

(No Model.)

4 Sheets—Sheet 1.

A. J. WEST.
VALVE FOR FILTERS.

No. 386,677.

Patented July 24, 1888.

Fig. 2.

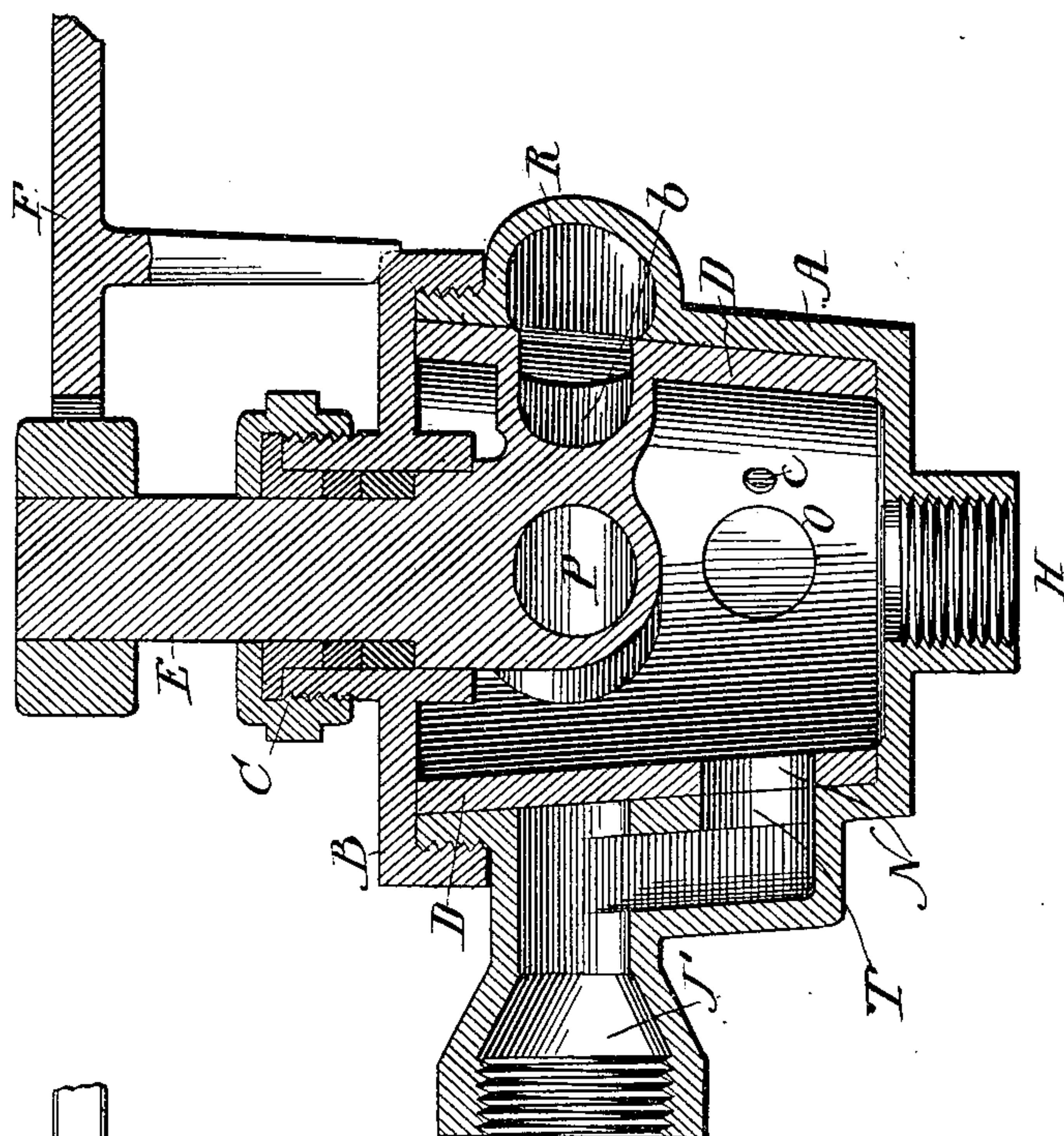
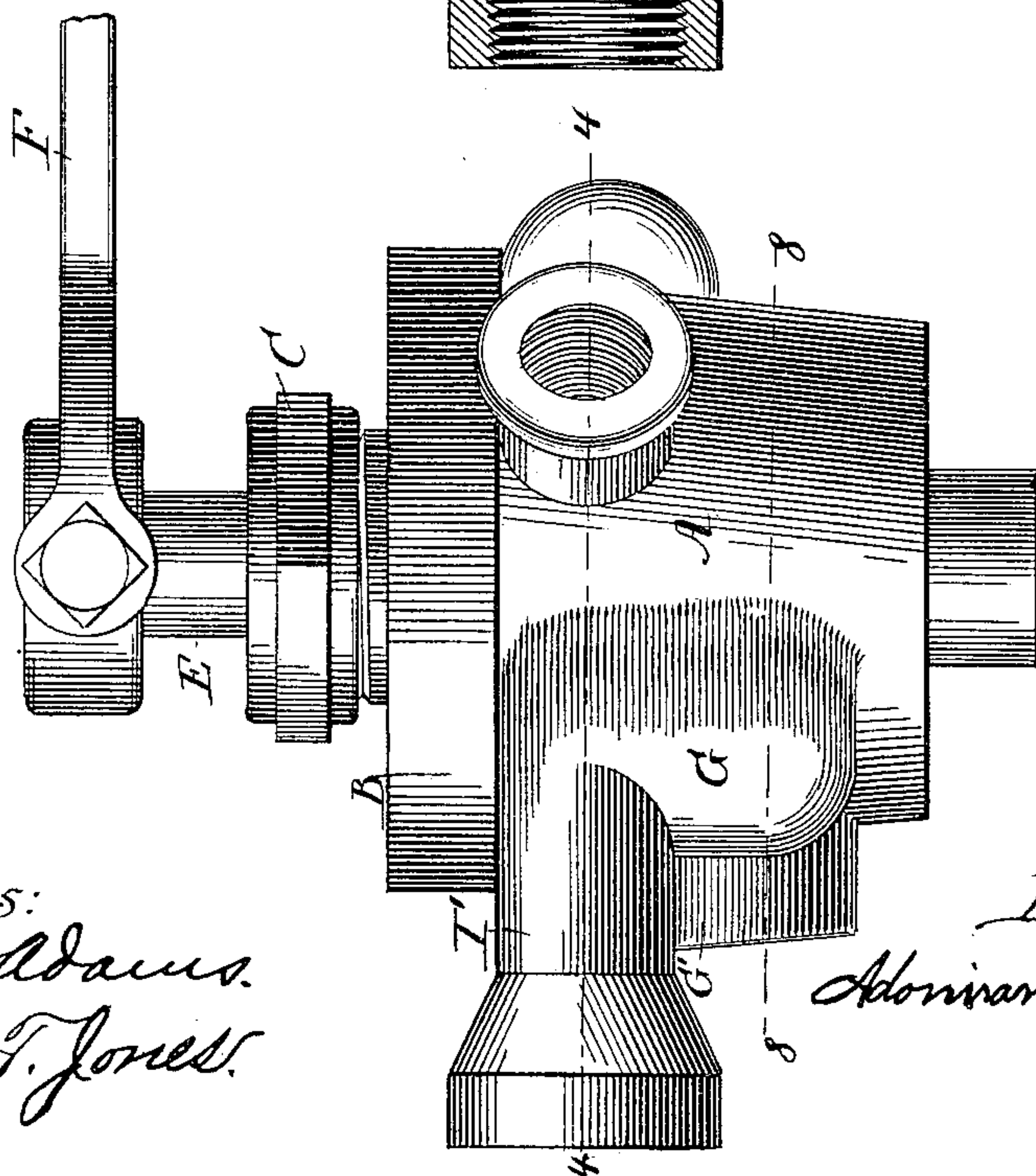


