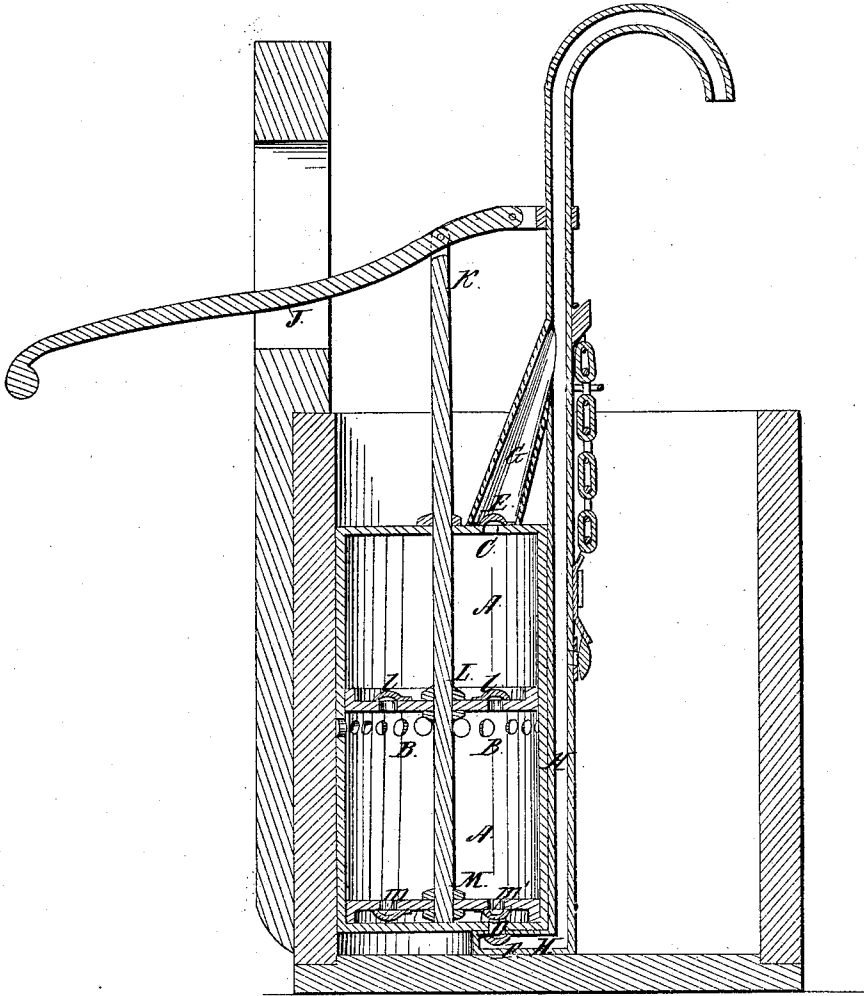


J. W. Cahill,

Force Pump.

Nº 59,708,

Patented Nov. 13, 1866.



Witnesses:
Edward H. Knight
Solon C. Kemow.

Inventor:
James W. Cahill
per
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UNITED STATES PATENT OFFICE.

JAMES W. CAHILL, OF MADISON, INDIANA, ASSIGNOR TO HIMSELF AND
A. S. DAVISON, OF CINCINNATI, OHIO.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 59,708, dated November 13, 1866.

To all whom it may concern:

Be it known that I, JAMES W. CAHILL, of Madison, in the county of Jefferson and State of Indiana, have invented a new and Improved Force-Pump; and I do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable one skilled in the art to which the invention appertains to make use of it, reference being had to the accompanying drawing, which forms a part of this specification, and in which my invention is represented by a vertical central section.

The cylinder has induction-openings at its mid-length and valved eduction-openings at each end. It is traversed by two valved pistons attached to a single pump-rod, delivering the water alternately at their respective ends to a common discharge-pipe.

In the drawing, A is the cylinder, having induction-openings B B and eduction-openings C D, guarded, respectively, by valves E F, which open outward. From the eduction-openings proceed pipes G H, which unite at I and constitute the discharge-pipe.

Supported by the upright pipe H is the pivoted handle J, to whose upper end is attached the pump-rod K, on whose lower end are the piston-heads or plungers L M. Each of these pistons have valves *l l'* and *m m'*, respectively, the upper valves opening upward and the valves of the lower piston opening downward, as seen in the figure.

The operation is as follows: When the

plungers are depressed the valves *m m'* are closed, and the water below the piston M is pressed through the eduction-opening D into the pipe H toward the discharge-opening. The valve E during this time closes the opening C, and the water above the piston M is passing through the valve-openings in the piston L. When the return motion is made by the raising of the pistons the valve E is raised, the water passing out at the eduction-opening C, and the valves *l l'* on the piston L are closed. The lower valve, F, is closed, and water enters the cylinder at the induction-openings B B, and passes through the valve-openings in the lower piston. A waste-water valve is arranged on the pipe H to empty the water above that level in the pipe.

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

The arrangement of the plungers L M on the shaft K, provided with valves, and operating as described in the cylinder A, which has its induction-openings at its mid-length and eduction-openings at its ends, as described and represented.

To the above specification of my improvement in force-pumps I have signed my hand this 25th day of August, 1866.

JAMES W. CAHILL.

Witnesses:

JOHN A. WIEDERSHEIM,
SOLON C. KEMON.