(No Model.) 2 Sheets—Sheet 1.

J. W. VANMETER.

PUMP.

No. 389,725. Patented Sept. 18, 1888.

Fig. 1.

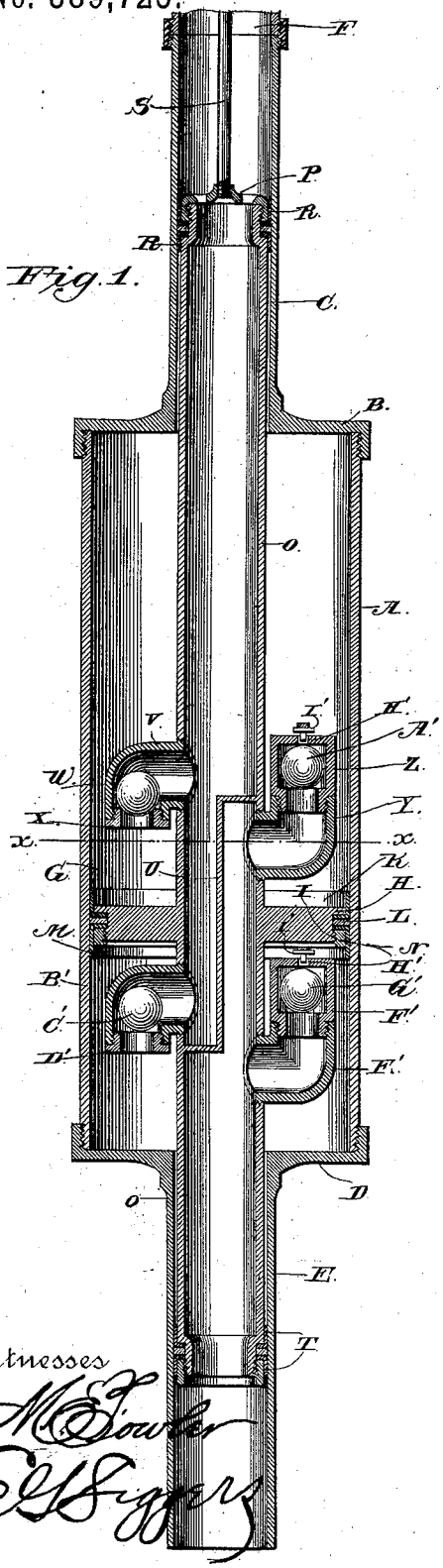
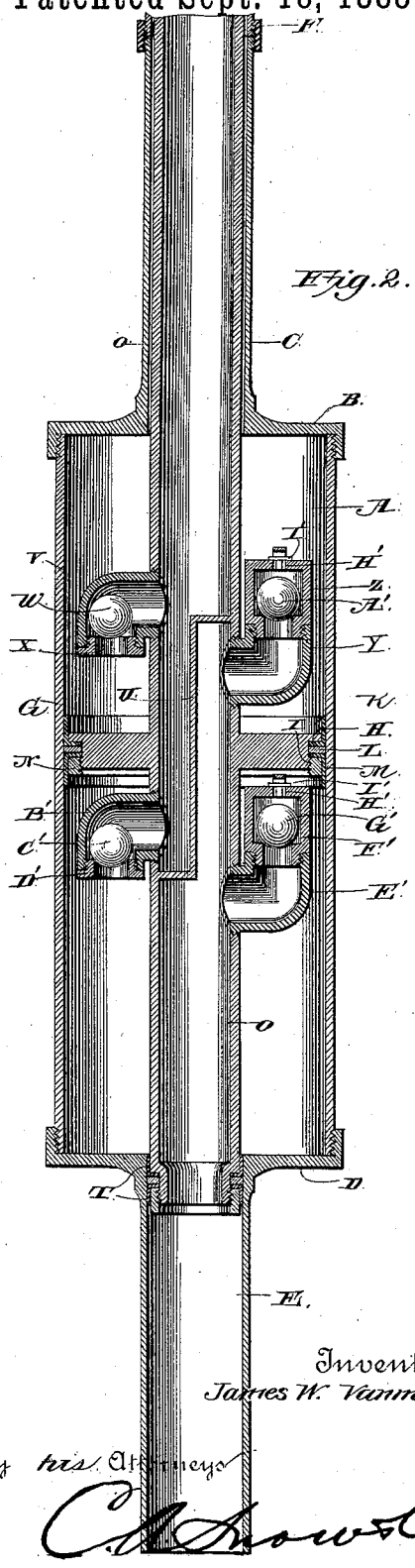