Fig. 1.



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Fig. 4.

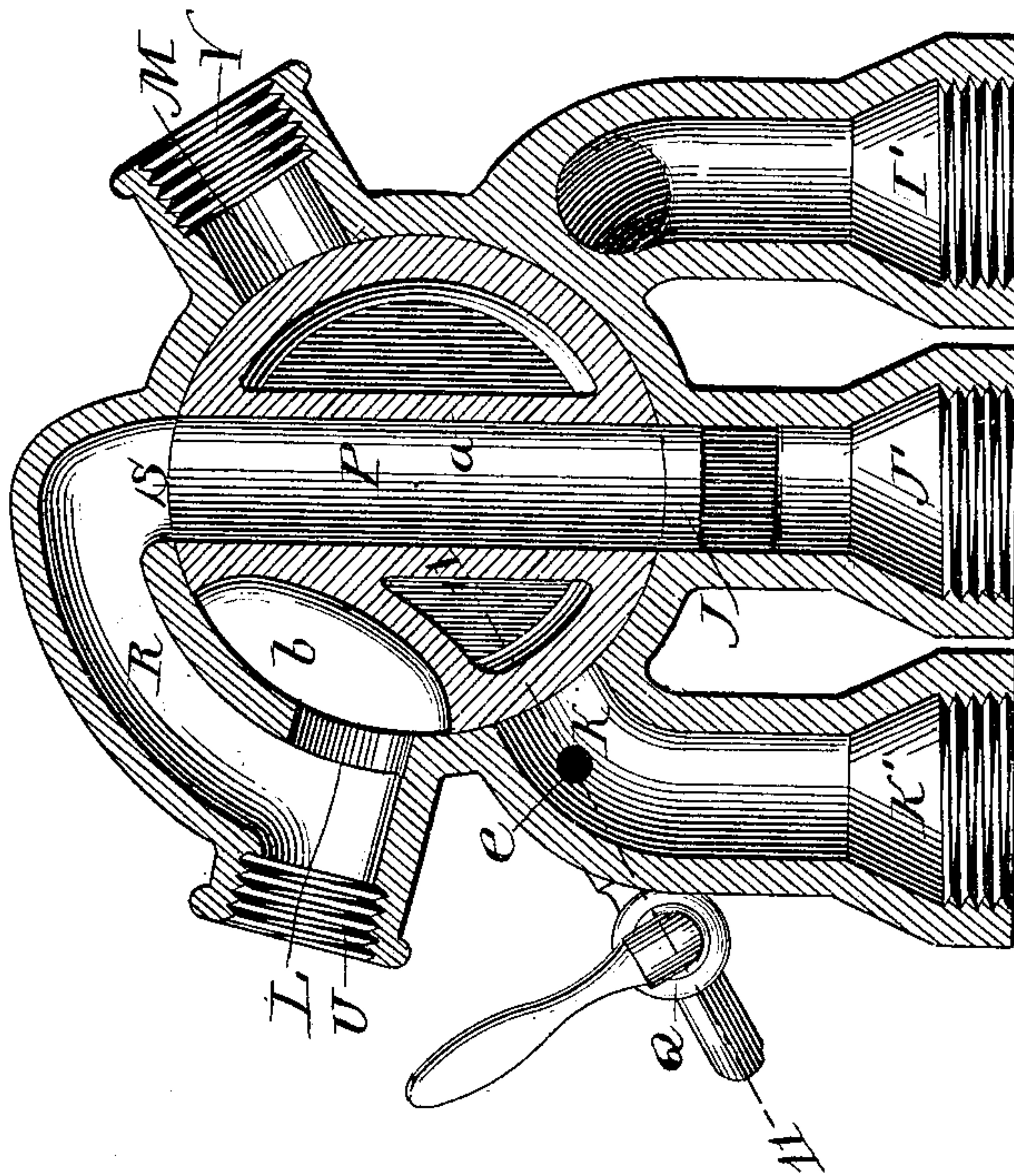
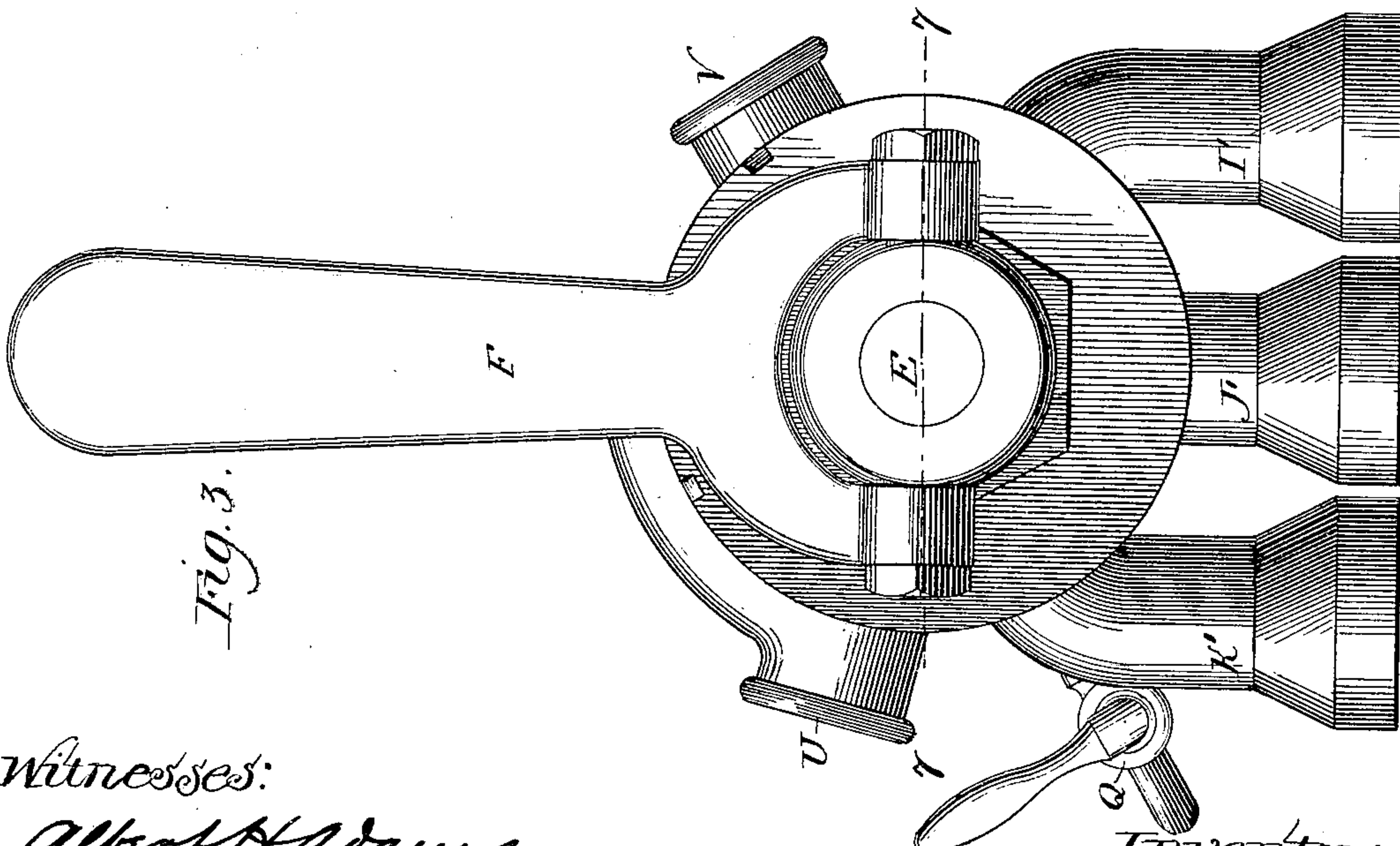


