

2 Sheets—Sheet 1.

Patented Nov. 17, 1885.

Fig. 2.

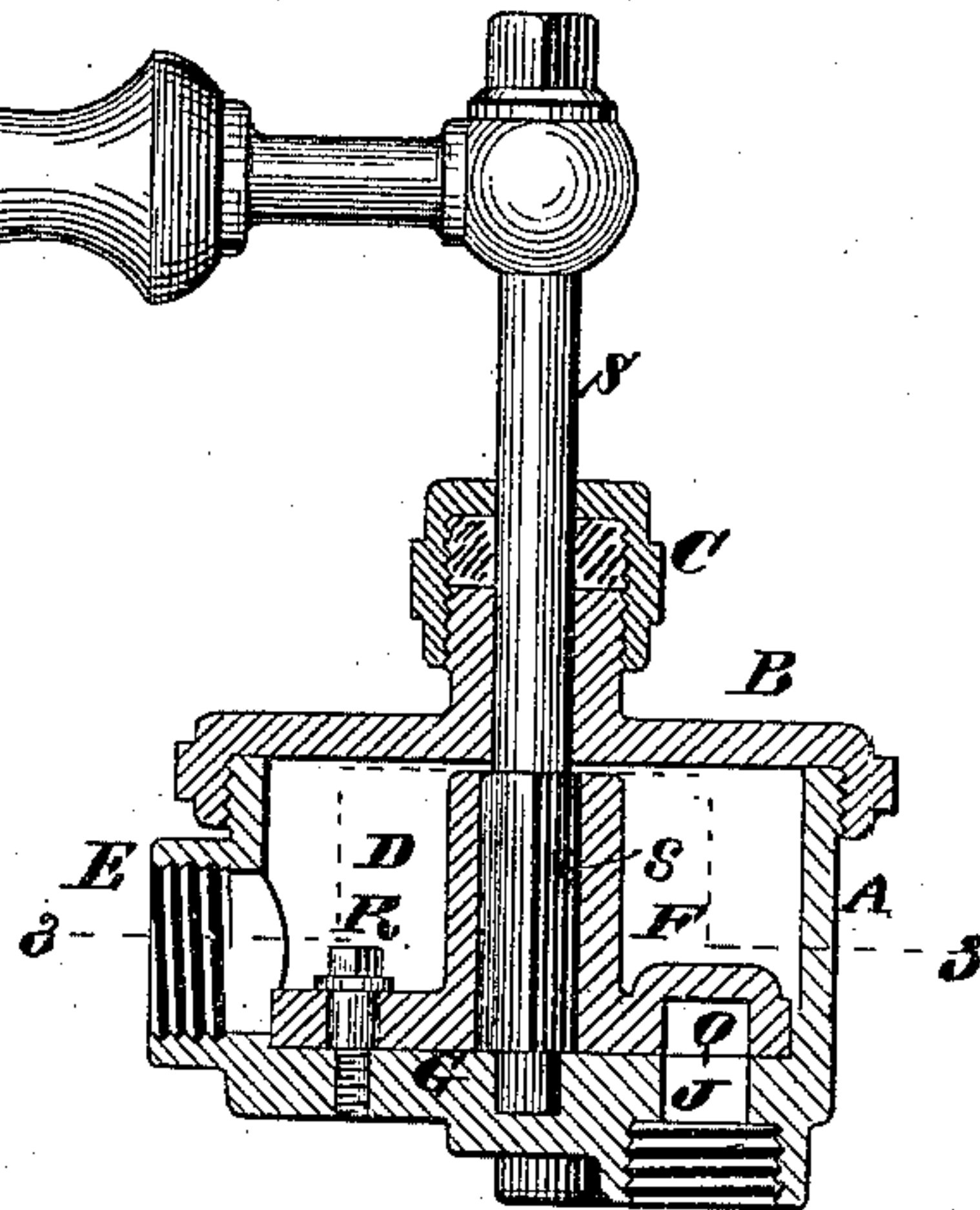
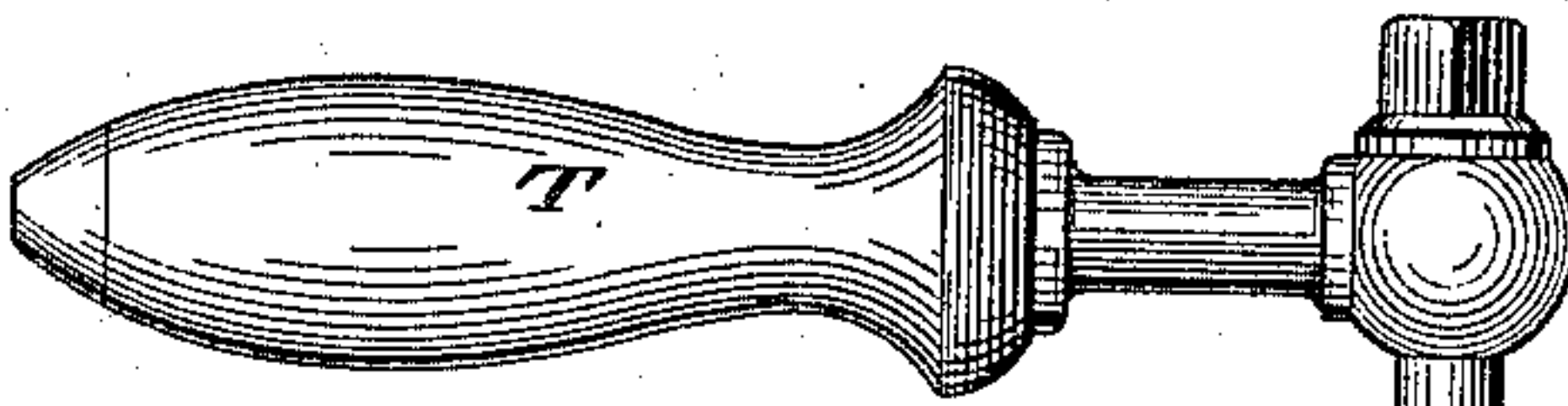


