

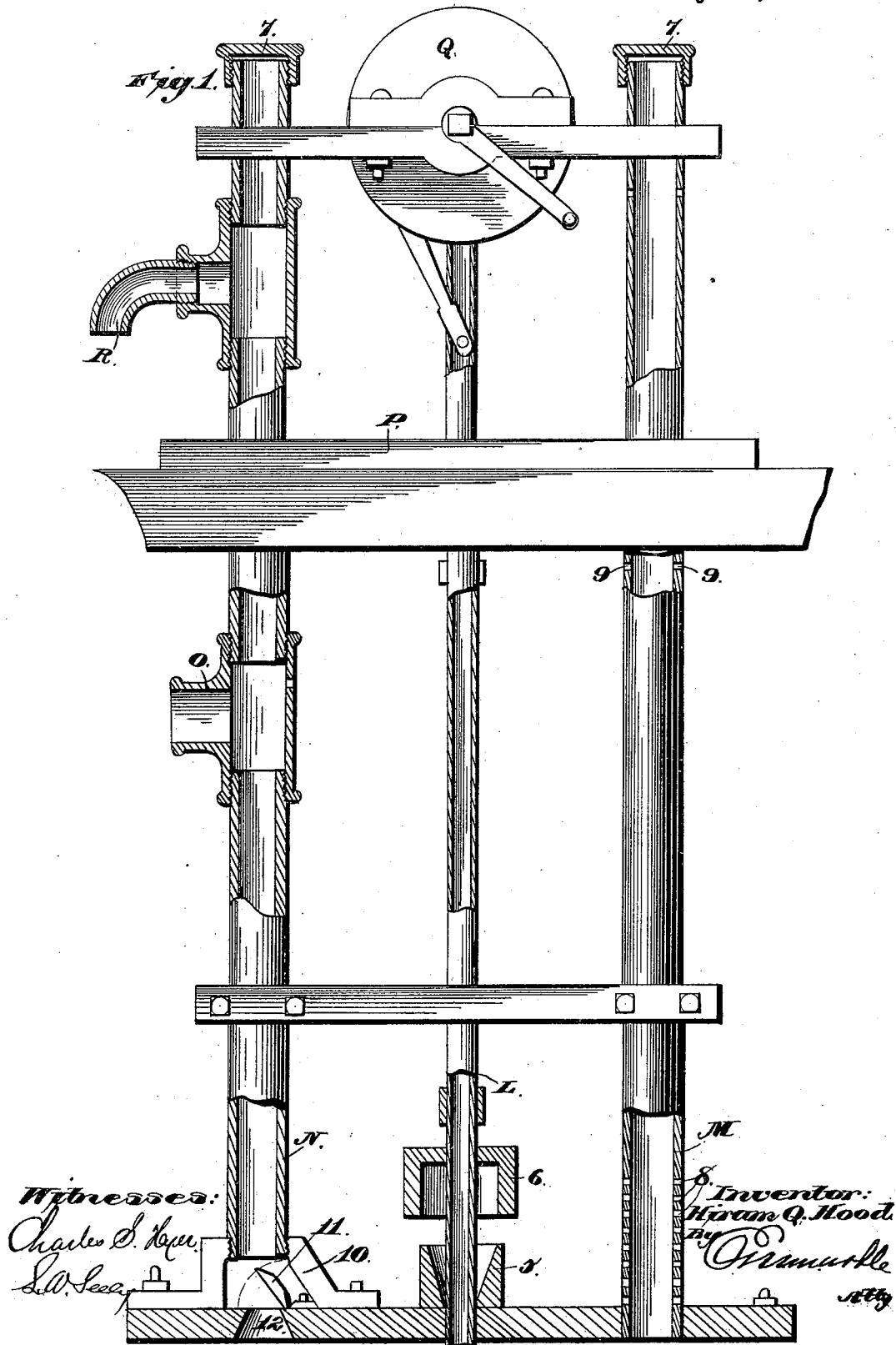
(No Model.)

