

No. 883,383.

PATENTED MAR. 31, 1908.

M. M. BORDEN.
AUTOMATIC FLUID CONTROLLER.

APPLICATION FILED AUG. 31, 1907.

2 SHEETS—SHEET 1.

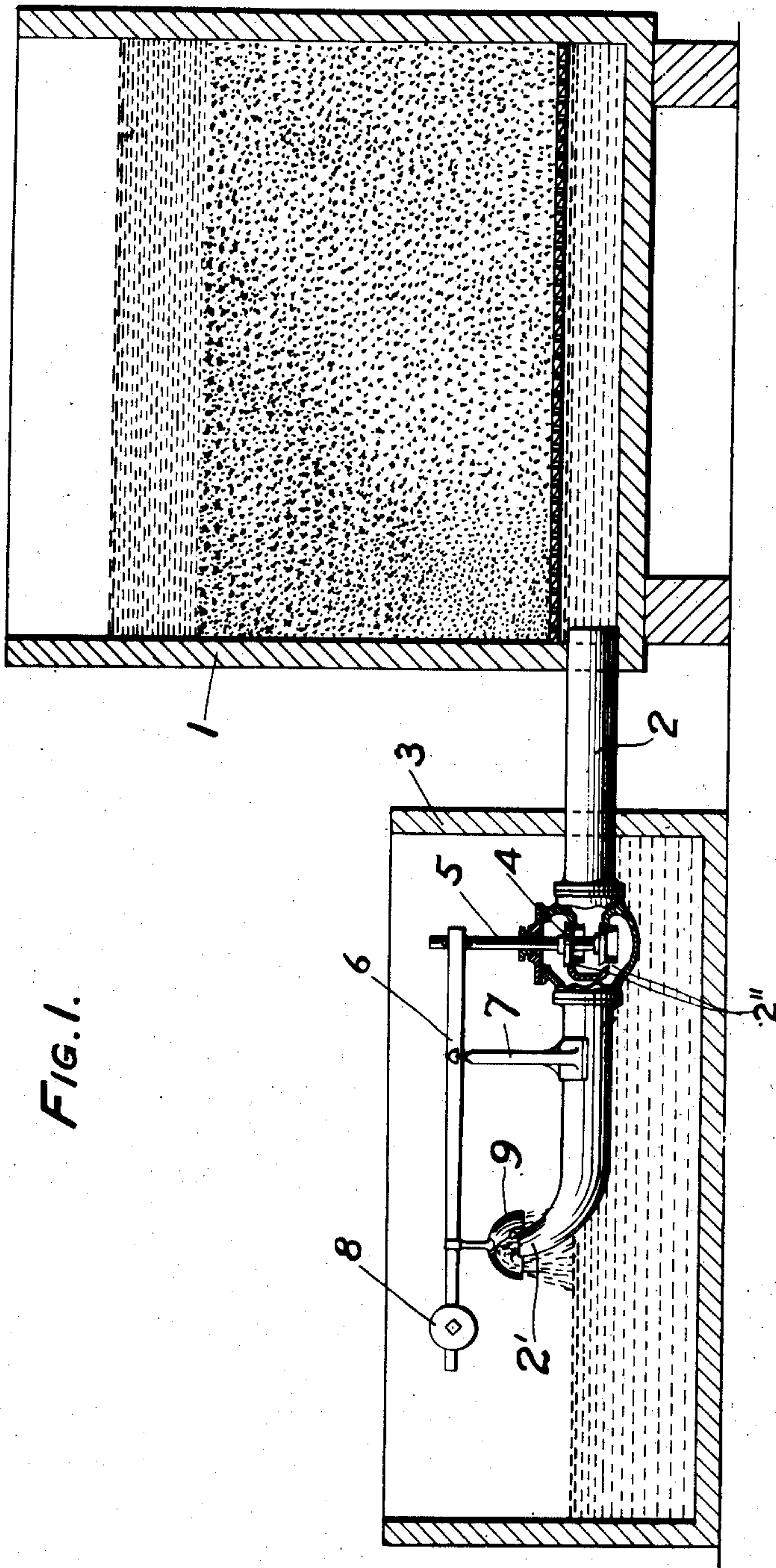


Fig. 1.

