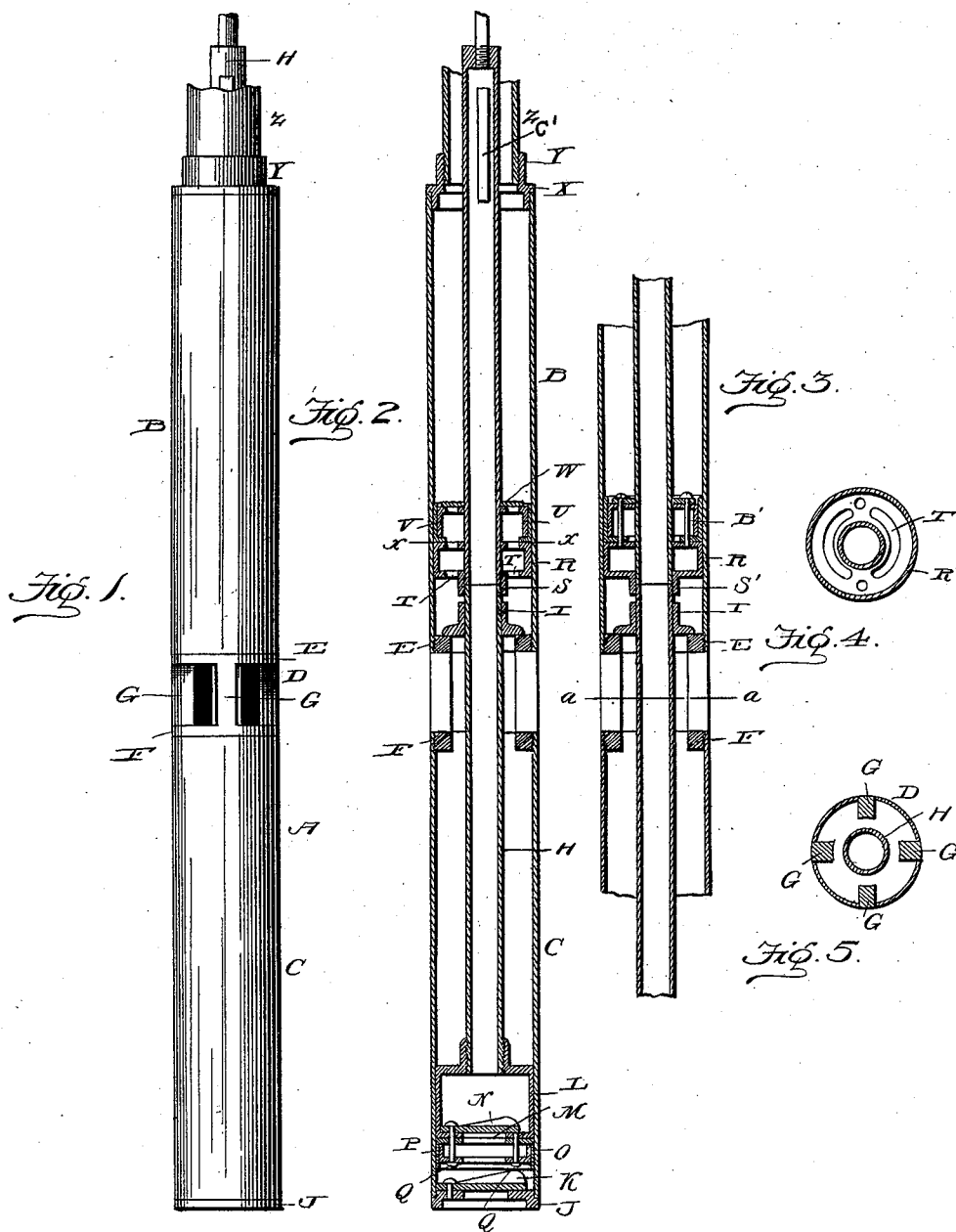


(No Model.)

D. LIPPY.
PUMP.

No. 565,548.

Patented Aug. 11, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

DAVID LIPPY, OF MANSFIELD, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 565,548, dated August 11, 1896.

Application filed March 24, 1896. Serial No. 584,669. (No model.)

To all whom it may concern:

Be it known that I, DAVID LIPPY, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in pumps for drilled wells and other purposes; and the objects of my invention are, first, to provide a pump with two pistons, the said pistons connected to a hollow piston-rod, each piston operating in a separate cylinder; second, to so construct the cylinders that the inductions will be at the lower ends of each cylinder; third, to connect the cylinders together so that an induction-port is provided for the upper cylinder; fourth, to so arrange the cylinders that the induction-ports are between the cylinders, and, fifth, to make a cheap, durable, and efficient means for the purpose stated.