Fig. 3.



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Fig. 6

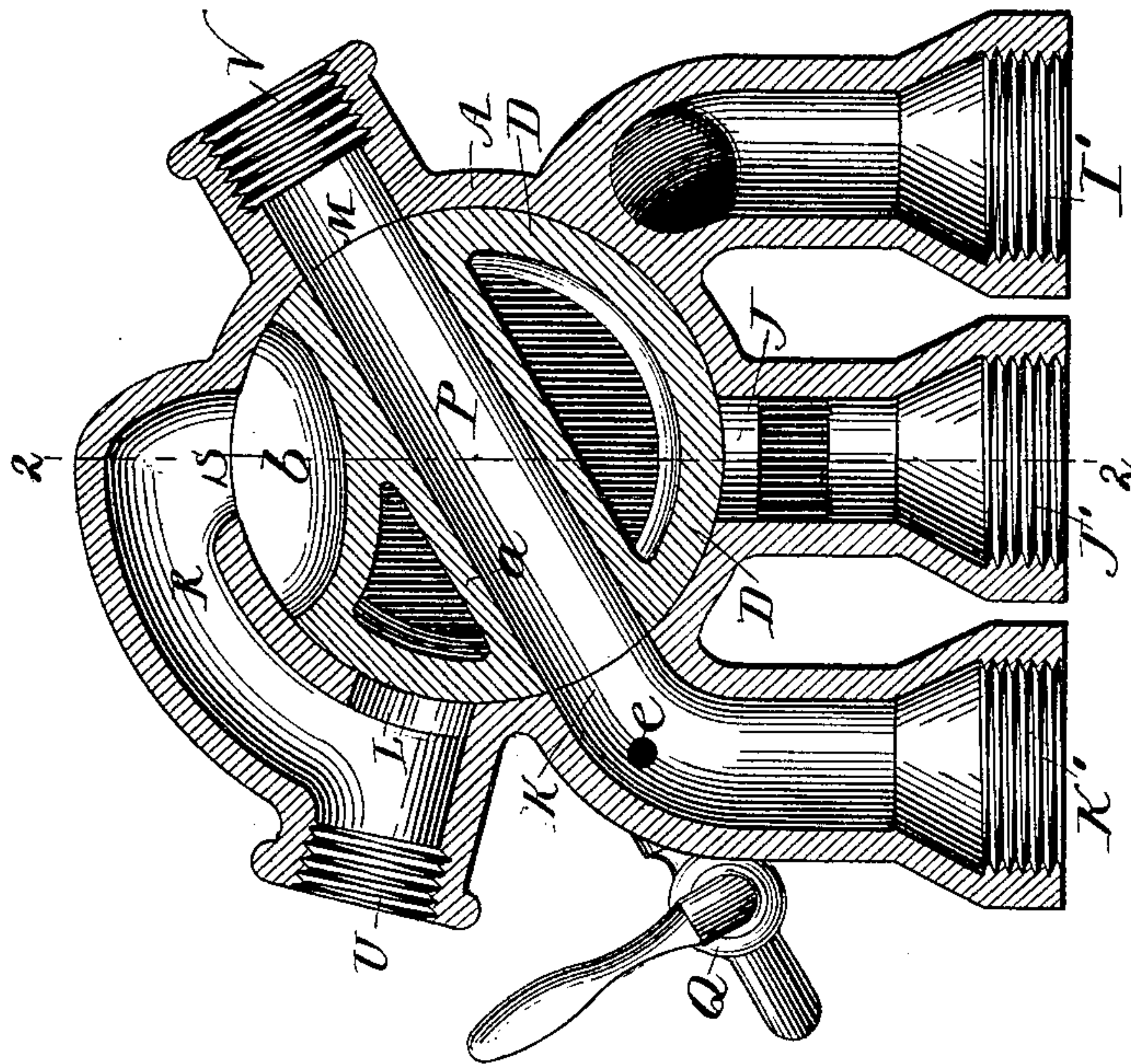
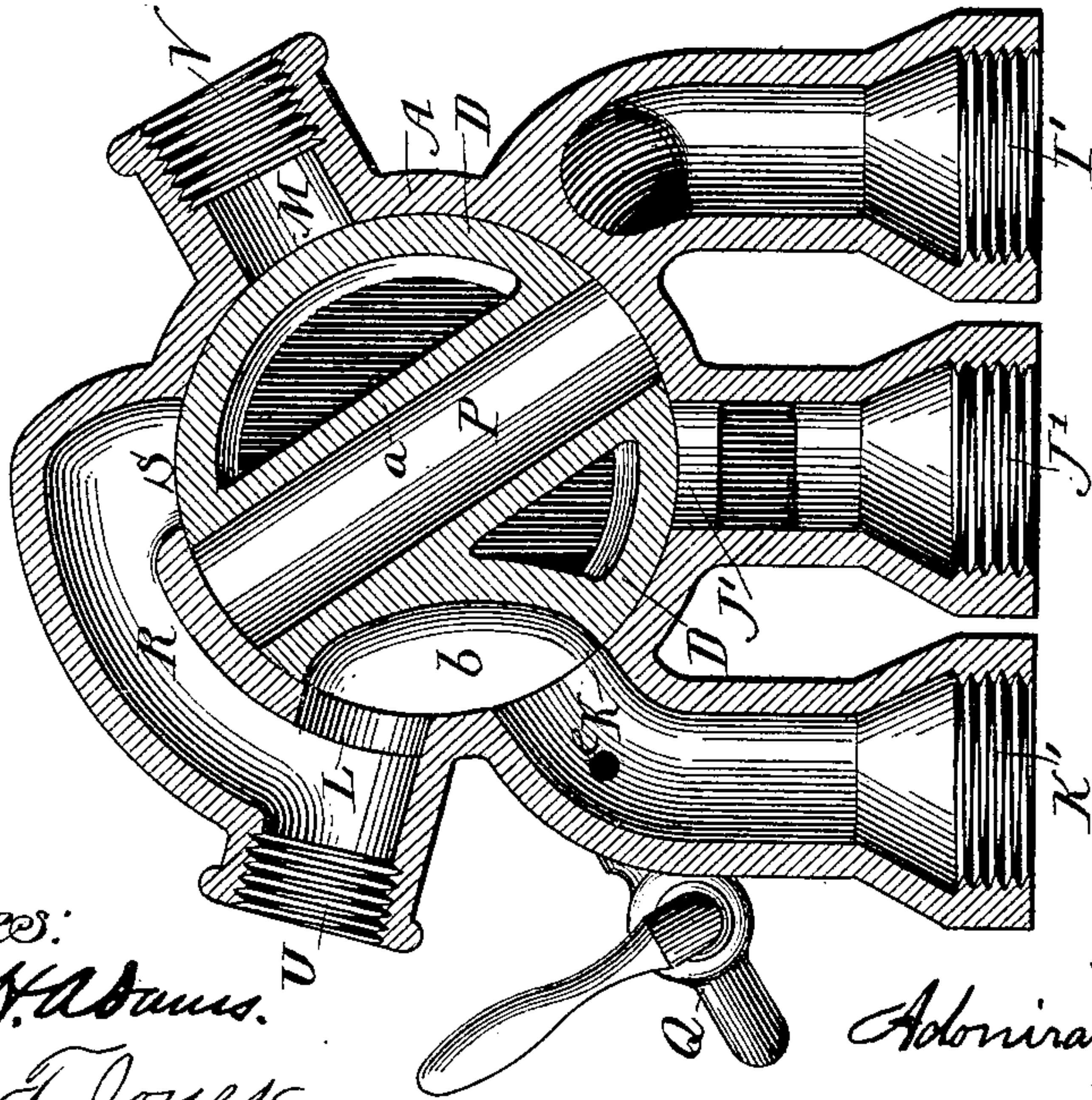


Fig. 5.



