H. M. Keith,

Double-Acting Pump,

No. 48,691, Patented July 11, 1865.

Fig. 2.

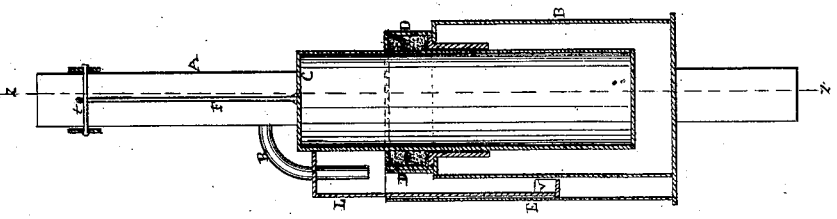
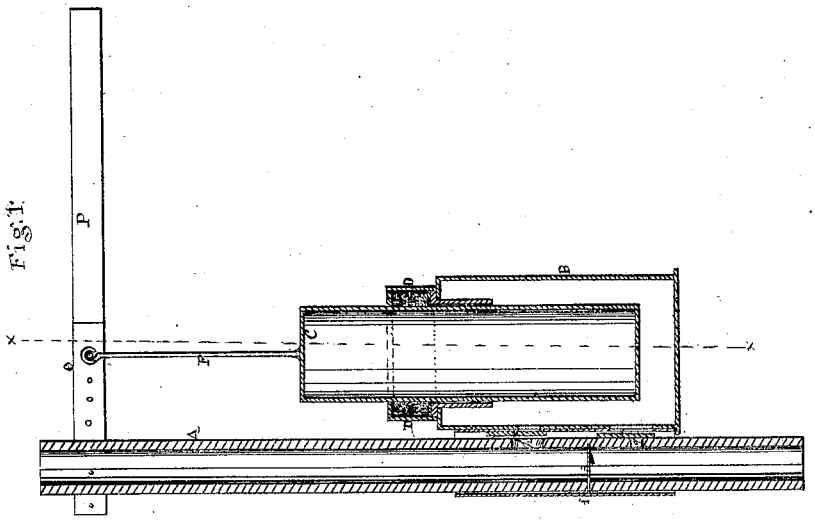


Fig. 1.



Witnesses
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UNITED STATES PATENT OFFICE.

HORACE M. KEITH, OF COMMERCE, MICHIGAN.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **48,691**, dated July 11, 1865.

To all whom it may concern:

Be it known that I, HORACE M. KEITH, of Commerce, Oakland county, in the State of Michigan, have invented certain new and useful Improvements in Pumps; and I hereby declare that the following is a true and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 in the annexed drawings represents a vertical section of my pump apparatus in the line *z z*, Fig. 2. Fig. 2 gives a vertical section of the same in line *x x*, Fig. 1.

The letter A represents a pump-stock of square timber, with a bore extending through it from end to end of sufficient size to admit the desired quantity of water.

B represents the water-reservoir, which consists of an oblong box with square sides, and adjusted to the pump-stock A by means of a wide metal strap, *f*, extending the whole length of reservoir B.

The strap *f* is adjusted to reservoir B by having two flanges, one on each inner edge, which fit in grooves on the side of reservoir B. The strap *f* fits loosely on the pump-stock A, thus allowing the reservoir B and strap *f* to be adjusted at any desirable point on the pump-stock A. When reservoir B and strap *f* are in the position required a wedge is driven in between *f* and the pump-stock A to hold *f* in place.

D represents a cylindrical neck, securely fastened on the top of reservoir B, and having on its inner circumference an annular flange, *e*, through which the cylindrical plunger C is designed to operate.

The pump-stock A has two openings, *g* and *h*, in it to admit of the passage of the water in and out of the reservoir B. Opposite to the holes *g* and *h* are the leather valves *m* and *n*, the valve *m* being fastened at its upper end to the pump-stock A and valve *n* secured at top to reservoir B.

E represents a chamber attached to the side of reservoir B, and rendered, like B, watertight at bottom.

L represents an arm, the upper end of which is fastened to plunger C, and the lower end, extending into the chamber E, has a scoop, *v*, attached to it for the purpose of throwing water out of E into the space between the neck D and the plunger C, the object of which will be explained hereinafter.

F designates the iron rod, fastened at its lower end to the top of plunger C, and at its upper end encircling a bolt, *t*, which passes through the metal sides *o* of handle P, these metal sides *o* being secured to the pump-stock A by a bolt, *t*, on which they play with a vertical motion.

The sides *o* have a series of holes through them, into any one of which the bolt *t* can be inserted, in order to lengthen or shorten the stroke of the plunger C.

The letter *s* designates a cut-off in the bore of the pump-stock between the openings *h* and *g*, the design of which is to prevent the ascent of the water in the pump-stock until it first enters the reservoir B, through the opening *g*, and returns again to the bore of the pump-stock through the opening *h*.

In order to prevent the escape of water upward between the plunger C and the flange *e*, a leather packing is inserted, which extends some distance downward. In addition to the leather packing the space between the neck D and plunger C is filled with small shot, which are kept in place by having a collar, made of any suitable material, inserted near the top of the neck D. This collar will have a narrow opening in it opposite to the chamber *e*, through which opening water can be introduced into the space between D and C, so as to fill up the interstices between the shot.

In operating my pump it will be seen that when the plunger C is raised by the action of handle P the water in the pump-stock below the cut-off *s* will enter the hole *g*, force open the valve *m*, and then enter through a corresponding hole into the reservoir B. When, on the other hand, the plunger C descends, the pressure of the water will close the valve *m* and force open the valve *n*, so that the water can enter through hole *h* into the bore of the pump-stock A and find a vent through the spout R. At every ascent of the plunger C the arm L, which is attached to C, will ascend also, and will, by means of the scoop V at its lower end, raise a sufficient supply of water to the top of neck D and there discharge it in the shot packing, the chamber E having

been already filled with water by hand for the purpose above mentioned.

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

The reservoir B, the valves *m* and *n*, the cut-off *s*, the swipe-pole L and bucket E, and the cylinder C, the whole constructed, arranged, and operating as and for the purpose substantially as herein set forth.

HORACE M. KEITH.

Witnesses:

JAMES CARHART,

JOHN BAIRD.