

(No Model.)

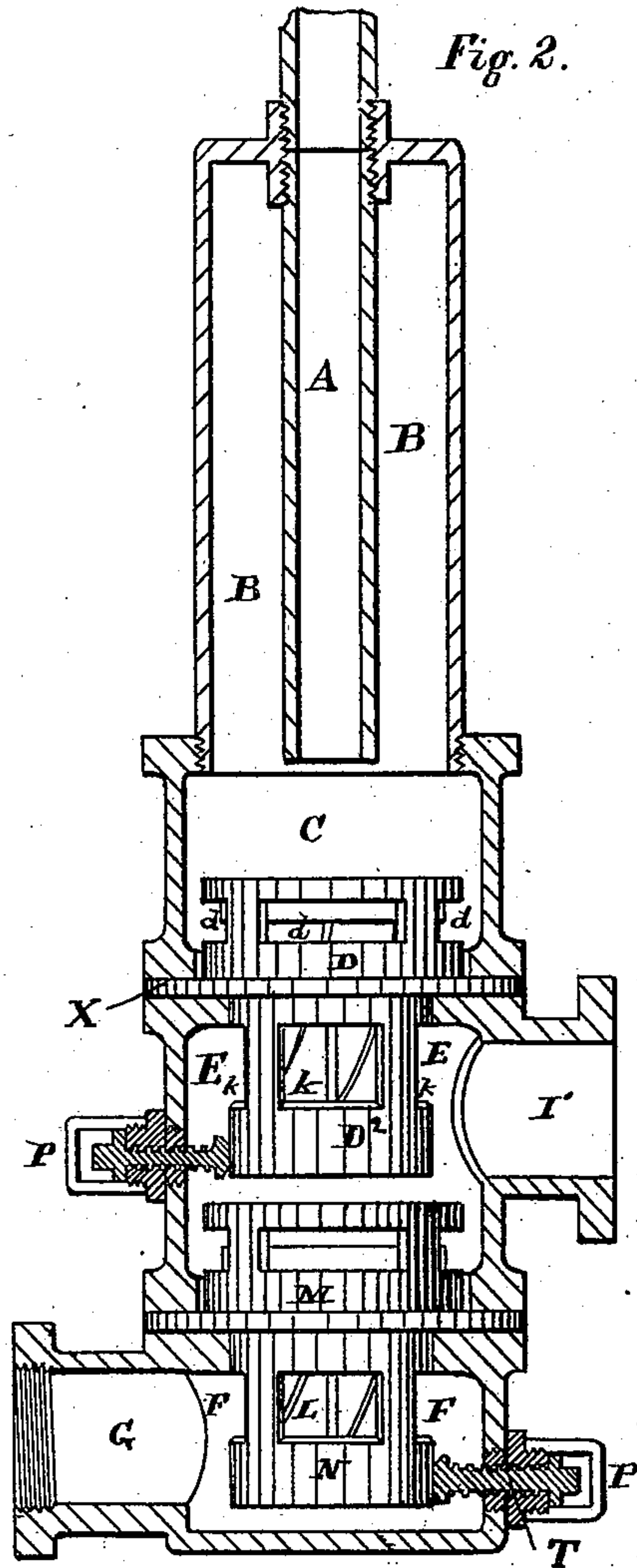
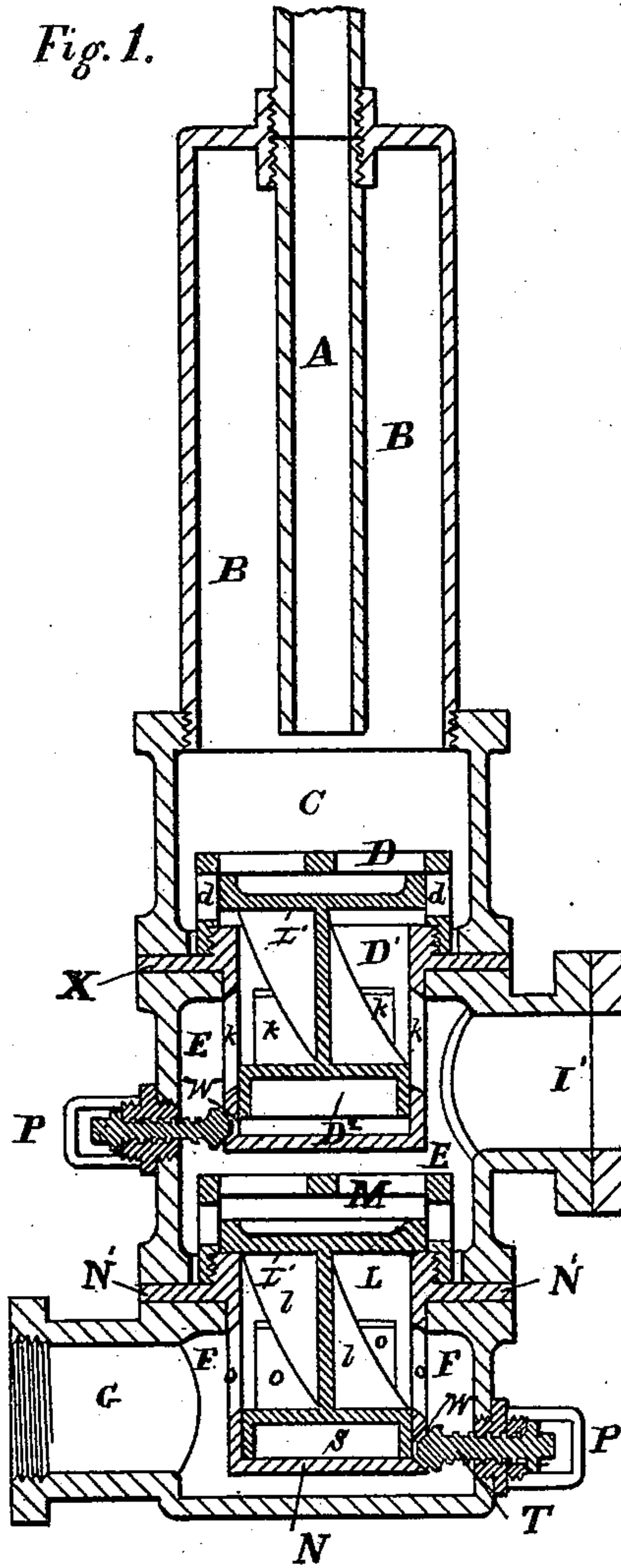
3 Sheets—Sheet 1.