2 Sheets—Sheet 1.

H. Q. HOOD.
FORCE PUMP.

No. 342,696.

Patented May 25, 1886.



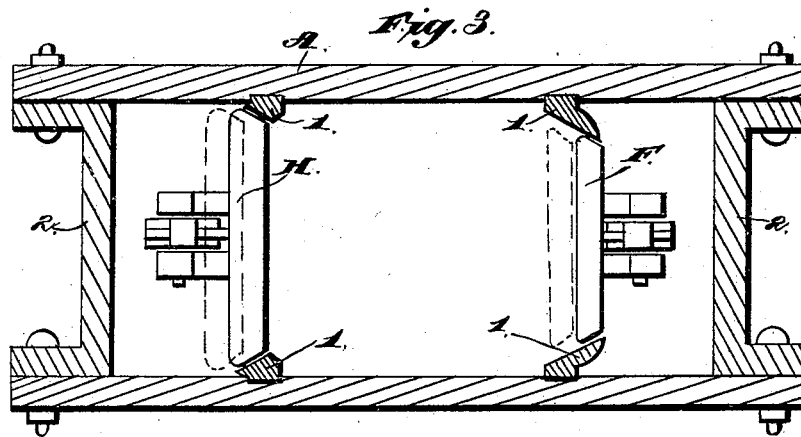
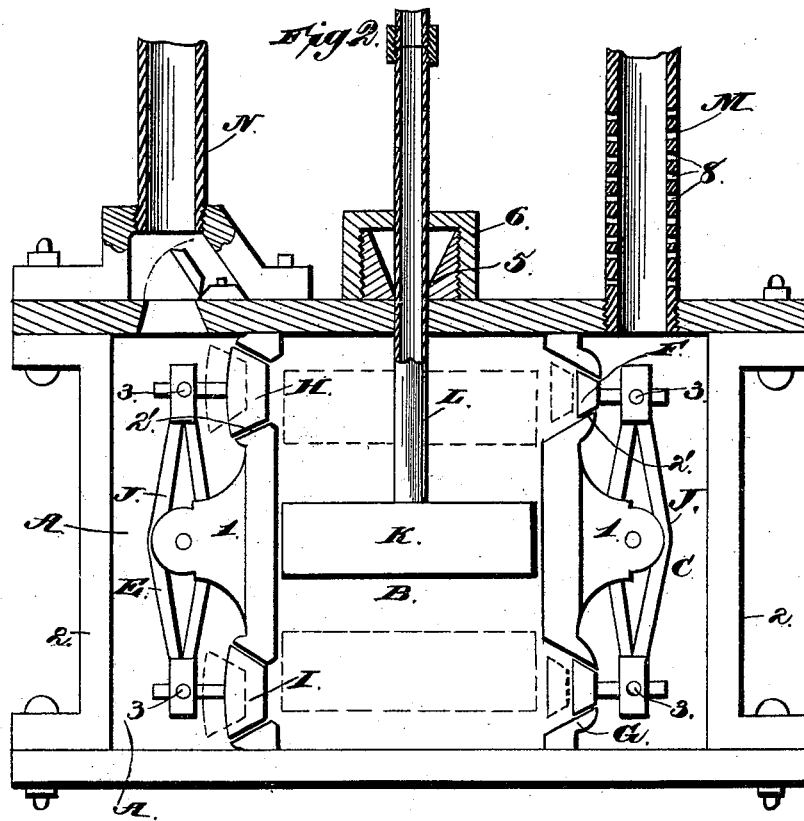
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2 Sheets—Sheet 2.

H. Q. HOOD.
FORCE PUMP.

No. 342,696.

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Witnesses:

Charles S. Hoyer.
S. W. Seely

Inventor:
Hiram Q. Hood.

By

Summary

Atty.

UNITED STATES PATENT OFFICE.

HIRAM Q. HOOD, OF WELLINGTON, KANSAS.

FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 342,696, dated May 25, 1886.

Application filed December 15, 1885. Serial No. 185,772. (No model.)

