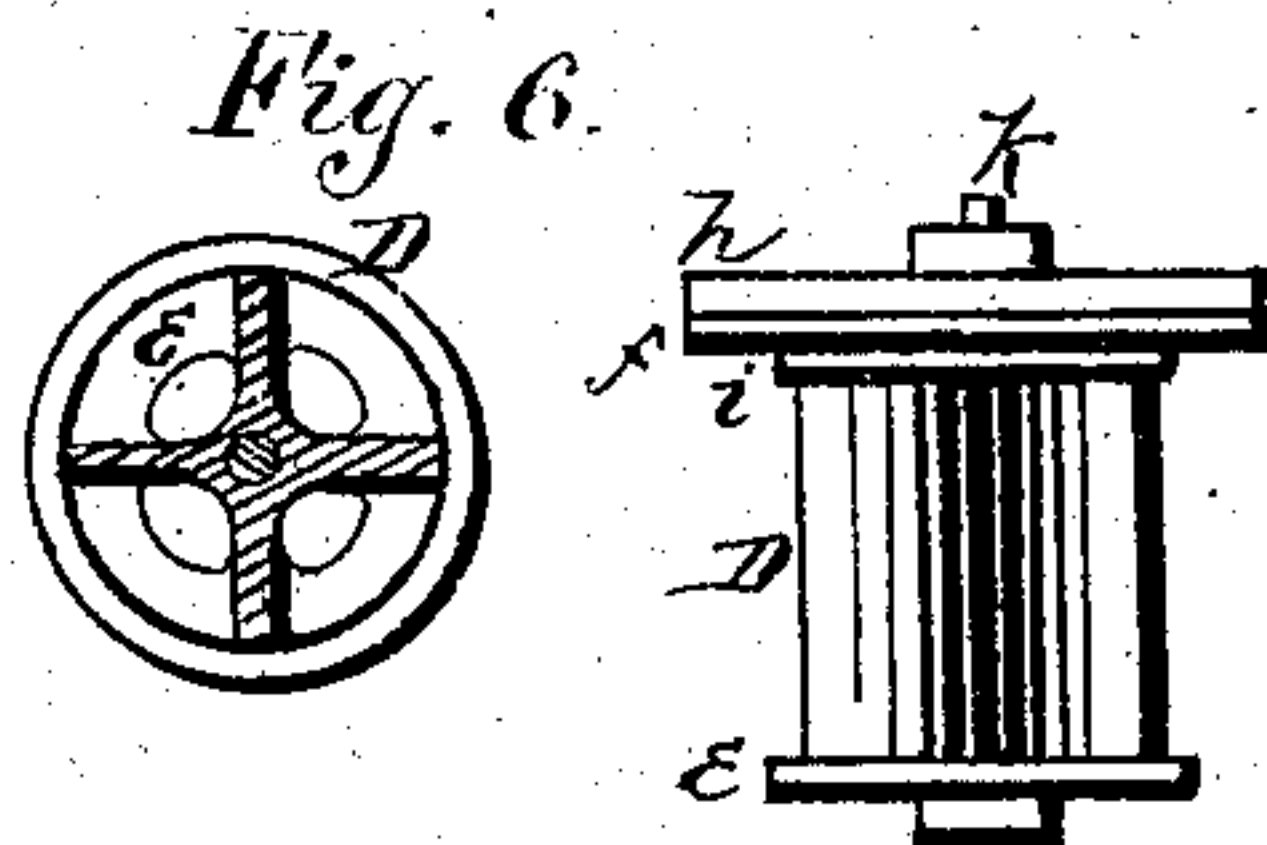