J. FLOWER.

PUMP VALVE.

No. 276,170.

Patented Apr. 24, 1883.



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Inventor.  
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(No Model.)

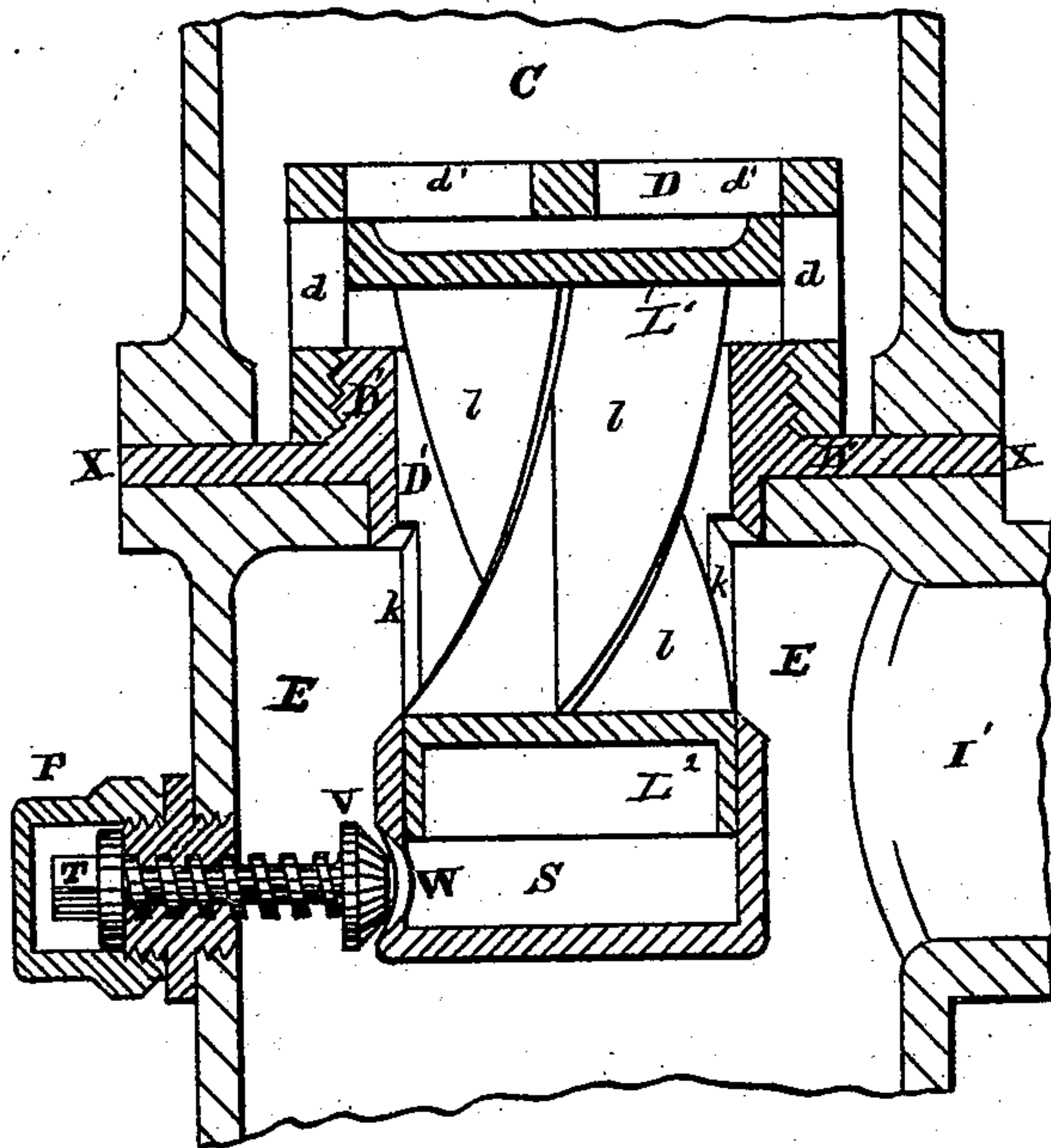
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