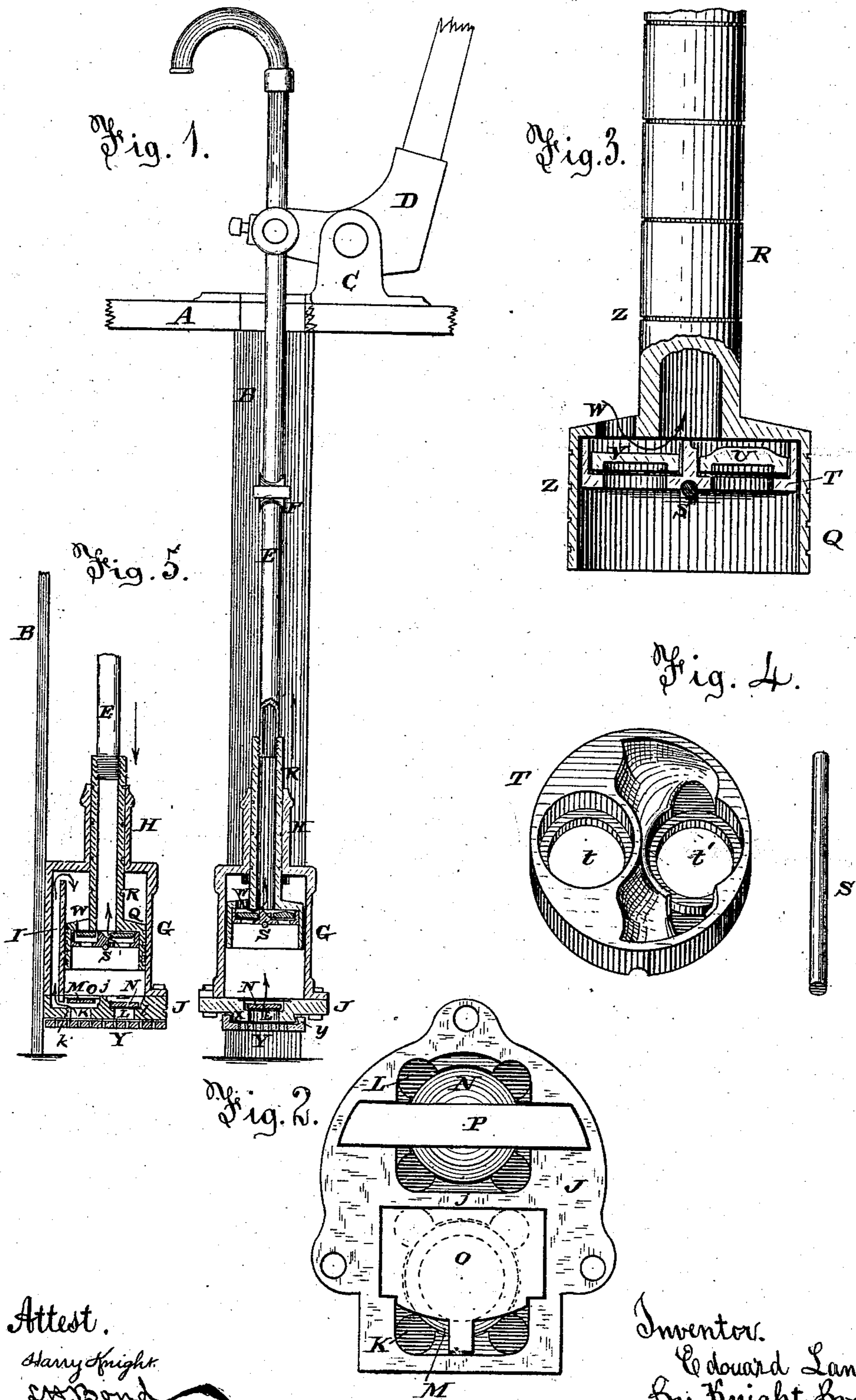


E. LANNAY.
Pump.

No. 225,148.

Patented Mar. 2, 1880.



Attest.

Harry Knight

Notary Public

Inventor.

Edouard Lannay
By Knight Bros. Atty.

UNITED STATES PATENT OFFICE.

EDOUARD LANNAY, OF LIMA, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 225,148, dated March 2, 1880.

Application filed September 3, 1879.

To all whom it may concern:

Be it known that I, EDOUARD LANNAY, of Lima, Allen county, Ohio, have invented a new and useful Improvement in Pumps, of which the following is a specification.

My invention relates to improvements in the class of submerged double-acting force-pumps in which the piston-rod, being tubular and terminating in a spout, is made available as the discharge-passage; and my invention comprises certain improvements in the valves and valve-passages of such pump, and is more particularly directed to improvements in the valves and passages of the piston.