Fig. 5.

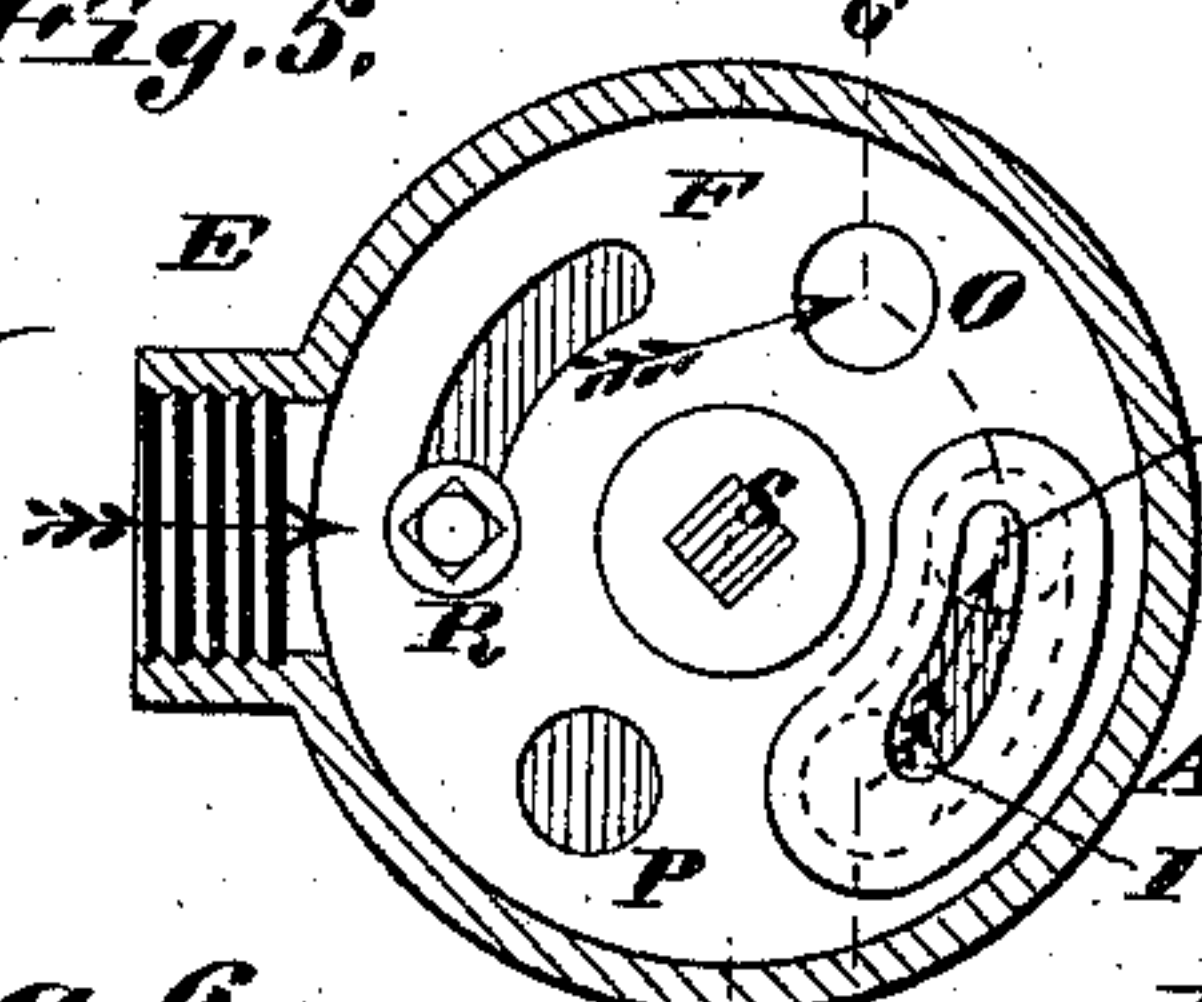


Fig. 7.