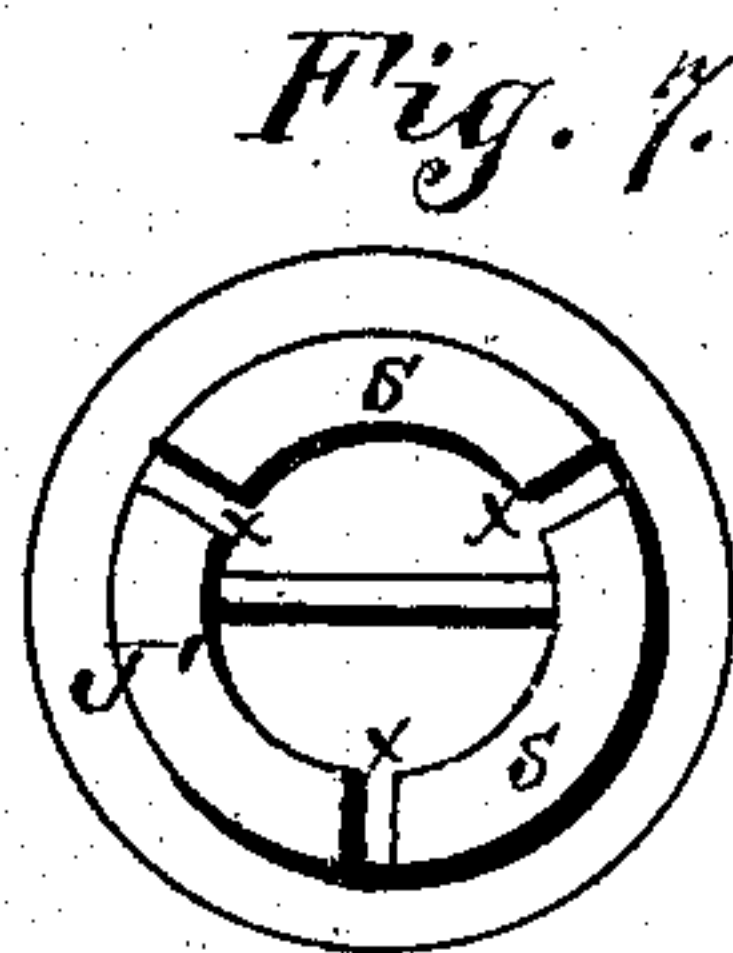