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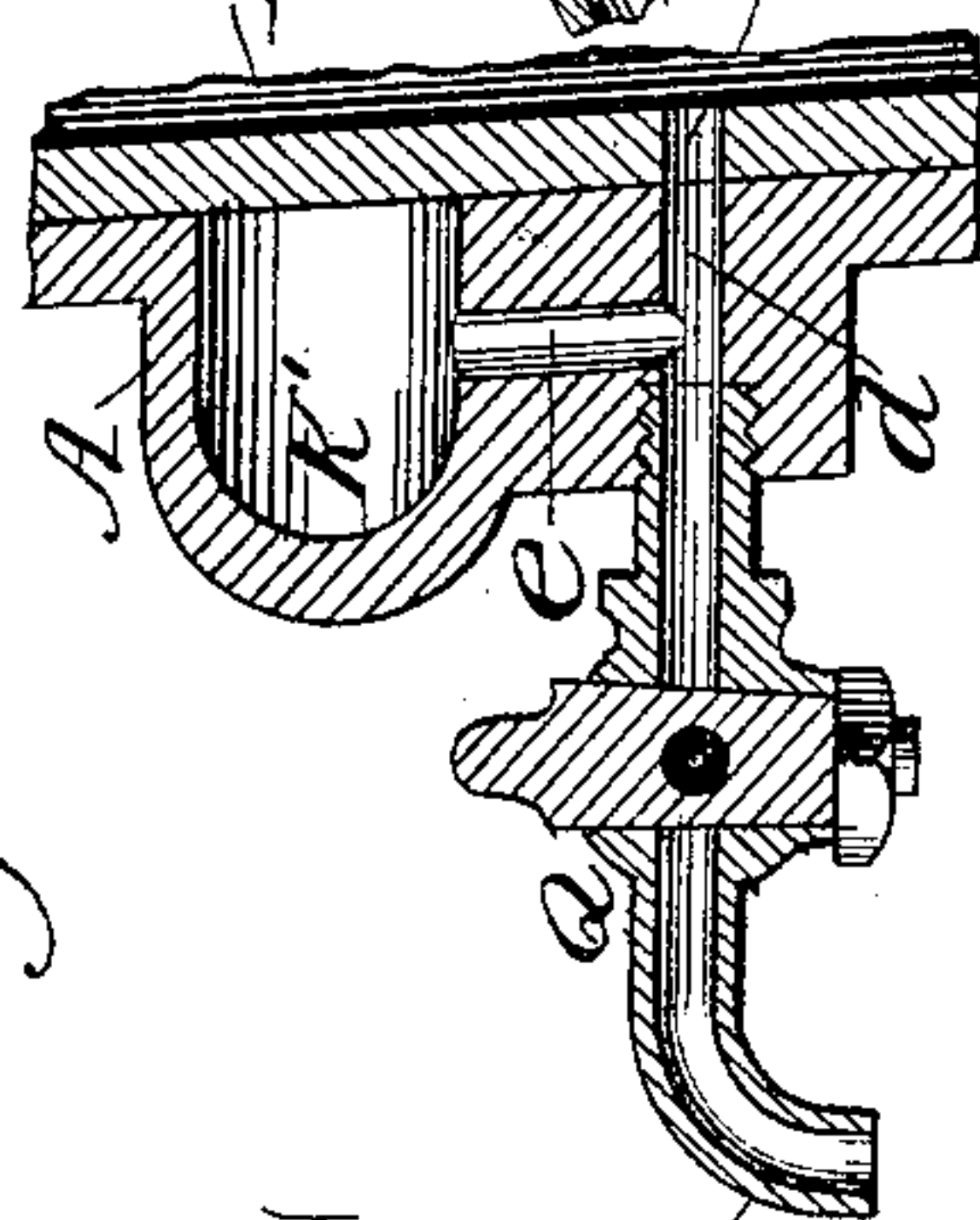