WITNESSES:

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2 SHEETS—SHEET 2.

FIG. 2.

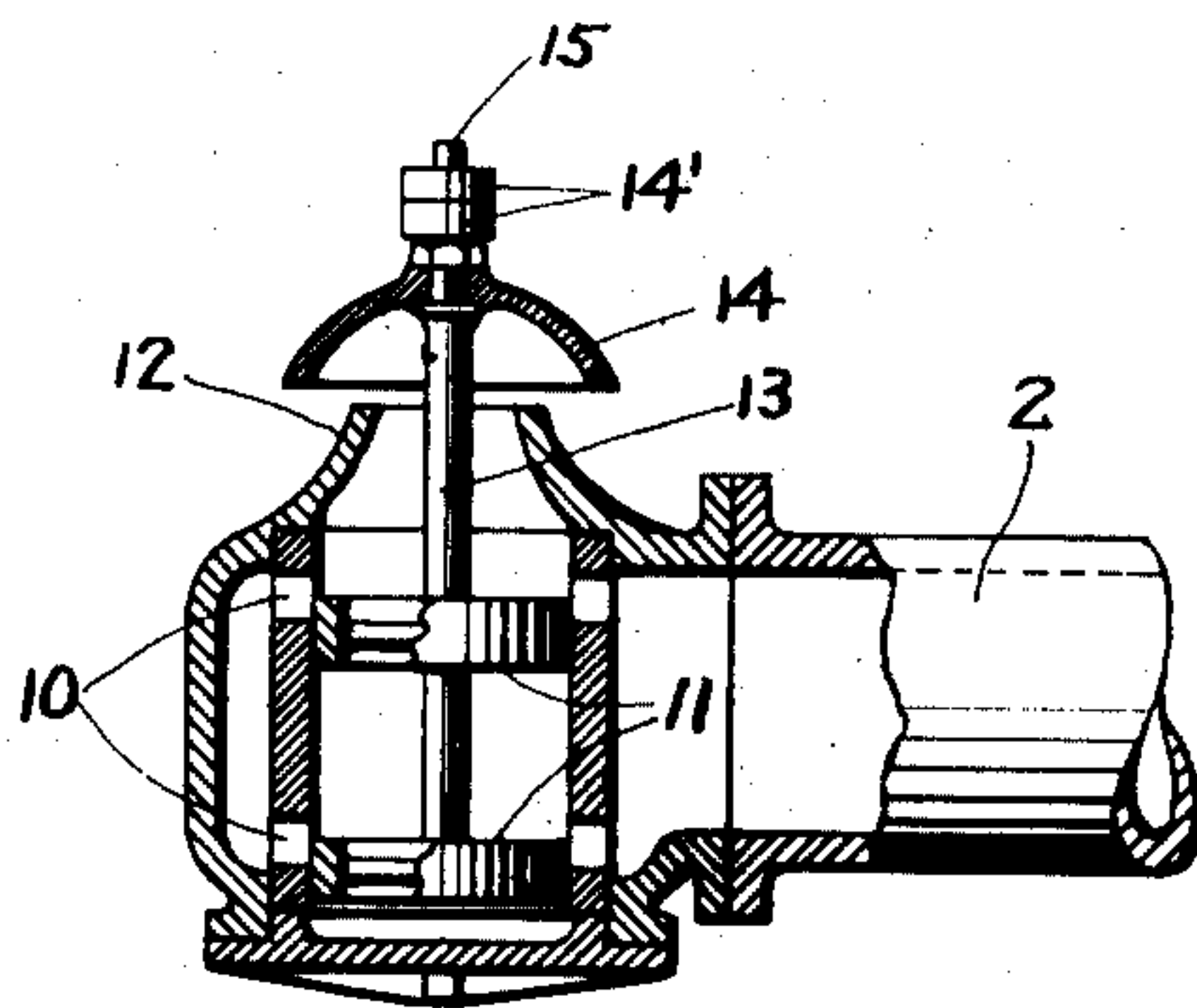


FIG. 3.

