

Woodruff & Beach, Double-Acting Pump.

N^o 82,371.

Patented Sep. 22, 1868.

Fig. 1.

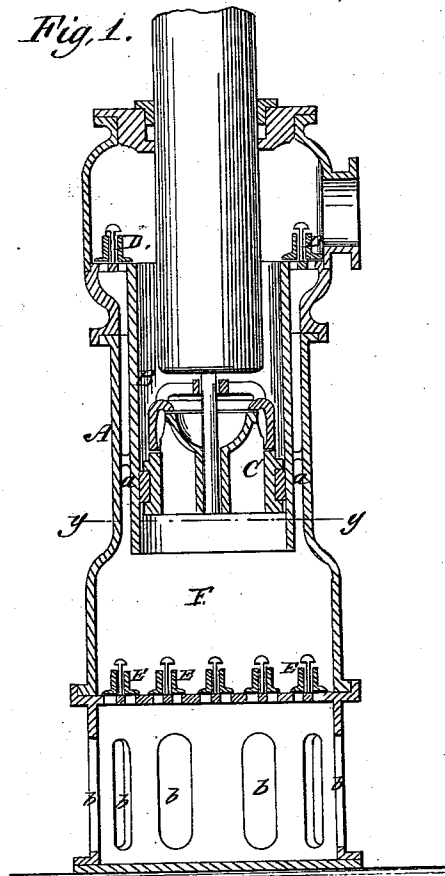
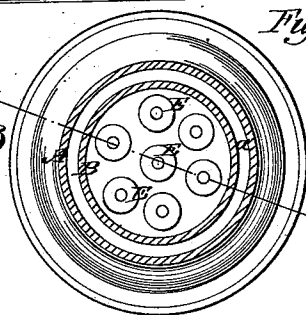


Fig. 2.



Witnesses.
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SAMUEL WOODRUFF AND H. B. BEACH, OF HARTFORD, CONNECTICUT.

Letters Patent No. 82,371, dated September 22, 1868.

IMPROVEMENT IN PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, SAMUEL WOODRUFF and H. B. BEACH, of Hartford, in the county of Hartford, and State of Connecticut, have invented a new and improved Pump; and we 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 a part of this specification.

This invention relates to a new and useful improvement in a pump, for which Letters Patent were granted to William Wright, November 15, 1859. The present invention relates to the valvular arrangement of the pump, as hereinafter fully shown and described, whereby the pump is rendered much more certain in its action than hitherto, practical difficulties being in the way of the perfect operation of the pump as originally patented.

In the accompanying sheet of drawings—

Figure 1 is a vertical section of our invention, taken in the line *x x*, fig. 2.

Figure 2, a horizontal section of the same, taken in the line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts.

The pump is constructed with two barrels, A B, one, A, being sufficiently larger in diameter than the other, B, to admit of a requisite space, *a*, between them. The inner barrel, B, is the working one, and contains the piston C, provided with a double-beat valve, as in the original patented pump previously alluded to.

The upper end of the space *a*, between the two pump-barrels, is provided with a series of valves, D, of "puppet," or other similar kind, and in the lower part of the exterior barrel A, above the water-induction openings, *b*, there is a series or plurality of valves, E, arranged at the bottom of the chamber F, which occupies the space between said valve and the lower end of the cylinder B.

The interior-working cylinder B is considerably shorter than the exterior cylinder A, as shown clearly in fig. 1.

So far as the operation of the pump is concerned, in a theoretical point of view, the invention is the same as the pump originally patented, but the original pump, instead of having a plurality of valves, D E, as in the present invention, is provided with double-beat valves, and these, in consequence of the large diameter of the barrels A B, are very ponderous and liable to stick, and, besides this, there is a great difficulty in having the valves made of the precise weight necessary to cause them to work in a balanced state, and hence the operation of the original pump has not proved to be an entire success.

This result is due, chiefly, to the large size of the pump, the exterior barrel being about seven (7) feet in diameter, the pump being designed for operation on a large scale.

The present improvement effectually obviates the difficulty above alluded to, for in case one-half the number of valves, comprising one or both series, should stick during one or two strokes of the piston, the operation of the pump would not be appreciably affected, whereas, in the original pump, the sticking of the double-beat valves (reference being had more especially to the one adjoining the upper end of the working-cylinder) would cause the passage of the water through the pump to be obstructed. The piston C, being comparatively small in diameter, may be provided with a double-beat valve, as a single small valve is not liable to the objections of a single large one.

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

The arrangement of the series of valves D and E in relation to cylinder B, annular chamber *a*, and chamber F, substantially as described, for the purpose specified.

The above specification of our invention signed by us, this 7th day of April, 1868.

SAM'L WOODRUFF,
H. B. BEACH.

Witnesses:

E. J. MURPHY,
H. L. BEACH.