C. GREEN.

FORCE-PUMP.

No. 187,755. Patented Feb. 27, 1877.

Fig 1

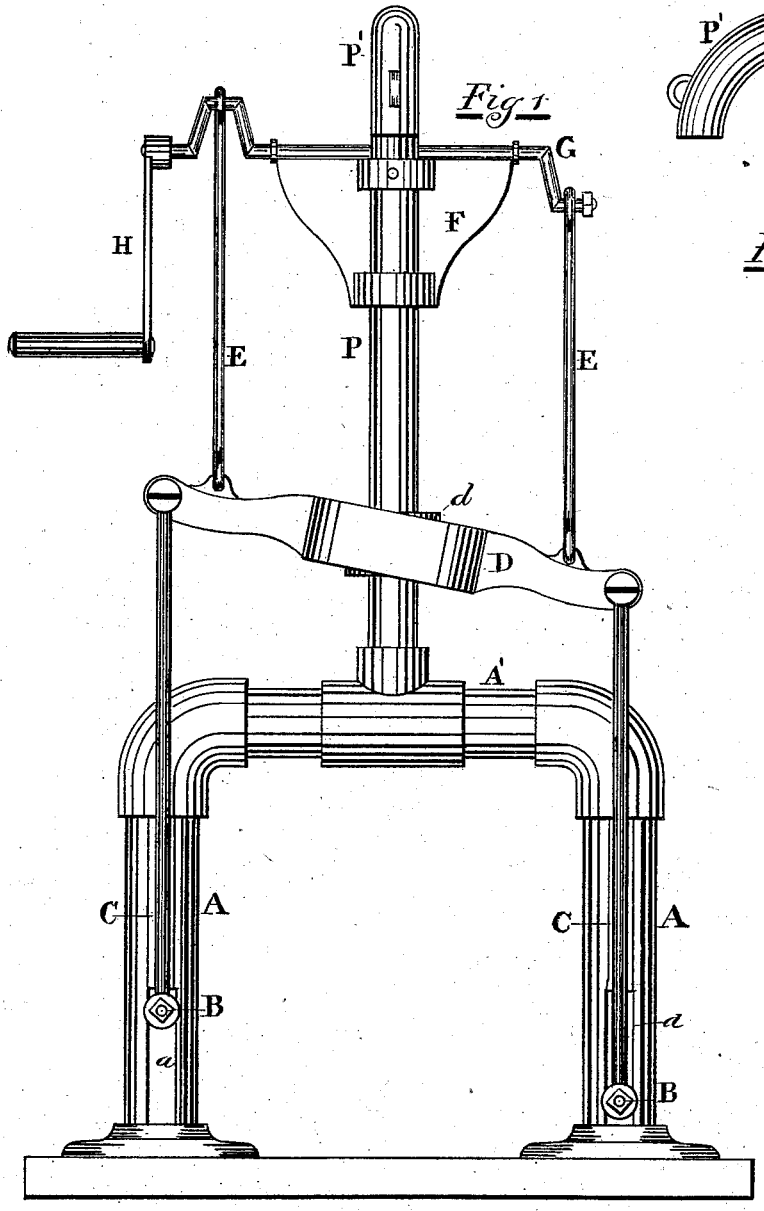
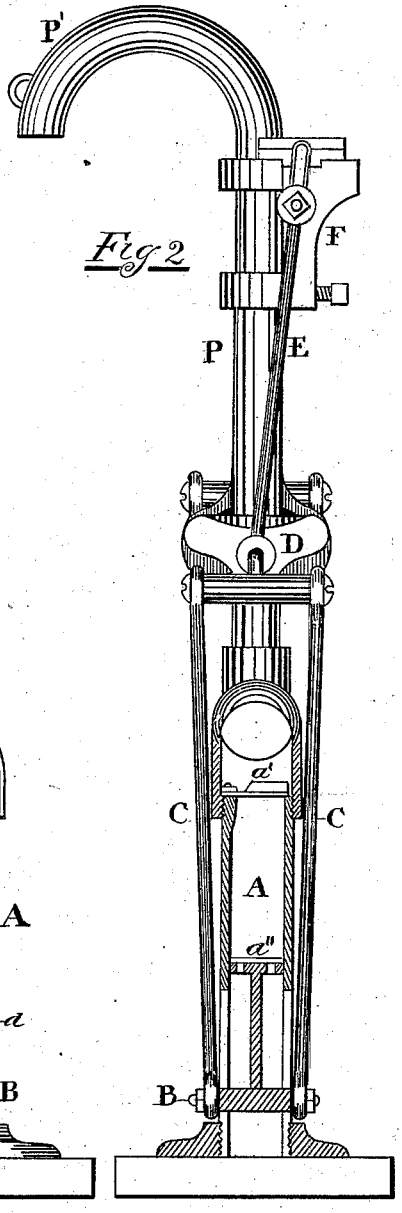


