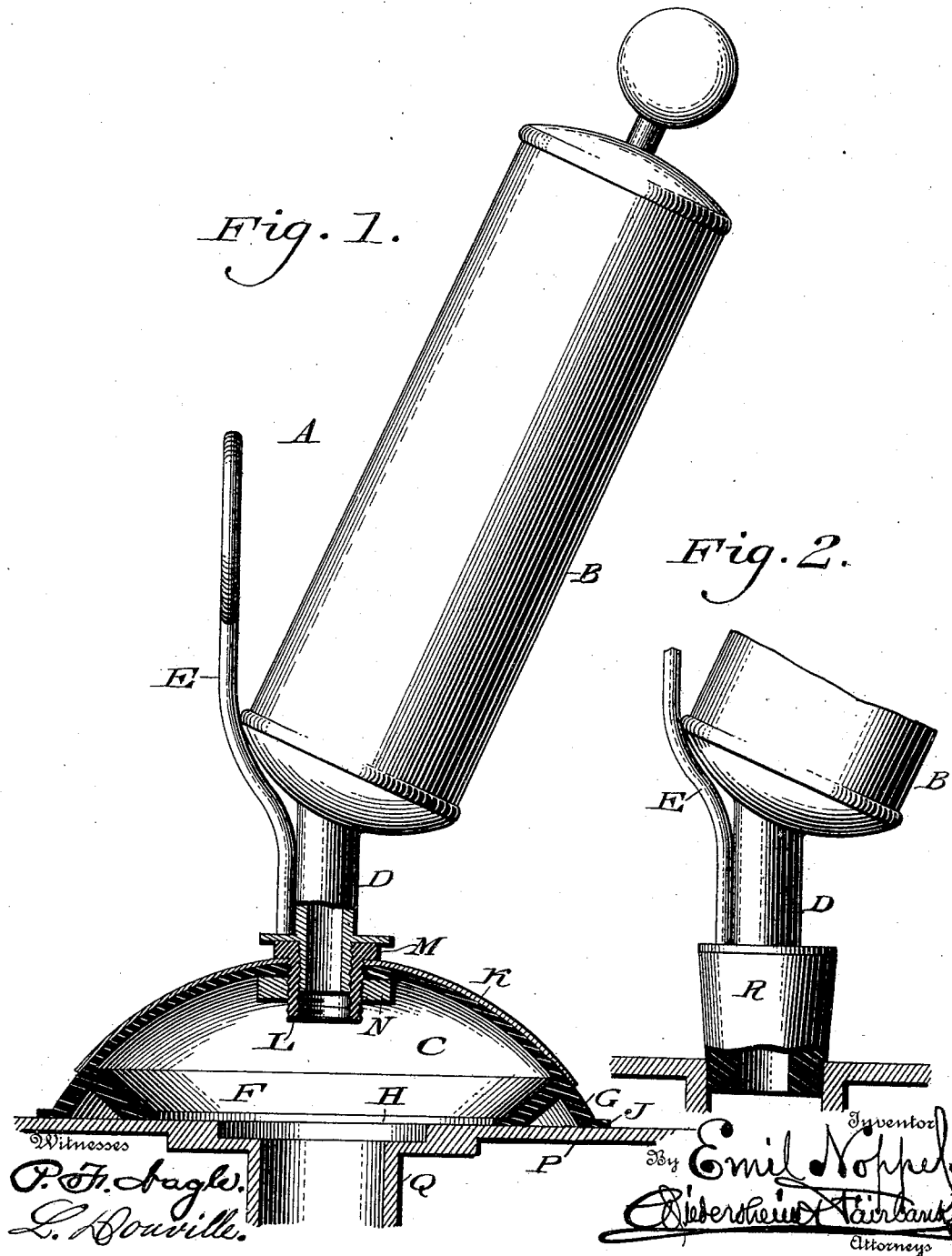


No. 646,455.

Patented Apr. 3, 1900.

E. NOPPEL.
LIFT AND FORCE PUMP.
(Application filed Aug. 10, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

EMIL NOPPEL, OF PHILADELPHIA, PENNSYLVANIA.

LIFT AND FORCE PUMP.

SPECIFICATION forming part of Letters Patent No. 646,455, dated April 3, 1900.

Application filed August 10, 1899. Serial No. 726,746. (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 Lift and Force Pumps, which improvement is fully set forth in the following specification and accompanying drawings.