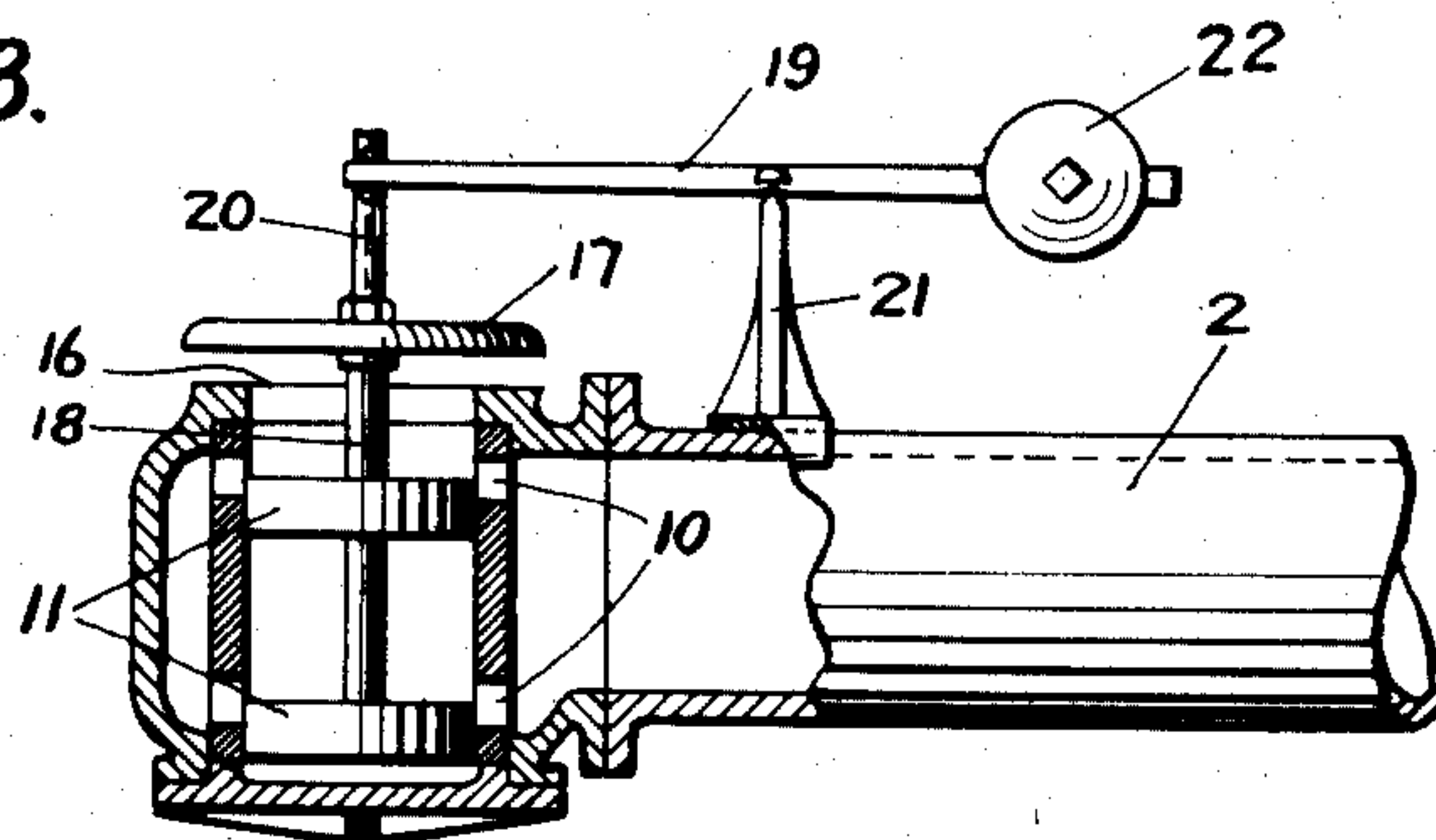
