E. J. DELANEY.

Pumps.

No. 146,323. Patented Jan. 13, 1874.

Fig. 1.

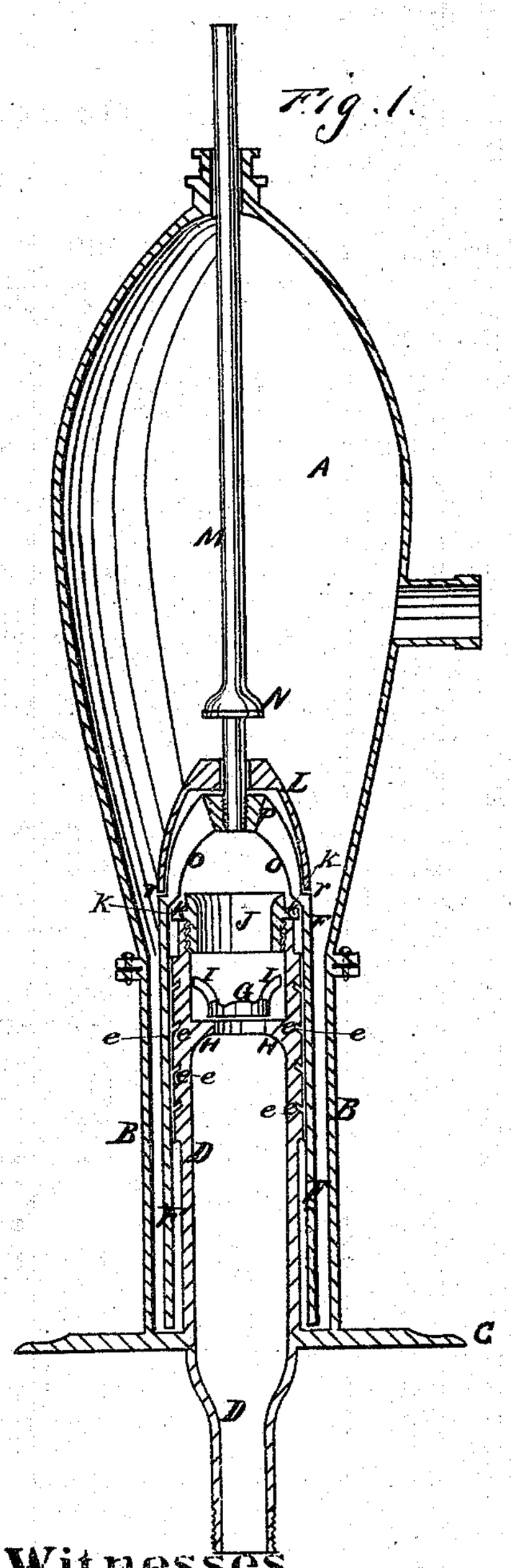
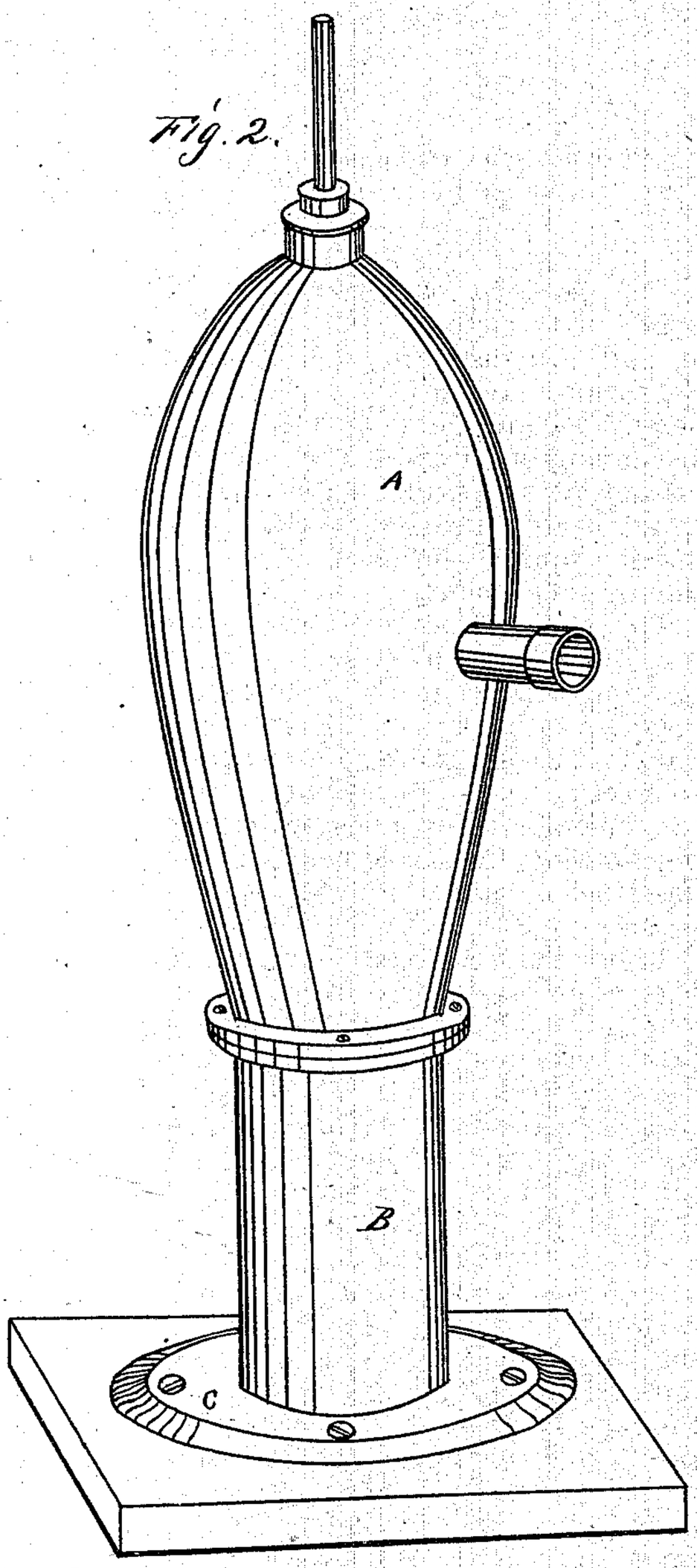


