

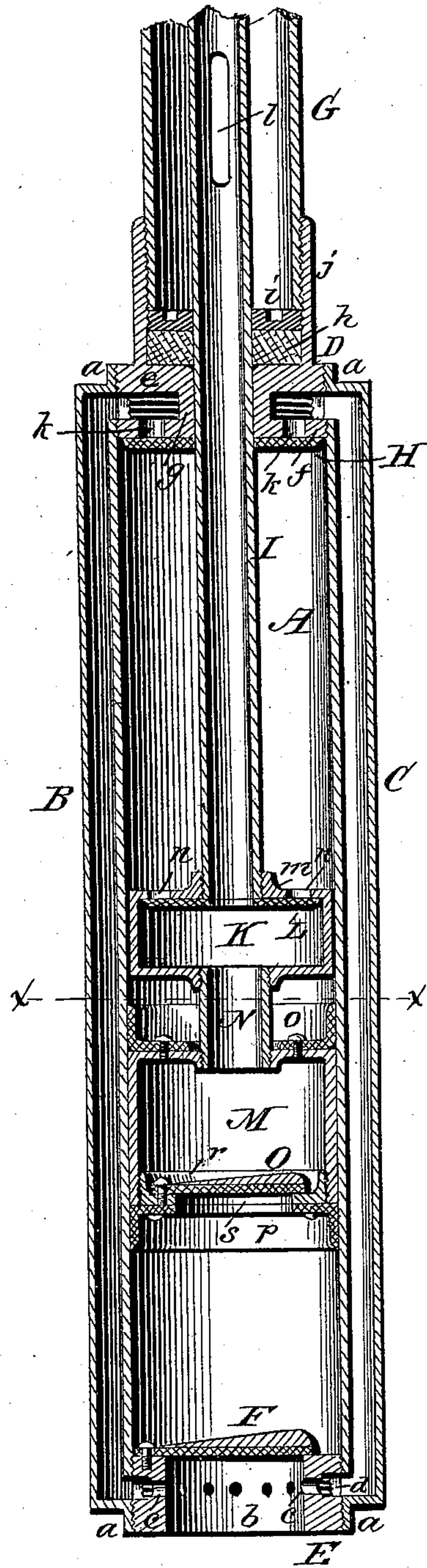
(No Model.)

D. LIPPY.  
PUMP.

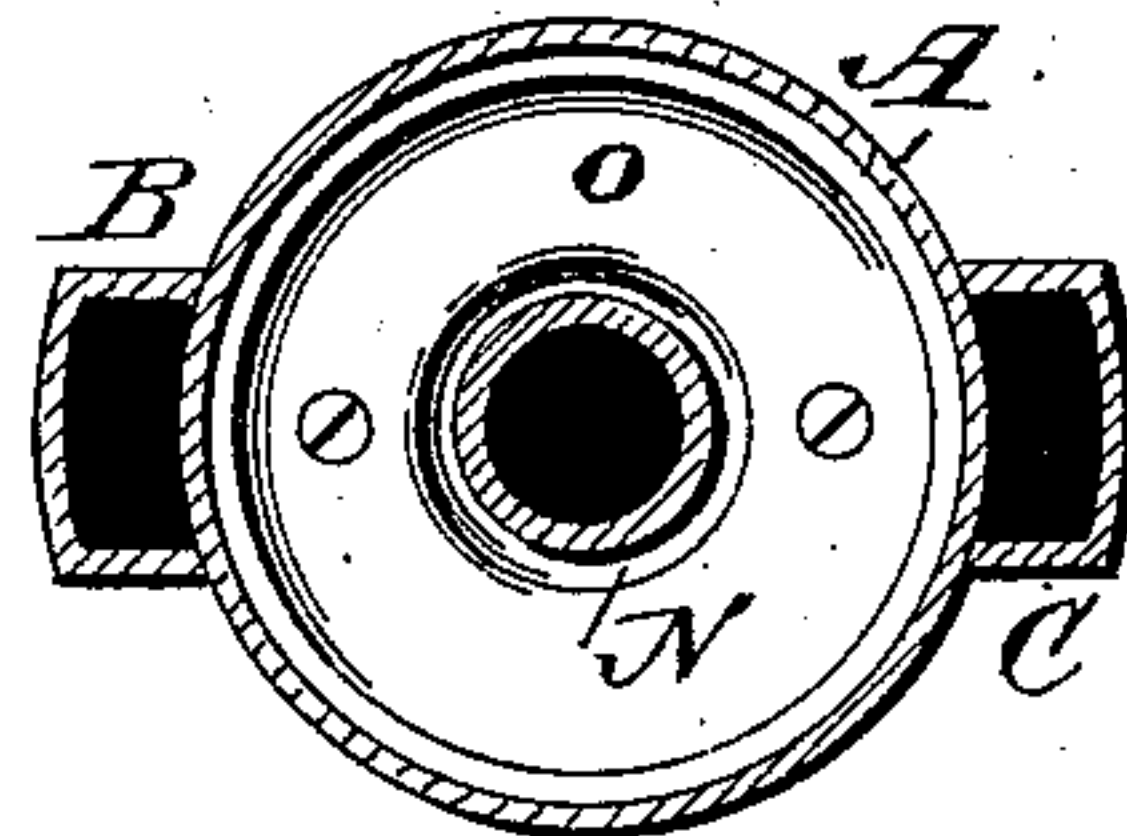
No. 574,252.

