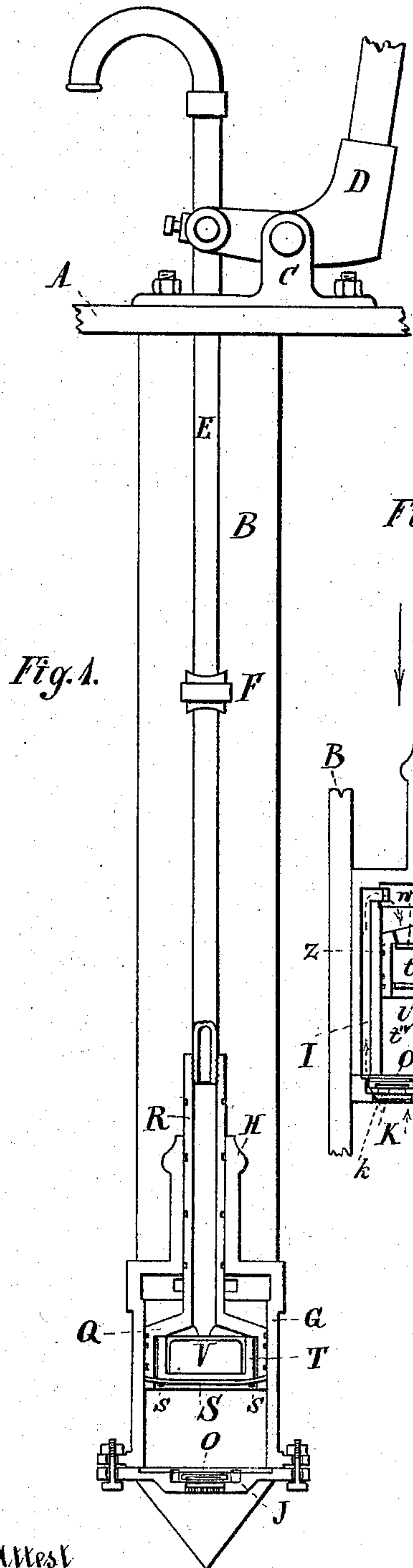


(No Model.)

E. LANNAY.
PUMP.

No. 257,954.

Patented May 16, 1882.



Attest
Carl Spengel
Notary Public.

