

No. 740,515.

PATENTED OCT. 6, 1903.

E. BENSON.  
FLOAT VALVE.  
APPLICATION FILED JUNE 2, 1903.

NO MODEL.

Fig. 1.

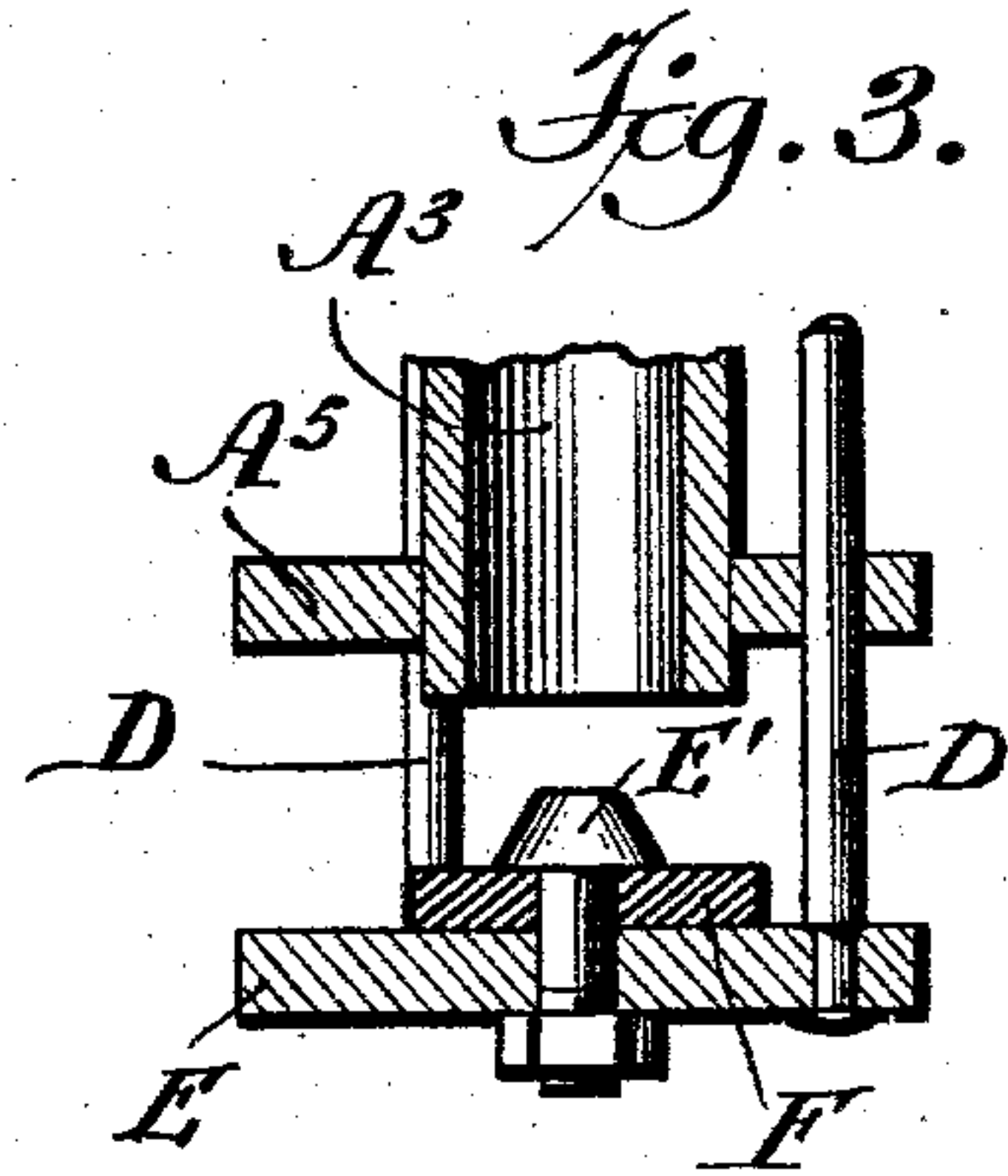
