

(No Model.)

J. McGWIN.
DOUBLE ACTING PUMP.

No. 299,666.

Patented June 3, 1884.

Fig. 1.

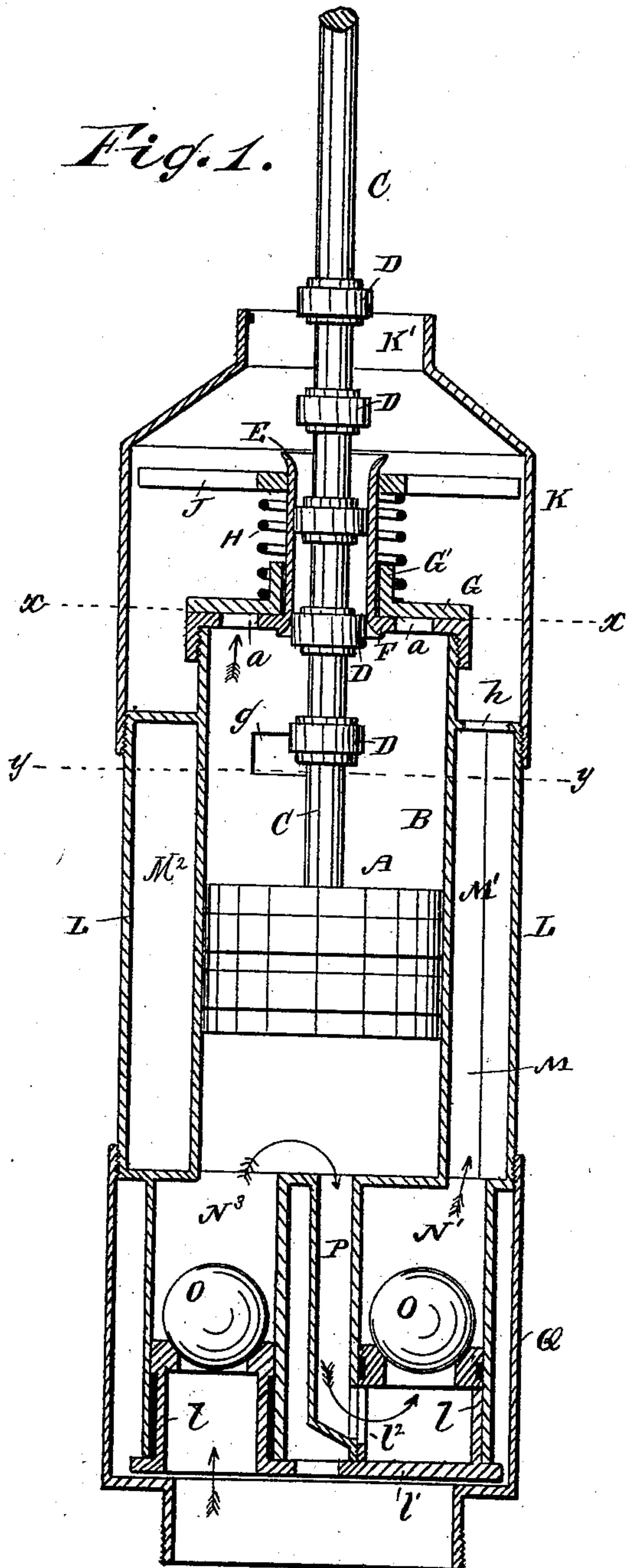


Fig. 2.