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

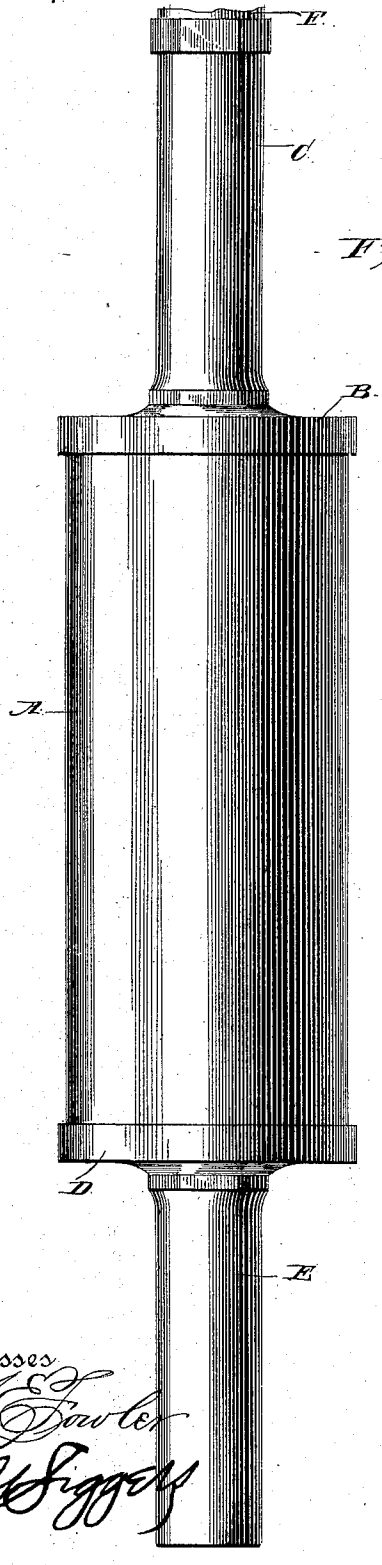
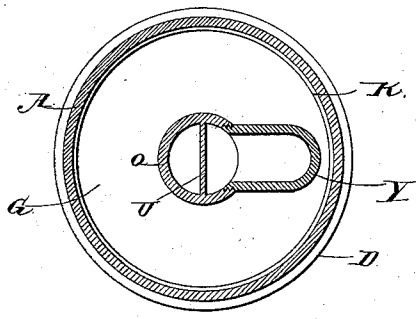


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES WRIGHT VANMETER, OF OAKVILLE, TEXAS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 389,725, dated September 18, 1888.

Application filed April 6, 1888. Serial No. 269,865. (No model.)

To all whom it may concern:

Be it known that I, JAMES WRIGHT VANMETER, a citizen of the United States, residing at Oakville, in the county of Live Oak and State of Texas, have invented a new and useful Improvement in Pumps, of which the following is a specification.

My invention relates to an improvement in double-acting pumps; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a vertical sectional view of the pump embodying my improvement, showing the piston or plunger at the lower end of its stroke. Fig. 2 is a similar view showing the piston or plunger at the upper end of its stroke. Fig. 3 is an exterior elevation of my improved pump. Fig. 4 is a transverse sectional view of the same, taken on the line *x x* of Fig. 1.

A represents the cylinder, of suitable length and width, which has its upper end closed by a screw-cap, B, which is provided with a central upwardly-projecting pipe, C, and the said cylinder has its lower end closed by a screw-cap, D, which is provided with a depending central section-pipe, E.

F represents a delivery-pipe, which is coupled to the upper end of pipe C.

G represents a piston or plunger, which fits in the cylinder A, and is provided with a peripheral flange, H, on its upper side, the remaining portion of the periphery of said plunger or piston being provided with screw-threads I.

K represents the packing-ring, which is made of leather, fits on the periphery of the piston or plunger, bears against the flange H thereof, and has its outer edge turned upward and bears against the inner side of the cylinder.

L represents the partition-ring, which bears against the packing-ring K.

