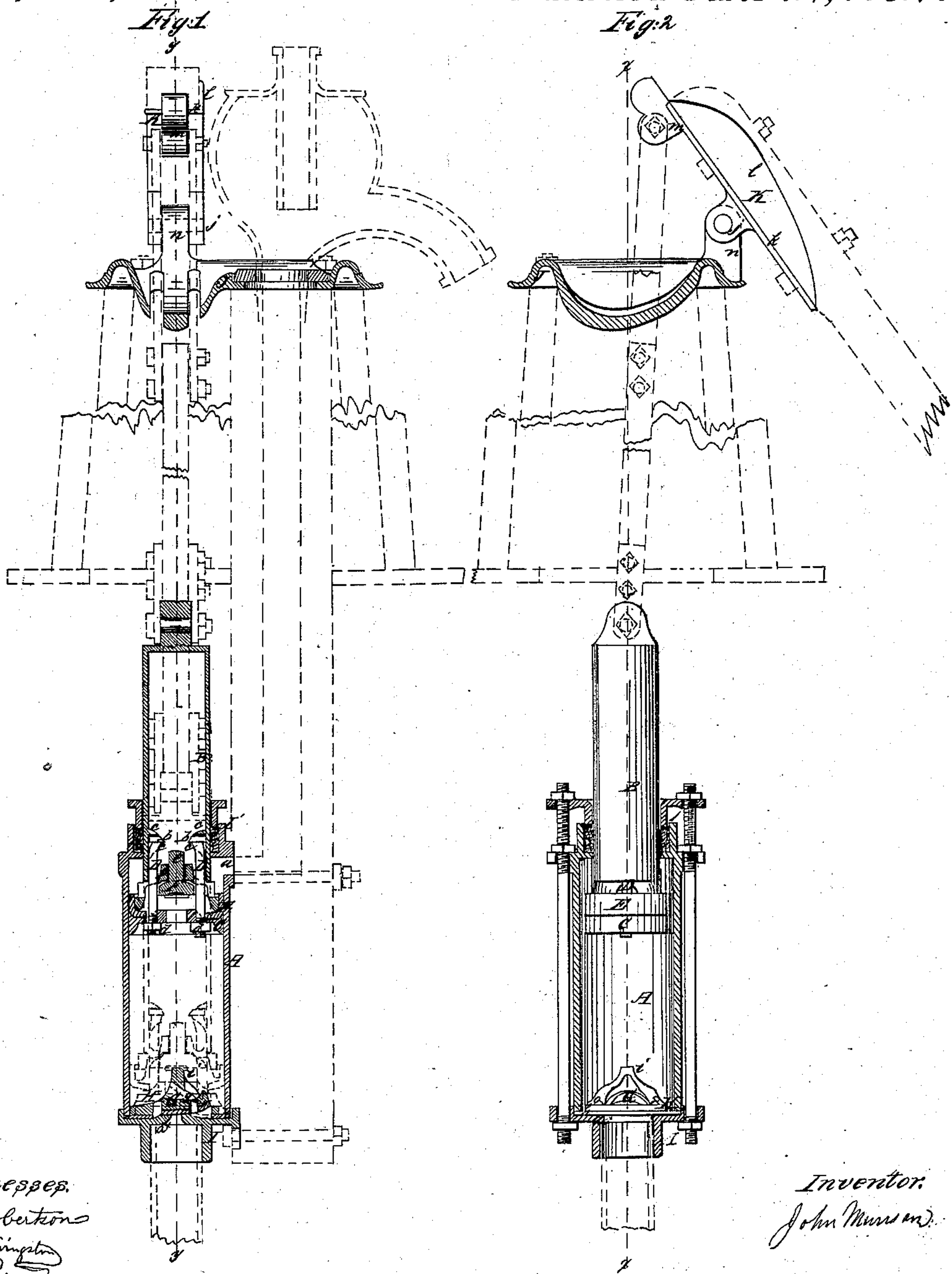


*J. Munson,
Pump Lift,*

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Patented June 14, 1864.



*Witnesses:
O. Robertson
H. Livingston*

*Inventor:
John Munson*

UNITED STATES PATENT OFFICE.

JOHN MUNSON, OF SAN JOSE, CALIFORNIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 43,121, dated June 14, 1864.

To all whom it may concern:

Be it known that I, JOHN MUNSON, of San José, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention taken in the line *x x*, Fig. 2; Fig. 2, a vertical section of the same taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists, first, in a novel trip-valve arrangement for admitting of the escape of water from the eduction-pipe of the pump after each operation of the same, whereby the pump is prevented from being inoperative in winter by freezing, and fresh, cool water always obtained in summer.

