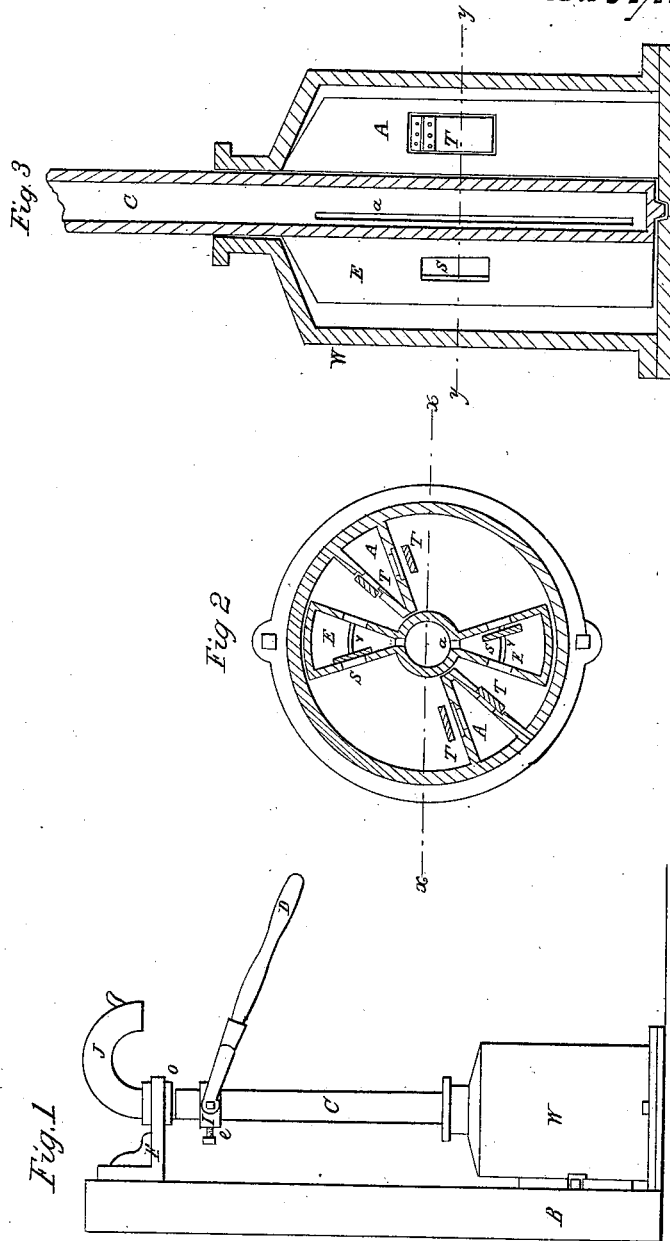


J. F. White, Rotary Pump.

N^o 17,146.

Patented Apr 4, 1865.



Witnesses:
W. L. Tappan
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UNITED STATES PATENT OFFICE.

JOSEPH F. WHITE, OF KEENE, NEW HAMPSHIRE.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 17,146, dated April 4, 1865.

To all whom it may concern:

Be it known that I, JOSEPH F. WHITE, of Keene, in the county of Cheshire and State of New Hampshire, have invented a new and useful Improvement in Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of a pump made according to my invention, its valves being inclosed within the valve-chest W. Fig. 2 is a horizontal section taken through the valve-chest W on the line *y* of Fig. 3. Fig. 3 is a vertical axial section taken through the valve-chest W on the line *y* of Fig. 2.

Similar letters of reference indicate like parts.

This invention consists in a double-acting force-pump, in which the pistons are made to extend radially from a hollow pump-tube, which rotates with the piston.

B represents a standard, to which my pump may be attached to keep it in position. The lower part of the standard is supposed to extend into a well or other reservoir of water, in which is placed a valve-box or chest, W, which contains the valves of the pump. It is shown firmly secured to the lower part of the standard. The chest W is to be in open communication with the water or other fluid to be forced up by the pump, and it may be wholly or partly immersed therein, according to the circumstances of the case or the judgment of the maker. The pump-tube C is hollow, and passes into the valve-chest through a suitable stuffing-box in the center of its top in such a way as to be capable of rotation therein. It extends upward to a short pipe, O, which is held firmly in the bracket F, and with which pipe it forms a joint. A curved pipe, J, fitted in the upper end of the pipe O, forms the delivery-spout of the pump. It may be so formed at its outer end as to receive a coupling for hose or for another pipe, through which the water may be conducted in any required direction, or the spout may be removed and the hose secured to the short pipe O.

D is the handle of the pump, consisting of a lever forked at its inner end, so as to embrace

a collar, I, to which its forks are pivoted at opposite points on its circumference. The collar is firmly fixed to the pump-tube C by means of a set-screw, *e*, so that the tube may be rotated by means of the lever D.

A A are two triangular chambers, set opposite to each other within the valve-chest W, extending from its top nearly to its bottom and from the sides thereof nearly to the pump-tube. The sides of these chambers are in radial lines, and their bases coincide with and form part of the sides of the chest. They are closed at top and at their angles, but are open at bottom to admit the water to be pumped. Openings are made on each side of these chambers to receive valves T, which open outwardly. The pump-tube C extends to the bottom of the valve-chest W, on whose bottom it is properly stepped, so as to be free to rotate thereon. It is provided within the chest with hollow radial triangular arms or pistons E E, which communicate with it through channels *a*. The arms reach nearly to the inner circumference of the chest, and their bases and top and bottom edges are to be packed to prevent the passage of water behind them. Their sides are pierced with openings, which occur opposite to each other, and are each fitted with an interior double-acting valve, S, moving upon and guided by a rod, V, which extends from side to side of each of the said hollow arms.

The operation of the pump is as follows: Rotary-motion being given to the tube C from left to right or in the opposite direction, its hollow arms E are brought toward the fixed chambers A, causing the valves T on those sides which are approached to be closed by the pressure of water and the valves S in the moving arms to be moved backward on their guiding-rods V, thereby affording a passage for the inlet of the water into each of the said hollow arms. At the same time a partial vacuum will be made in the chest behind each hollow arm E, and the valves in the opposite sides of the chambers A will be opened, so as to admit the water to flow in and fill the spaces behind the retiring hollow arms or pistons. The tube C is next moved in the reverse direction, when the reverse action and movement of the several valves takes place, and the accumulating water in the hollow arms

is forced through the passages *a* into the hollow tube C, so that it is delivered therefrom at the discharge-opening thereof.

I do not claim a double acting pump, nor a hollow piston or pump-tube; but

I claim as new and desire to secure by Letters Patent—

The combination, in a double-acting pump, of a valve-chest, W, provided with triangular

valve-chambers A, with a rotating pump-tube carrying hollow radial arms E, which have partial rotary motion in horizontal directions, and are provided with double-acting valves, substantially as above described.

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Witnesses:

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