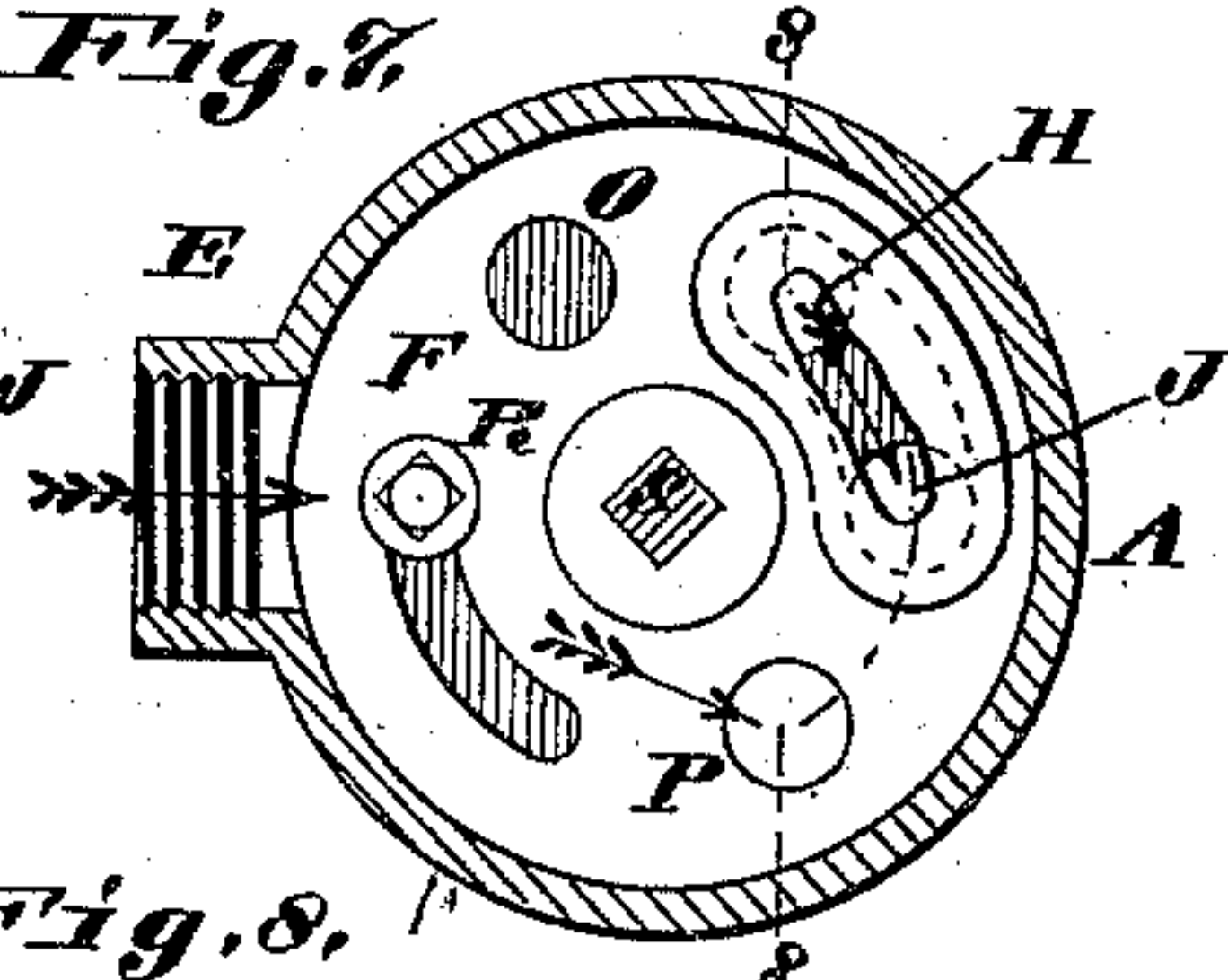


Fig. 4.

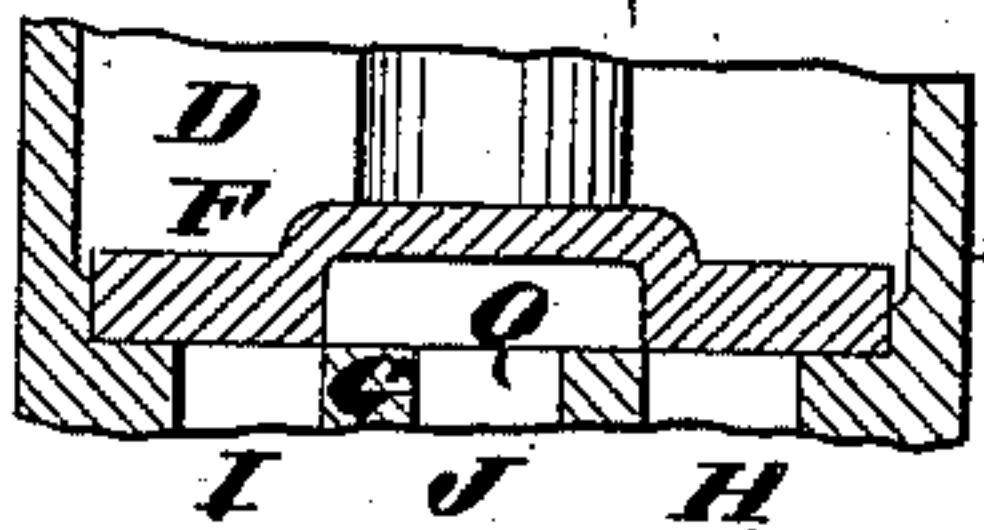