Patented Dec. 29, 1896.

*Fig 1.*



*Fig 2.*



Witnesses  
G. Williamson  
Geo. Baker

Inventor  
David Lippy.  
per Chas. C. Fowler  
Attorney.



# UNITED STATES PATENT OFFICE.

DAVID LIPPY, OF MANSFIELD, OHIO.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 574,252, dated December 29, 1896.

Application filed December 28, 1895. Serial No. 573,648. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID LIPPY, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has for its object to improve in the several details of construction that class of submerged pumps provided with a hollow plunger-rod and plunger; and it consists in a pump constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings represents a sectional elevation of a pump embodying my invention; Fig. 2, a horizontal section taken on line *xx* of Fig. 1.

In the accompanying drawings, A represents the pump-cylinder, and B C two contracted ducts which are disposed diametrically opposite each other, as shown in Fig. 2 of the drawings. The ducts B C are cast with and form a part of the cylinder A, or the ducts are connected to the cylinder in any other suitable manner as found best adapted to the purpose, this being left discretionary with the manufacturer, or, if preferred, the ducts may be formed of tubing secured to the cylinder at the top and bottom thereof. These ducts communicate with the cylinder at the top and bottom, as shown in Fig. 1 of the drawings, suitable coupling-heads D E having exterior screw-threads to engage the screw-threads on the flanges *a* at the ends of the ducts D C and the screw-threads at the ends of the cylinder A.

The coupling-head E at the lower end of the pump-cylinder A forms a seat for a suitable valve F, which valve controls the central opening *b* for the passage of the water into the cylinder.

The ducts B C communicate with the central opening *b* and with the interior of the pump-cylinder through the holes *c*, which holes extend through a groove *d* around the exterior of the coupling-head E, as shown.

The coupling-head D comprises the two

disks *e f*, joined by a central tubular neck *g*, said disks having exterior screw-threads with which the screw-threads upon the upper ends of the ducts and pump-cylinder engage. The disk *e* has an upwardly-extending flange to form a cup-shaped receptacle *j* for a suitable packing *h* and a screw-threaded washer *i* to hold the packing in place. The cup-shaped receptacle has interior screw-threads with which engage the screw-threads of the washer and the screw-threaded end of the discharge cylinder or pipe G. The disk *f* has openings *k* for the passage of the water, said openings being controlled by a suitable valve H upon the under side of the disk.

The tubular or hollow plunger-rod I has openings *l* through its side for the passage of the water into the cylinder or pipe G, and the lower end of the rod has connected to it a water-chamber K by means of the screw-coupling *m*. This water-chamber K has openings *n* at its top for the passage of the water from the pump-cylinder into said chamber, said openings being controlled by a suitable valve L.

To the under side of the water-chamber K is secured the short pipe N, which forms a continuation of the hollow piston-rod, and which serves to connect the two water-chambers K M. The chamber M is longer than the one K and has the packing *o* secured to its upper end in the chamber formed between the two chambers. The chamber M has also a packing *p* applied to its lower end, while the chamber K has none applied to it. In the lower end of the chamber M is secured the valve-seat *r*, upon which is supported the valve O, which controls the opening S, through which water passes from the cylinder into the plunger on its downstroke.

The valve L in the upper chamber K serves to prevent the water from escaping from the chamber, when the piston is on its downstroke, into the top of the cylinder.

The two water-chambers form a long bearing in the cylinder for the piston, and hence always moves accurately and with but little wear, and by having enlarged ends the valve O is placed in a protecting-chamber where it is free from dirt and grit in the water.

No claim is made in this application to a pump containing two cylinder-sections pro-

vided with valved openings in their outer ends, a contracted neck for uniting the cylinders, two hollow pistons provided with valves at their outer ends, a hollow piston-rod divided into sections, a disk secured to the piston-rod, and a packing on the disk, for this is shown in my pending application filed December 28, 1895, and bearing serial number 573,647.

10 Having thus described my invention, I claim—

In a pump, a single cylinder provided with a valve at each end, a hollow piston-rod, a piston having a water-chamber at each end, and  
15 a valve in the outer end of each chamber, and

a pipe, of smaller diameter than the two chambers, for connecting them, combined with suitable packings, the two chambers having an intervening space between them and in which one of the packings is placed, and the 20 short pipe which connects the two chambers being in a line with the hollow piston-rod, substantially as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence 25 of two witnesses.

DAVID LIPPY.

Witnesses:

BYRON J. BALLIETT,

H. W. MATEER.