# I. N. Forrester. Impt in Pumps

PATENTED DEC 23 1869

98366

Fig. 1

Fig. 2

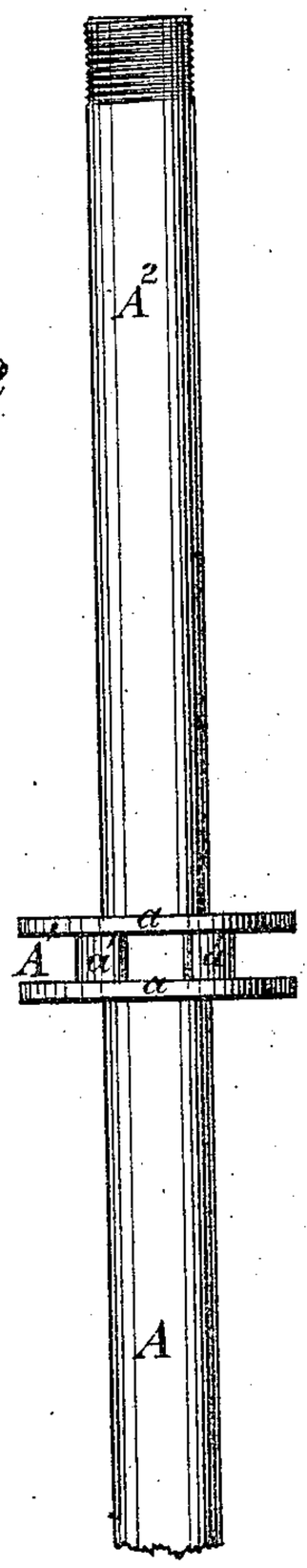


Fig. 3

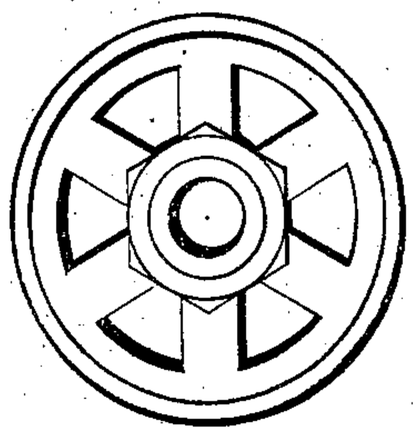


Fig. 4

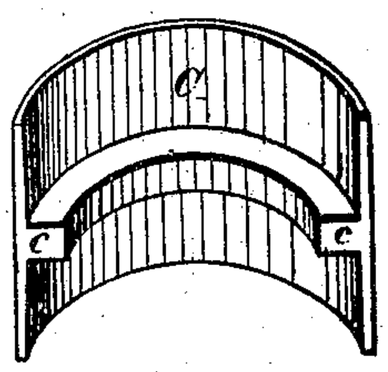
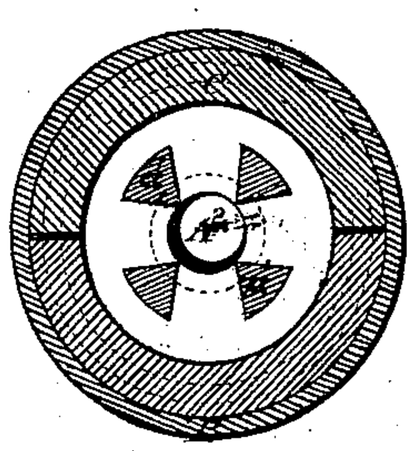


Fig. 5



Witnesses:

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# United States Patent Office.

ISAAC N. FORRESTER, OF BRIDGEPORT, CONNECTICUT.

*Letters Patent No.* 98,366, *dated December* 28, 1869.

## 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 I, ISAAC N. FORRESTER, of Bridgeport, in the county of Fairfield, and State of Connecticut, have invented a new and useful Improvement in Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a vertical central section through so much of a pump embracing my improvement as is necessary to illustrate the invention herein claimed.

Figure 2, an elevation of the piston and discharge-pipe.

Figure 3, a plan view of the cylinder.

Figure 4, a view, in perspective, of one section of the piston-valve.

Figure 5, a horizontal transverse section through the pump, at the line *x x* of fig. 1.

The object of the invention herein claimed is so to combine the barrel with the piston-valve and piston that the valve can be held to its work without screws or other fastenings; and

The improvement consists in constructing the piston-valve in sections, so that when removed from the cylinder, it can readily be taken apart, but when in the cylinder, the sections, while free to work, are securely held in place by the cylinder itself.

In the accompanying drawings, my improvement is shown as adapted to a pump in which the piston and pipes are stationary, while the barrel is movable; but it is obvious that this arrangement might be reversed, and the pump still act efficiently.

In this instance, the pipe A serves merely as a support, and not as a conduit.

The piston $A^1$ and discharge-pipe $A^2$ are securely united to the support A.

The piston consists of two diaphragms, *a*, connected by pillars *a'*, having water-spaces between them. (See figs. 1, 2, and 5.)

A cylinder, B, moves freely endwise on the pipes A $A^1$, and is provided with valves *b b'*, opening inward.

An annular flanged piston-valve, C, formed in two sections, (see fig. 4,) moves freely endwise of the cylinder.

In operation, the sections of the valve C are first slipped over the piston, in such manner that their flanges *c* shall fit loosely between the diaphragms *a*. The piston is then inserted in the cylinder, and the heads secured in place. In fig. 1, the cylinder is shown on the down stroke. As it descends, the valve C falls upon the lower diaphragm, the lower valves *b'* open, and the water (in which the pump is immersed) flows into the lower division of the cylinder, which is constantly enlarging. During this movement, the water in the upper section of the cylinder is forced up the discharge-pipe, as shown by the arrow in fig. 1, the valves *b* being closed by the pressure from within. On the up stroke, the above-described movements are repeated.

I deem it unnecessary to describe in detail the construction of the other parts of the pump, as they form no part of the subject-matter herein claimed.

I am aware that pumps in which the cylinder reciprocates while the piston is stationary are old, and do not claim such device.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The annular flanged piston-valve C, formed in two sections, as and for the purposes set forth.

2. The combination of the cylinder, the piston, and the sectional valve, all constructed to operate as set forth.

In testimony whereof, I have hereunto subscribed my name.

ISAAC N. FORRESTER.

Witnesses:

JAS. H. CROFUT,

CURTIS THOMPSON.