(No Model.)

R. D. HALL.

PUMP.

No. 301,717. Patented July 8, 1884.

Fig. 1.

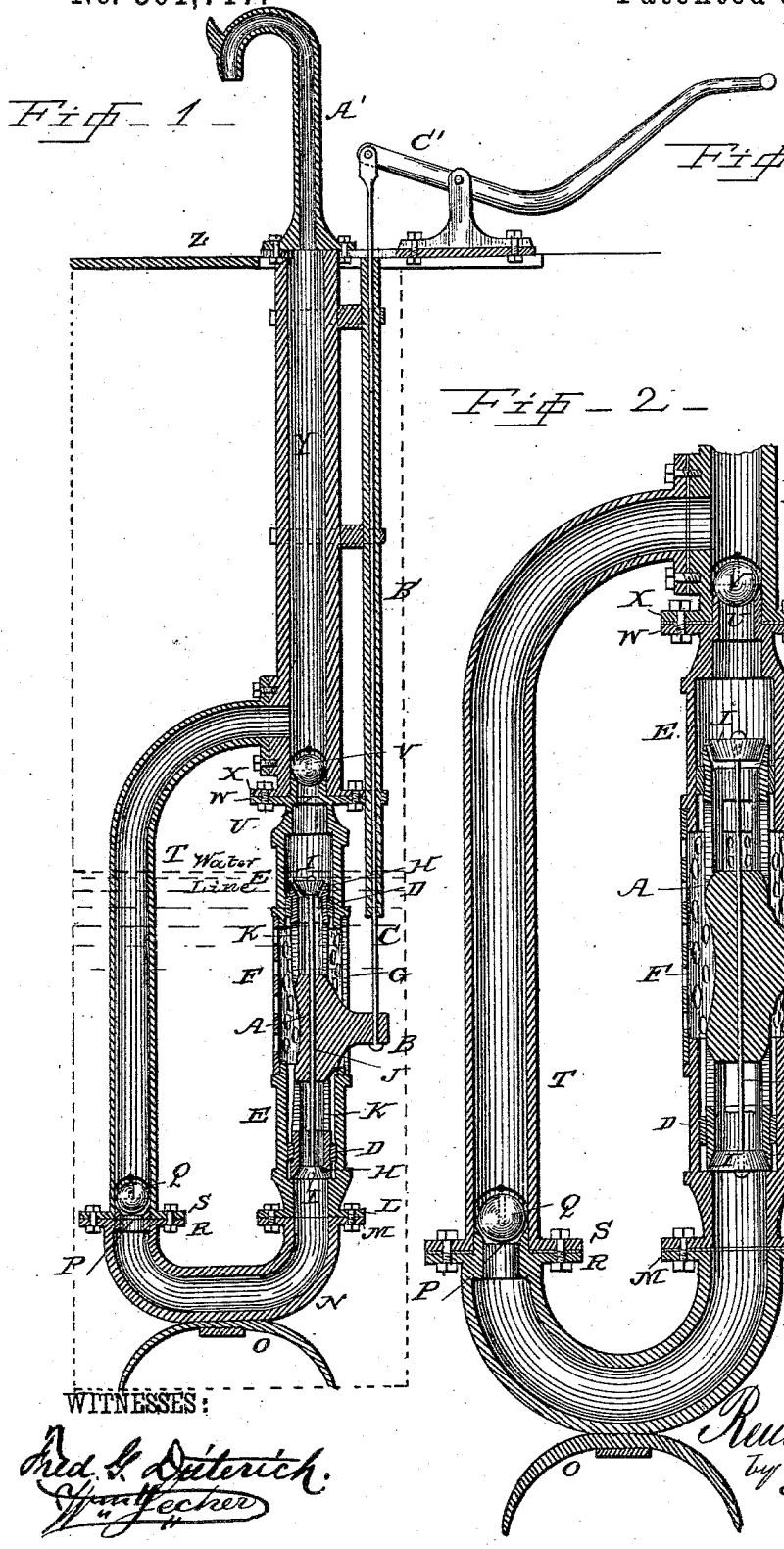


Fig. 3.