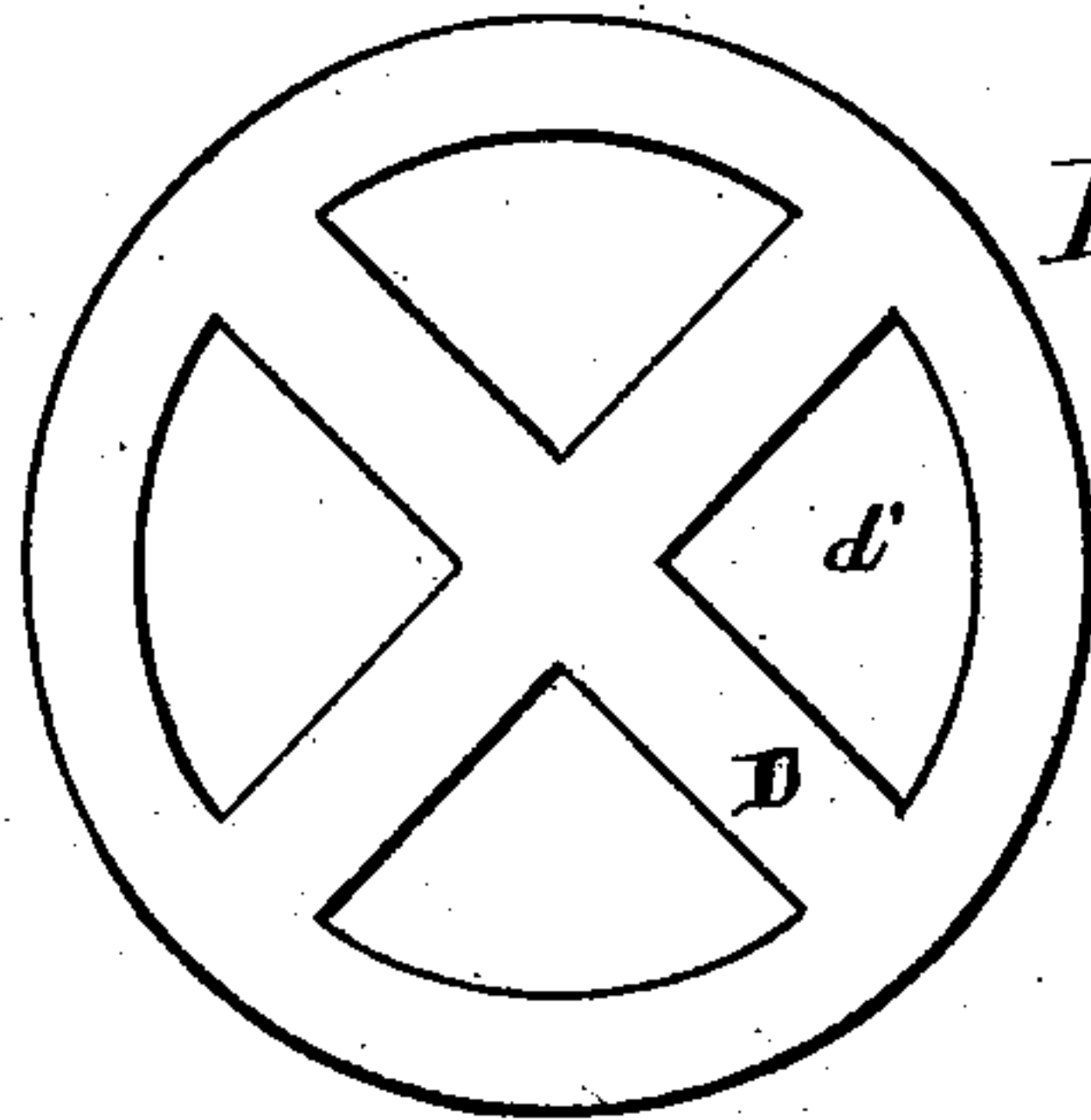
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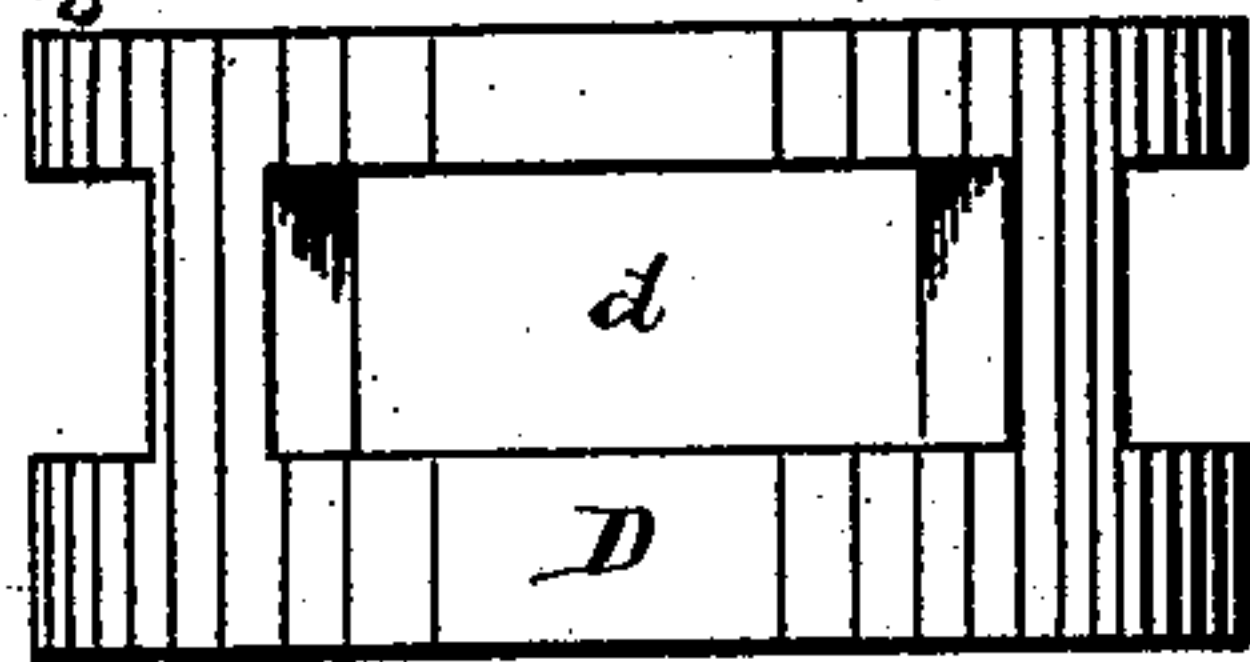
*Fig. 3.*