Fig. 6

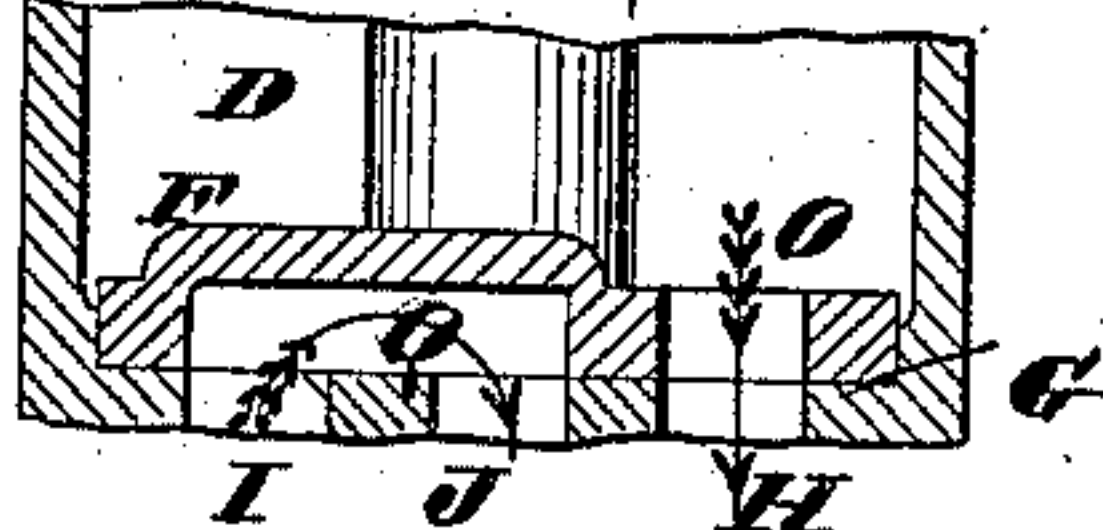


Fig. 8.

