

(No Model.)

J. D. ABRAHAM.
CLOSING DEVICE FOR WATER TANKS.

No. 424,158.

Patented Mar. 25, 1890.

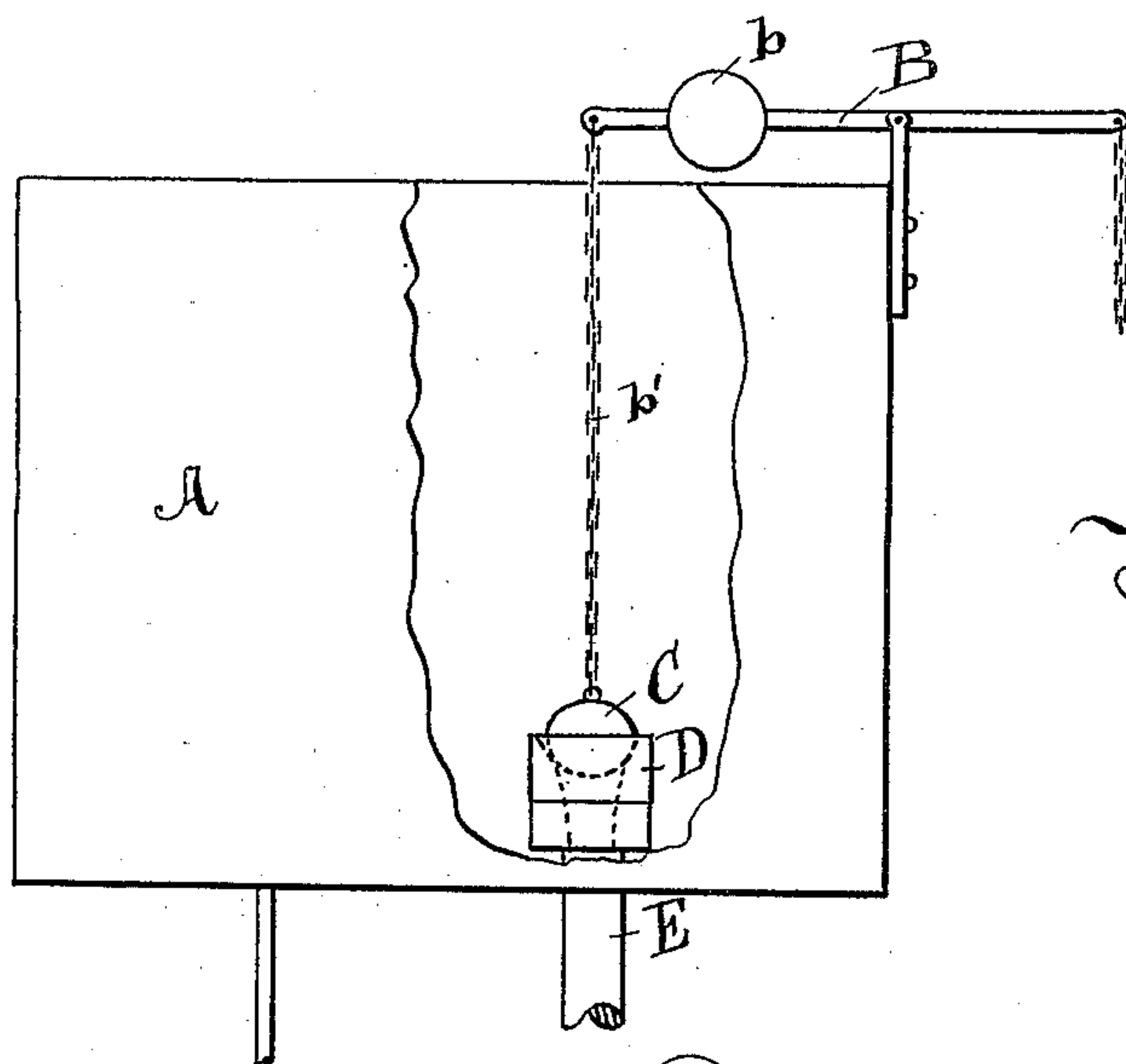


Fig. 1.