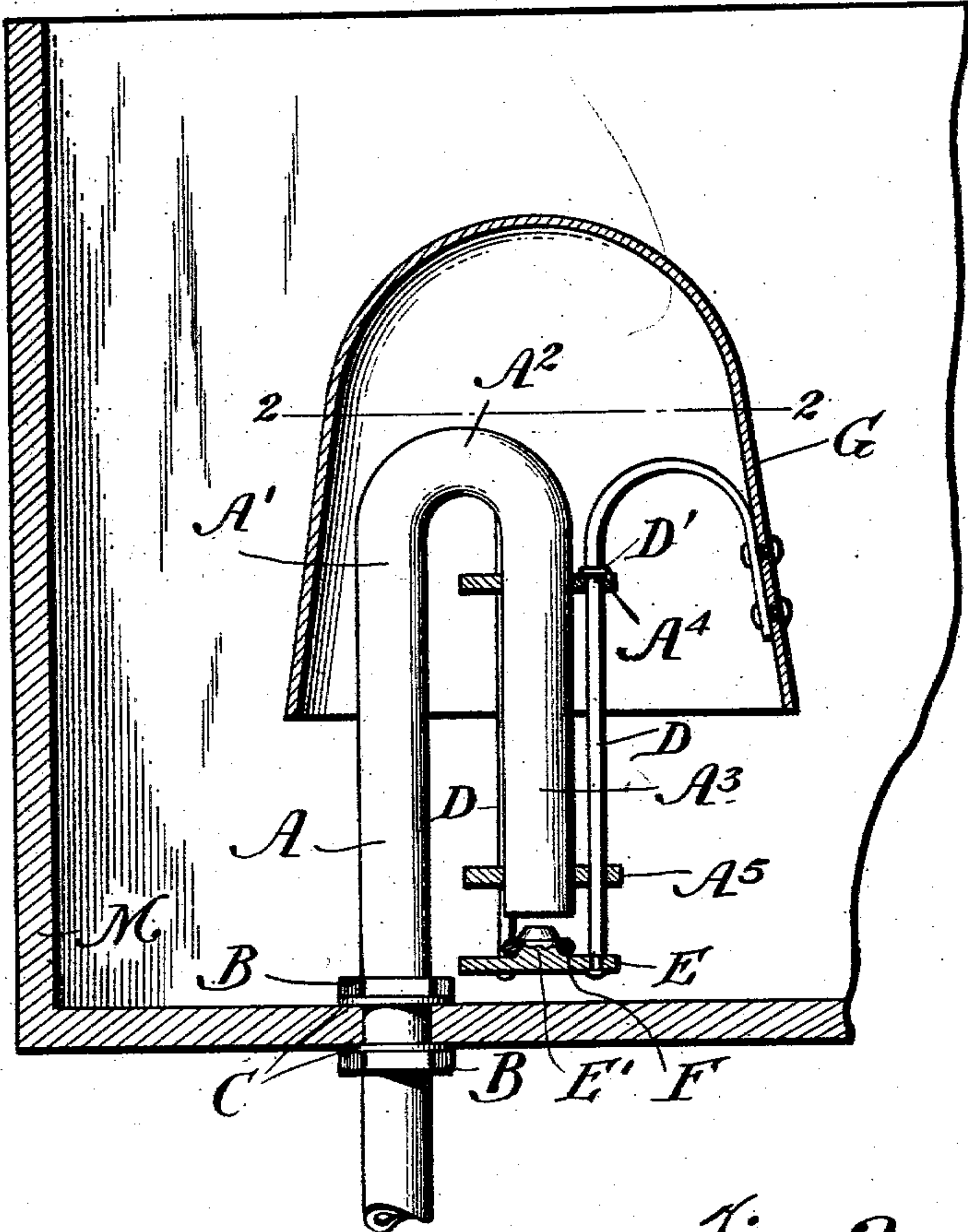
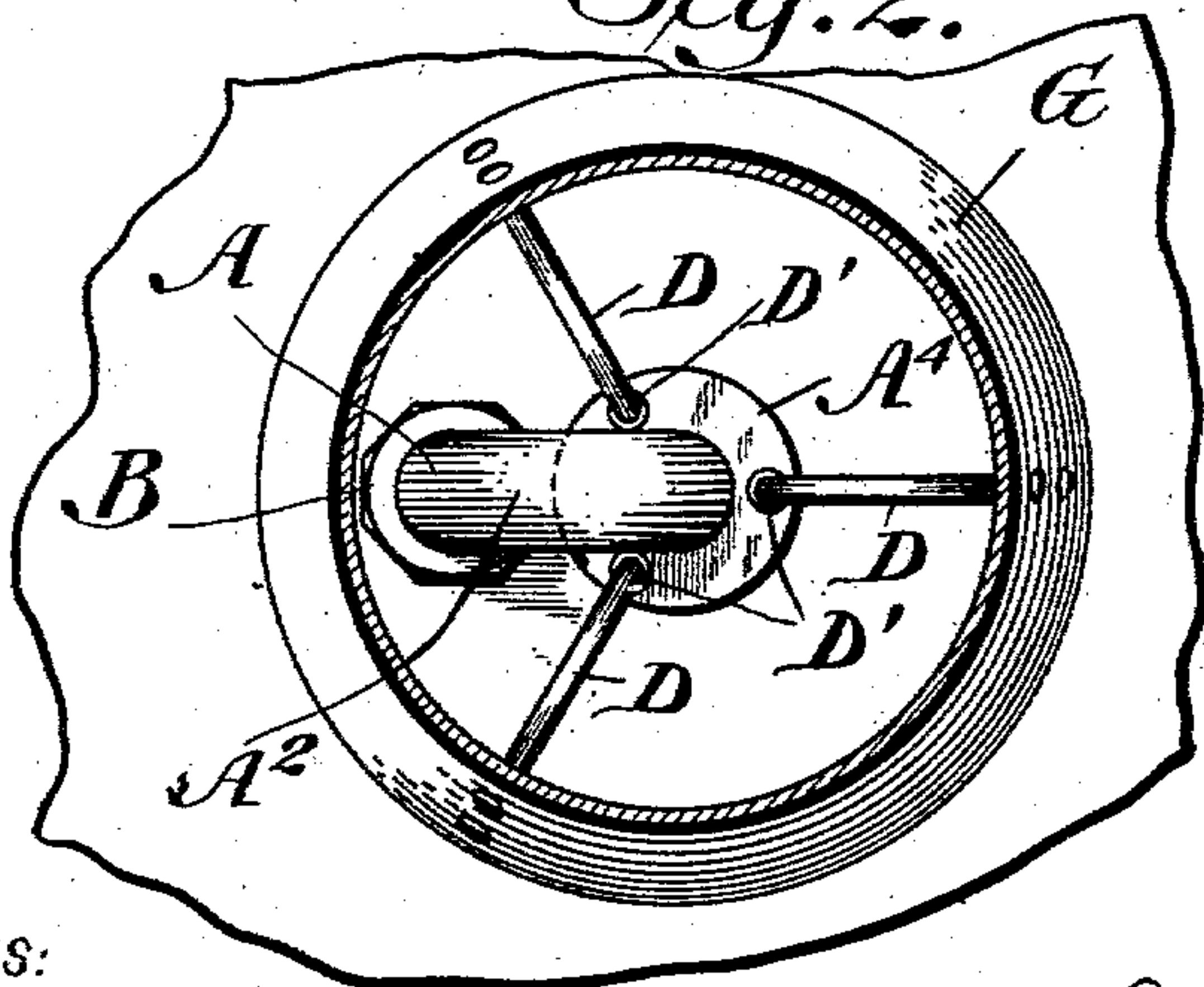