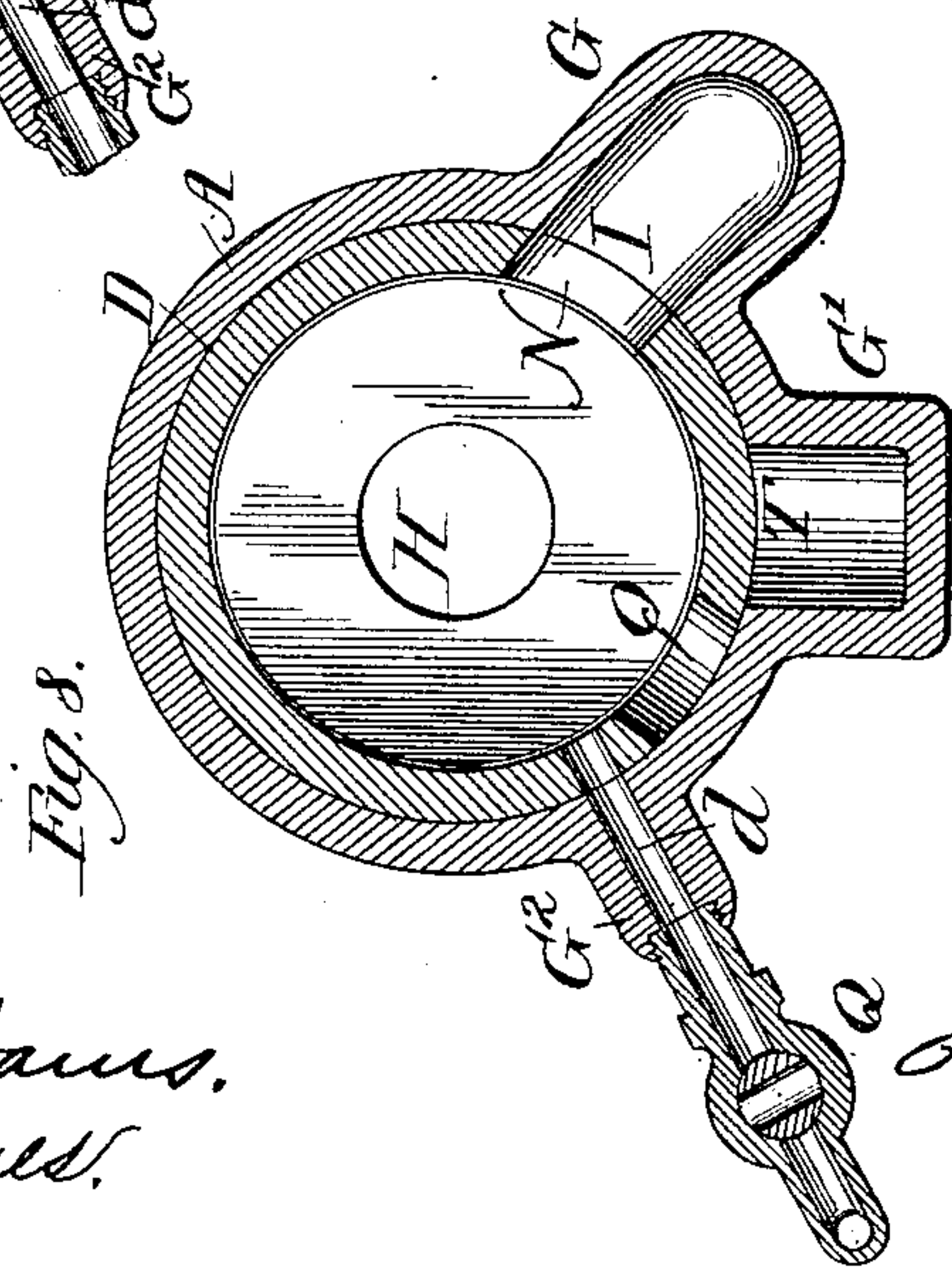
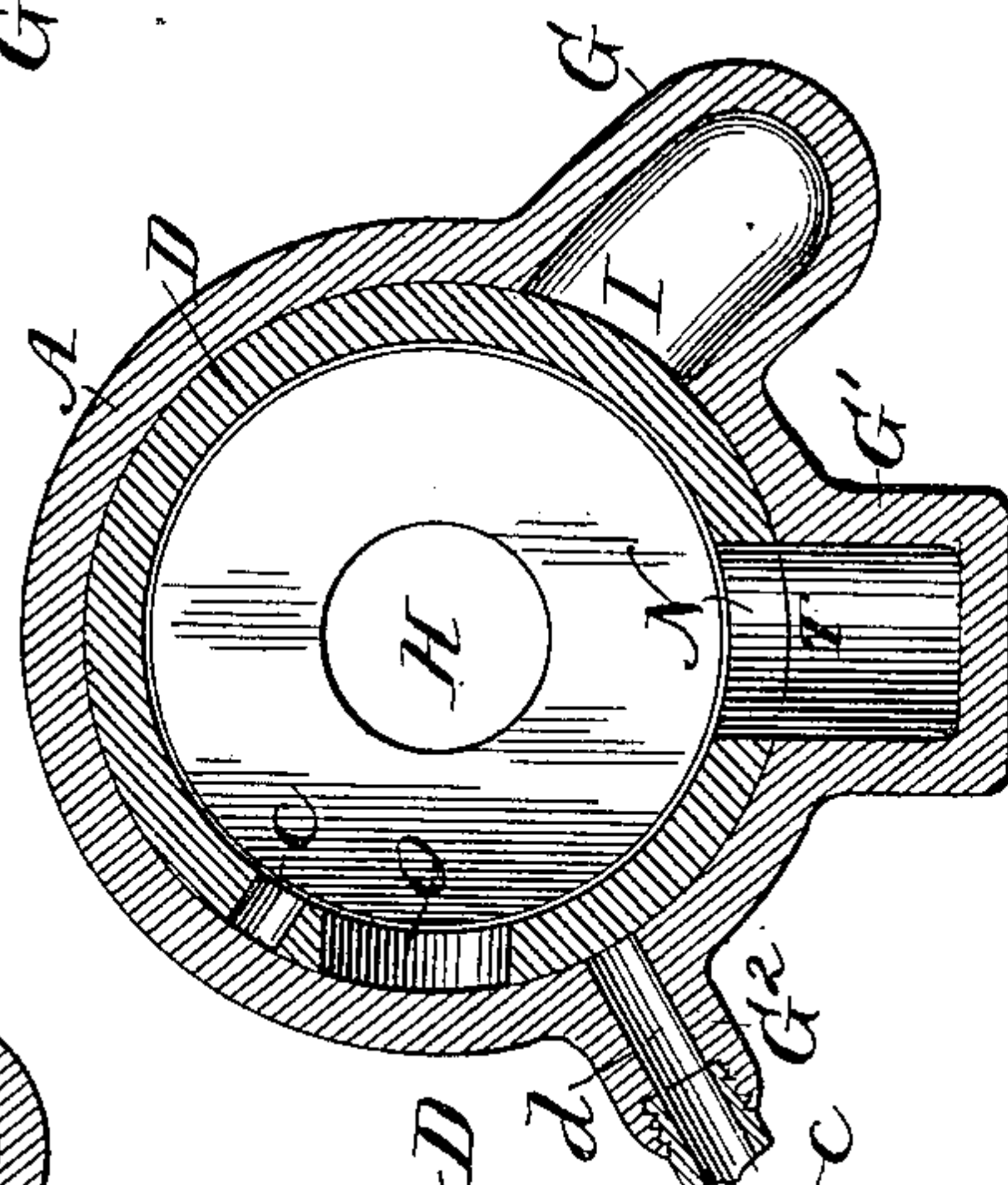
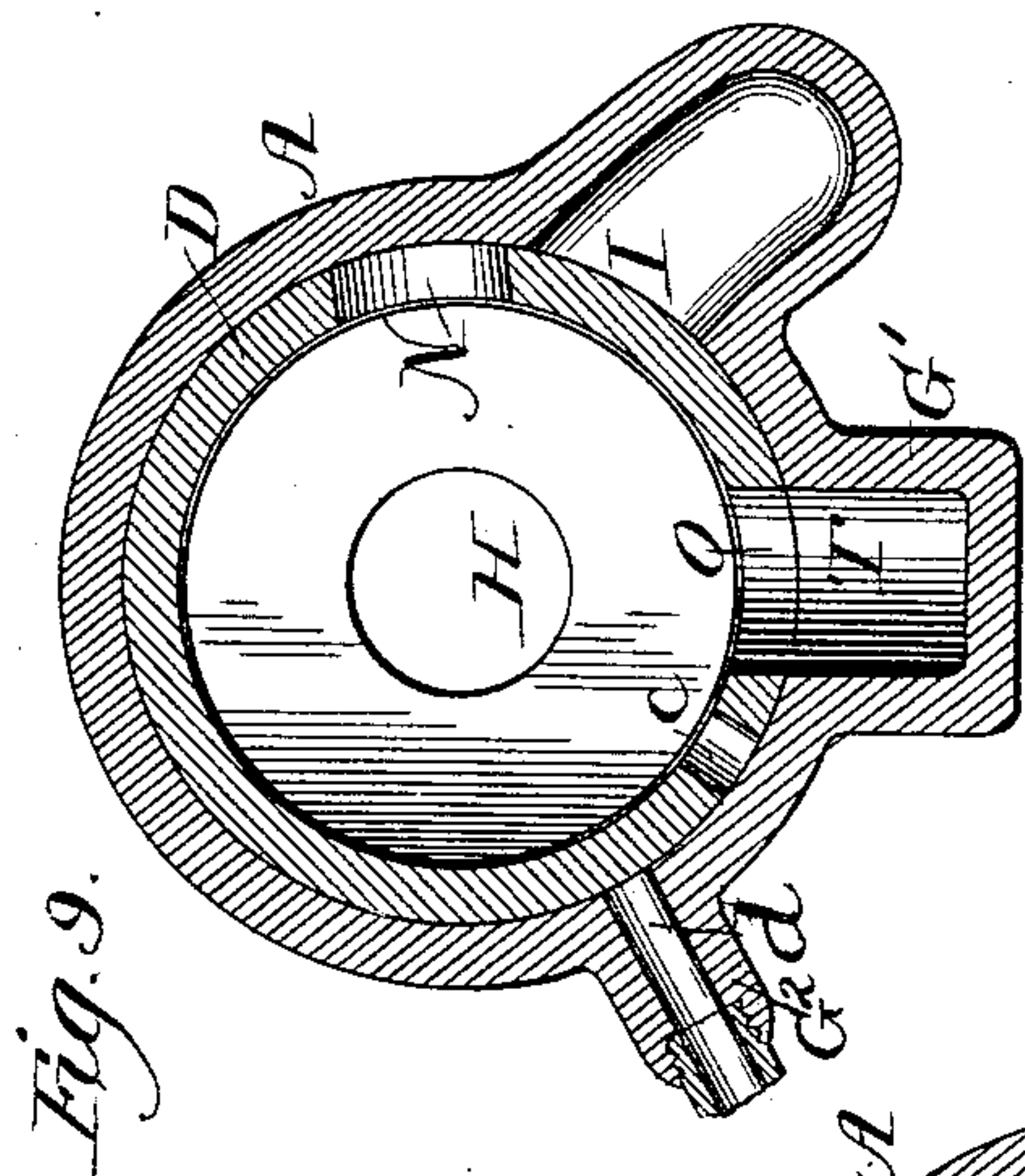