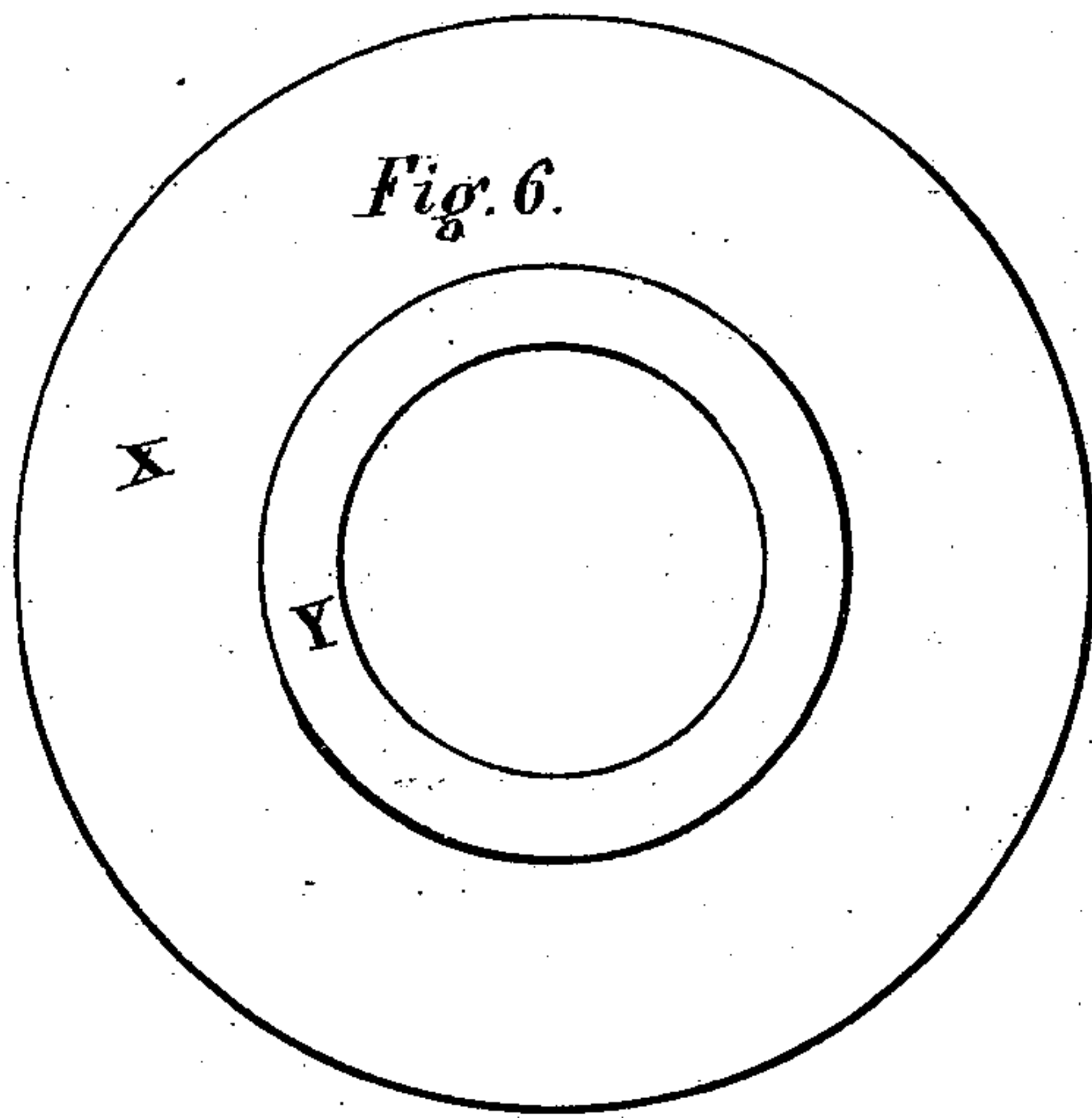
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Fig. 7.*