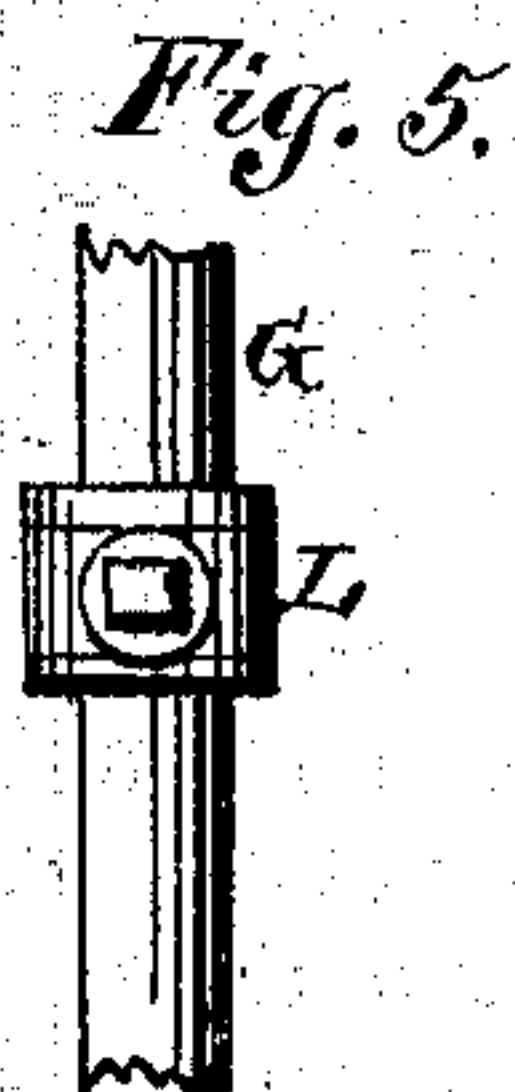
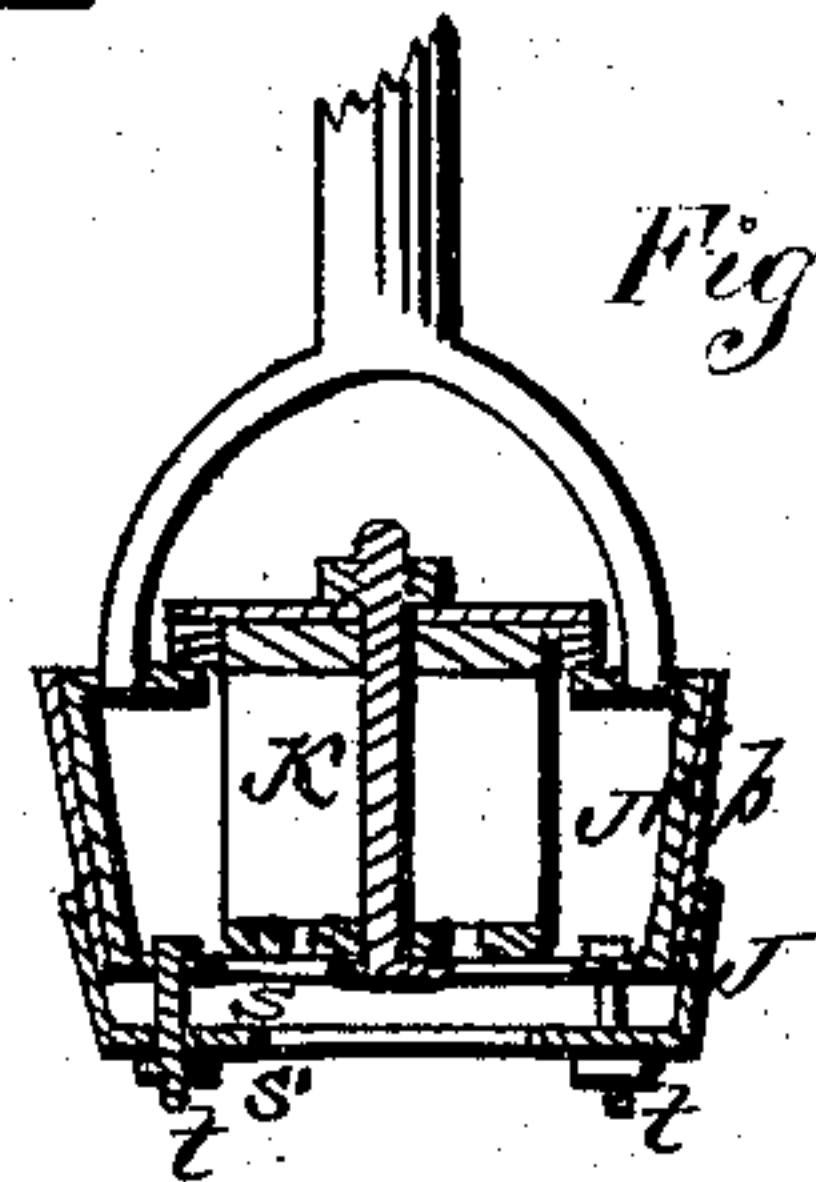