This invention has reference to a novel construction in a combined lift, force, and test pump; and it consists, essentially, of a pumping device and a cup, the latter being adapted to be held in operative contact with the surface to which it is applied by means actuated both by the force and suction of the pumping device.

The invention further consists in the structural features hereinafter fully described, and pointed out in the appended claims.

Figure 1 represents a view of my improved pump in central section and side elevation. Fig. 2 represents a similar view illustrating the manner in which the pumping device can otherwise be applied.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates my improved pump, the same consisting of a pumping device B and a cup C. The pumping device B is of familiar construction, being provided with a flanged and threaded nipple D and a handle E. The cup C is secured to the end of nipple D and is provided with means for holding the same in operative contact with the surface to which it is applied, such means being actuated by both the force and suction of the pumping device. In the construction illustrated said means are provided by bifurcating the open end of the cup to form angular members F and G, the free edge of the inner member F having an inwardly-projecting flange H and the free edge of the outer member G having an outwardly-projecting flange J. These members G and H are of yielding material, being made of rubber, and although the entire cup is made of the same material and in one piece yet the body portion of the same is strengthened or stiffened—that is, between the upper ends of said members and the nipple D. In the drawings a cap K is employed for this purpose and fits the outer face of the cup, as shown. Both

the cup C and cap K are provided centrally with openings, through which passes the exteriorly and interiorly threaded sleeve L, said cup and cap being retained between the head M on the sleeve and a nut N upon the threaded portion thereof. The sleeve L screws upon the nipple D.

The operation is as follows: Fig. 1 shows the cup C applied, for instance, to the bottom P of a sink and around the drain-pipe Q thereof. The cup can be held with the desired force by handle E. When the piston of the pumping device B is operated to create a suction, the outer member G is actuated thereby, being held in close and operative contact with the surface of the bottom P of the sink by atmospheric pressure. When the piston is operated to force air into the cup, the inner member F is actuated, being held in close and operative contact with the bottom P by the force of the air compressed therein. Thus it is seen that the cup is provided with said means for holding it in operative contact with the surface to which it is applied and that said means are actuated both by the force and suction created by the pumping devices. Furthermore, I do not consider that my invention consists merely of the structural features illustrated, and therefore contemplate employing equivalent structures that come within the scope of the following claims.

The cup C can be readily removed from the nipple by unscrewing the sleeve L, and a plug R can be applied to the end of the nipple that the pump can be used in other relations, as shown in Fig. 2.

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

1. In a combined force and suction pump, a pumping device, and a cup provided with means for holding the same in operative contact with the surface to which it is applied, said means being actuated by both the force and suction of the pumping device.

2. In a combined force and suction pump, a pumping device, and a cup provided with means upon the open end thereof for holding the same in operative contact with the surface to which it is applied, said means being actuated by both the force and suction of the pumping device.

3. In a combined force and suction pump, a pumping device, and a cup provided with oppositely-acting means for holding the same in operative contact with the surface to which it is applied, said means being actuated by the force and suction of the pumping device.
4. In a combined force and suction pump, a pumping device, and a cup provided with independent and oppositely-acting means for holding the same in operative contact with the surface to which it is applied, said means being actuated by the force and suction of the pumping device.
5. In a combined force and suction pump, a pumping device, and a cup provided with a yielding bifurcated open end.
6. In a combined force and suction pump, a pumping device and a cup, the open end of said cup being provided with separated and yielding outer and inner members.
7. In a combined force and suction pump, a pumping device, and a cup, the open end of said cup being provided with separated and yielding outer and inner members, the free edges of said members being provided with outwardly and inwardly projecting flanges respectively.
8. In a combined force and suction pump,

a pumping device, and a cup provided with a yielding bifurcated open end, the body portion of said cup being strengthened or stiffened.

9. In a combined force and suction pump, a pumping device, a cup provided with a yielding bifurcated open end, and a strengthening or stiffening cap over the body portion of said cup.

10. In a combined force and suction pump, a pumping device, a cup provided with a yielding bifurcated open end, and a strengthening or stiffening cap over the body portion of said cup, the outer edge of said cap being situated at the juncture of the bifurcations of the cup.

11. In a pump, a pumping device having a flanged and threaded nipple, a cup having a yielding bifurcated open end and an opening, an exteriorly and interiorly threaded headed sleeve within said opening, and a nut upon said sleeve, the cup being held between the head of the sleeve and said nut, and said sleeve receiving said nipple.

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Witnesses:

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