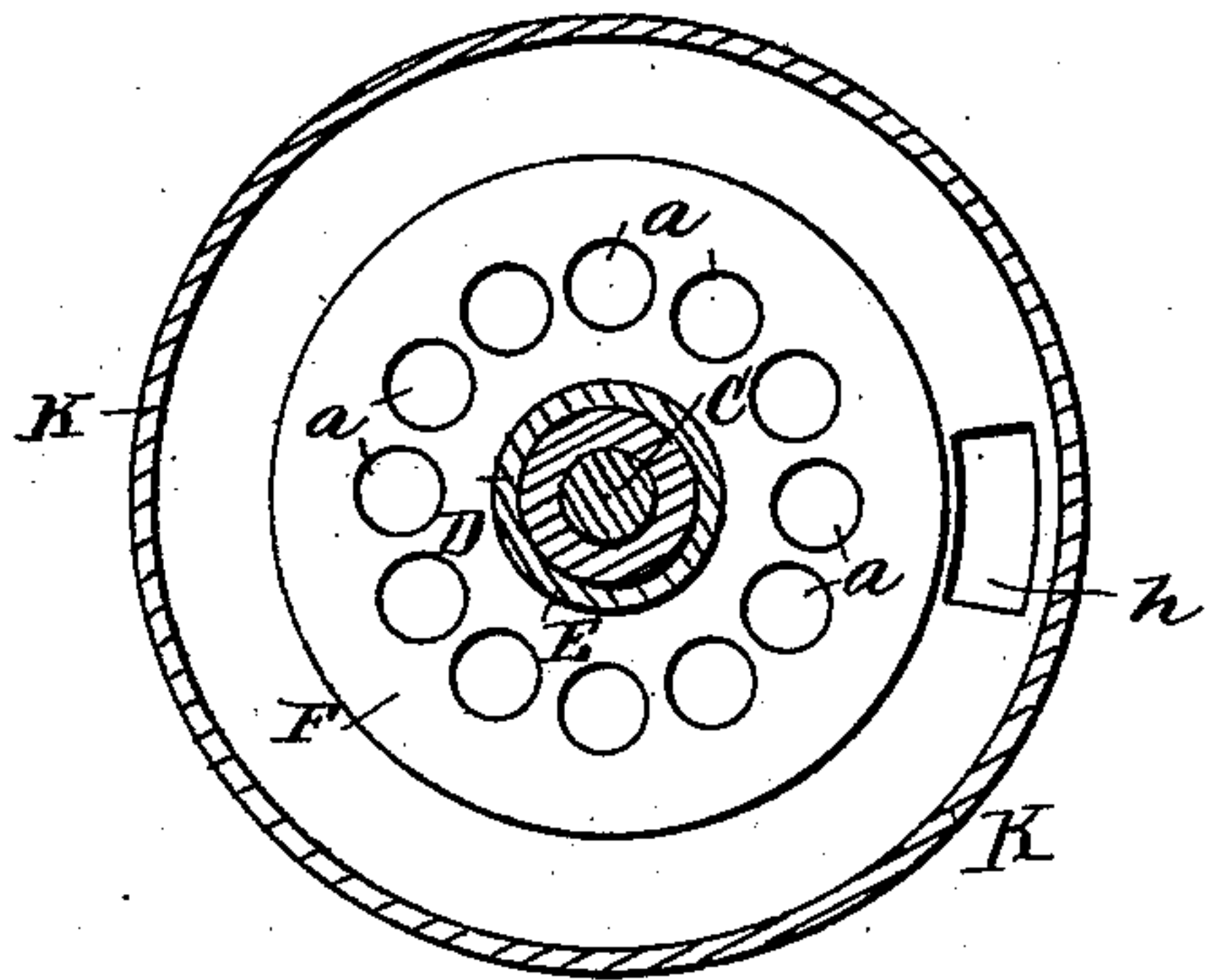


Fig. 3.

