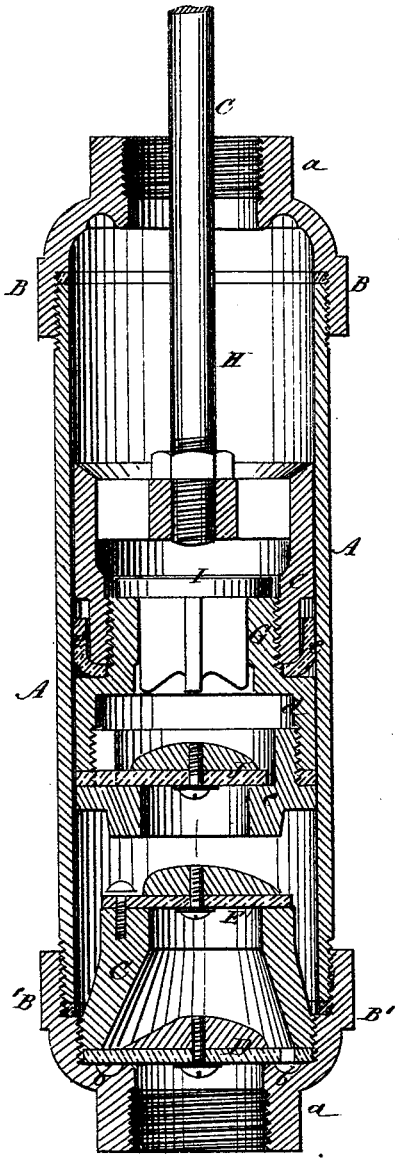
A. JOHNSON.
Lift-Pump.

No. 197,034. Patented Nov. 13, 1877.



WITNESSES:

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UNITED STATES PATENT OFFICE.

AUGUSTUS JOHNSON, OF MORRISON, ILLINOIS.

IMPROVEMENT IN LIFT-PUMPS.

Specification forming part of Letters Patent No. **197,034**, dated November 13, 1877; application filed September 14, 1877.

To all whom it may concern:

Be it known that I, AUGUSTUS JOHNSON, of Morrison, in the county of Whitesides and State of Illinois, have invented a new and Improved Lifting-Pump, of which the following is a specification:

This invention has relation to lifting-pumps; and the nature of my invention consists in constructing the plunger, and also the check-valve box, with two valves, all four of which open upward, and prevent a return or drop of water, as will be hereinafter explained.

Before particularizing my invention, I will state that my object is to use auxiliary valves, which will check or trap the water drawn into the cylinder or pen-stock, and prevent any of the water from returning back into the well.

In the annexed drawing, the figure represents a diametrical section through the cylinder of the pump, showing all of the valves shut.

The letter A designates the cylinder of the pump, which may be of any diameter and length, and which has caps B B′ screwed on its ends. These caps have inside threaded necks *a a*, which are designed to receive the ends of pipes and form close couplings.

C designates the foot or check valve box, which is screwed into the lower cap B′, and forced down upon an annularly-grooved shoulder, *b*, and is packed by the first check-valve D, which is of leather, cut out of a disk, in the usual manner of making "flap-valves."

The box C is cylindro-conoidal in form, and on its upper end is an auxiliary check-valve, E, which will retain the water drawn into the cylinder A, should the valve D fail to do so, or should valve E fail, the valve D will operate as a check.

The piston or plunger G is composed of three metal sections, *c d e*, screwed together, and secured to a rod, H, which may be raised and depressed by any suitable mechanism.

The upper section *c* of the plunger is hollow, and receives in it a metal valve, I, provided with a four-tail guide, which plays freely in the contracted tubular neck of the intermediate section *d*, between which latter and the section *c* a cylinder-packing, *e*, is clamped, that packs the plunger.

Below the valve I, and confined between the screw-sections *d e* of the plunger G, is a leather flap-valve, J, which opens upward during the descent of the plunger, and allows water to pass from below upward, but prevents the return thereof unless the valve should be caught and held open by an obstruction, in which event the valve I will prevent the return of the charge of water.

It will be seen from the above description that I employ two check-valves, D and E, at the foot of the cylinder A, and also two check-valves in the plunger G, either one of which will operate if another fails.

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

In combination with a three-part plunger, G, having two upward-lifting valves, I and J, the check-valves D and E in box C, substantially in the manner and for the purpose described.

AUGUSTUS JOHNSON.

Witnesses:
GEO. H. FAY,
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