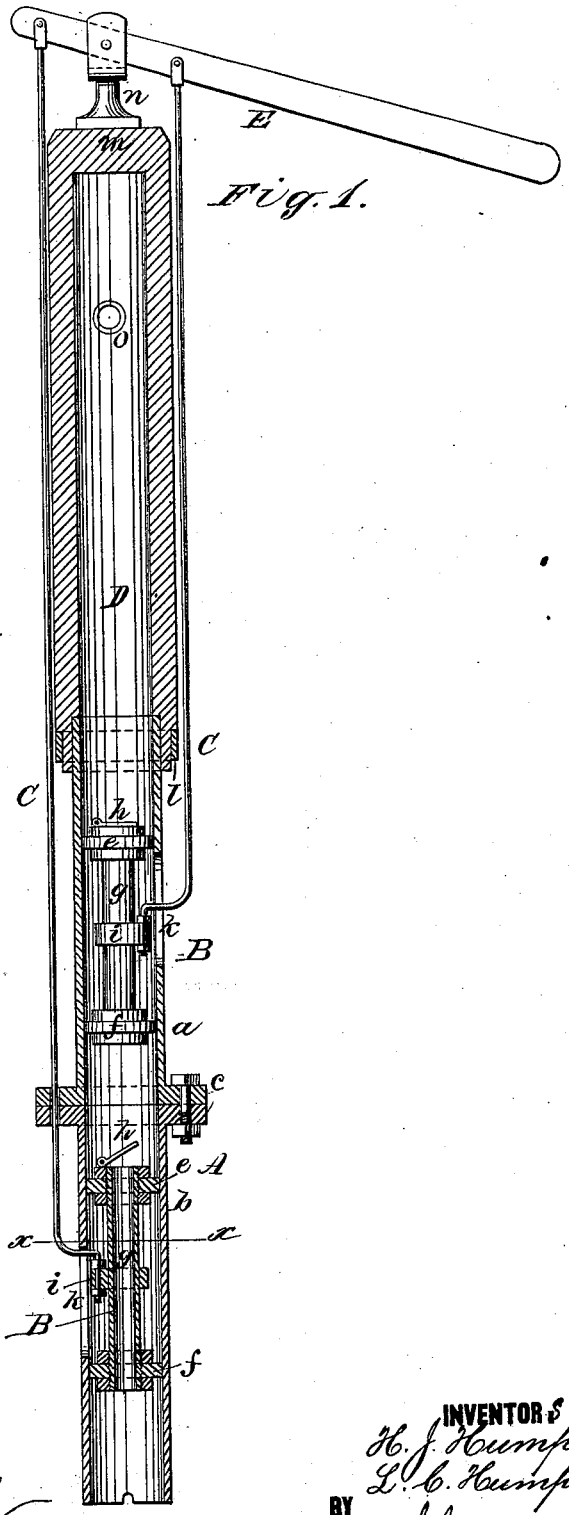

Fig. 2.

WITNESSES:

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HENRY J. HUMPHREY, OF GRUNDY CENTRE, IOWA, AND LUTHER C. HUMPHREY, OF AUGUSTA, WISCONSIN.

IMPROVEMENT IN DOUBLE-ACTING PUMPS.

Specification forming part of Letters Patent No. **204,973**, dated June 18, 1878; application filed November 8, 1877.

To all whom it may concern:

Be it known that we, HENRY JUDSON HUMPHREY, of Grundy Centre, in the county of Grundy and State of Iowa, and LUTHER CARLETON HUMPHREY, of Augusta, in the county of Eau Claire and State of Wisconsin, have invented a new and Improved Pump, of which the following is a specification:

Figure 1 is a vertical section of our improved pump. Fig. 2 is a transverse section taken on line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts.

Our invention relates to double-acting lift and force pumps; and it consists in a barrel containing two double pistons, the rods of which pass through slots in the side of the barrels, and are connected with a lever fulcrumed at the top of the pump-stock.

In the drawings, A is the barrel of the pump, which consists of the two sections *a b*, which are secured together by bolts passing through their flanges *c*. In each section of the pump-cylinder there is a double piston, B, having packed heads *e f*, which are secured to the ends of a tube, *g*. A valve, *h*, is hinged to the upper head *e* of each piston, and upon the tube *g*, at its center, a collar, *i*, is placed, and fastened by a set-screw. This collar is thickened upon one side, and drilled to receive the piston-rod C, which is bent or offset at its lower end, so that it may pass through the slot *k*, formed in the side of the barrel. The piston-rod is secured to the collar by two nuts placed on it, one above and one below the collar. The pistons are alike, excepting in the opposite arrangement of the piston-rods, one of the rods being on each side of the barrel.

The barrel A, which is preferably made of metal, is secured to the stock D by driving it into the lower end of the stock, which is counterbored to receive it.

An iron band, *l*, is driven on the lower end of the stock to prevent it from splitting; and a cap, *m*, is placed on its upper end, having the forked standard *n*, in which the pump-handle E is pivoted.

The piston-rods C are jointed to the handle on opposite sides of the standard *n*, and equally distant from it.

The pump-spout is screwed into the stock D at *o*, leaving sufficient space above the spout to form an air-chamber for equalizing the flow of water from the spout.

When the handle is raised water is drawn by the upper piston through the tube of the lower piston into the space between the pistons, and the water above the piston is forced out through the spout; and when the handle is depressed the upper piston is moved downward and the lower piston is raised, forcing the water in the barrel between the two pistons upward through the upper piston, and at the same time drawing from the well an equal amount of water, which is kept from descending, upon reversing the motion, by the suction of the valve on the upper plunger. Thus the water not only flows from the discharge-pipe, but is also lifted from the well, at each movement of the handle. By means of this arrangement water is forced out of the spout at every movement of the handle, and a continuous stream is delivered at the spout.

It will be seen that by the employment of the double pistons the use of packing for the piston-rods is avoided, and the escape of water through the slots of the barrels is prevented.

It will also be observed that no foot-valve is required, as the entire work is performed by the valves carried by the pistons.

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

The combination of the double pistons B, the barrel A, slotted on opposite sides, the piston-rods C, and the lever E, substantially as herein shown and described.

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Witnesses:
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