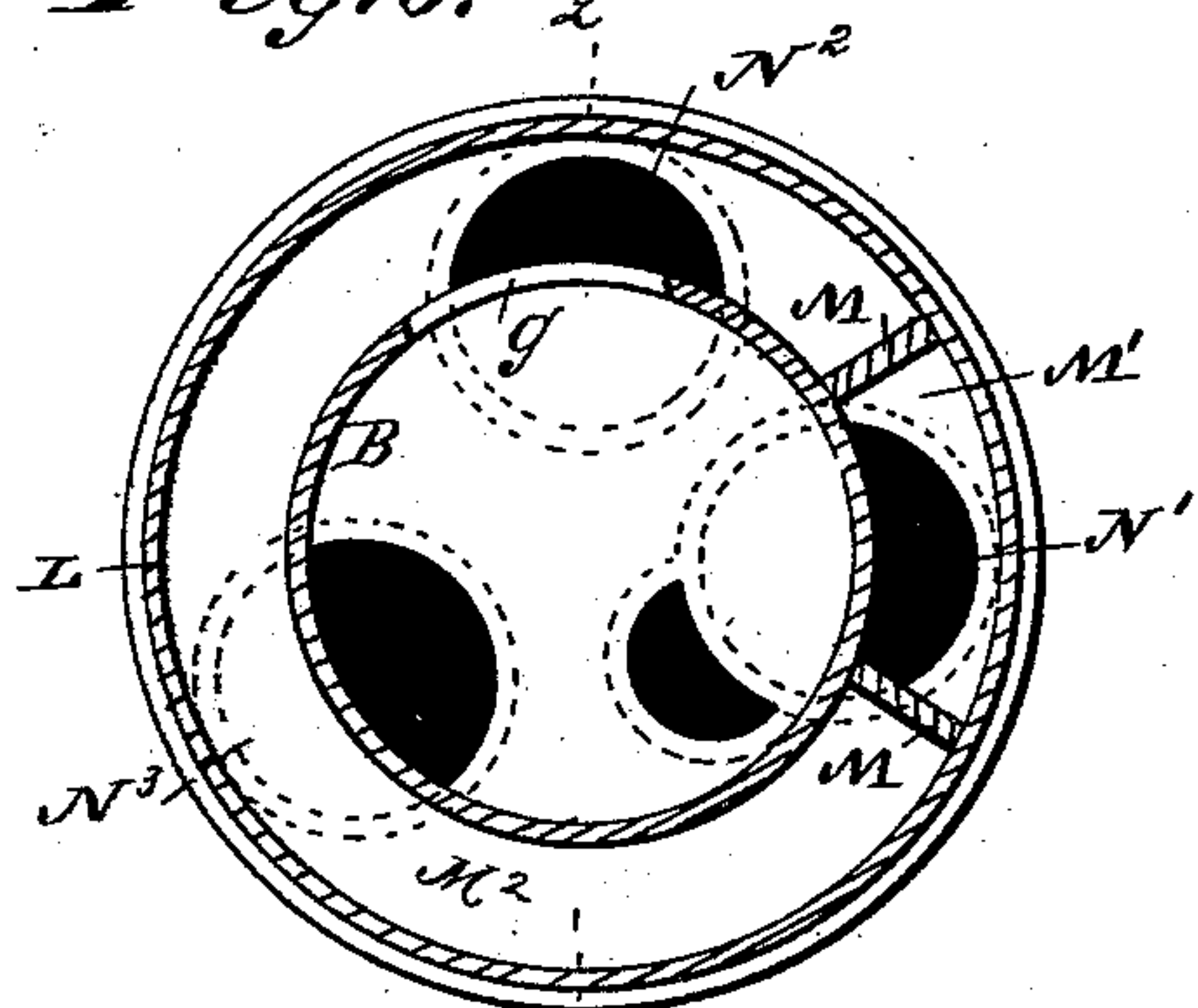
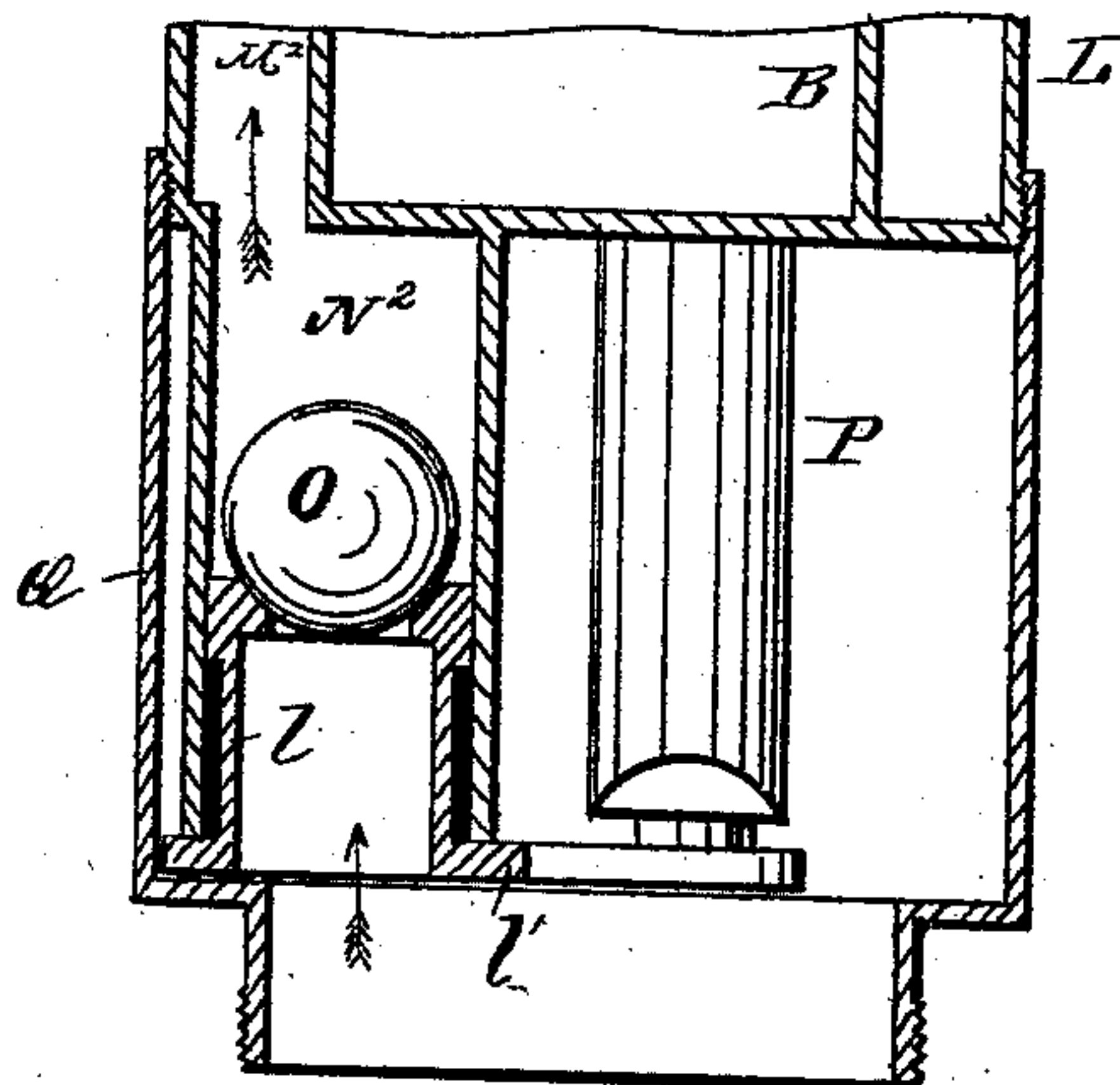


Fig. 4.