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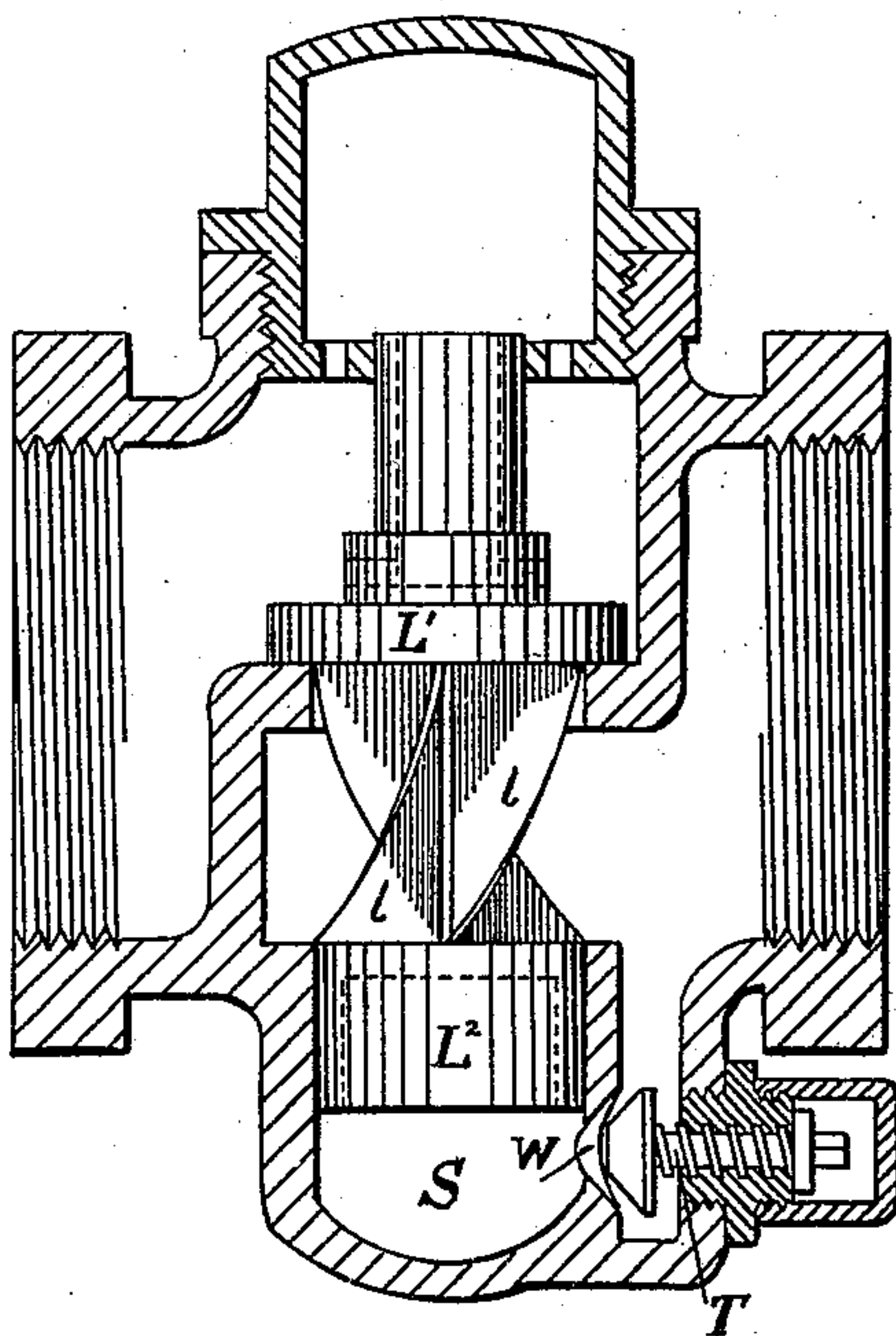
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