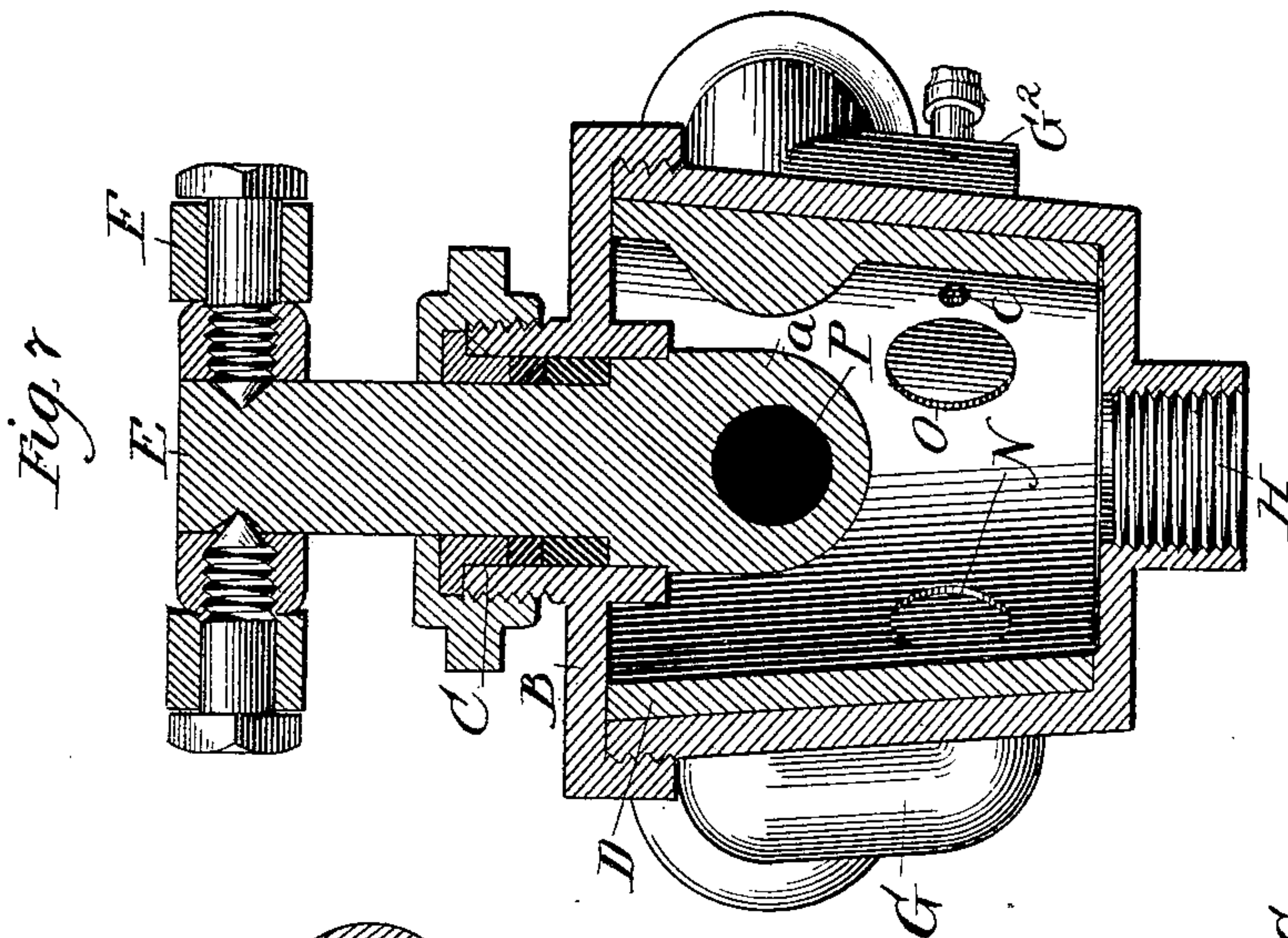
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UNITED STATES PATENT OFFICE.