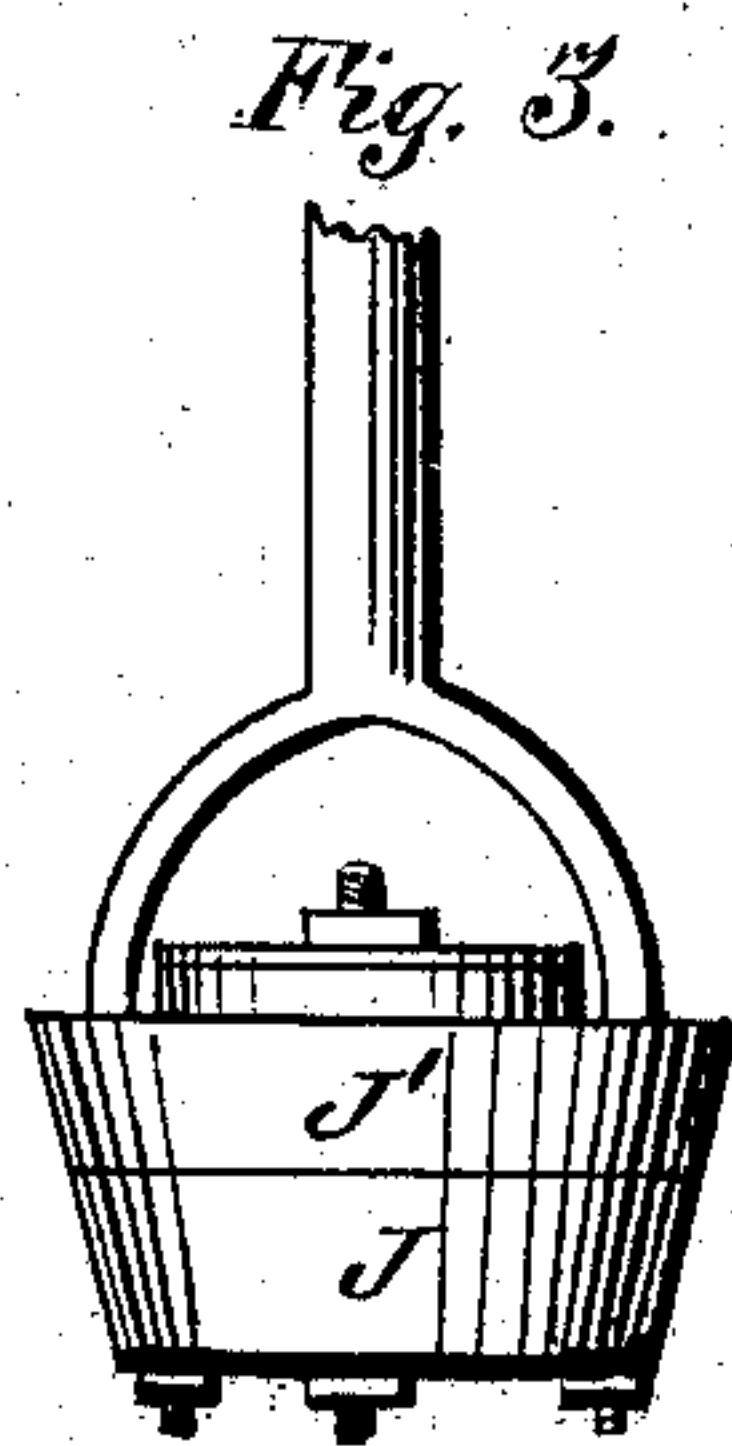