Fig. 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EGBERT BENSON, OF NEW YORK, N. Y.

## FLOAT-VALVE.

SPECIFICATION forming part of Letters Patent No. 740,515, dated October 6, 1903.

Application filed June 2, 1903. Serial No. 159,746. (No model.)

*To all whom it may concern:*

Be it known that I, EGBERT BENSON, a citizen of the United States, residing in the borough of Brooklyn, in the city and State of New York, have invented a certain new and useful Improvement in Float-Valves, of which the following is a specification.

My mechanism is eminently simple. I extend the induction-pipe upward and again downward within the tank and equip the open end of the descending arm to serve as the seat. I use an open-bottomed float connected by three straight vertical wires which play up and down through brackets in the side of the descending arm of the pipe. A valve carried by these wires has a direct rising-and-sinking motion coinciding with that of the float.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a central vertical section, partly in elevation. Fig. 2 is a horizontal section on the line 2 2 in Fig. 1. Fig. 3 is a vertical section of a portion, on a larger scale, showing a modification.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

I bring the induction-pipe A upward through the bottom of the tank M, closing it tightly by nuts B and washers C capable of being tightly adjusted. The pipe, either continuously, or it may be a separate piece tightly joined, if preferred, extends upward, as indicated by A', describes a smooth bend A<sup>2</sup>, and extends downward again, as indicated by A<sup>3</sup>, opening into the tank only a little above the bottom. The lower open end of A<sup>3</sup> is smoothly finished to form a valve-seat. On the descending part A<sup>3</sup> are shrunk or otherwise firmly set two brackets A<sup>4</sup> A<sup>5</sup>, each perforated at three points to receive and loosely guide three straight upright wires D. On each wire is a stop-collar D', adapted to rest on the uppermost bracket A<sup>4</sup>. Above this the wire extends outward and is flattened and properly bent to apply smoothly against the inner face and riveted to a slightly-tapering open-bottomed float G. This float, as it

has no motion except a direct rising-and-sinking movement, may have any dimensions required within the area of the tank. I prefer that it shall be large enough to inclose the ascending part A', as well as the curve A<sup>2</sup> and the descending part A<sup>3</sup> of the induction-pipe, and that its lower end shall extend downward considerably below the curve A<sup>2</sup>.

E is a sufficiently-stout horizontal plate of metal, to which the lower ends of the wires D are firmly fixed by riveting, and E' is a swell in the center of the upper face adapted to enter the open mouth of the pipe A<sup>3</sup> and guide the valve correctly to its seat. The parts should be fitted with a little play to allow of this. The base of the swell E' is contracted to form an annular retaining-groove, into which I shrink a washer F, of soft rubber. This makes a tight contact when the float G rises and draws the valve up against its seat. The rubber clings in the groove around the base of the swell, so that even if there is from any cause a little adhesion the rubber is sure to move downward with the valve when the float sinks and effect the proper opening, conditioned to be again tightly closed when the rise of the water shall again lift the directly-moving float and the correspondingly-moving valve.

One advantage due to the open bottom of my float is the facility it affords for filling with air by supplying it from below by plunging and tilting an inverted cup. This may be done any time if there is a suspicion that the float has leaked or if for any reason the float shall not be sufficiently buoyant.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The form of the float may be varied within wide limits. It may be nearly the size and correspond in form to the whole of the interior of the tank.

A swell corresponding to E' and set in the center of a metal plate corresponding to E may be made in separate pieces and attached by screw-threading. In such case the rubber which forms the seat for the valve may be confined very positively by screwing down the swell. Fig. 3 shows such modification.

Instead of three of the vertical wires two may serve, or even a larger number than three may be used, taking care to provide



corresponding connections to the float and valve and to provide corresponding holes in the guide-brackets.

I claim as my invention—

- 5 1. The combination of the tank M, induction-pipe A A' A<sup>2</sup> A<sup>3</sup> and guide-brackets A<sup>4</sup> A<sup>5</sup> with the open-bottomed vertically-guided float G and the wires D connecting such float to a valve opening downward at the base of  
10 A<sup>3</sup>, all substantially as herein specified.

2. The combination of the tank M, induction-pipe A A' A<sup>2</sup> A<sup>3</sup> and guide-brackets A<sup>4</sup> A<sup>5</sup>, with the open-bottomed vertically-guided

float G and the wires D connecting such float to a rigid plate E having a swell E' and yield- 15 ing washer F, adapted to constitute a self-yielding and close-fitting valve, arranged for joint operation substantially as herein specified.

In testimony that I claim the invention 20 above set forth I affix my signature in presence of two witnesses.

EGBERT BENSON.

Witnesses:

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M. F. BOYLE.