In the accompanying drawings, Figure 1 is a partly-sectioned elevation of a pump embodying my improvements. Fig. 2 is a top view of the suction-valve chamber. Fig. 3 is a partially-sectioned elevation of the piston or plunger. Fig. 4 shows the piston-valve seat and its cotter detached. Fig. 5 is a vertical section at right angles to Fig. 1.

A may represent platform; B, stanchion; C, step; D, lever, and E the combined piston-rod and discharge-pipe, of customary construction for pumps of this class. F represents one of a pair of rollers, of which one or more pairs may be used for deep wells to maintain the rectilinearity of the pipe E.

The body G and neck H of the pump-barrel consist of a single casting, as represented, the neck being, preferably, nearly equal in length to the barrel. There is the usual side passage, I, from the suction-head to the upper portion of the pump-barrel.

The suction-head J is divided by partition *j* into two chambers, K L, having seated openings or ports *k l*, for the two suction-valves M N. Of these chambers the chamber K communicates with the upper portion of the barrel-space through the side passage, I, as already intimated. The chamber L communicates with that portion of the barrel which is situated below the piston.

A plate, O, operates to limit the ascent of valve M, and also to prevent any communication between chamber K and the lower portion of the barrel, but to permit ready communication with side passage, I.

A bar, P, operates to limit the ascent of valve N without obstructing the passage from

chamber L into the lower portion of the barrel. These valves, as well as those of the piston, to be presently described, are merely metallic disks of the simplest form.

Q is the piston or plunger proper, having cast in one integral piece with it a neck, R, of such length as for a portion of such neck to protrude above that of the barrel, even in the lowest position of the piston. The said piston-neck is screw-threaded interiorly at its upper end to receive the screw-threaded lower extremity of the combined piston-rod and discharge-pipe E.

Occupying the upper portion of piston Q, and held in position therein by pin or cotter S, is a diaphragm, T, having two seated ports, *t t'*, for piston-valves U V. Of these valves the valve U permits water to pass from the lower portion of the barrel into the discharge-pipe during the descent of the piston, and with this object in view is made crowning on top, so as to make it impossible for it to "seat" itself against the ceiling of the piston. The other piston-valve, V, is, on the contrary, flat-topped, so as at its upward stroke to seat itself against the piston-ceiling, and in so doing to close the orifice W. While this is taking place water from the cistern or well is rushing through the chamber K and side passage, I, into the upper portion of the piston, to supply the void created by the descent of the latter.

On the ascent of piston both its valves become firmly closed, as indicated at Fig. 3, the contents of the upper portion of the barrel escaping, as per arrow, through orifice W, into the discharge-pipe, while a new supply of cistern-water enters the lower portion of the barrel through the chamber L.

The sole of the suction-head has a dovetail projection, X, for the correspondingly-mortised portion *y* of a colander, Y, which, covering the inlets of both chambers K and L, prevents the entrance of obstructions.

Circumferential grooves Z in the peripheries of both the piston proper and of its neck serve as water-packings and provide room for sand or other clogging matters.

Sufficiently effectual water packing of the piston-head Q, of its neck R, and of the neck H of the pump-barrel is insured by the ex-

ceptional length of those members and by the circumferential grooves Z, as aforesaid.

5 It will be seen that my construction of plunger requires only two valves, and constitutes a simpler mechanical organism and is less liable to derangement than one requiring a greater number of valves.

I am aware of the patent granted to P. Briedenbach, and dated 8th July, 1879, No. 217,328.
10 It will, however, be perceived that I entirely dispense with the use of the removable bridge-pieces shown in Briedenbach's patent for the purpose of keeping the valves down to their seats. Each valve-casing in Briedenbach's
15 construction has two such removable bridge-pieces with projections or abutments on their under sides to press upon the valves. The construction of my device would not require the use of such bridge-pieces. In my device, of
20 the two valves employed one must necessarily be pressed against the ceiling of the valve-casing to close the orifice W, such valve be-

ing automatically pressed back again by the operation of the plunger, while the other valve is prevented from seating against the ceiling of the valve-case by the crown shape of its top. 25

I claim as new and of my invention—

In a double-acting submerged pump, the combination, with barrel H I and valve-chamber J, of the tubular piston or plunger Q R W, 30 whose separable valve-chamber T is secured by cotter S, and is provided with a disk-valve, U, having a crown-top to prevent the seating of said valve against the ceiling of the piston, and the flat-topped valve V, adapted at its 35 upward stroke to seat itself against the piston-ceiling and close the orifice W, substantially as set forth.

In testimony of which invention I hereunto set my hand.

EDOUARD LANNAY.

Attest:

E. D. GAMBLE,

W. A. CAMPBELL.