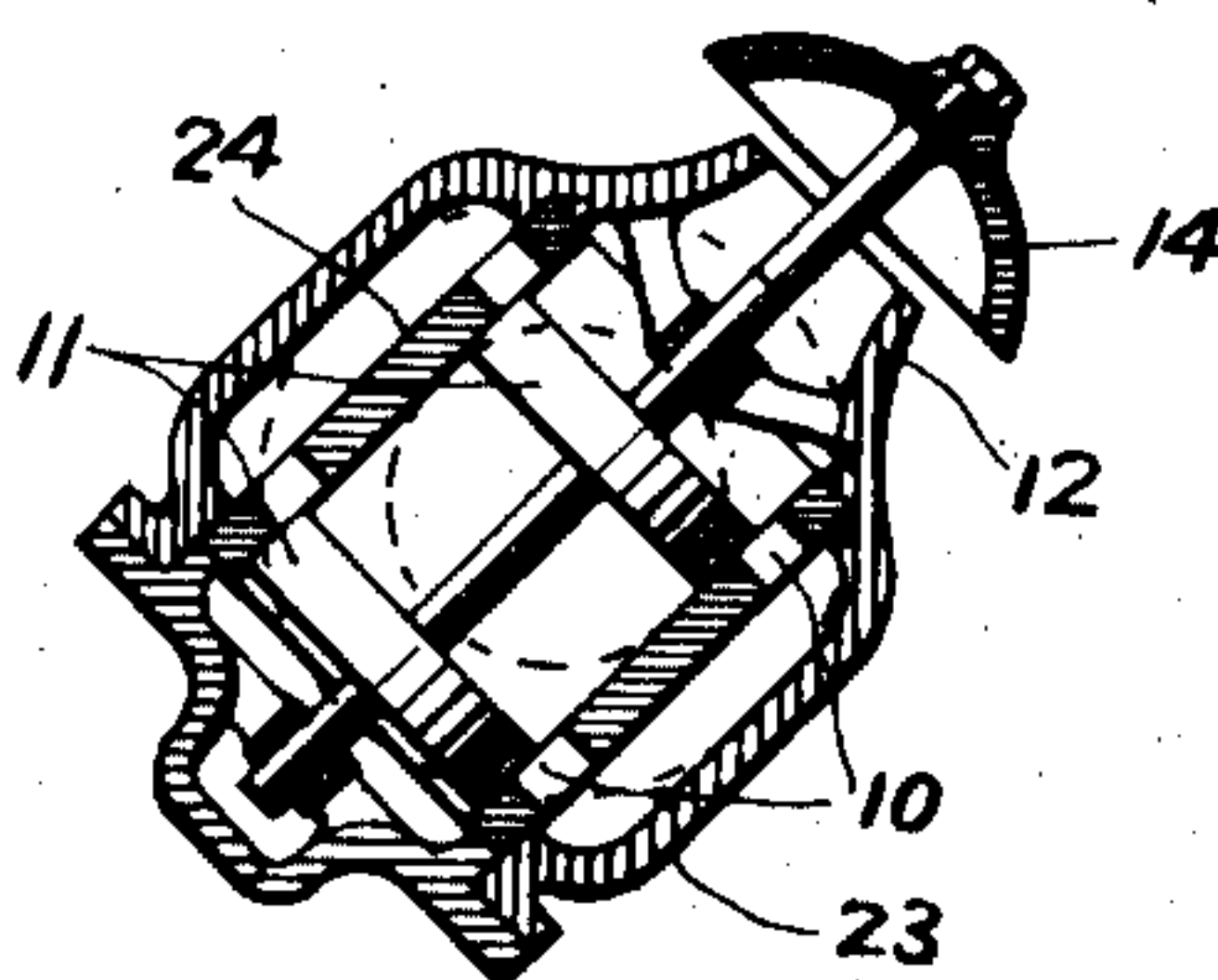