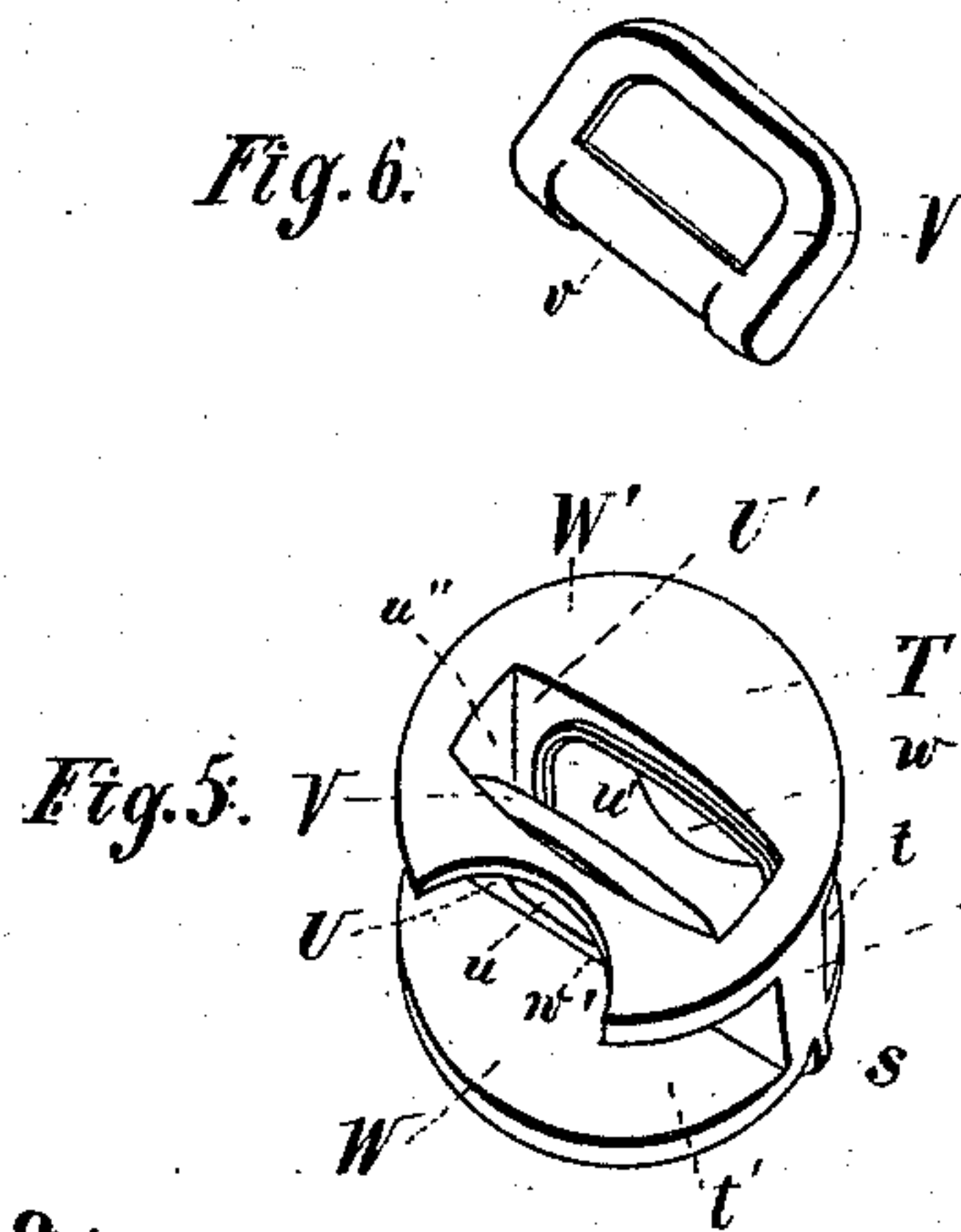


Fig. 2.