WITNESSES:

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JAMES MCGWIN, OF FULTON, MISSOURI.

DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 299,666, dated June 3, 1884.

Application filed September 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES MCGWIN, of Fulton, Callaway county, Missouri, have invented a new and Improved Double-Acting Pump, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved double-acting pump for Artesian and other wells.

This invention consists in a double-acting pump constructed with an inner and an outer cylinder, the inner one containing a piston secured to a piston-rod packed in the top of the cylinder. To the bottom of the cylinder three tubes, each containing a valve, are secured, one of the tubes being in communication with the inner cylinder, the other with outer cylinder, and the third in communication with a vertical channel between the two cylinders. A duct connects the inner cylinder with the tube in communication with the vertical channel between the two cylinders.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved double-acting pump. Fig. 2 is a sectional plan view of the same on the line $x x$, Fig. 1. Fig. 3 is a sectional plan view of the same on the line $y y$, Fig. 1; and Fig. 4 is a longitudinal sectional view of the bottom part on the line $z z$, Fig. 3.

The piston A, working in a cylinder, B, is secured to a piston-rod, C, which is provided with a series of packing-collars, D, fitting closely in a tube, E, formed on the top F of the cylinder, which tube is flared outward slightly at the top and bottom. The top F is provided with a series of apertures, a , arranged in a circle. An annular valve-plate, G, rests on the top F, and is provided with a central collar, G', surrounded by a spring, H, the upper end of which rests against a cross-piece, J, held in the upper part of a cap, K, which is contracted toward its upper end and provided with a neck, K', to which the lower end of the stand-pipe is secured. The cylinder B is surrounded by a larger cylinder, L, on the upper end of which outer cylinder, L, the cap K is screwed. The opening g establishes a communication between the upper

part of the cylinder B and the channel M² between said cylinder and cylinder L. Two vertical radial partitions, M, form the channels M' M², at the upper end of the former of which an opening, h , is formed. Three tubes, N' N² N³, are secured to the bottoms of cylinders B and L, each containing a ball-valve, O, resting on a seat, l . These seats are tubular and of smaller diameter than the tubes, in order that they may fit within the same, and said seats are formed on a base, l' . One of said seats is provided with an opening, l'' , registering with the lower end of duct P, as shown. The upper end of the tube N' communicates with the bottom of the channel M'. The tube N² communicates with the channel M². The tube N³ communicates with the bottom of the cylinder B. A duct, P, extends from the bottom of the cylinder B to the bottom of the tube N'. A cap, Q, open at the bottom, is screwed on the lower end of the cylinder L and surrounds the tubes N' N² N³. If desired, the pump can be inserted in the tube of an Artesian well, and in that case no stand-pipe need be secured to the top of the cap K.

The operation is as follows: When the piston A ascends, water is drawn into the bottom of the cylinder B through the tube N³, the corresponding valve, O, being raised. The water above the piston is forced out through the apertures a into the cap K, the valve G being raised by the pressure. When the piston A descends, the water is drawn into the upper part of the cylinder B through the tube N², channel M², and the opening g . The water below the piston is forced out through the duct P, the tube N', the channel M', and into the cap K. The water rises from the cap K into the stand-pipe secured to the neck K', the rod C working up and down in the stand-pipe.

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

1. The two cylinders B L, partitions M M, forming channels M' M², connecting with the piston-cylinder and the chamber above said cylinder, respectively, tubes N' N² N³, provided with valves and communicating with the said channels and piston-cylinder, as shown, and duct P, in combination with the top F, having apertures a , the spring-pressed annular valve G, and the piston A C, all arranged substantially as shown, and for the purpose set forth.

2. The combination of the piston-cylinder B and piston A C with the apertured cap F, tube E, annular valve G, spring H, and cross-bar J, substantially as set forth.

5 3. The combination, in a double-acting pump, of the tubes N' N² N³ and duct P with the tubular seats l, formed on a base, l', and of small-

er diameter than said tubes, one of the seats being provided with an opening, l², registering with the duct, as shown and described.

JAMES MCGWIN.

Witnesses:

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G. T. SLEDGE.