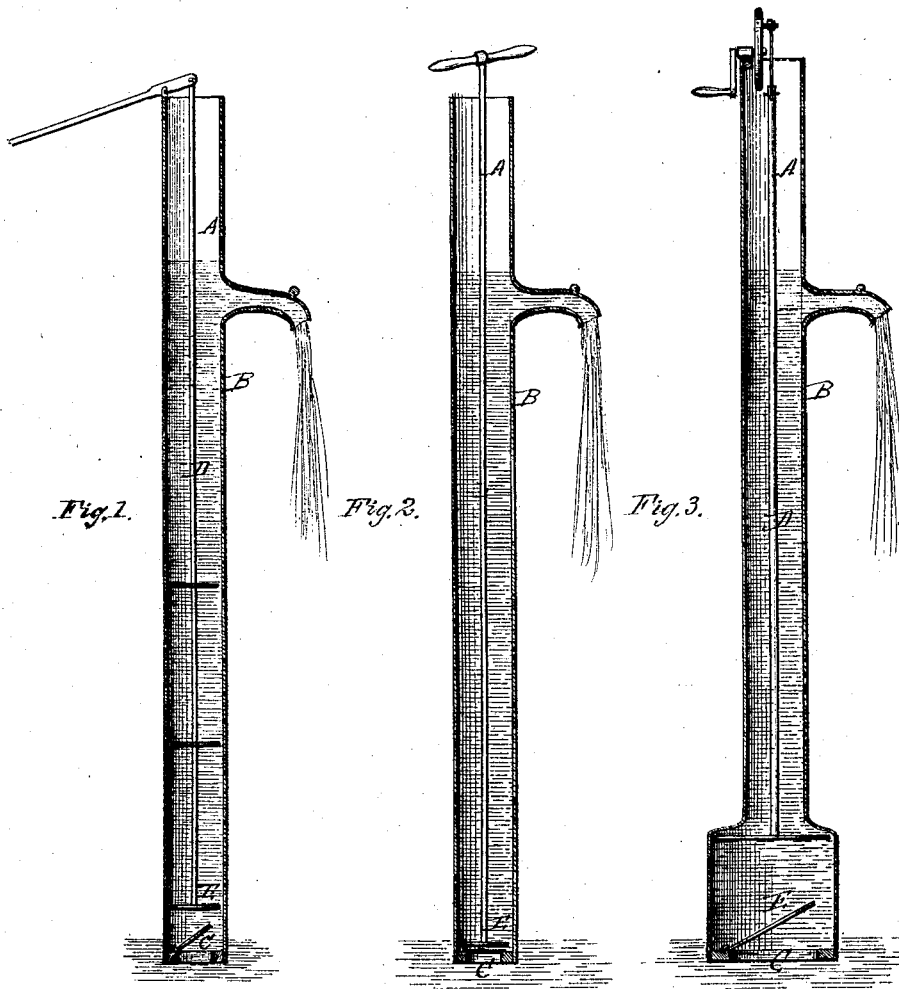


W. G. Ward,

Lift Pump.

No 110,177.

Patented Dec. 13. 1870.



Witnesses:

*A. M. Flickinger,
E. H. Keller*

Inventor:

*W. G. Ward,
by Dodge & Munro
his atty*

United States Patent Office.

WESLEY G. WARD, OF FAYETTE, NEW YORK, ASSIGNOR TO HIMSELF
AND ABRAM M. FLICKINGER; OF SAME PLACE.

Letters Patent No. 110,177, dated December 13, 1870.

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, WESLEY G. WARD, of Fayette, in the county of Seneca and State of New York, have invented certain Improvements in Pumps, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to pumps, and consists in the employment of a solid piston-head, of less diameter than the bore of the pump, in connection with a single trap-valve at the bottom of the same.

In the drawing—

Figure 1 is a longitudinal vertical section of my pump, and

Figures 2 and 3 are longitudinal vertical sections of modifications of the same.

In the simplest form of pumps heretofore constructed, it has been considered necessary to employ two valves, one in the bottom of the pump and the other either in the side of the pump or in the piston, and also to have the head of the piston so constructed or packed as to be water-tight between its periphery and the sides of the pump. I have found by experiment that a good operative pump may be constructed with a single valve and the employment of a piston-head of less diameter than the bore of the pump; and that, in this way, a very simple and cheap device can be produced.

I construct the barrel A of my pump B out of any suitable materials, and of any size desired, and in or near its bottom insert, in the usual way, an ordinary trap-valve, C.

Within the barrel of the pump I place a suitable piston-rod, D, having a piston-head, E, of less diameter than the barrel, so as to leave an annular space about it as it moves up and down in the barrel.

The upper end of the piston-rod I connect to any suitable mechanical devices, whether a lever pump-handle, as shown in fig. 1, or to a T-handle, as shown in fig. 2, or a revolving shaft, as shown in fig. 3.

In operating the pump, the space between the periphery of the piston-head and the inside of the barrel, though being small, still allows the water to be forced through it as the piston descends, and the same space, when the piston ascends, is packed by the water itself.

In experimenting on a large scale, I have found no difficulty in using my pump successfully in wells thirty-six feet deep.

When it is desired to raise a large quantity of water, the lower end of the barrel of the pump may be enlarged, together with the valve and the piston-head, as shown in fig. 3. In addition to the head on the bottom of the piston, other heads or disks, similar in form and size, may be placed upon it, as shown in fig. 1.

The advantages of this construction are obvious. It is of the simplest kind; there is no wear on the piston-head, and the water itself furnishes all the packing required.

Having thus described my invention,

What I claim is—

The combination, in a lift-pump, of a trap-valve, C, and valveless piston-head E, of less diameter than the bore of the pump, substantially as herein described.

W. G. WARD.

Witnesses:

H. B. MUNN,
PHIL. T. DODGE.