Fig 2



Witnesses

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CYRUS GREEN, OF HESPELER, ONTARIO, CANADA.

IMPROVEMENT IN FORCE-PUMPS.

Specification forming part of Letters Patent No. **187,755**, dated February 27, 1877; application filed July 29, 1876.

To all whom it may concern:

Be it known that I, CYRUS GREEN, of the village of Hespeler, in the county of Waterloo, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Force-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to those pumps which are placed in the bottom of the well, the discharge-pipe from which rises above the mouth thereof, and which I utilize for supporting the working-gear of the same. It consists of two upright cylinders flanged at the bottom, and secured to a bed-piece in the bottom of the well. The cylinders are constructed with slots, and are each of them provided with a working-bucket and a stationary valve, and are connected to each other at the top by elbows and other suitable pieces, and forming, when so connected, a double pump; but, with one discharge-pipe common to both, which rises from the middle of the connection-pipes, and projects above the mouth of the well, the advantages gained from the two cylinders being that a given quantity of water is lifted or forced a given height in a given time with less motive power than with one cylinder only, and also that the pump can be used with either one or two cylinders, as may occasionally be required. In addition to the two cylinders and one discharge-pipe there are two cross-heads operated by two side rods attached to the same, and to an oscillating beam above, which is pivoted on a center piece embracing the discharge-pipe. The oscillating beam aforesaid is operated by means of a cranked shaft located on a bracket secured to the aforesaid discharge-pipe above the mouth of the well, and two connecting-rods attached to the shaft and the beam complete the arrangements.

Another object of my invention is to obtain a pump which shall be simple in its construction and operation, which shall be worked, as hereinbefore described, by the least possible motive-power, and not be liable to derangement from frost or other causes.

In the accompanying drawings, the same letters of reference indicate the same parts in all the views; and in this specification—

Figure 1 is an elevation of my pump showing the cylinders A A with slots *a a*, cross-heads B B, side rods C C, oscillating beam D, center piece *d*, connecting-rods E E, bracket F, crank-shaft G, winch H, discharge-pipe P, with branch P′. Fig. 2 is an end elevation showing one of the cylinders A in section, with working bucket *a″* and stationary valve *a′*, cross-head B, side rods C C, oscillating beam D, center piece *d*, connecting-rod E, top bracket F, crank-shaft G, winch H, discharge-pipe P, with branch P′.

The connecting-rods E E and discharge-pipe P are made to suit the varying depths of wells in which my pump is to be used.

It will be seen on reference to the drawings that, by turning, the winch H will rotate the shaft G, which, by means of the connecting-rods E E, will oscillate the beam D, which, by means of the side rods C C, will give a reciprocating motion, vertically, to the cross-heads B B and the working buckets *a a* attached to the same, which will cause a vacuum in the cylinders A A, into which vacuum the water will flow, and, on the down-stroke of the buckets *a″*, will be forced through the same, and, by the up-stroke of the buckets *a″*, the water will be forced through the stationary valves *a′*, and will fill the discharge-pipe P and be delivered therefrom at the branch P′, or by using a hose and nozzle it may be distributed as otherwise required.

Having thus described my invention, I claim—

The combination of the cylinders A A, connection-pipes A′ A′, discharge-pipes P, cross-heads B B, side rods C C, oscillating beam D, connecting-rods E E, top bracket F, crank-shaft G, and winch H, as shown and described, and for the purposes set forth.

CYRUS GREEN.

Witnesses:

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