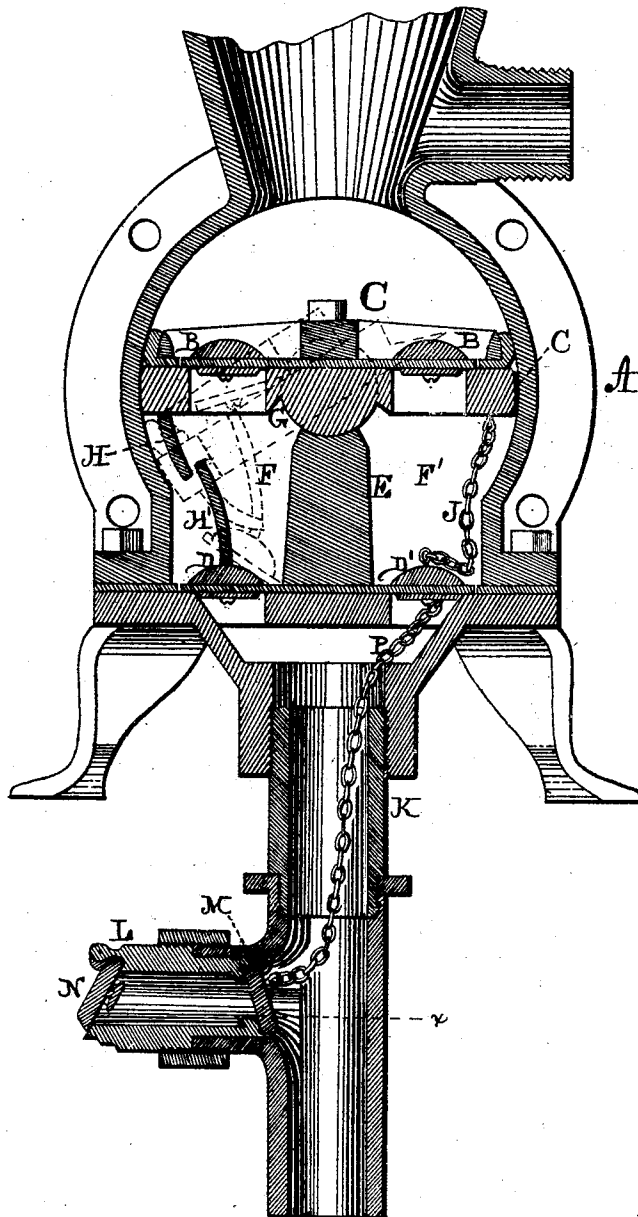


E. C. WHARTON.

Pumps.

No. 145,921.

Patented Dec. 23; 1873..



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD CARLILE WHARTON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **145,921**, dated December 23, 1873; application filed November 26, 1873.

To all whom it may concern:

Be it known that I, EDWARD CARLILE WHARTON, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Pumps; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which the figure is a central vertical section of the device embodying my invention.

This invention consists in means for clearing or freeing the body of the pump of water, to prevent freezing thereof, or for other purposes. It also consists in means for clearing or freeing the upper portion of the pipe which connects the well or place of supply with the pump. It also consists in means for simultaneously opening the various valves of the cylinder and outlet. It further consists in the outlet-pipe having a valve at each end, for purposes to be stated.

Referring to the drawings, A represents the cylinder; B, the upper valves; C, the oscillating seat-plate; D D', the lower valves, and E the plate which divides the cylinder into the chambers F F', and constitutes the bearings for the axis G of the seat-plate C. From the under side of the seat-plate in the chamber F there projects downwardly an arm, H, and from the corresponding lower valve D there projects upwardly an arm, H', the two arms being so arranged and of such dimensions that at proper time the arm H will strike and bear against the arm H'. J represents a chain or other connection, which is attached to the lower valve D' in chamber F' and the respective end of the seat-plate. The induction-pipe K, which leads or conducts from the well or other place of supply, is formed with a branch or outlet, L, which opens into the well or place of supply, and communicates with the pipe K above the foot or check valve. At the inner end of the branch L is placed a valve, M, which opens inwardly, and at the outer end thereof is a valve, N, which opens outwardly. P represents a chain or other connection, which is at-

tached to the valve M of branch L and lower valve D' of the cylinder A.

The handle, crank, or other appliance for operating the pump is attached to the axis of the seat-plate, and by oscillating the latter the pump will be worked and the water raised. The arms H H' and connections J P have no part in working the valves for raising the water, and their dimensions and arrangements are such that the ordinary amount of motion or oscillation of the seat-plate is not sufficient to bring said arms and connections into service. To insure this a set-screw might be applied at a proper point of the cylinder, but the operator will soon be able to appreciate the amount of motion necessary to allow the arms and connections to remain inoperative. When, however, the pump is to be cleared of water, to prevent freezing thereof, or for other purposes, then the seat-plate is turned to the full extent of its play or stroke in the direction necessary to advance the arm H toward the arm H'. The arm H strikes the arm H', and, owing to the attachment of the latter to the valve D', the said valve is lifted from its seat, and thus opened. At the same time the upper end of the arm H' strikes the valve B above it, and lifts it from its seat, thus opening the said upper valve B. Simultaneously with these movements the seat-plate distends the connection J, thus raising and opening the lower valve D', which, in return, distends the connection P and opens the valve M of the branch L. It will be seen that one of the upper valves and both of the lower valves of the cylinder, and the inner valve of the branch or outlet, are opened, whereby the water escapes from the cylinder both above and below the seat-plate, and from the pipe K to the level or line *xx* of the lower side of the branch L, the outer valve N of said branch yielding to the pressure of the water, and thus affording an outlet for all of the water above the line *xx*.

During the working of the pump, the suction will hold the outer valve N to its seat and prevent escape of water. The inner valve may then open without affecting the operation of the pump; but when the suction ceases, the said inner valve immediately closes, and is to be opened for escape of water by the proper operation of the seat-plate, as has been stated.

The connection P of the valve M may be attached to the lower valve D, and operate for opening the valve M, the same as if attached to the valve D'. The branch L will be so located that at the level $x x$ freezing cannot occur.

I am aware that it is not new to open a ball-valve by a curved arm projecting from the seat-plate; but such feature is objectionable, inasmuch as the ball will not be raised unless it sits high above the seat. This necessitates that the valve-seat be made small, whereby the efficiency of the pump is affected. If the ball-valve seat is suitably large, the valve sits well in the seat; consequently the curved arm will strike the ball dead without elevating the same. Should there be any collections or obstructions in the pump between the ball-valve and division-plate, such obstructions, being opposite to the projecting arm of the seat-plate, will interfere with the opening of the valve by said arm, since the ball will have to be moved solidly against the obstructions. In my invention the arm on the valve affords a large leverage therefor, and always occupies a position to be struck by the arm of the seat-plate, thus insuring the opening of the valve.

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

1. The arm H', secured to the lower valve D, in combination with the arm H, projecting from the seat-plate C, and the upper valve B, when constructed and operating as set forth.

2. The auxiliary valve M of the branch L, connected to the lower valve of the cylinder A, and operating in combination with the oscillating seat-plate, as set forth.

3. The inner valve M and outer valve N of the branch L, in combination with the pipe K, valve D or D', seat-plate C, and cylinder A, as set forth.

4. The combination, with the seat-plate C, upper and lower valves, and division-plate of cylinder A, of the arms H H', connections J P, auxiliary valve M, and branch L, substantially as set forth.

EDWARD CARLILE WHARTON.

Witnesses:

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