

No. 672,551.

P. HACK & H. F. WEIR.
PUMP VALVE.

Patented Apr. 23, 1901.

(Application filed July 23, 1900.)

(No Model.)

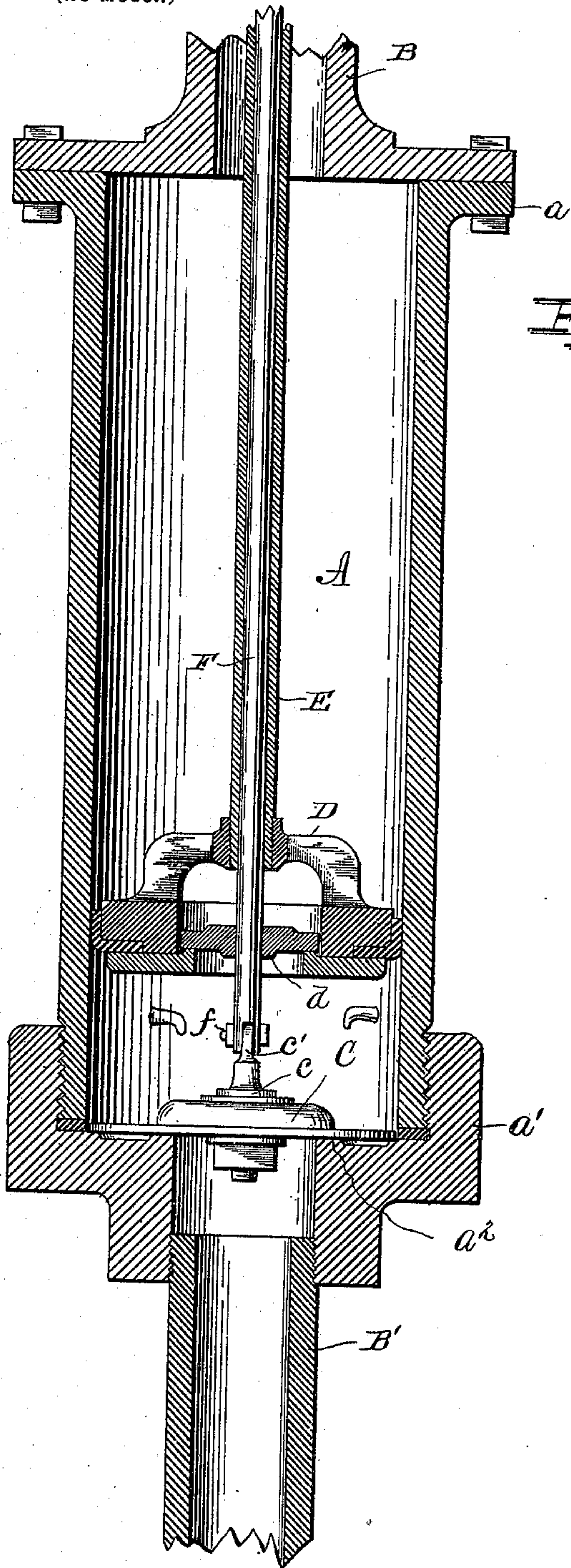


Fig. 1.