ADONIRAM J. WEST, OF LAKE VIEW, ILLINOIS.

VALVE FOR FILTERS.

SPECIFICATION forming part of Letters Patent No. 386,677, dated July 24, 1888.

Application filed April 30, 1888. Serial No. 272,348. (No model.)

To all whom it may concern:

Be it known that I, ADONIRAM J. WEST, residing at Lake View, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Valves for Filters, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation. Fig. 2 is a vertical section at line 2 2 of Fig. 6. Fig. 3 is a plan. Fig. 4 is a horizontal section at line 4 4 of Fig. 1. Fig. 5 is the same as Fig. 4, except that the valve is in a different position. Fig. 6 is the same as Fig. 5, except that the valve is in a different position. Fig. 7 is a vertical section at line 7 7 of Fig. 3, the valve being in the position shown in Fig. 4. Fig. 8 is a section at line 8 8 of Fig. 1, the valve being in the position shown in Fig. 4. Fig. 9 is a section the same as Fig. 8, except that the valve is in the position shown in Fig. 5. Fig. 10 is a section the same as Fig. 8, except that the valve is in the position shown in Fig. 6. Fig. 11 is a detail, being a section at line 11 of Fig. 4.

It is common to introduce water under pressure to filters, to provide for changing the course of the water for the purpose of washing and rewashing the filter when it becomes foul, and to provide for controlling the discharge of the filtered water. With the present construction these several operations require a number of valves, which are expensive, and mistakes are liable to occur in their use.