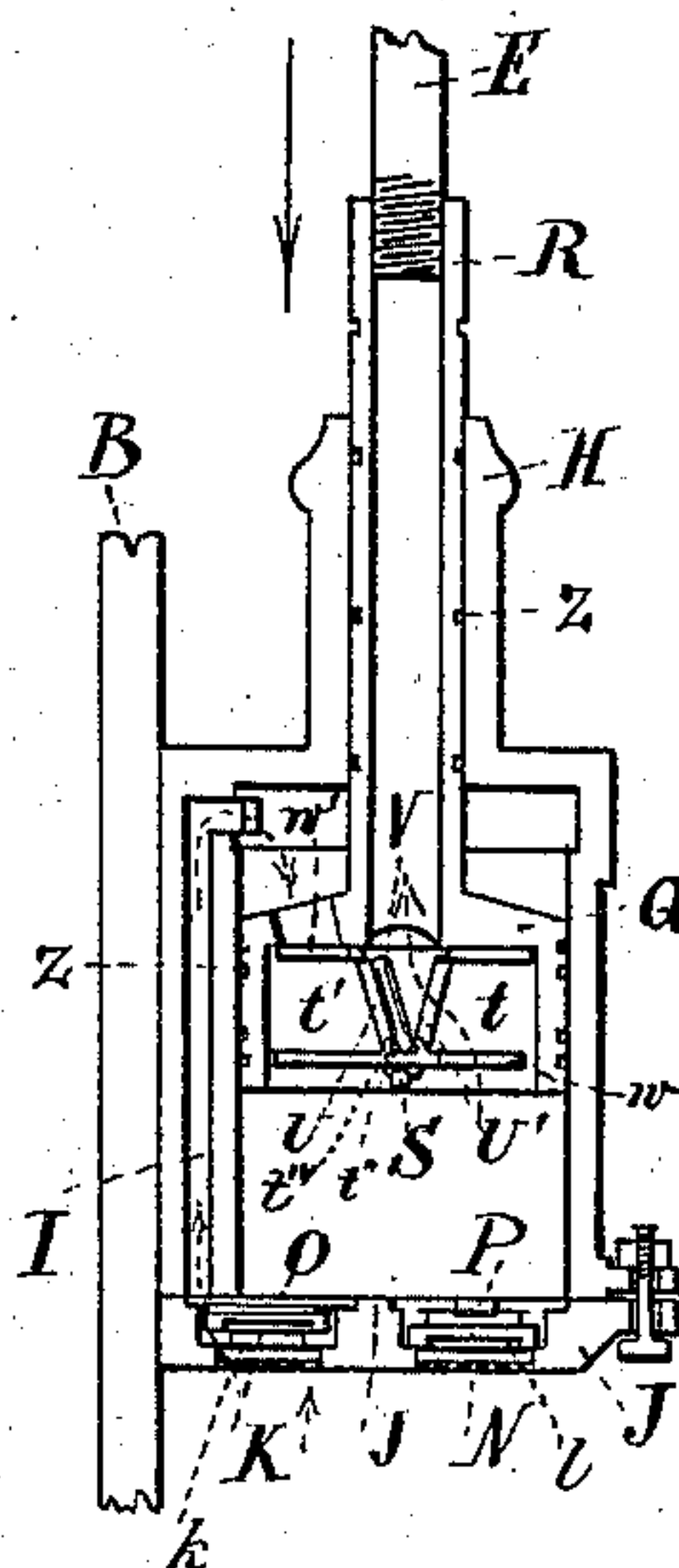


Fig. 3.