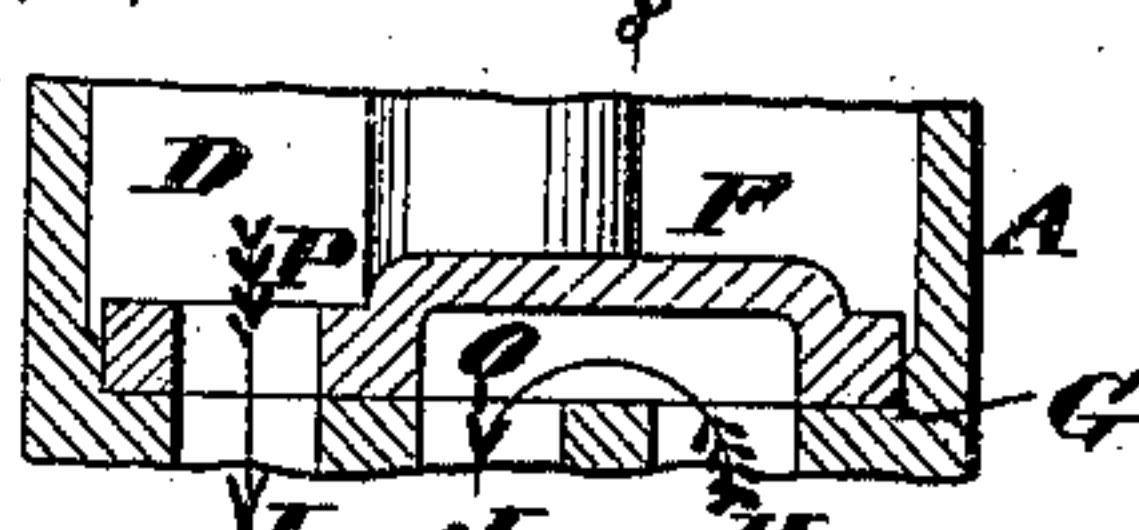
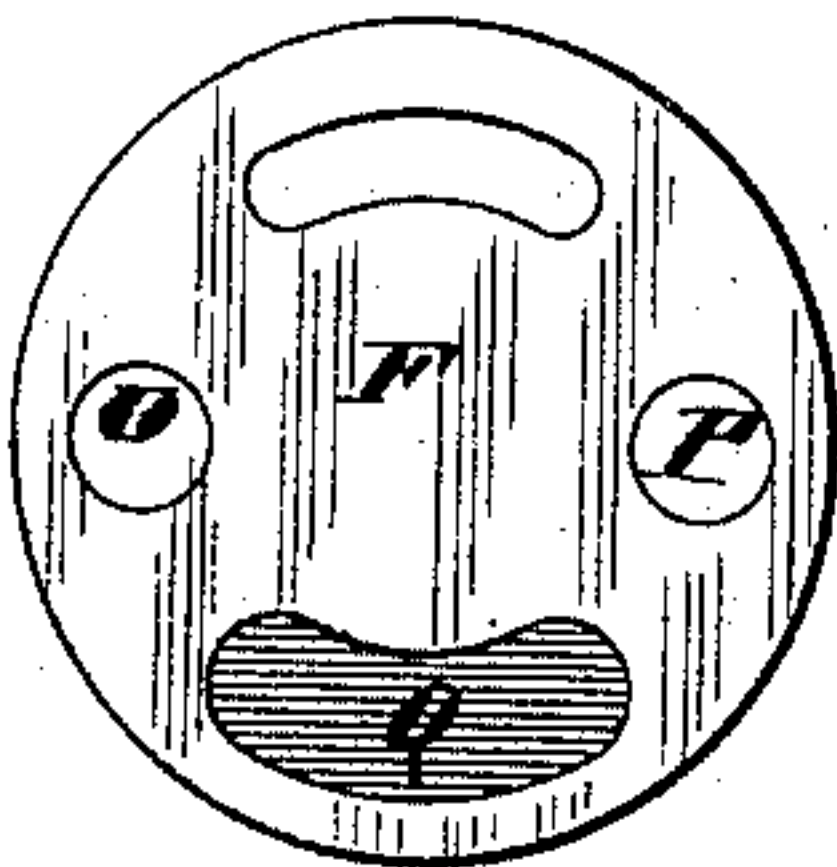


Fig. 9.



