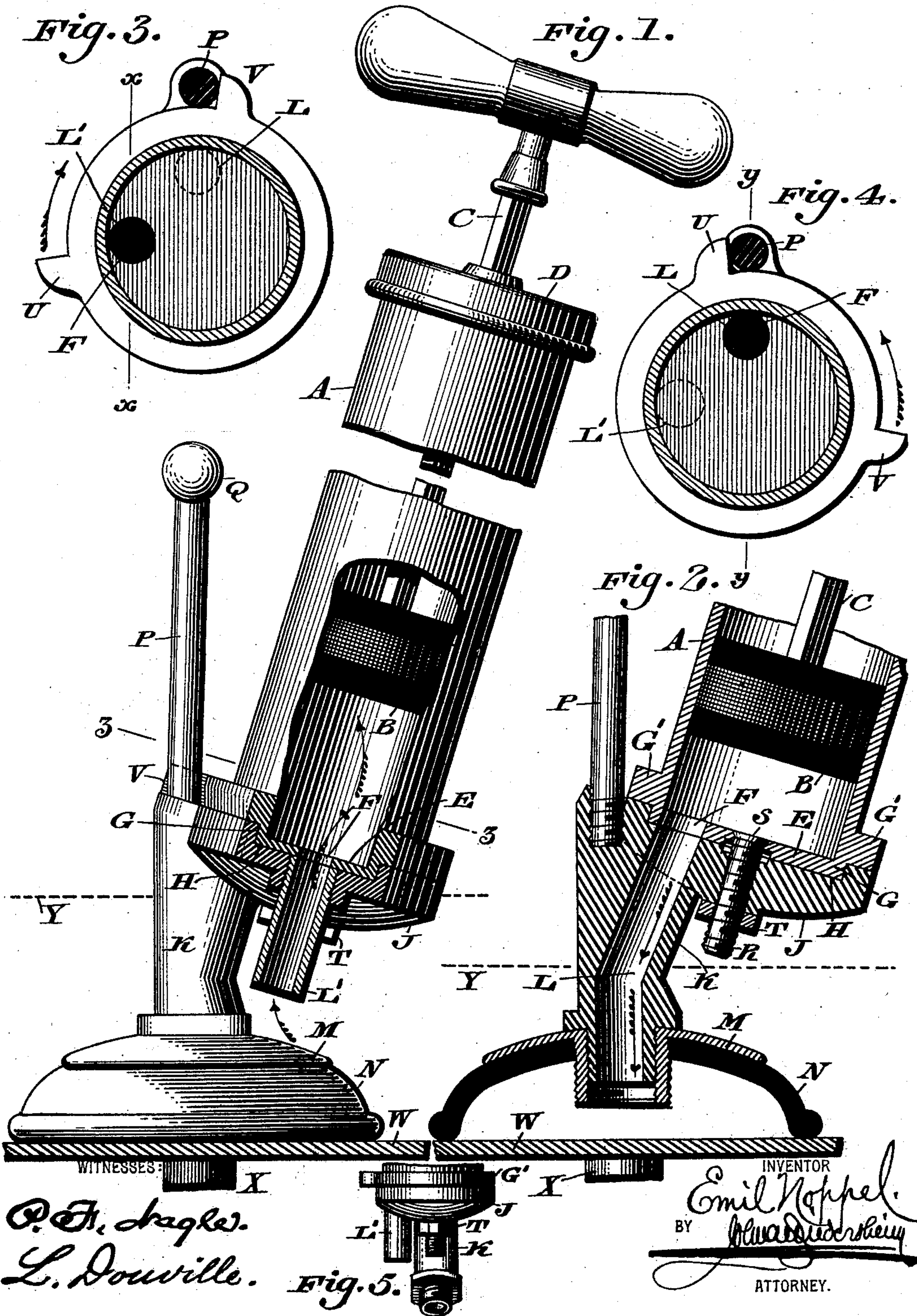


(No Model.)

E. NOPPEL.
COMBINED LIFT, FORCE, AND TEST PUMP.

No. 596,713.

Patented Jan. 4, 1898.



WITNESSES:
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Fig. 5.

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COMBINED LIFT, FORCE, AND TEST PUMP.

SPECIFICATION forming part of Letters Patent No. 596,713, dated January 4, 1898.

Application filed May 21, 1896. Serial No. 592,400. (No model.)

To all whom it may concern:

Be it known that I, EMIL NOPPEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in a Combined Lift, Force, and Test Pump, which improvement is more fully set forth in the following specification and the accompanying drawings.

My invention consists of a novel construction of a lift, force, and test pump, which is especially applicable for cleaning outlet-pipes of sinks, drains, tanks, and similar receptacles and for other purposes, having a rotary barrel with a single port, which is used alternately as a suction and discharge port, and a valve with a plurality of ports being employed, said ports being opened and closed according to requirements when the barrel or cylinder is rotated.

It further consists of novel details of construction, all as will be hereinafter set forth, and specifically pointed out in the claims.