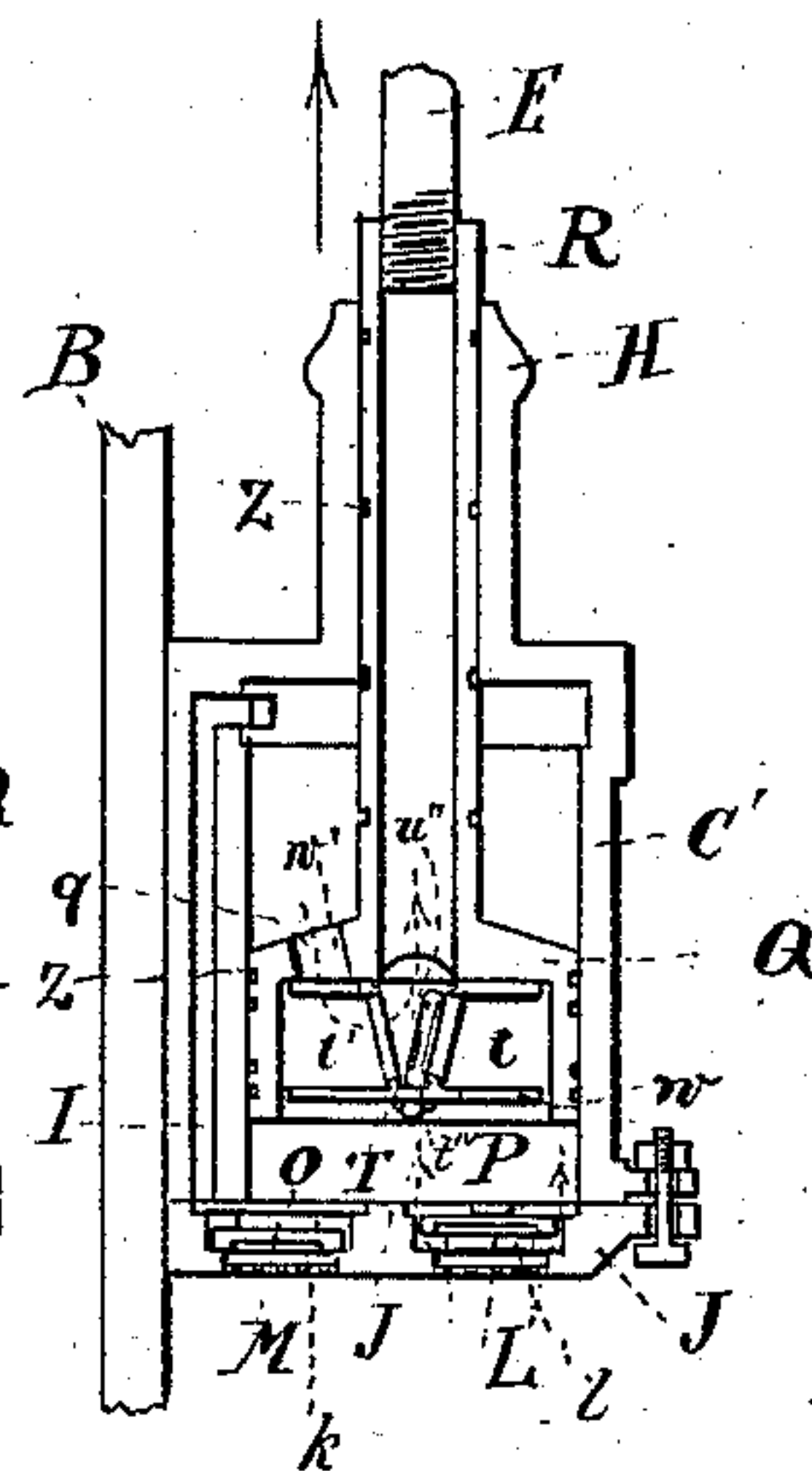
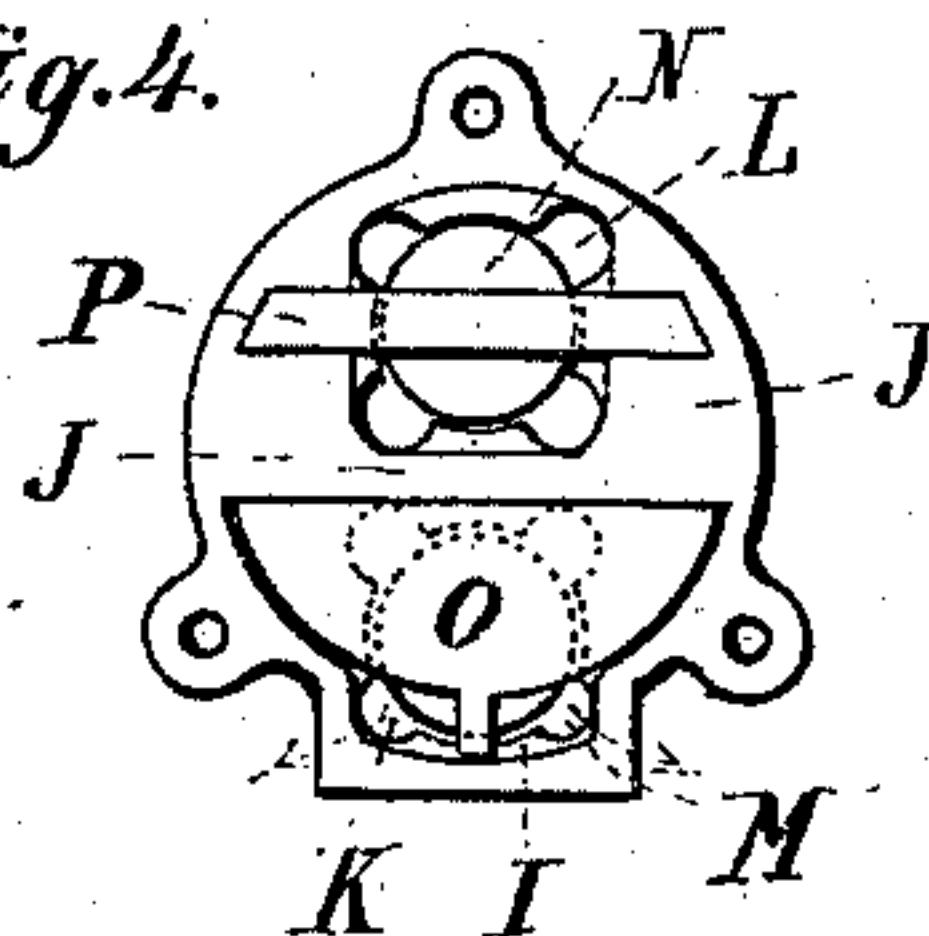


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDOUARD LANNAY, OF LIMA, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 257,954, dated May 16, 1882.

Application filed March 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDOUARD LANNAY, of Lima, in the county of Allen and State of 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-pump whose piston-rod, being tubular and terminating in a spout, is made available as the water-discharge passage.