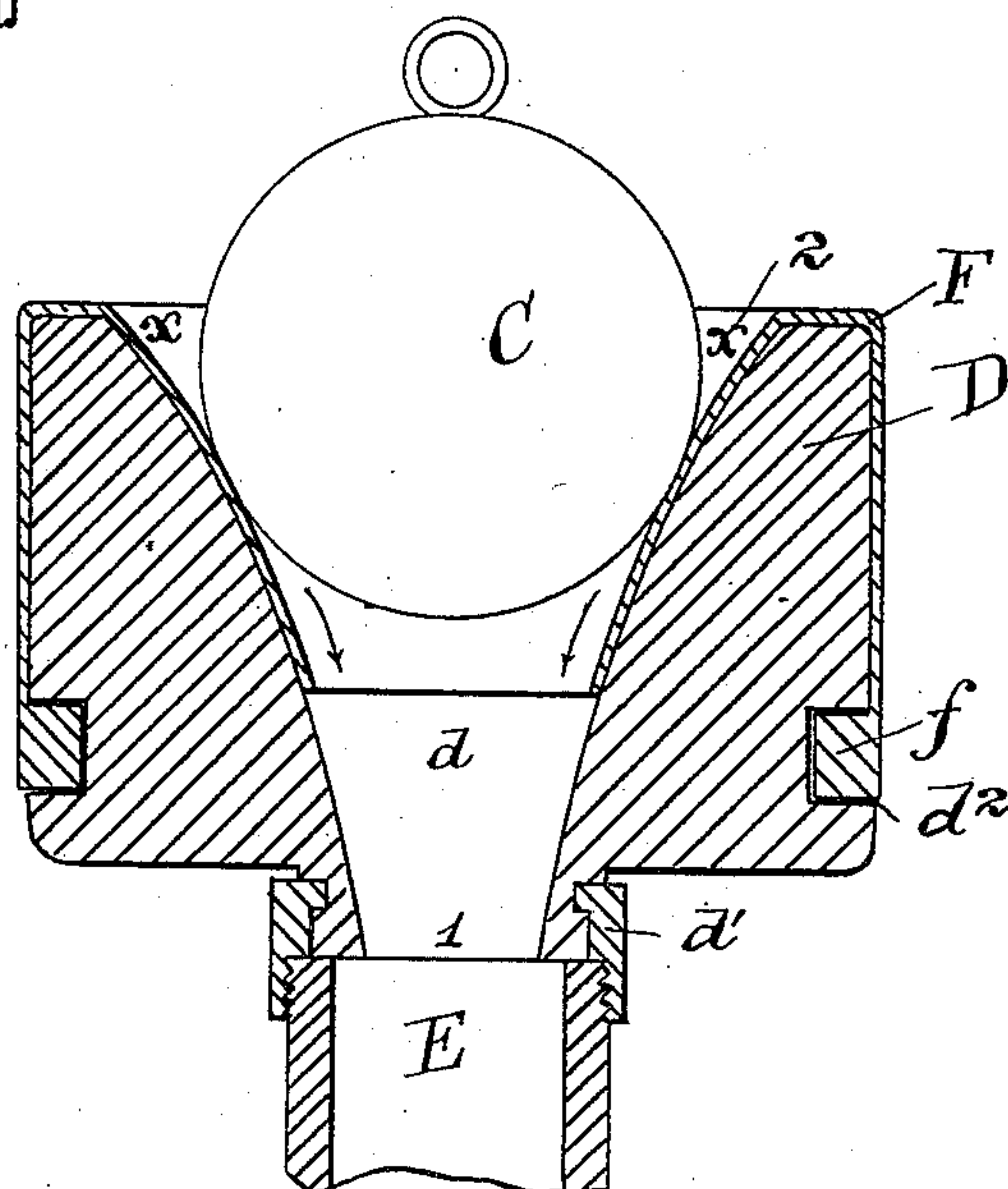


Fig. 2.

Witnesses:
Ed. E. Clement.
Jamb. P. Jacobson. by John D. Abraham
Lewis Abraham
Attorney.

UNITED STATES PATENT OFFICE.

