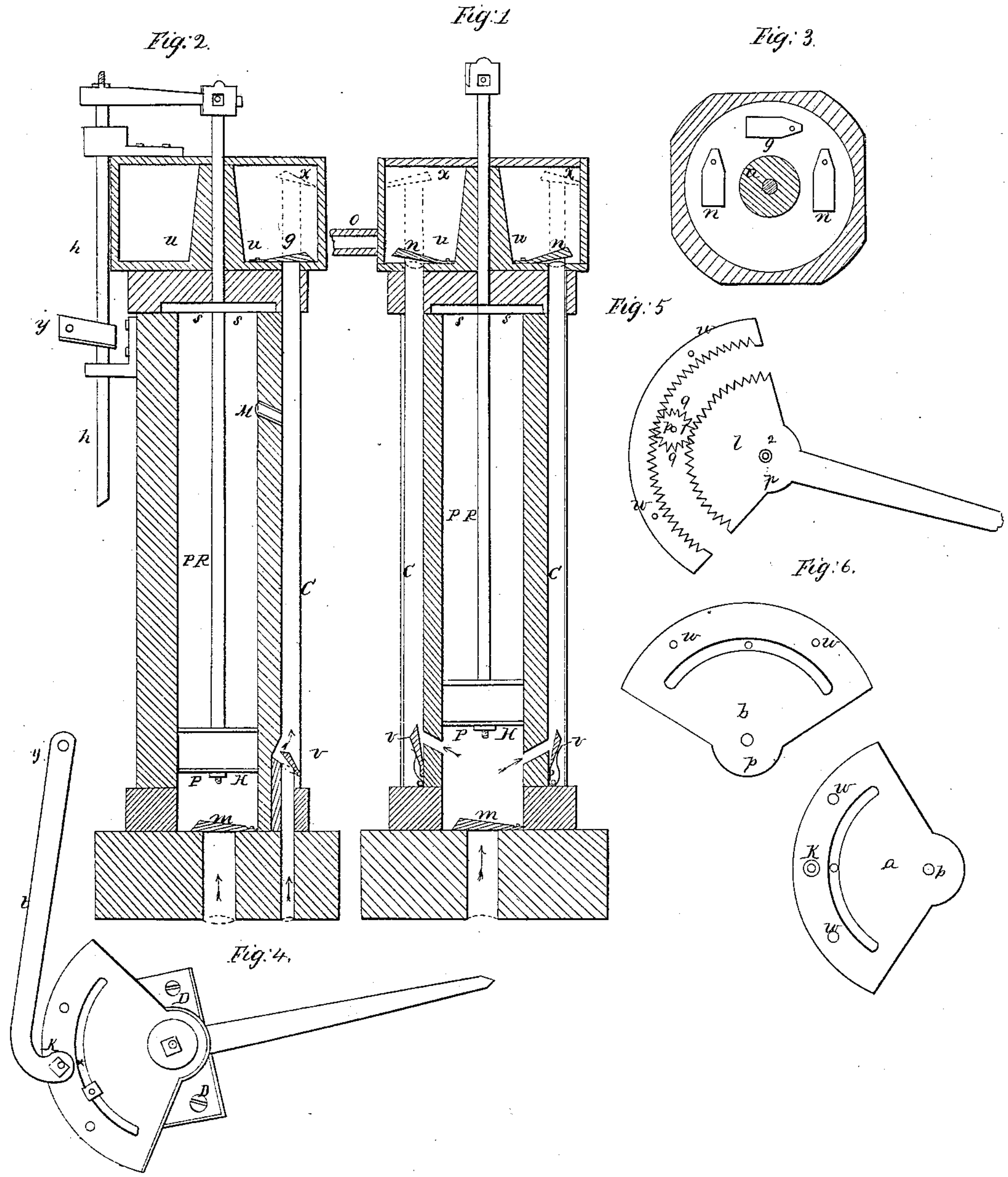
J. A. Bloom,

Force Pump,

No. 51,686. Patented Dec. 26, 1865.



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JOSEPH ALEXANDER BLOOM, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **51,686**, dated December 26, 1865.

To all whom it may concern:

Be it known that I, JOSEPH ALEXANDER BLOOM, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement on Water-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

The annexed drawings represent a new and useful improvement on water-pumps, especially useful for the navy, as it will draw more water with less labor in a shorter time than any other ordinary pump ever would do, because it is double-acting, with powerful leverage.

Figures I and II represent two sections of said pump, the nature of which is as follows:

In Figs. I and II can be seen the piston-rod P R and the solid piston-head P H in one cylinder. (The shaded part in the drawings represents the cylinder.) On the top is the reservoir R, with three valves, *n n g*. Below the reservoir is the partition S S, through which the piston-rod P R hermetically passes up and down. When the piston P H moves upward the bottom valve, *m*, will open.

In each side of the cylinder, Fig. I, is one groove or canal, making two air-tight grooves or canals, C C, with their respective valves *v v n n*. On the bottom part of the cylinder is the valve *m*. When the piston P H moves upward the bottom valve, *m*, will open and the side valves, *v v*, be closed until the piston P H descends. Then the bottom valve, *m*, will close, and the compressed water above it will force open the side valves, *v v*, and also the top valves, *n n*, through which the water enters the reservoir R.

Fig. II: This section shows a valve, *v*, in the groove or canal C, the opening *m* from the interior of the cylinder to the groove or canal C; also, it shows the top valve, *g*. When the piston descends a vacuum is created between the air-tight plate S S and the upper part of the solid piston-head. To fill this vacuum, by the aid of the opening *m* the valve *v* will open, water will enter, and by repeated strokes of the piston will reach the reservoir R through the valve *g*. Thus by a double influx of water into the reservoir R it will cause a constant stream from the orifice *o*.

Fig. III is the top part and inside view of the reservoir R. *n n g* are the valves. *u* is a part of the top, in the shape of a cone, touching the cover of the reservoir R. Through this cone passes the piston-rod P R, preventing it from oxidation. The valves *x x x* and the elongated tubes (marked with dots and reaching nearly the cover of the reservoir) are intended as better adapted, should the reservoir be of considerable dimension.

Fig. IV represents a very powerful lever, with which the pump can easily be put and kept in operation; P, a part of a circle, with cogs inverted to its center. Fig. V shows the small cog-wheel *q*, part of a larger cog-wheel, *l*, with handle to act upon parts *a* and *b*, Fig. VI, and plate D, to which are strongly fixed the pivots p' and p^2. On the part *b* is placed the part P, and on that is put the part *a*, and kept together by the screws *w w*. To fit this lever together, begin by placing the part P on the plate D, Fig. IV. Then the cog-wheel *q* over the pivot p', the part *l* over the pivot p^2, which is the center to the lever-motion, and then screw the three parts P *b a* together with the screws *w w*. The circular opening is for the parts P *b a* to play freely on the pivot p'. Fig. IV, on the pivot K, moves the part *t*, which is joined to the lifting-rod *h h* at the point *y*. The lever is fixed to the pump by the plate D.

I claim—

1. The combination and arrangement of the parts R, C, P R, P H, and system of valves.

2. In combination therewith, the lever, constructed and operated substantially as described.

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Witnesses:

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