To all whom it may concern:

Be it known that I, HIRAM Q. HOOD, a citizen of the United States, residing at Wellington, in the county of Sumner and State of Kansas, have invented a new and useful Improvement in Force-Pumps, of which the following is a specification.

My invention relates to an improvement in force-pumps; and it consists in the construction and arrangement of the parts, which will be more fully hereinafter described, and pointed out in the claim.

In the accompanying drawings, wherein like letters of reference indicate similar parts in the several views, Figure 1 is a part elevation and part section of that portion of the pump located above the submerged forcing-chamber. Fig. 2 is a vertical section of the forcing-chamber, showing the connection of the piston and air-pipes thereto. Fig. 3 is a horizontal section of the forcing-chamber.

A represents the forcing-chamber, which is divided by partitions 1 1, into a piston-chamber, B, a receiving-chamber, C, and a discharging-chamber, E. The chamber A is made from iron plates connected by flanged end plates bolted together, as shown in Figs. 2 and 3. In the partitions 1 1 are formed rectangular tapering valve-seats 2' 2', upon which are seated the correspondingly-shaped valves F G H I, valves F and G being receiving-valves, and H and I discharging-valves, and all the valves in closing move in the same direction. Rocking frames J are pivoted in projecting brackets of the partitions 1, at the ends of which frames the valves are secured by means of set-screws 3.

The movement of the frame in either direction on the pivot will open one and close the other of each pair of valves, respectively; and, as will be hereinafter explained, the operation of all these valves is automatic when the piston is moving. The piston K is square in cross-section, and fits and slides within the central part of the forcing-chamber, bearing on the interior of the partitions. It is connected to a piston-rod, L, which extends up through the well and above the ground, where it is connected to the power. It passes through a stuffing-box, 5, above the forcing-chamber, over which fits a screw-cap, 6.

Connected to the forcing-chamber, two pipes are M N, the former opening into the receiving and the latter into the discharging section of the chamber. Both these pipes extend up above the ground, where they are covered by caps 7 7. Openings are formed in the pipe M, as shown at 8 8, for the admission of the water which surrounds it, and, as shown at 9 9, for the admission of air above the water-level. The discharge pipe N is connected to its chamber by coupling 10, within which works an ordinary hinged valve, 11, which opens and closes the discharge-port 12.

As the entire forcing-chamber is submerged, there is no suction-pipe, properly so called. The pipe M is naturally supplied with water, which surrounds its lower part, through the openings 8, which also fills or partly fills the space above the piston. As the piston commences to rise, the pressure of the water above it closes valve F, while the vacuum produced permits the water which has filled the receiving-section to open valve G and admit water below the piston. The piston continuing upward opens valve H, which forces water into the discharge-section and discharge-pipe N, the pressure lifting valve 11. The effect of opening valve H is to close valve I. On the downward stroke of the piston the operation is the converse of that just described. The water which has flowed in below the piston is now forced out through valve I, while valves G and H are closed and valve F is open, which latter supplies water above the piston for the next upward stroke. It will thus be seen that the pump forces water at each stroke of the piston, and that the action of the valves is entirely automatic.

Before the pumping operation commences the water finds its level in pipe M. During the pumping it drops down, and then on cessation of work it again rises, the effect being to cause a constant vibration or movement of air through holes 8 and 9, which thoroughly ventilates the pump.

A T-connection may be attached, as shown at O, to the discharge-pipe N, for an underground main or water pipe.

P represents the platform, above which projects the air-pipes and piston-rod. The rod is connected by a pitman and wrist-pin to a

wheel, Q, turned by a crank or in any other way. A discharge-spout, R, is also connected to the pipe N by a T-joint.

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

In a double-acting force-pump, the combination, with the submerged forcing-chamber
10 chambers, of a central piston, an air and water

pipe, M, connected to the top of one of said sections, and extending above the ground, and having inlet-openings at or near the lower end, a discharge-pipe connected to the opposite section of the forcing-chamber, and automatic
15 valves, substantially as described.

HIRAM Q. HOOD.

Witnesses:

JOHN SULLIVAN,
M. C. LONG.