The object of my invention is to provide a single valve by which all of the operations mentioned can be controlled, which I accomplish as illustrated in the drawings and hereinafter described. That which I claim as new will be pointed out in the claims.

In the drawings, A represents a valve-chamber.

B is a cap.

C is a stuffing-box.

D is a hollow valve.

E is the valve stem, which is connected with the wall of the valve by a hollow cross bar, *a*, which is cast with the valve D.

b is a recess or passage in the wall of the

valve, the inner wall of which is formed of metal cast with the valve.

F is a lever for operating the valve.

The valve-chamber is provided with an inlet-passage, H, which communicates with the interior of the valve. The valve-chamber is also provided with seven outlet-passages, three of which, I J K, communicate with short tubes I' J' K', which may be cast with the chamber A, and are designed to be connected with pipes which lead to the filter. The outlet L is for the discharge of dirty water when the filter is washed. The outlet M is for the discharge of the filtered water. The wall of the valve is provided with two openings, N O.

P is a passage from one side of the valve to the other through the bar *a*.

c is a small hole in the wall of the valve.

G is a boss on the outside of the wall of the chamber A, through which boss there is a passage leading to the short pipe I'.

G' is another boss, through which there is a passage which communicates at its upper end with the short pipe J', and at its lower end with an opening, T, in the wall of the chamber, being one of the seven openings above mentioned.

There is a third boss, G², through which there is a passage, *d*, and to which a try-cock, Q, is attached. There is a passage, *e*, through this boss G², the upper end of which communicates with the tube or passage K', and the lower end communicates with the passage *d* through the boss G².

R is a passage on the outside of the valve-chamber, which communicates at one end with an opening, S, in the wall of the chamber, being one of the seven openings mentioned.

U is adapted to receive a pipe to convey away dirty water after washing the filter.

V is adapted to receive a pipe to convey away filtered water.

The operation is as follows: Suppose the filter to have been used for some time and to have become foul. The valve is then to be brought into the position shown in Fig. 4, in which the hole N will register with the hole I, and the passage P will register at one end with the hole J and at the other end with the hole S, and the hole *c* will register with the inner end of the passage *d*. Other communication

from the valve to the filter being then cut off, water will then flow through a pipe, I', and a pipe connected therewith, leading to the bottom of the filter, into which the water will be
 5 discharged, and will flow to the top of the filter and out through the tube J' and the passages P and R, and be discharged wherever desired through U. At the same time a little water will flow through holes c, passages d and e, and a
 10 pipe connected with K' to the strainer in the filter and be discharged, as before described. Such washing will remove nearly all the dirt from the filter.

The process of rewashing can be performed
 15 by bringing the valve into the position shown in Fig. 5, in which the opening O will register with the opening T, and water will flow through J' and the tube connected therewith, which leads to the filter, entering the top of the filter, passing down through the sand and up
 20 through the strainer and the strainer-pipe to the pipe K', and out through passage b and hole L, and be discharged through U. At this time communication from the valve to the filter through I and I' will be closed.

When the valve is in the position shown in Fig. 6, the opening N will register with the hole T, and passage P will register at one end with passage K and at the other end with the
 30 passage M, and then water will pass through the valve and through the pipe which leads from J' to the filter, being delivered at the top thereof, and the filtered water will be discharged through the passages K, P, and M, and other communication between the valve
 35 and filter will then be cut off. Filtered water can be drawn through the passage e and try-cock Q, for the purpose of ascertaining its purity. The arrangement of the passages is
 40 such that the valve cannot be brought into any position which will allow dirty water from the filter to pass through the passage P to the discharge-passage M for filtered water.

What I claim as new, and desire to secure by
 45 Letters Patent, is as follows:

1. A valve-chamber provided with an inlet and with outlets I J K upon one side, which communicate with short tubes I' J' K', an outlet, T, located below the outlet J, which outlet
 50 T communicates with a passage which leads to the tube J', an outlet, L, for the discharge of dirty water when the filter is washed, an outlet, M, for the discharge of filtered water, an outlet, S, and a passage, R, communicating at one end with the duct S and at the other end
 55 with the outlet U, in combination with a hollow valve provided with two openings, N O, either of which can be made to register with the outlet T, a passage, P, through the valve, which passage P can be made to register with outlets J and S or with outlets
 60 K and M, and a recess or passage, b, which communicates at one end with a pipe, K, and at the other end with the outlet L, substantially as and for the purpose specified.

2. A valve chamber provided with an inlet and with outlets I J K upon one side, which communicate with short tubes I' J' K', an outlet, T, located below the outlet J, which outlet
 70 T communicates with a passage which leads to the tube J', an outlet, L, for the discharge of dirty water when the filter is washed, an outlet, M, for the discharge of filtered water, an outlet, S, and passage R, communicating at one end with the duct S and at the other
 75 end with the outlet U, and the passage d through the boss G, one end of which passage d communicates with duct c when it is brought to the proper position, and the other end communicates with the try-cock Q, in combination
 80 with a hollow valve provided with openings N, O, and c, the openings N O being so arranged that either one can be made to register with the outlet T, and the opening c being so arranged that it can be made to register with
 85 the passage d, and passage P through the valve, which passage P can be made to register with the two outlets J and S, or with the two outlets K and M, and a recess or passage, b, which communicates at one end with the
 90 pipe K and at the other end with the outlet L, substantially as and for the purpose specified.

3. A valve-chamber provided with an inlet and with outlets I J K upon one side, which
 95 communicate with short tubes I' J' K', an outlet, T, located below the outlet J, which outlet T communicates with a passage which leads to the tube J', an outlet, L, for the discharge of dirty water when the filter is washed, an
 100 outlet, M, for the discharge of filtered water, an outlet, S, a passage, R, communicating at one end with the duct S and at the other end with the outlet U, and the passage d through the boss G, one end of which passage d communicates with duct c when it is brought to
 105 the proper position, and the other end communicates with the try-cock Q, and passage e in the boss G, the upper end of which passage e communicates with the tube or passage K
 110 and the lower end with the passage d, in combination with a hollow valve provided with openings N, O, and c, the openings N O being so arranged that either one can be made to register with the outlet T, and the opening c
 115 being so arranged that it can be made to register with the passage d and passage P through the valve, which passage P can be made to register with the two outlets J and S, or with the two outlets K and M, and a recess or pas-
 120 sage, b, which communicates at one end with the pipe K and at the other end with the outlet L, substantially as and for the purpose specified.

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Witnesses:

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