In the accompanying drawings, Figure 1 is an elevation of my improved pump, showing the two cylinders connected together, also showing the induction-ports centrally between the two cylinders. Fig. 2 is a longitudinal sectional view showing the general construction of the cylinders, pistons, valves, and central connection. Fig. 3 is a reversed sectional view of same, showing more fully the central connection and upper valves and upper piston. Fig. 4 is a transverse sectional view taken in line *x x*, Fig. 2, showing more fully the construction of the upper piston. Fig. 5 is also a transverse sectional view taken in line *a a*, Fig. 3, showing the construction of the central connection.

Similar letters of reference indicate similar parts throughout the several views.

In the accompanying drawings, A indicates a pump-cylinder constructed in two compartments B and C, forming two separate cylinders.

D indicates the central connection, which is composed of two flanges with threaded

sleeves E and F. The said flanges are connected together by the vertical bars G, which form ports from the exterior to the interior of the central connection. The openings through the sleeves E and F are considerably larger than the diameter of the piston-rod H to allow the water to pass freely through the upper sleeve E to supply the upper cylinder.

I indicates a check-valve, which is so constructed that it will slide freely vertically upon the piston-rod H. Its object will be described in the operation.

J indicates a flanged sleeve, which screws within the lower end of the lower cylinder. The said sleeve is provided upon its upper side with a tongue-valve K. This valve admits the water into the lower cylinder at the upward stroke of the piston and holds the same from passing out at the downward stroke of the same.

L indicates a hollow piston, the upper end reduced in size and threaded internally, and in which is secured the lower end of the hollow piston-rod H. The lower end is provided with an opening M and tongue-valve N.

O indicates a leather cup-shaped sucker, which is secured upon the under side of the piston L by the flanged ring P and screws Q. This description is fully illustrated in Fig. 2.

R indicates the upper-cylinder piston, which is composed of a hollow cylinder having a downwardly-projecting sleeve S threaded upon the inside and secured upon the upper end of the hollow connecting-rod H. The said piston is provided with ports T to allow the water to pass into the upper cylinder B. The said piston is provided upon its upper side with the leather cup-shaped sucker U and flanged sleeve V, having ports through the same in line with the ports T, and provided upon the top of the said sleeve with the double-tongue valve W to allow the water to pass into the upper cylinder at the downward stroke of the piston and retain the same at the upward stroke of the same.

X indicates a reducer, which is screwed within the upper end of the upper cylinder. The reduced portion Y is threaded upon the inside and in which is secured the discharge pipe Z. The different parts composing the upper piston are held together by the screws B', as shown in Fig. 3.

The operation is as follows: The pump is submerged in water above the central induction D. The upward stroke of the pistons fills the lower cylinder C, also the upper cylinder B, by the water passing through the valve-ports I and K. The downward stroke forces the water from the lower cylinder through the valve N and upward through the hollow connecting-rod H and through the discharge opening C' into the upper cylinder and discharge-pipe Z. The water in the upper cylinder is forced through the ports T into the upper cylinder above the piston, the reverse motion lifting the water and forcing the same through the discharge-pipe, making a perfect double-acting force-pump.

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

1. In a double-acting force-pump for drilled wells and other purposes, two cylinders connected together in the center, by a double-flanged sleeve, with openings through the center from the exterior to the interior of the same the said sleeve placed to form two separate cylinders, a check-valve placed upon the piston-rod, the same having a seat upon the upper flange of the central connection, and adapted to supply the upper cylinder, a suitable piston placed within each cylinder, and connected to a hollow piston-rod, a suitable valve placed at the lower end of the lower cylinder, to supply the lower cylinder a hollow piston secured upon the lower end of the hollow piston-rod, a tongue-valve placed within the hollow piston, and adapted to force the water from the lower cylinder, by passing

upward through the hollow piston and connecting-rod at the downward stroke of the piston, substantially as shown and described.

2. In a double-acting force-pump for drilled wells &c., two cylinders connected together in the center, by a double-flanged sleeve, openings in the said sleeve from the exterior to the interior of the same, a check-valve placed upon the upper flange forming the bottom of the upper cylinder the said valve placed loosely upon the piston-rod, and adapted to be guided by the same, the lower piston connected to the lower end of the rod, the piston-chamber therein, the valve in said chamber, the valve in the lower end of the cylinder, a hollow piston placed within the upper cylinder and secured upon the hollow piston-rod, the said piston having ports to allow the passage of the water from the lower portion of the cylinder to the upper portion of the same, a cup-shaped leather sucker placed upon the top of the hollow piston, a flanged metal ring placed within the same, a double-tongue valve placed upon the top of the same to hold the water at the upward stroke of the piston, screws passing through the leather valve, flanged ring and secured in the top of the hollow piston, the said piston adapted to lift the water in the upper cylinder and discharge the same into the discharge-pipe, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID LIPPY.

Witnesses:

J. H. PALM,
H. D. BAIRD.