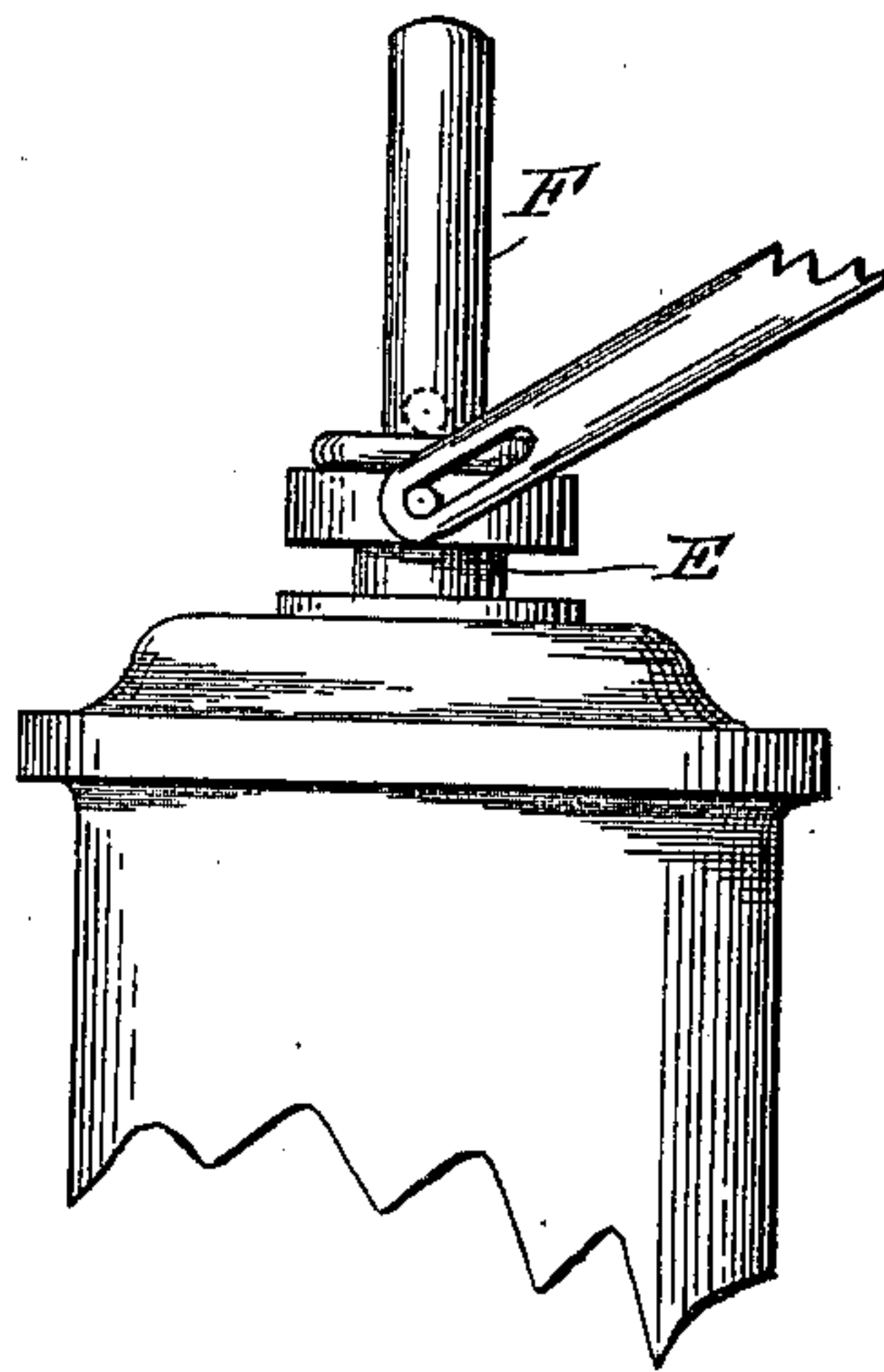


Fig. 2.

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UNITED STATES PATENT OFFICE.

PETER HACK, OF MICHIGAN CITY, AND HAMILTON F. WEIR, OF LAPORTE,
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PUMP-VALVE.

SPECIFICATION forming part of Letters Patent No. 672,551, dated April 23, 1901.

Application filed July 23, 1900. Serial No. 24,553. (No model.)

To all whom it may concern:

Be it known that we, PETER HACK, of Michigan City, and HAMILTON F. WEIR, of Laporte, Indiana, citizens of the United States of America, have invented new and useful Improvements in Pump-Valves, of which the following is a specification.