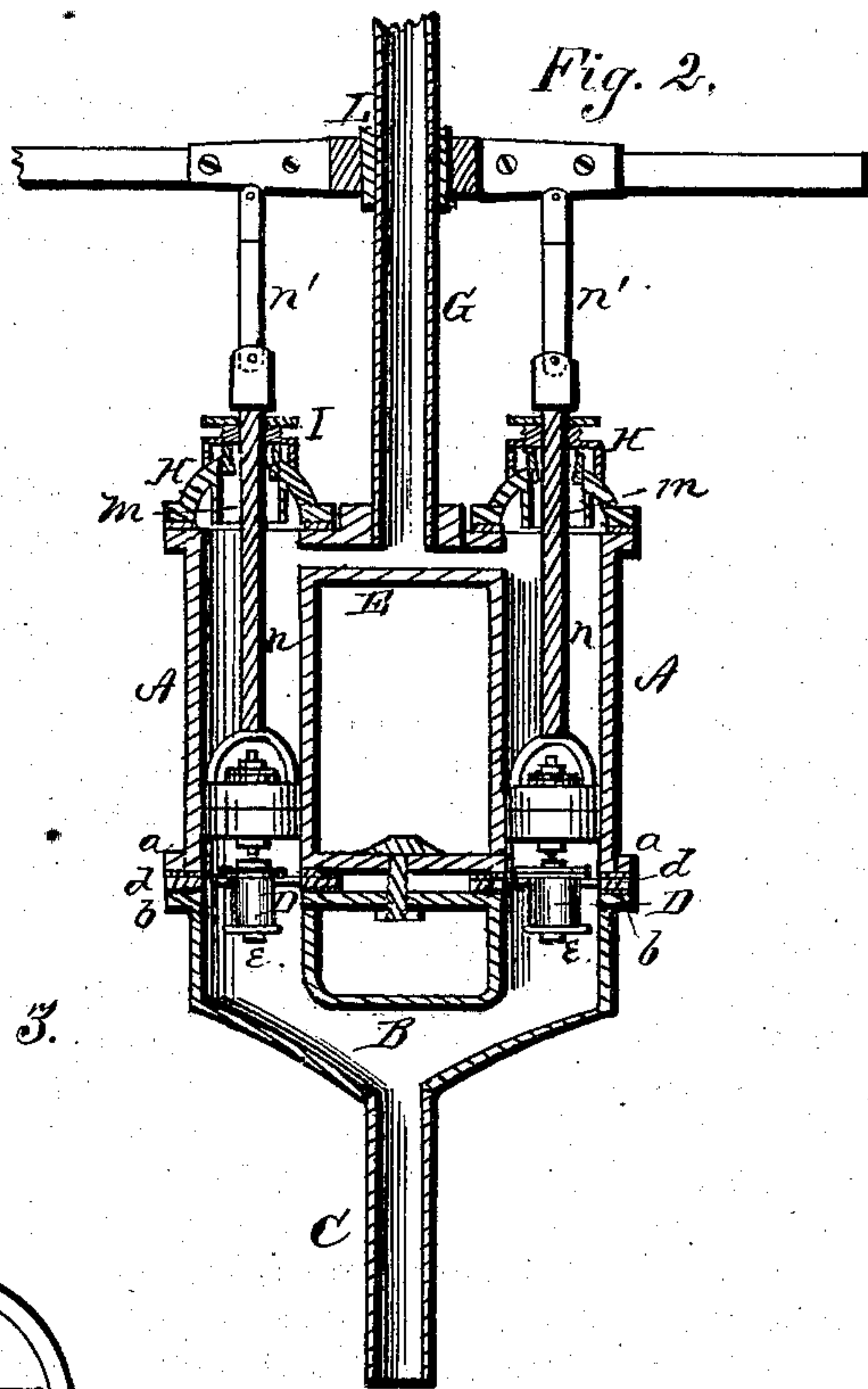
