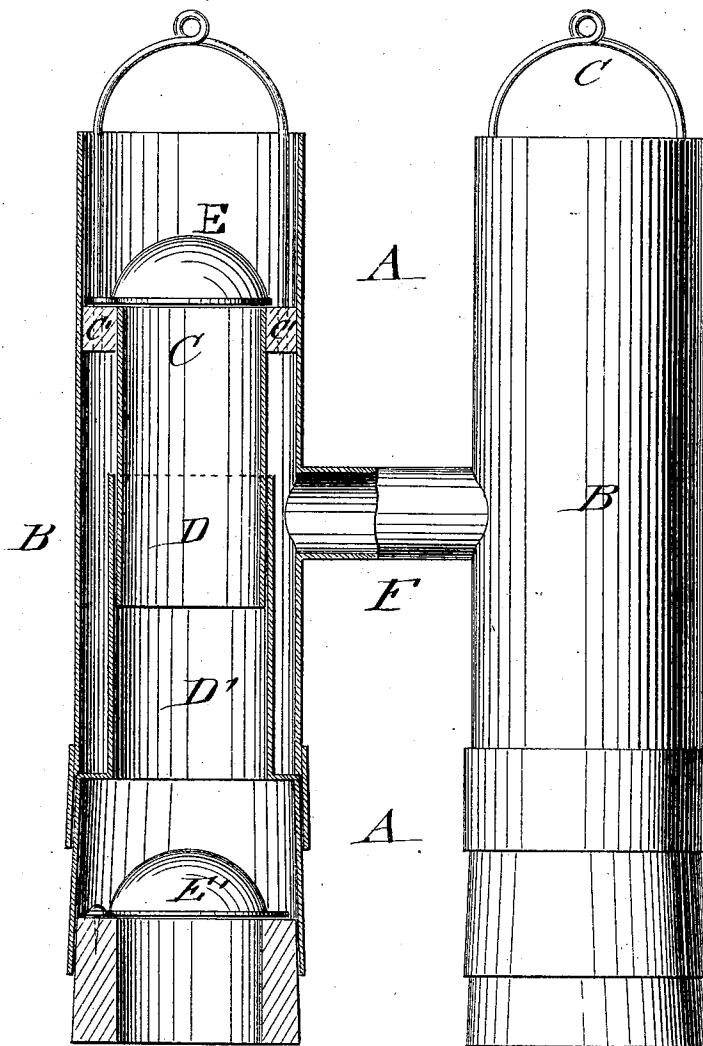


S. H. WARNER.

Pumps.

No. 151,812.

Patented June 9, 1874.



WITNESSES:

Chas. Vida
Pedgwick

INVENTOR:

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BY

Munnell

ATTORNEYS.

UNITED STATES PATENT OFFICE.

SAMUEL H. WARNER, OF DARBYVILLE, OHIO.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **151,812**, dated June 9, 1874; application filed May 9, 1874.

To all whom it may concern:

Be it known that I, SAMUEL H. WARNER, of Darbyville, in the county of Pickaway and State of Ohio, have invented a new and Improved Pump, of which the following is a specification:

The accompanying drawing represents a side elevation, partly in section, of my improved pump for raising water.

My invention relates to an improved pump for raising water, which may be employed advantageously for various technical purposes, as it accomplishes its work with greater ease and economy of power.

My invention consists of a double-acting pump with two cylinders and alternating plungers, of which each plunger slides in a narrower tube or telescope, while its piston forms, with the tube and outer cylinder, a varying space, in which a constant body of water acts, by a communicating pipe of the pump-cylinders, on the plungers, and accelerates the raising and lowering of the same.

In the drawing, A represents a double-acting pump, constructed of two cylinders, B, with alternating plungers C, which are actuated by suitable power. Each plunger C slides by its tightly-fitted piston C' in the pump-cylinder B, and connects by a downward-extending tube, D, of smaller diameter than the cylinder with a stationary tube, D', arranged above the lower valve E', so as to slide or "telescope" along the inside or outside of the lower tube. The telescoping tubes D D' form thus, with the wall of the cylinder B and the shoulder part of the piston, a space or chamber of varying size, which has no connection with the inside of the tubes. The water pumped up by the action of the plunger passes

through the lower valve E' into the tubes, and from the tubes, by the down-stroke, through the plunger-valve E, to the outlet-pipes. The spaces around the valve connecting tubes of both cylinders are connected by a horizontal pipe, F, at suitable height above the lower valve, so that a body of water contained therein is readily thrown from one cylinder-space to the other by the alternating action of the plungers. The vacuum created by the ascending of one plunger draws instantly the water into the space below, and causes thereby an accelerated downward stroke of the other plunger, while the latter increases simultaneously the pressure on the body of water, and assists the upward stroke of the ascending-plunger. The action of the plungers and valves is thereby expedited, and an increased lifting capacity of the pump produced, resulting in the economizing of the motive power and greater efficacy of the pump.

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

As an improvement in lift-pumps, the plungers of a double cylindrical pump, having downward-extending tubes of smaller diameter telescoping with interior tubes of the cylinders, in combination with the space or chambers formed around the tubes, and the cylinder communicating-pipe, by which a constant body of water is alternately thrown from one cylinder-space to the other, substantially for the purpose set forth.

SAMUEL H. WARNER.

Witnesses:

JOSEPH S. ZERFLINGER,
W. A. MILLER.