The invention consists, second, in a novel construction of the plunger of the pump, whereby the former is made to serve as an air vessel as well as a plunger and considerable expenses saved in the construction of the pump, and the latter also materially simplified.

The invention consists, third, in the employment or use of a cap attached to the pump-box at the top of the well or cistern and provided with a brake-joint, as hereinafter fully shown and described, whereby a very simple, economical, and durable means is obtained for a pump-fixture at the top of the well or cistern.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the cylinder of the pump, which may be of any suitable dimensions and submerged near the bottom of the well or cistern. The pump-cylinder has an opening, *a*, in its side, near its upper end, and the lower end of the eduction-pipe shown in red, is attached to it, the opening *a* forming a communication between the pump-cylinder and the eduction-pipe, the latter extending upward to the top of the well or cistern and passing through the pump-box, which is also shown in red.

B represents a hollow plunger, which is less in diameter than the pump-cylinder A, and

has a piston, C, attached to its lower end. The piston is made separately from the plunger, and is attached to it by bolts D D, the heads *b b* of which are fitted between lugs *c*, cast at the inner side of the plunger, as shown clearly in Fig. 1, the bolts passing through the piston and having nuts *d* on their lower ends. The piston is provided with a suitable packing, E, and also provided with a valve, F, opening upward. (See Fig. 1.) The lower end of the plunger B communicates at all times with the interior of the pump-cylinder A, a space or openings being allowed between the piston and plunger, and the valve F is provided with a stem, *e*, which works in a guide, *f*, at the lower part of the plunger.

G represents the check or retaining valve, which is at the bottom *a'* of the pump-cylinder. This valve is fitted or works on pivots *g* in a frame, H, the latter being secured to the bottom of the pump cylinder with packing *h* interposed between. The frame H is formed or cast with a central projection, *i*, which extends upward a suitable distance, as shown in both figures. The object of this projection will be presently seen. It is the tubular flange, which is directly underneath the valve G, and to which the induction-pipe, if any be used, is attached. The top of the pump-cylinder is provided with a stuffing-box, I', through which the plunger B works.

From the above description it will be seen that when the piston C ascends the valve F closes and a suction is produced in the pump-cylinder underneath the piston, the valve G opening and the water passing into the pump-cylinder, while the water in the pump-cylinder above the piston, which was drawn into it at the previous stroke, will be forced up the eduction-pipe through the opening *a*. During the downward movement of the piston the valve F opens, and the water in the pump-cylinder below the piston is displaced and forced upward through the eduction-pipe. Thus a continuous stream is forced upward through the eduction-pipe. At the end of the pumping operation the piston is forced down to the bottom of the pump cylinder A and the projection *i* causes the valve F to remain open or prevents it from closing, while at the same time one of the bolts, D, will strike one end of the valve G and cause it to open, as shown in red, Fig. 1, thereby allowing the water to

escape, so that the water in the eduction-pipe will reach the level of the surface of the water in the well or cistern. By this means the eduction-pipe is prevented from freezing up in winter, and cool, fresh water obtained in summer. The plunger, in consequence of being hollow, serves as an air-chamber and renders the flow of water from the eduction-pipe uniform.

J represents a cast-iron plate, which is secured to the upper end of the pump-box, and through which the upper end of the induction-pipe passes, as shown in red, Fig. 1. This plate J has a socket, K, attached to it by a pin, *j*. The socket K may be of cast-iron and composed of a flat plate, *k*, having a lip or flange, *l*, at one side of it and a projection, *m*, at its inner end, to receive the bolt which connects the plunger-rod to the socket K, as shown in red, Fig. 2. The pin *j* passes through an upright lug, *n*, at one side of plate J, and the brake or handle of the pump, shown in red, is bolted to the socket K. By this arrangement a very

simple, economical, and durable brake, joint is obtained.

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

1. The check or retaining valve G, fitted in the frame H, provided with a projection, I, and arranged in relation with the valve F of the piston C and the bolts D thereof, or other projection attached, so as to cause both valves to be opened and remain open when the piston is at the bottom of the pump-cylinder, and thereby admit of the escape of the water, substantially as set forth.

2. The hollow plunger B, attached to the piston C to operate as an air vessel or chamber, as specified.

3. The plate J with the socket or brake-joint K, attached substantially as described.

JOHN MUNSON.

Witnesses:

D. ROBERTSON,

M. M. LIVINGSTON.