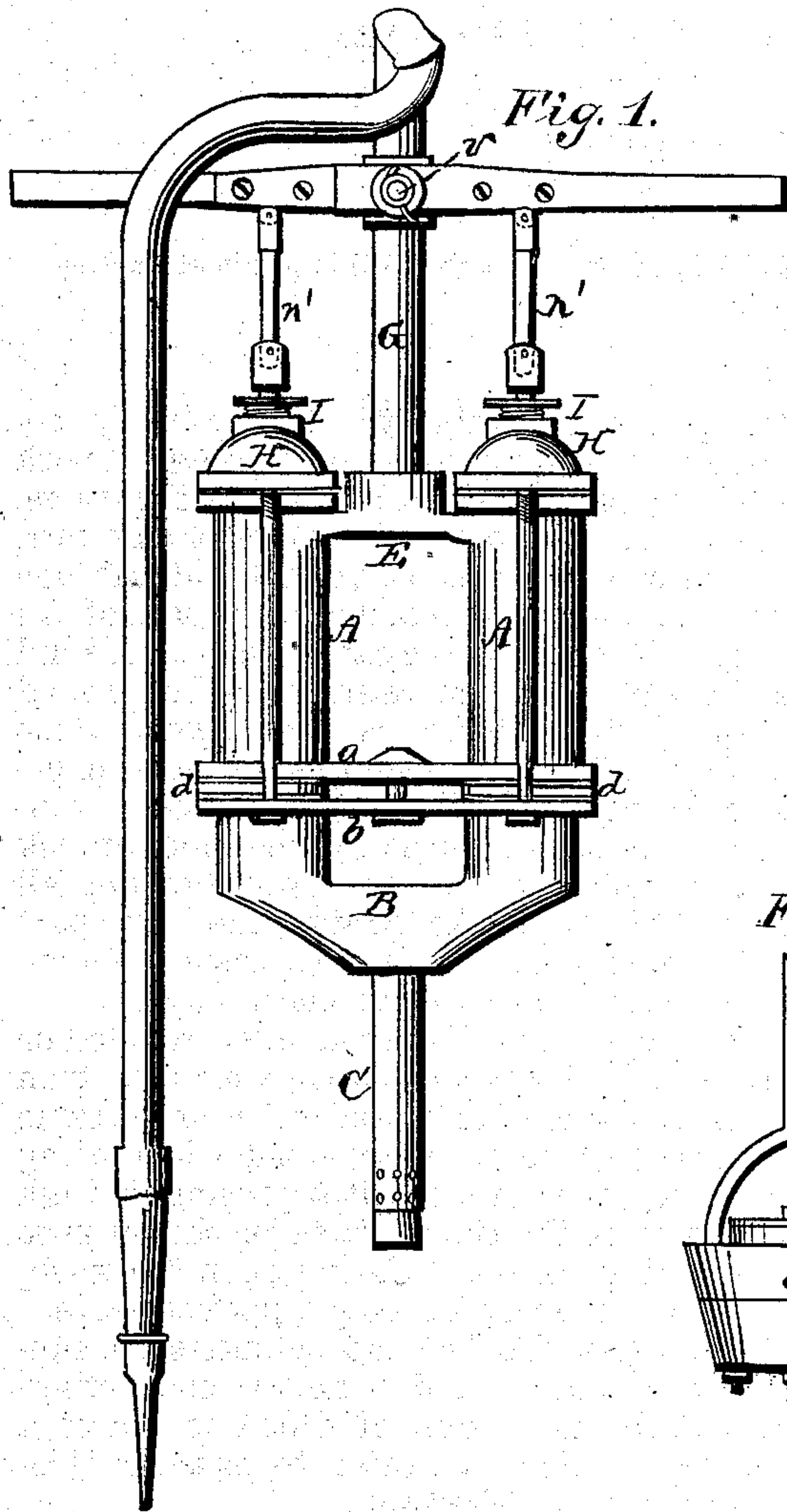