M represents the packing-ring, which is similar to the ring K, is turned downward and bears against the inner side of the cylinder; and N represents the clamping-ring, which is screwed to the piston or plunger, so as to clamp the inner edges of the packing-ring firmly between the flange H and the partition-ring L.

Formed integrally with the piston or plunger and extending through the center of the same is a vertical pipe, O, which extends through the cylinder, the upper end of said pipe entering the pipe C and the lower end of said pipe entering the pipe E. The upper end of the pipe O is provided with a spider, P, which is screwed thereto and serves to clamp packing-rings R to the upper end of tube O, so as to effect a tight joint between the upper end of said tube and the interior of pipe C.

S represents the pump-rod, which extends down through the pipes F and C and has its lower end screwed in a central opening in the spider, said pump-rod being secured to a suitable operating-lever (not shown) and being adapted to cause the piston or plunger to reciprocate in the cylinder A. The lower end of the tube O is provided with packing-rings T, to effect a tight joint with the suction-pipe E. The tube O is provided with a partition, U, which is arranged in the central portion thereof and extends above and below the piston or plunger and communicates with opposite sides of the tube O, thereby completely disconnecting the lower portion of said tube from the upper portion thereof. In one side of said tube, above the piston or plunger, is an opening, in which is screwed an elbow, V, that forms the case for a ball-valve, W, the lower side of said elbow and the valve seat being formed by a ring, X, which is screwed to the lower side of the elbow, as shown. On the opposite side of the tube O, and above the piston or plunger, but below the top end of the partition, is an opening in which is screwed an upturned elbow, Y. On the upper end of this elbow is screwed a case, Z, which communicates therewith, and in the said case is located a ball-valve, A′.

B′ represents a downturned elbow, which is screwed in an opening in the pipe O below the piston or plunger and on the side opposite the elbow Y. In the said downturned elbow B′ is arranged a ball-valve, C′, the valve-seat for which is formed by a ring, D′, that is screwed in the lower end of elbow B′. In an

opening in the opposite side of the pipe O from the elbow B′ is screwed an upturned elbow, E′, to the upper end of which is screwed a communicating case, F′, that is similar to the case Z, and in said case F′ is located a ball-valve, G′.

From the foregoing description and by reference to the drawings it will be understood that the elbow or valve-cases Z and B′ communicate with the upper portion of the pipe O above and below the piston or plunger, and that the elbow Y and E′ communicate with the lower portion of pipe O above and below the piston or plunger. On the upper end of each valve-case Z and F′ is an aperture, H′, in which is fitted a small vertically-movable puppet-valve, I′.

The operation of my invention is as follows: On the upstroke of the plunger a partial vacuum is created in the tube E and in the lower portion of tube O, and consequently water is sucked up through said tube, and on the downstroke of the plunger the valves G′ and A′ rise and the water is forced through the openings H′ into the cylinder above and below the piston or plunger and the valves C′, and the water which is compressed in the lower end of the cylinder is forced up through the valve-case or elbow B′ into the upper portion of tube O. On the next ensuing upstroke of the plunger the water in the upper portion of the cylinder becomes compressed and is forced upward past the valve W into the upper end of tube O, and water is sucked into the cylinder through the lower portion of tube O and through tube E, as before described. By this means the pump is caused to force water through the discharge-pipe, both on the upstroke and downstroke of the piston, whereby a continuous stream of water is maintained when the pump is in operation.

Having thus described my invention, I claim—

The combination of the cylinder A, having the pipes C and E secured, respectively, to its upper and lower ends by the screw-caps B C, which are integral with said pipes, respectively, the pipe O, reciprocating in the cylinder, and pipes C E, the imperforate piston or plunger surrounding the pipe O within the cylinder, the partition U in the pipe O, extending both above and below the piston and dividing said pipe into an upper and a lower section, the downturned elbows V B′, opening into the upper section of the pipe O, respectively above and below the piston G, the spherical valves W C′, resting upon seats in said elbows and opening upwardly, the upstanding elbows opening into the lower section of the pipe O, respectively above and below the piston, the upwardly-opening spherical valves in said elbows, and the upwardly-opening puppet-valves I in the upper ends of said elbows, substantially as specified.

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

JAMES WRIGHT VANMETER.

Witnesses:
ALEX. COKER,
G. Z. WILSON.