JOHN D. ABRAHAM, OF CINCINNATI, OHIO.

CLOSING DEVICE FOR WATER-TANKS.

SPECIFICATION forming part of Letters Patent No. 424,158, dated March 25, 1890.

Application filed December 24, 1889. Serial No. 334,823. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. ABRAHAM, a citizen of the United States, residing at the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Closing Devices for Water-Tanks, of which the following is a specification.

My invention relates to flushing-tanks for water-closets; and it consists in the provision of means whereby perfect closure shall be secured within the tank for the opening of the outflow-pipe, as hereinafter fully described, illustrated in the drawings, and specifically pointed out in the claims.

Referring to the accompanying drawings; wherein like letters and figures of reference point out similar parts on each figure, Figure 1 represents a water-tank, parts being broken away, showing an outflow-pipe and closing device embodying my invention. Fig. 2 is an enlarged detail sectional view of the upper portion of the outflow-pipe having attached thereto a valve-cup constructed according to my invention.

In the drawings, A is the tank; B, a pivoted arm weighted at one end, as shown at *b*, and supplied at its opposite end with a pull-cord common to such devices. To the weighted end of the arm B is attached a chain *b'*, holding in suspension a float-ball C, which fits into a cup D within the tank, said cup having an opening at its lower end in alignment with the orifice of the outflow-pipe E.

D is a metal cup having an inner circumferential flaring or funnel-shaped opening *d*, inclined outwardly from its lower end 1, where it is connected to the outflow-pipe, to its upper end 2. A vertical section of any portion of the wall of said opening from points 1 to 2 presents the segment of a sphere, as plainly seen in Fig. 2. The cup is provided at its lower end with a coupling-ring *d'*, having a screw-threaded opening for connecting the cup D to the outlet-pipe, although any means for permanent or detachable union thereof will be within the scope and purview of my invention. Surrounding the exterior of the cup, preferably below its median line, is a circumferential rectangular recess *d''*, the purpose of which will be presently set forth.

F represents an elastic covering-shield, preferably composed of rubber. Its lower end is provided with an integral flange *f*, adapted to fit snugly within the circumferential recess *d''*. From thence the covering is extended upwardly and then overturned and inverted into and within the opening *d*, forming a lining therefor a given distance of its length. (See *x x*, Fig. 2.) The junction of the flange *f* within the recess *d''*, in combination with the overturned portion forming the membraneous lining, will maintain the rubber coating in the position described and illustrated. The resiliency of the material will keep the flange *f* closely encircling the cup, while in like manner the inverted portion will be maintained stretched to form a yielding elastic lining.

G represents a metal float-ball suspended from chain *b'*.

From the above description, in connection with the drawings, the nature, object, and practice of my invention will be readily understood by all persons familiar with devices employed for like service.

When the tank is supplied with water and the float-ball G falls within the opening *d* of the cup D, it will be drawn by suction downwardly within said opening and will gradually be forced against the elastic lining-walls *x x*, whereby a complete closure will be effected. As the float-ball is drawn downwardly within the opening it will not only press against the lining *x x* laterally, but will also stretch it vertically, (see indicating-arrows in Fig. 2,) and there will be no risk of any permanent depression being imparted to the lining, for as soon as the ball by elevation is withdrawn upwardly the resiliency of the membraneous lining will cause it to be restored to its normal condition.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The metal cup D, having an interior funnel-shaped opening with lower orifice in diametrical alignment with the opening of the outlet-pipe and connected thereto by suitable coupling, said cup having an exterior circumferential recess *d''*, into which is inserted the flange *f* of an elastic covering extending upwardly outside of said cup and from thence

inverted within the opening thereof to compose lining-walls *xx*, in combination with ball-float *G*, held in suspension by chain *b'*, as and for the purpose intended, substantially as described.

5 2. In a water-closet tank, the combination of a suspended weighted metal float-ball with a valve-cup having the interior walls of its

opening lined with rubber sheathing held loosely in suspension within said opening, so substantially as described.

JOHN D. ABRAHAM.

Witnesses:

JOHN STORY,
S. C. BAILEY.