C. O. SYLVESTER.
Pump.

No. 159,470.

Patented Feb. 2, 1875.



WITNESSES

H. H. Schott.
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By

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UNITED STATES PATENT OFFICE.

CYRUS O. SYLVESTER, OF ATTICA, INDIANA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 159,470, dated February 2, 1875; application filed July 3, 1874.

To all whom it may concern:

Be it known that I, CYRUS O. SYLVESTER, of Attica, in the county of Fountain and in the State of Indiana, have invented certain new and useful Improvements in Pumps; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a double-acting force and suction pump, as will be hereinafter more fully set forth; and it relates to certain improvements in the pump-plunger and rib-valve, as shown in Letters Patent, No. 128,921, granted to me July 9, 1872.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation, and Fig. 2 a longitudinal vertical section, of my pump. Figs. 3, 4, 5, 6, and 7 are detached views of certain parts thereof.

A A represent two upright hollow cylinders of any suitable dimensions. The cylinders are provided at their lower ends with a cross-bar, *a*, and a bent or angular circular tube, B, for the purpose of connecting them together, said tube B being provided with a pipe, C, in the middle, at the lower side for the purpose of receiving the water. The upper end of the tube B is provided with a plate or cross-bar, *b*, corresponding with that on the lower ends of the cylinders, said plates *a* and *b* being provided with flanges to receive small bolts for the purpose of connecting the plates together, thereby forming a joint. Under each cylinder, between the plates *a* *b*, is placed a circular plate, *d*, which forms a valve-seat for the valve D.

Suitable packing is introduced between the valve-seat *d* and the plates *a* and *b*.

The valves D are constructed in rib shape, with a circular flange, *e*, projecting at the bottom, said flange being perforated with holes, as shown in Fig. 6, to admit the passage of the water.

The object of the perforated disk on the bottom of the valve is to give it additional

strength and durability. The valve in my former patent referred to is provided with small lugs or ears on the bottoms of the wings. The upward motion of the valve strikes with such force against the valve-seat that the lugs or ears would often break off at the base of the wings. By running the ears or lugs all around the base of the wings, as shown and described herein, great strength is thus given to the weak point, and difficulties hitherto experienced, are thus obviated. Another advantage in the use of the perforated annular disk is, that the valve has an even bearing all around for it to strike against the lower part of the valve-seat. It is also easier molded and strengthens the valve materially.

The upper end of the valve is provided or formed with a washer, *i*, upon which the gum or leather washer *f* rests, and on top of the same is placed an outer plate, *h*, the whole being drawn together with a bolt, *k*, passing through the center of the ribbed valve for the purpose of confining the plate tightly upon the washers *f* and *i*, thereby forming a perfect valve.

The upper ends of the cylinders are supplied with flanges and a hollow connecting-tube, E, in the middle of which is placed a pipe, G, to allow the water to pass up when the pump is in operation.

The upper end of each cylinder A is provided with an arched cylinder-head, H, with a central downward-projecting tube, *m*, through which the plunger or piston-rod *n* passes. I is a stuffing-box around the rod *n* on top of the arched head H. The tube *m* runs from the top of the head H to the bottom thereof, to prevent the air from escaping through the stuffing-box, and it forms a perfect air-chamber and cylinder-head. To the lower end of the rod *n* is attached the bucket, containing the valve K, which valve is constructed in the same manner as described for the valve D.

The bucket is constructed in two parts, J and J', with packing *p* between them, as described in my Letters Patent, No. 128,921. The inner part, J', is provided with a circumferential inward-projecting flange, *s*, at its lower end, and in this flange are slots *x* to receive bolts *t* which pass through the flange *s'* at the lower end of the outer part J, and then fastened by nuts, thereby drawing the two

parts firmly together, and securing the packing *p* in its place, without running the bolts through from the top of the bucket, as in the old device. By these means all leakage through the bolt-holes is prevented.

The discharge-pipe *G* is provided with a collar, *L*, and stud or wrist *v*, to receive the cross-lever *M*, said lever being connected to the plunger-rods *n n* by pivoted rods *n'*, to accommodate the circular motion of the lever.

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

1. The plunger herein described, consisting of the cup *J'*, having flange *s*, with slots *x x*, the cup *J* with flange *s'*, the packing *p* be-

tween the cups, and the short bolts *t t*, which unite the parts, all constructed substantially as shown and described, for the purposes set forth.

2. The rib-valve *D*, provided with the bottom perforated flange *e*, top metal washer *i*, rubber or leather washer *f*, outer plate *h*, and bolt *k*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of June, 1874.

CYRUS O. SYLVESTER.

Witnesses:

C. L. EVERT,

A. N. MARR.