J. A. SINCLAIR.
Double-Acting Pump.

No. 207,561. Patented Aug. 27, 1878

Fig. 1.

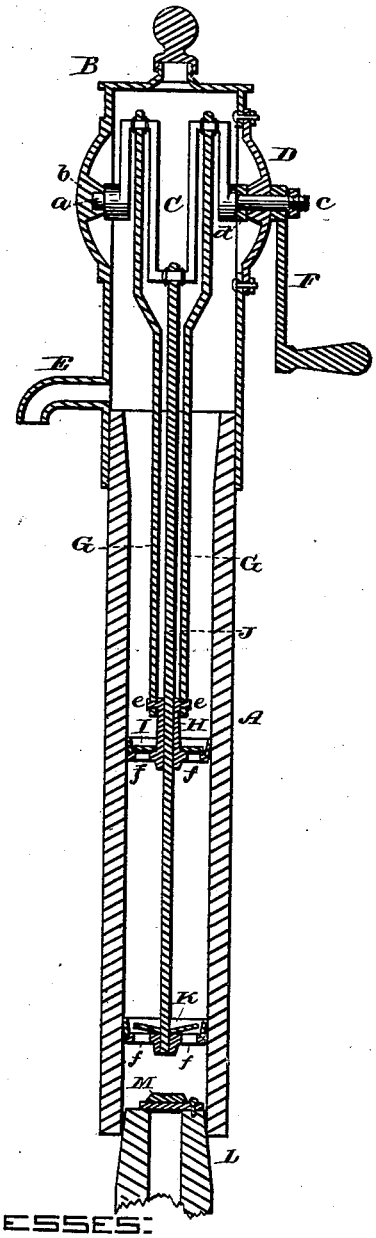
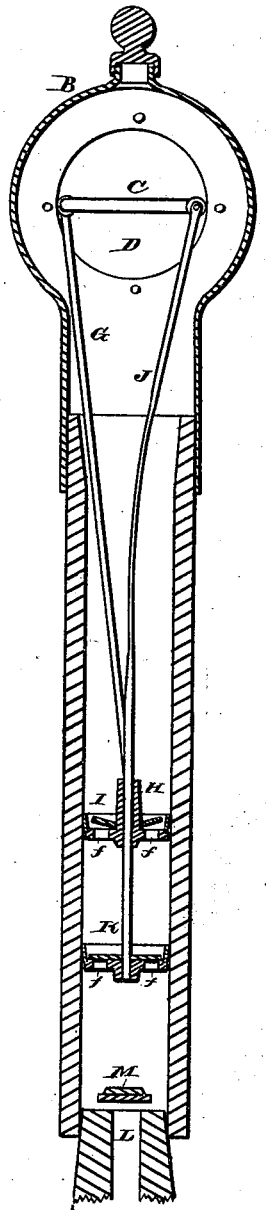


Fig. 2.



WITNESSES:

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JAMES A. SINCLAIR, OF BRIDGEPORT, ASSIGNOR OF ONE-HALF HIS RIGHT TO ABRAM LASH, OF MARTIN'S FERRY, OHIO.

IMPROVEMENT IN DOUBLE-ACTING PUMPS.

Specification forming part of Letters Patent No. **207,561**, dated August 27, 1878; application filed January 24, 1878.

To all whom it may concern:

Be it known that I, JAMES A. SINCLAIR, of Bridgeport, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Double-Acting Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to certain improvements in double-acting pumps; and consists in the construction, arrangement, and combination of parts, which will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and arrangement, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a central vertical section, showing the detachable back and compound crank-shaft; and Fig. 2 is a central vertical transverse section.

A represents a cylinder of any suitable construction, provided with a cast-iron pump-head, B. This pump-head may be secured to the cylinder A with bolts or by any other suitable means.

Within the pump-head B is arranged a compound crank-shaft, C, one end, *a*, resting in a suitable bearing, *b*, cast on the inside of the head, and the other end, *c*, having bearing and passing through the detachable back-piece D, as shown in Fig. 1 of drawing. On the end *c*, between the shaft C and detachable back-piece D, is placed a suitable washer, *d*. The object of this washer is to make the pump-head above the spout E as near air-tight as possible, in order that it may act as an air-chamber.

To the end *c* of the compound crank-shaft C is secured a crank, F, for operating the pump, as will be hereinafter set forth.

If desired, the spout E may be placed in the cylinder A below the pump-head.

To the compound crank-shaft C are secured the upper ends of two rods, G, which extend down into the cylinder A. Their lower ends are, by pins *e e*, secured to a vertical sleeve, H, arranged in the center of the piston I, as shown, which latter is provided with two or more valves, *f*, as may be desired.

To the middle of the compound crank-shaft C is secured one end of a flexible rod, J, which passes down through the vertical sleeve H in the center of the piston I to the piston K, passing through the same, and secured on the under side by a nut or any other suitable means. This piston K is also provided with two or more valves, *f*, as may be desired.

The lower end of the cylinder A may be made to receive the upper end of the well-tubing L, as shown. The opening at the top of the well-tubing is provided with a valve, M.

The operation of my device is as follows: The pump being filled with water and the pistons at their extremities, the shaft is put in motion, and as the pistons approach each other the lower piston lifts the water, which passes through the valves of the upper piston as it descends, and out at the spout. During the progress of this part of the operation the check-valve M opens, and the water is drawn from the well after the lower piston. As the pistons recede the valves of the upper one close and the water above is lifted, and those of the lower one open and permit the water to flow through after the upper piston. The repetition of this operation causes a continuous flow of water from the pump-spout, the upper part of the head acting as an air-chamber.

The flexibility of the rod J serves to retain the rod in a perpendicular position in the sleeve H.

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

1. The pump-head B, provided with a detachable back, D, compound crank-shaft C, rods G, piston I, provided with a sleeve, H, flexible rod J, and piston K, all combined and operating substantially in the manner shown and described.

2. The combination of a crank-shaft and flexible rod with a piston provided with a sleeve, substantially as described.

3. The combination of a flexible rod and piston, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAS. A. SINCLAIR.

Witnesses:
T. C. ROWLES,
ABRAM LASH.