Fig. 2.



Witnesses.

John L Borne

C. Milton Richardson

Edward J. Delaney
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Atty's.

UNITED STATES PATENT OFFICE.

EDWARD J. DELANEY, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **146,323**, dated January 13, 1874; application filed November 28, 1873.

To all whom it may concern:

Be it known that I, EDWARD J. DELANEY, of San Francisco city and county, State of California, have invented a Pump; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

The object of my invention is to provide an improvement in pumps; and it consists in a novel arrangement of a hollow plunger, which operates within the outer case and air-chamber, and fits closely around the induction-pipe. In connection with this plunger is a novel arrangement of the valves and a ring for holding packing, the whole being more completely described in the following specification, in which—

Figure 1 is a sectional elevation of my pump. Fig. 2 is a perspective view.

A is the air-chamber of my pump, having a proper stuffing-box at the top, through which the piston-rod works. The air-chamber is attached to the hollow stand B, which may be secured to the base-plate C. The induction-pipe D is made to fit closely where it passes through the base-plate, and its upper part is somewhat larger than the lower. This part is turned smooth, and has grooves *e e* made around it, which serve to hold water for packing purposes. The plunger F is a hollow cylinder, and fits closely over the upper part of the pipe D, the water between the two and in the groove serving to make it work tight. The induction-valve G is fitted to rise and fall within the pipe D, near the top being supported upon the seat H, and guided by arms I. At the top of the pipe D a ring, J, is screwed on. This ring has a flange, K, which nearly fills the inside diameter of the plunger. The pipe D is turned somewhat smaller outside just below its top, and this space allows a packing to be used and held in place by the ring. The discharge-valve L is conical in shape, and fits around the piston M, a collar, N, preventing too great a lift. The upper part of the plunger is finished out by the arms O, which extend from its top to the boss or hub P, into which the piston-rod is keyed, these arms being inside of the valve. The valve fits closely upon the hub P, and also around the ledge, at *r*, around the top of the plunger.

The operation will be as follows: The plunger being drawn up, the valve L remains closed, and a vacuum is produced within the plunger, which causes the valve G to open and allow the space to fill with water. When the plunger is again depressed, the water will close the lower valve and open the upper one, through which it escapes into the air-chamber.

I do not claim the valve G, as the construction of this valve will be made the subject of a separate application.

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

1. The hollow cylindrical plunger F, in combination with the pipe D, enlarged at the top, and provided with the grooves *e e* and the flanged ring J, for the purpose substantially as herein described.

2. In combination with the hollow plunger F and internal pipe D, as shown, the conical valve L above the plunger, and the valve G within the pipe, when the whole is constructed to operate substantially as herein described.

In witness whereof I hereunto set my hand and seal.

EDWARD JOSEPH DELANEY. [L. S.]

Witnesses:

JOHN L. BOONE,

C. MILTON RICHARDSON.