Inventor:

Morris Wuerpel
By Knight Bros.
Atty.

(No Model.)

2 Sheets—Sheet 2.

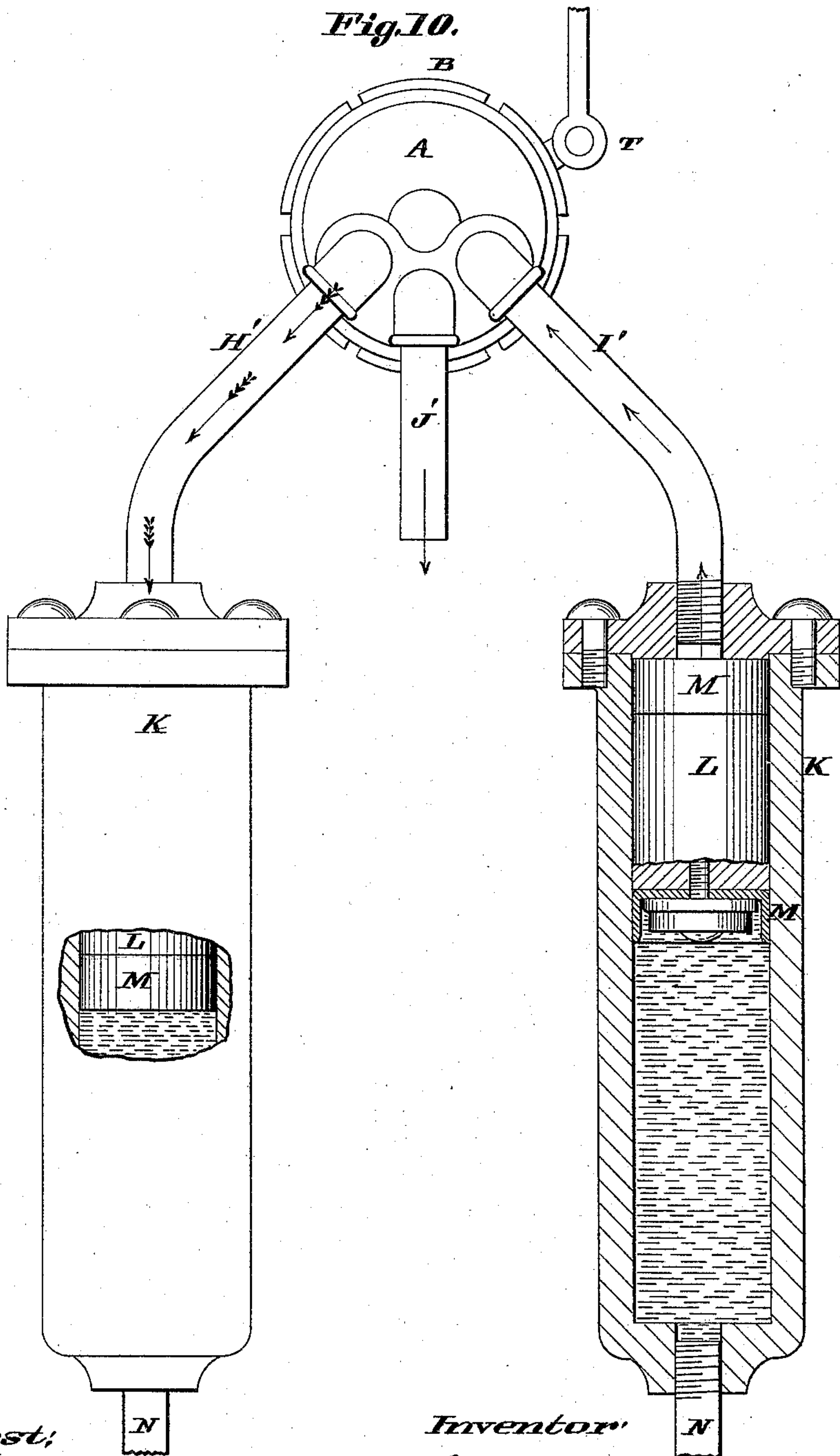
M. WUERPEL.

VALVE.

No. 330,861.

Patented Nov. 17, 1885.

Fig. 10.



Attest;

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UNITED STATES PATENT OFFICE.

MORRIS WUERPEL, OF ST. LOUIS, MISSOURI.

VALVE.