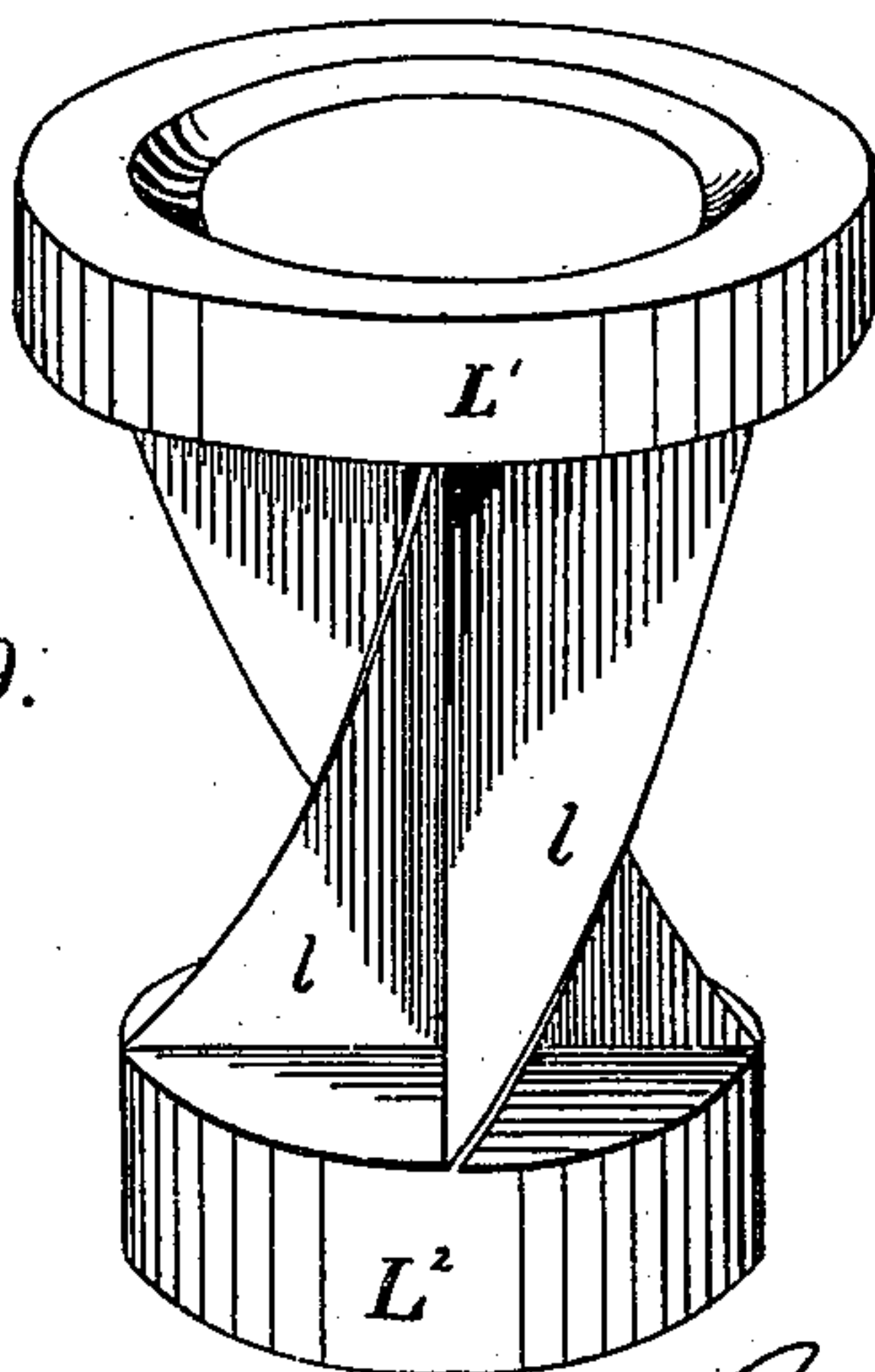
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*Fig. 8.*