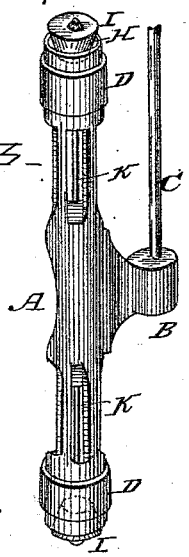
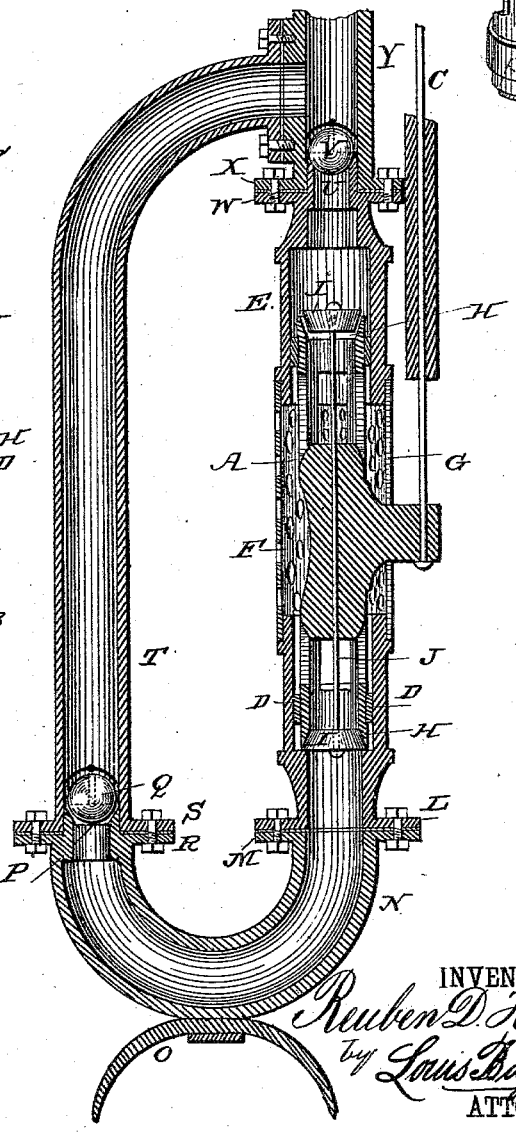


Fig. 2.



WITNESSES:

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REUBEN DOTSON HALL, OF NEW HAMPTON, MISSOURI.

PUMP.

SPECIFICATION forming part of Letters Patent No. 301,717, dated July 8, 1884.

Application filed January 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, REUBEN D. HALL, a citizen of the United States, and a resident of New Hampton, in the county of Harrison and State of Missouri, 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 invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a vertical sectional view of my improved double-acting pump. Fig. 2 is a similar view of the lower part of the same on an enlarged scale, and Fig. 3 is a perspective view of the double piston.

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

My invention has relation to double-acting force-pumps; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the piston of the pump, which is provided with a laterally-projecting lug, B, at its middle, to which lug the lower end of the piston-rod C is attached, and the ends of the piston are recessed for the reception of packing-rings D, and fit and reciprocate within two cylinders, E, secured with their opposite ends in the ends of a perforated cylinder, F, having a longitudinal slot, G, through which the lug upon the piston projects, and in which it slides. The ends of the piston are hollow, and form annular valve-seats H, upon which two valves, I, play, opening outward, and connected by means of a rod, J, sliding longitudinally in the piston, so that one valve will open when the other is closed, and vice versa. The inner portion of the hollow parts of the piston have apertures K, forming communications between the interior of the perforated cylinder and the hollow portions of the piston. The lower end of the lower cylinder, E, is provided with a collar, L, which is bolted to a collar, M, upon an elbow-joint, N, which is provided upon its under side with a number of feet, O, which serve to raise the elbow from the bottom of the well or vessel in which the pump is placed, and the other upwardly-bent end of the elbow-joint forms a seat, P, for an upwardly-opening ball-valve, Q, and a flange, R, which is secured to a flange, S, upon the lower end of an upright pipe, T. The upper end of the upper cylinder, E, is provided with a valve-seat, U, for an upwardly-opening ball-valve, V, and a flange, W, which is bolted to a flange, X, upon the lower end of an upright pipe, Y, into the lower end of which the upper end of the upright pipe T opens, while its upper end passes through the cross-piece or cover Z at the top of the well, where it forms the reduced discharge-pipe A′, through which the water is discharged. A narrow pipe, B′, passes down parallel with the outlet-pipe, and the piston-rod slides in the said pipe, which serves to guide and strengthen it, and the upper end of the piston-rod is hinged to one end of the pump-lever C′, which is pivoted at the top of the well.

It will now be seen that as the piston is reciprocated by means of the piston-rod and its operating means the water or fluid, in which the end of the pump is immersed, will flow through the perforated cylinder, lift the valve at the end of the piston facing from the direction of its motion, thus allowing the water to pass into the cylinder, from whence it will be forced out by the returning piston raising the outlet-valve, the upper cylinder discharging when the lower cylinder is being filled, and vice versa.

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

1. The combination of the piston having the hollow ends open at the sides and formed into valve-seats at the ends, and having the axially-perforated solid central portion, with the valves fitting upon the seats in the ends of the piston, and connected by the rod sliding in the perforation of the solid central portion of the piston, as and for the purpose shown and set forth.

2. The combination of the piston having the laterally-projecting lug, the piston-rod secured at its lower end to the said lug, and the guide-pipe surrounding the piston-rod, as and for the purpose shown and set forth.

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

REUBEN DOTSON HALL.

Witnesses:

JOHN W. CHIPS,

JOHN W. SMITH.