SPECIFICATION forming part of Letters Patent No. 330,861, dated November 17, 1885.

Application filed December 13, 1884. Serial No. 150,255. (No model.)

To all whom it may concern:

Be it known that I, MORRIS WUERPEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a side view of the valve. Fig. 2 is an axial section at 2 2, Fig. 1. Fig. 3 is a horizontal section at 3 3, Fig. 2, with part of the valve broken out. In this figure the valve-ports are closed. Figs. 5 and 7 are similar sections to Fig. 3, except that the valve is shown on different positions. Fig. 4 is a detail vertical section at 4 4, Fig. 3, the section line passing through all three ports of the valve-seat. Figs. 6 and 8 are respectively detailed vertical sections at 6 6 and 8 8 of Figs. 5 and 7. Fig. 9 is a face view of the valve. Fig. 10 is a view, partly in section, showing the valve in connection with two hydraulic cylinders.

The valve-seat and valve are shown in horizontal position, and will be so described, but may be placed in any position.

The valve will be described as a pneumatic valve, the compressed air operating two hydraulic pistons; but I do not confine myself to such use.

A is the valve-case. B is the cap or top screwed thereon and having a central stuffing-box, C, in which the valve-stem oscillates. The compressed air or other medium enters the valve-chamber D through a pipe or opening, E.

F is the valve, which is circular in form and has a flat face working on a seat, G. The valve-seat has three ports, H, I, and J, communicating, respectively, with the pipes H', I', and J'. Of these, pipes H' and I' lead to the hydraulic cylinders K and K', having pistons L movable endwise therein. The pistons are shown with "cup-packings" M.

N are pipes through which the liquid passes in entering the cylinders or escaping therefrom.

The valve has two ports, O and P, which by turning the valve may be brought, respectively, in line with the seat-ports H and I, so that the contents of the valve-chamber may be allowed to enter either of the pipes H' or I'.

The valve has in its face a recess, Q, which may be made to form a communication between either of the ports H or I and the exhaust-port J, so as to allow the contents of either of the pipes H' or I', and of the end of the hydraulic cylinder in communication therewith, to exhaust through the pipe or nozzle J'.

R is a guide-bolt by which the valve is limited in its movement, the bolt passing through a curved slot in the valve and being screwed fast in the seat. The valve-stem S is shown with a square part, s, occupying a similarly-shaped socket in the valve. The stem is shown stepped at the inner end in the valve-seat. T is the lever by which the valve is turned.

The operation may be described as follows: When the valve is in the position shown in Figs. 1, 2, 3, and 4, the ports H I and O P are closed. If the valve is then turned into the position shown in Figs. 5 and 6, the valve-port O is brought in line with the seat-port H, and the contents of the valve-chamber passes into the pipe H' and any cylinder or other chamber with which it may be in connection. At the same time the recess Q forms a connection between the port I and the exhaust-port and the contents of the pipe I' exhausts through the exhaust-port J and pipe or nozzle J'. On turning the valve into the position shown in Figs. 7 and 8 the contents of the valve-chamber passes through ports P and I into pipe I', and the pipe H' exhausts through port H, recess Q, and port J. On the removal of the pressure from the valve-chamber from each hydraulic piston and the opening communication between that cylinder and the exhaust, it is understood that the piston is forced backward by the pressure of the liquid against it.

I claim as my invention—

1. The combination of two independent pressure-cylinders with a single valve-case having a pair of eduction-ports communicating with the respective cylinders, an inlet-port and an exhaust-port, a valve adapted to close both of said eduction-ports, and having a pair of ports either of which is adapted to be brought into coincidence with its eduction-port, and a recess or passage for placing the other of said eduction-ports in communication

with the exhaust-port, whereby when pressure is exerted in one of said cylinders it is simultaneously relieved in the other, as set forth.

- 5 2. The combination of the two independent pressure-cylinders K K', the valve-case A, having a pair of eduction-ports, H I, communicating with the cylinders K K', respectively, an inlet-port, E, and an exhaust-port, J, said
10 ports being arranged in the valve-seat at equal distances apart, and the valve F, having the recess Q in its face, of sufficient length to

place either one of said eduction-ports in communication with the exhaust-port and the ports O P, cut through said valve at the respective ends of said recess Q and at a distance therefrom equal to the distance between two of the ports in the valve-seat, substantially as set forth. 15

MORRIS WUERPEL.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.