This invention is an improvement in pumps; and the object of the invention is to provide mechanism by which the check-valve at the lower end of the pump-cylinder may be lifted off its seat for the purpose of draining the cylinder and preventing water from freezing therein, said mechanism also assisting the movements of said valve during the operation of the pump, the particular construction and arrangement of the parts constituting the improvements being such as to not interfere with the proper working of the operative parts of the pump.

The following specification enters into a detail description of the invention, reference being had to the accompanying drawings and to letters of reference thereon, which designate the different parts, and what we claim in the construction and combination is more specifically set forth in the appended claim.

In the drawings forming a part hereof, Figure 1 is a vertical sectional view illustrating so much of a pump as will show the application of our invention thereto. Fig. 2 is a detail side elevation.

Referring to said drawings, A designates the pump-cylinder, to the upper head a of which is connected the discharge-pipe B, while to the lower head a' is connected the suction or well pipe B', these pipes being connected to the heads of the cylinder in any suitable manner. The lower head a' of the pump-cylinder is constructed to form a valve-seat a^2 for the check-valve or disk valve C. The parts of the disk valve are connected by a headed bolt c , having an apertured lug c' for connecting thereto an operating-rod, hereinafter described.

Working in the cylinder A is a piston D, having a valve d , adapted to close an opening in the piston upon the upward movement thereof. This piston is operated by a hollow piston rod or tube E, which passes upward through the cylinder and discharge-pipe and

is connected in any suitable manner to the pump-handle or other suitable operating means. The piston-rod is made hollow in order to receive a rod F, which extends the full length of said piston-rod, and is also extended through the piston-valve d and connected at its lower end to the apertured lug c' of the check-valve, this connection permitting said valve to have a swinging movement in order that it may properly fit its seat. The movement of the check-valve off its seat is limited by suitable stops. The rod F, which is adapted to operate the check-valve, fits snugly in the hollow piston rod or tube E, in order that its frictional engagement with said tube will serve to give an initial movement to the valve, in order that it will respond quickly to the operation of the piston. The rod does not, however, fit the tube so tightly as to produce undue friction between them, for the piston of course has a greater movement than the rod, and it is not intended that the improvements or device for operating the check-valve shall in any way affect the proper operation of the pump otherwise than to assist in more quickly operating the valves.

Upon the operation of the pump the upstroke of the piston lifts the check-valve upward until it strikes the stops, and then the hollow piston rod or tube slides upon the inner rod to the full end of the stroke. Conversely, the downstroke of the piston moves the rod so that the check-valve will more quickly reach its seat, and the piston rod or tube again slides upon the rod to the full end of its stroke. Of course it is understood that the check-valve is also moved by the suction when the piston ascends and the weight of the water when said piston descends.

The rod F is of such length that when the piston is lowered said rod will project sufficiently beyond the upper end of the hollow piston-rod to permit of its being grasped and raised to lift the check-valve off its seat. Provision is thereby made for draining the pump-cylinder, for the raising of the check-valve will also raise the valve d , the bolt and nut f engaging same, allowing the water to flow out of the cylinder past said valves. Thus the cylinder can be readily drained,

and, if desired, the valve can be held raised by inserting a pin through a hole in the upper end of the rod, as indicated in dotted lines, Fig. 1 of the drawings.

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

10 In a pump, the combination, of check-valve C located in the lower end of the pump-cylinder, a piston D having an upwardly-moving valve *d* therein, a hollow rod or tube E connected to the piston, a valve-operating rod F connected to the lower valve and extending through the piston-valve and hollow piston-

rod, said valve-operating rod projecting beyond the upper end of the piston-rod and having a hole therein to receive a pin, and a stop or bolt upon the valve-operating rod below the piston-valve and adapted to move said piston-valve off its seat when the rod is raised, 20 as herein shown and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

PETER HACK.

HAMILTON F. WEIR.

Witnesses:

L. H. OBERREICH,

M. H. WEIR.