*Fig. 9.*



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# UNITED STATES PATENT OFFICE.

JAMES FLOWER, OF DETROIT, MICHIGAN.

## PUMP-VALVE.

SPECIFICATION forming part of Letters Patent No. 276,170, dated April 24, 1883.

Application filed May 9, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES FLOWER, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Pump-Valves; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists in the combinations of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical section of an apparatus embodying my invention. Fig. 2 is a view of the same, showing the casing in section and the valve mechanism in elevation. Fig. 3 is a separate view of the valve mechanism in section. Fig. 4 is a plan view of the cage of the valve-seat. Fig. 5 is a separate view of the cage of the valve-seat in elevation. Fig. 6 is a plan view of the valve-seat. Fig. 7 is a separate view of the valve-seat in elevation. Fig. 8 is a separate view, showing the check-valve. Fig. 9 is a separate view of the valve.

The object of my invention is to provide means for cushioning water-valves in pumps and other similar locations, in which the construction of the valve mechanism is such that the valve in its fall is cushioned upon water below it.

As shown in the drawings, G represents the inlet-pipe; L, the inlet-valve; N and M, the valve-cage; I', the passage to the pump-cylinder I; H, the piston. D' is the outlet-valve; D and D<sup>2</sup>, its cage, opening into the air-chamber; and A, the exit-pipe. B is the air-chamber.

My invention relates more particularly to cushioning the valves. To this end the valves L and D' are preferably constructed with a suitable head, as shown at L' in Fig. 9. l represents elongated spiral blades secured thereto. L<sup>2</sup> is a suitable base. N is the lower portion of the valve-cage for the inlet-valve, constructed with a tubular section suitably provided with inlet-passages F F. N' is a flange

whereby the valve-cage is secured in the casing of the pump. M is the head of the cage, which limits the travel of the valve. It is suitably provided with discharge-orifices. D<sup>2</sup> is the lower portion of the valve-casing for the outlet-valve, provided with inlet-passages k k. X is its flange, and D the cage-head, provided with discharge-orifices d and d'. Both valves are similar in construction. Each valve-seat is provided with a dash-pot at its lower end, as shown at S in Fig. 3, having a contracted outlet, W. T is a screw passing through the casing of the pump, provided with an outer head and a stopper, v, at its inner end, adapted to be adjusted into the outlet W, as may be desired, to regulate the discharge of water from the dash-pot, so as to properly cushion the valve on its fall. P is the outer casing of this regulating-valve.

It is evident that when the suction is applied by the stroke of the piston the lower valve is lifted in the valve-seat, when the water finds a ready passage through it into the cylinder I. The opposite stroke of the piston drives the lower valve down in the valve-cage and upon the water in the dash-pot, whose exit is checked by means of the stopper v, and the valve is consequently cushioned upon it. Vice versa, the suction applied by the stroke of the piston forces the upper valve down into the dash-pot, where it is cushioned in like manner. The construction is such that in operation it is found also that when the valves are lifted the water at the top prevents their striking heavily on the cage. This valve can be applied to any pump, or in any other location where similar liquid-valves are required. Fig. 8 shows its adaptation as a check-valve.

What I claim is—

1. The combination, with the valve-cage having openings in its side walls and head, and the dash-pot at its lower end having an escape-orifice, of the valve having a head arranged to play in the cage next the head thereof and the base arranged to play in the dash-pot, said head and base being connected, substantially as described.

2. The combination, with the valve-cage having the dash-pot at its lower end provided with a liquid-escape orifice, of the screw-valve

T, arranged to regulate the extent of opening of said orifice, substantially as described.

3. The combination, with the valve-casing having inlet G and outlet L', relatively  
5 arranged as shown, of the two valve-cages and inclosed valves, constructed as described, and arranged the one to open as the other closes, essentially as and for the purpose set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

JAMES FLOWER.

Witnesses:

SAMUEL E. THOMAS,  
J. EDWARD WARREN.