FIG. 4.



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UNITED STATES PATENT OFFICE.

MORO M. BORDEN, OF COLLINGSWOOD, NEW JERSEY, ASSIGNOR TO SIMPLEX VALVE & METER COMPANY, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

AUTOMATIC FLUID-CONTROLLER.

No. 883,383.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed August 31, 1907. Serial No. 390,863.

To all whom it may concern:

Be it known that I, MORO M. BORDEN, a citizen of the United States, residing at Collingswood, in the county of Camden and State of New Jersey, have invented certain Improvements in Automatic Fluid-Controllers, of which the following is a specification.

This invention relates to mechanism for automatically regulating the flow of a fluid to a predetermined rate. Its leading purpose is to provide improved means for controlling the flow of water from a filter so that its rate shall remain the same throughout the usual variations in head due to irregularities in action. The characteristic construction comprises a conduit controlled by a valve which is subject to fluid impact induced by the head causing the flow to be regulated.

In the accompanying drawings, Figure 1 is a sectional elevation representing a form of the invention, Fig. 2 is a sectional elevation representing a second form of the invention, Fig. 3 is a sectional elevation representing a third form of the invention, and Fig. 4 is a sectional elevation representing a form of the mechanism in an inclined position to support the weight of the movable parts.

As shown in Fig. 1, the filter 1 discharges through the conduit 2, having the upturned nozzle or restricted outlet 2', into the effluent chamber 3. In the conduit are the ports 2'' controlled by the balanced valve 4 having a stem 5 connected with a balancing lever 6 which is fulcrumed on the bearing 7, the lever having thereon the adjustable poise 8 for counter-balancing the valve. A cup or hood 9 is fixed to the lever above the nozzle 2' in position to receive the impact of fluid discharged therefrom. When the head inducing flow through the conduit is at a minimum the valve is at its maximum opening. As the head rises the impact of the jet discharged through the nozzle against the cup increases, causing the valve to move toward the closed position, whereby the rate of flow is maintained through variations in head.

As shown in Fig. 2, the conduit 2 contains the ports 10 controlled by the balanced valve 11 and discharges through the nozzle 12. A stem 13 connects the valve with a cup or hood 14 placed over or in front of the nozzle so as to receive the impact of liquid therefrom, the desired balance between the force of the impact and the weight of the valve

mechanism being obtained by means of weights 14' held by the stem 15 on the hood. With the minimum head the valve mechanism falls to its lowest limit and opens the ports to the maximum. As the head rises the greater impact of the liquid ejected through the nozzle against the hood moves the latter and the valve to effect a proportionate closure of the ports so as to maintain the rate of flow.

As shown in Fig. 3, the conduit 2, having the ports 10 controlled by the valve 11, discharges through the orifice 16. The orifice is covered by a hood 17 connected to the valve by the stem 18; this valve mechanism being balanced by a lever 19 having a connection 20 therewith, a bearing on the fulcrum 21, and an adjustable counter-poise 22. With the minimum head the valve opens the ports to the maximum and as the head increases the impact against the hood moves the valve mechanism and gradually closes the ports so that the rate of flow is maintained.

As shown in Fig. 4, the desired balance of the valve 11 with the hood 14 may be obtained by inclining the casing 23 and the port cylinder 24, in which it reciprocates, to the angle affording the requisite degree of repose, so that the weight of the valve mechanism will merely overcome the frictional resistance and fall to open the ports 10 with the minimum head and will rise to gradually close the ports with the increasing impact of the liquid escaping through the orifice 12 against the hood 14.

Having described my invention, I claim:—

1. The combination of a conduit, with a valve, means connected with said valve for holding it normally in the open position, a device connected with said means for receiving fluid impact by which said valve is moved toward the closed position, and means for directing a fluid jet against said device.

2. The combination of a valve, mechanism for balancing said valve, said mechanism having a device for receiving fluid impact, and a conduit having an orifice through which fluid is thrown against said device to regulate the position of said valve, said device being exterior to said conduit.

3. The combination of a conduit having a contracted outlet, with a valve in said conduit, a fulcrumed lever connected with said

valve, and a device connected with said lever for receiving the impact of fluid discharged from said outlet.

4. The combination of a filter, an effluent
5 chamber, a conduit leading from said filter to said chamber, said conduit having a contracted outlet, a valve for controlling the flow through said conduit, mechanism for balancing said valve, and a device subject
10 to the impact of fluid discharged through said outlet for regulating the position of said valve.

5. The combination of a conduit having an outlet, a valve for controlling said conduit, and means for receiving the impact of
15 liquid discharged through said outlet and regulating the position of said valve, the

means for receiving the liquid impact being exterior to said conduit.

6. The combination of a conduit having a
20 contracted outlet, a valve for controlling said conduit, and a movable hood which covers said outlet, said hood being connected to said valve so that the movement of said hood by liquid discharged through said out-
25 let moves said valve.

In testimony whereof I have hereunto set my name this 23d day of August, 1907, in the presence of the subscribing witnesses.

MORO M. BORDEN.

Witnesses:

ROBERT JAMES EARLEY,
C. N. BUTLER.