Figure 1 represents a side elevation of a lift, force, and test pump embodying my invention, a portion of the pump-barrel and the inlet thereof being shown in section, the section being taken on line *x x*, Fig. 3. Fig. 2 represents a longitudinal sectional view on line *y y*, Fig. 4, showing the lower portion of the pump-barrel turned into a different position from that seen in Fig. 1. Figs. 3 and 4 represent, respectively, sections on line *z z*, Fig. 1, showing the relative position that the single port in the base or foot of the barrel may be caused to assume relative to the suction and discharge passages for the pump. Fig. 5 represents, on a reduced scale, a side elevation of the lower portion of the pump-barrel, showing the relative position of the pump inlet and outlet.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a cylinder or barrel of a pump, in which reciprocates the piston B, having the stem C, which is preferably square, as in the present instance, and passes through the cap D, which is attached to the exterior of said barrel and may be provided with suitable ports or vents for enabling the upward stroke of the piston to be readily effected. E designates the base

or foot of said barrel, which has therein a single port F, which is used alternately as a suction and discharge port, the lower portion of the barrel A being provided with a flange G' and having also a male counterbore G, which enters the female counterbore H in the cap J.

K designates a neck which is attached to the cap or valve J and has a discharge-passage L therein, which is adapted to communicate with the port F at intervals, as will be apparent from Fig. 2. M designates a dish-shaped flange or disk which is attached to said neck K and has a cup N of rubber or other similar material located adjacent thereto. P designates a stem or rod which is attached to said neck K and has a handle or cross-piece Q thereon, by means of which the cup N is pressed into engagement with the bottom W of the sink when the device is in operation, said sink or drain having the outlet X therefrom.

R designates a screw or stud which has one end seated in the base E, while the other end passes through the valve J and is held in place relative thereto by means of the nut T.

U and V designate lugs which are attached to the flange G' and are adapted to serve as stops and thus limit the rotation of the barrel A, according to requirements.

Y designates the water-line.

The operation is as follows: The cup N having been placed in contact with the sink-bottom W and the barrel A rotated so that the port F is in alinement with the suction-passage L', as seen in Fig. 1, and the operator bearing down on the cross-piece Q, so as to hold the cup tightly on the bottom, it will be seen that when the piston B is drawn toward the cap D the water or other fluid will be drawn into the barrel, the discharge-passage L being now closed. When the piston B has reached the end of its stroke upwardly, the barrel A is rotated by turning the piston-rod C until the port F registers with the discharge-passage L, the valve J of course remaining stationary and the extent of movement of the barrel being limited by the contact of the stem P with the lugs U or V, whereupon it will be seen that if the sink-drain, as X, is plugged up the forcible discharge of the water or other liquid through the passage L when the piston is reciprocated toward the

valve J will tend to dislodge the matter in said drain.

The present invention differs from the invention already patented by me dated September 24, 1895, No. 546,863, in that there is only one port F in the base or foot of the barrel, which is used alternately as a suction and discharge port, and that said port can accordingly be caused to assume a position intermediate the passages L and L' by rotating the barrel to the desired degree, as will be evident from Figs. 3 and 4, which is not the case in the prior patent granted me, the pump being thus adapted to be used as a test-pump as well as for a lift and force pump.

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

1. In a combined lift, force and test pump having a rotary barrel, a piston therein, a base having a single port therein, which is used alternately as a suction and discharge port, a valve in which said base is seated and adapted to revolve thereon, a plurality of ports in said valve, means for holding said valve and base in proper relative position, a neck depending from said valve, a rubber cup connected with said neck, and lugs on said barrel for limiting the movement of the latter relative to said valve.

2. In a lift, force and test pump having a rotary barrel, a base having a port therein adapted to be used alternately as a suction and discharge port, a valve on which said base is movable, a pin or stud common to the latter and to said valve, a neck having a passage therein depending from the latter, a rubber cup attached to said neck, a stem or rod attached to the latter, and lugs on the lower portion of said barrel for limiting the move-

ment of the latter relative to said valve and rod.

3. In a combined lift, force and test pump having a rotary barrel, a piston therein having a square piston-rod, a single port in the base of said pump, a valve on which said base is movable, and having a plurality of ports therein, means for enabling said barrel to be rotated relative to said valve, a cup attached to the neck depending from said valve, a rod secured to said neck and lugs on said barrel for limiting the movement of the latter relative to said valve and rod.

4. In a pump, a barrel having a single port in its base and provided with a piston having a stem fitting in a cap thereon, a cap in which the base of said barrel is seated and adapted to revolve thereon, a neck depending from said latter-mentioned cap, a flange secured to said neck, a rubber cup connected with said flange, a suction-port connected with said latter-mentioned cap, lugs on the base of said barrel and a post connected with said cap, said lugs being on opposite sides of the said post.

5. In a pump, a barrel with a reciprocating piston having a stem connected with said barrel for rotating the same, a single port in the base of said barrel, a cap on which said barrel is adapted to rotate, suction and discharge ports therein, a flange on the base of said barrel having lugs thereon, a post on said cap between said lugs, a disk connected with said discharge-port and the rubber cup connected with said disk.

EMIL NOPPEL.

Witnesses:

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