My present invention relates to a peculiarly and advantageously constructed and arranged single vibrating valve, which operates alternately on two opposite seats within the piston or plunger.

Except in respect to its piston-valve and the inclosing chamber thereof, my pump may be substantially such as described in my patent granted March 2, 1880, No. 225,148.

In the accompanying drawings, Figure 1 is a vertical section of a pump embodying my improvement, said section being taken in the plane of the axis of the piston-valve and the piston being on its descending stroke. Figs. 2 and 3 are vertical sections in the plane at right angles to that of Fig. 1, the piston being in its descending and in its ascending strokes, respectively. Fig. 4 is a top view of the suction-valve chamber. Fig. 5 is a perspective view of the piston-valve chamber, and Fig. 6 of the piston-valve detached.

A may represent the platform; B, stanchion; C, step; D, lever; and E, the combined piston-rod and discharge-pipe, which may have the customary construction of these members in pumps of this class.

F represents one of a pair of rollers, of which one or more pairs may be used for deep wells or cisterns to maintain the rectilinearity of pipe E.

The body G and neck H of the pump-barrel preferably 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 a partition, *j*, into two chambers, K L, having seated openings or ports *k l*, for the two precisely similar suction-valves M N, of which each valve con-

sists of a circular disk of cast-iron. Of these chambers the upper chamber, K, communicates with the upper end of the barrel-space through the side passage, I, as already intimated. The chamber L, on the contrary, communicates with that portion of the barrel which is below the piston.

A plate, O, operates to limit the ascent of the valve M, and also to prevent any communication between chamber K and the lower portion of the barrel, while permitting ready communication with the side passage, I. A bar, P, operates to limit the ascent of valve N without obstructing the passage of water from chamber L into the lower portion of the barrel. Both plate O and bar P are held firmly down by the lower edge of the pump-barrel.

Q is the piston or plunger proper, having cast in one integral piece with it a neck, R, of such length that a portion of such neck will 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. Sufficiently effectual water-packing of the piston-head Q and of its neck R and of the neck H of the pump-barrel is insured by the great length of these members and by the circumferential grooves Z.

Occupying the upper portion of the piston Q, and held in position therein by pin or cotter S and spurs *s*, is my suction-valve chamber T. This chamber consists of two horizontal disks, W W', held slightly apart by a hollow connecting-rib composed of two upflaring sides, U U', of which each has an elliptical orifice, *u* or *u'*, which communicates respectively with the compartments *t t'*. Of these compartments one, *t*, communicates by port *u* with that part of the barrel which is below the piston, and the other compartment, *t'*, communicates by port *u'* through orifice *q* with that part of the barrel which is above the piston.

The compartment *u''*, formed by the inclosing partitions U U', is open above, so as to communicate freely with the neck R of the piston, and thence with the delivery.

In my present form a single valve discharges effectively the functions of the two piston-valves of my above-cited patent. This valve

consists of an oblong **D**-shaped disk, **V**, of cast-iron, whose half-round lower edge, *v*, rests in a corresponding trough, *t^{iv}*, in the floor of the compartment *u''*. This valve, except at the
5 instant of reversal, rests always on one or other of the orifices *u* or *u'*, according to whether the piston is in its downward or upward stroke, permitting the water to flow only through the orifice which is, for the time being, uncovered.
10 (See dotted arrows.) In this manner a continuous and unintermittent flow of water is secured with the use of but three valves of the simplest possible construction, in which each valve consists of a loose piece of cast metal
15 merely dropped loosely in its housing or chamber, and having and needing no attaching devices whatever.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

In a double-acting submerged pump, the combination, with the barrel **H I** and the lower or suction valve system, **J**, and with the tubular combined piston and piston-rod **Q R**, of the separable piston-valve chamber **T**, having 25 the horizontal ported disks **W w W' w'**, connected in one integral casting by the upflared ported partitions **U u U' u'**, forming the compartments *t t' u''*, that communicate respectively with the lower and upper portions of the 30 barrel and with the piston-discharge neck, and of which the compartment *u''* confines and affords double seat-bearing to the valve **V v**, in the manner set forth.

In testimony of which invention I hereunto 35 set my hand.

EDOUARD LANNAY.

Attest:

M. L. BAKER,
P. S. LAYCOCK.