

W. S. BELLOWS.
 FLOAT CONTROLLED VALVE.
 APPLICATION FILED JUNE 17, 1909.

970,167.

Patented Sept. 13, 1910.

Fig. 1.

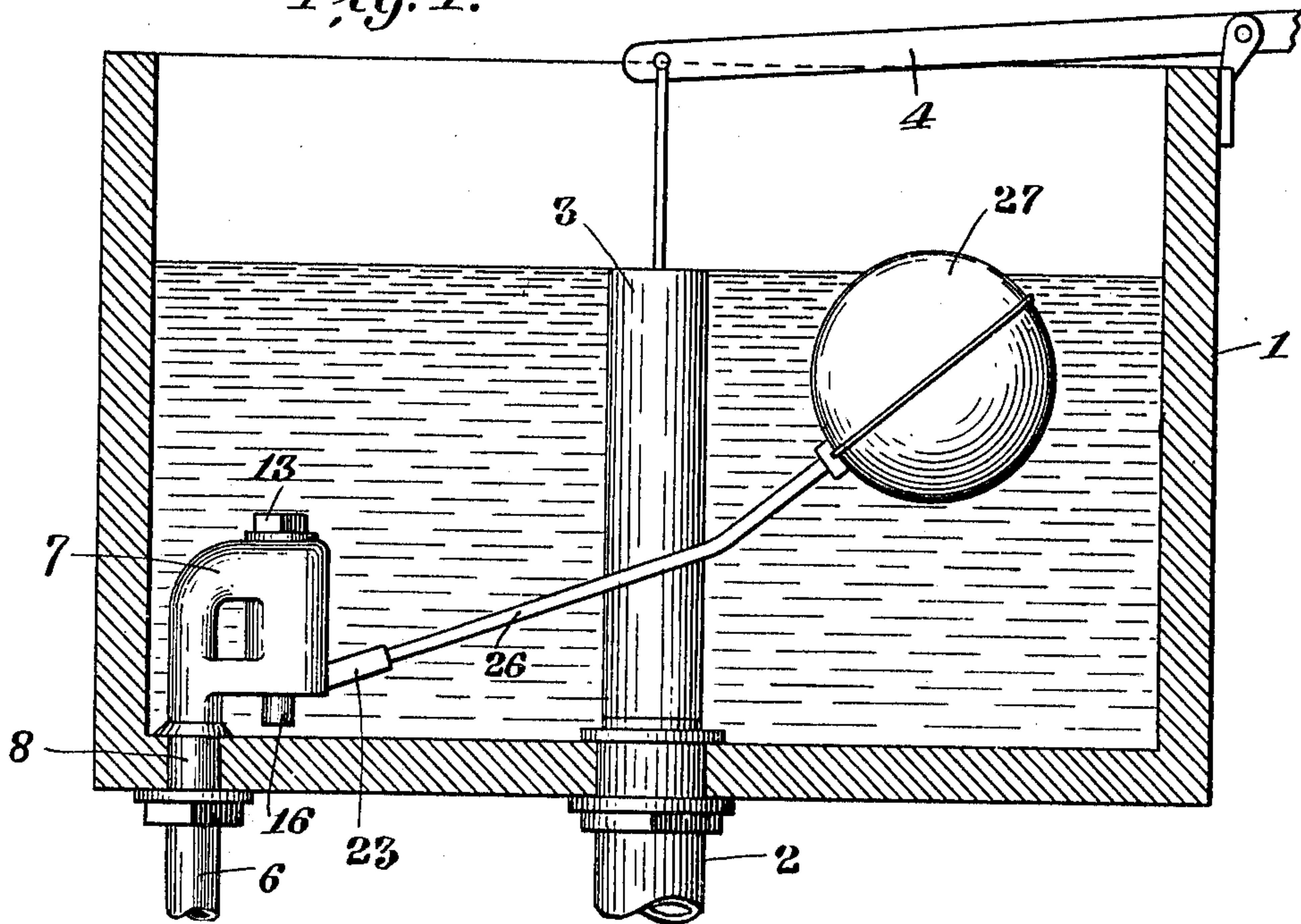


Fig. 2.

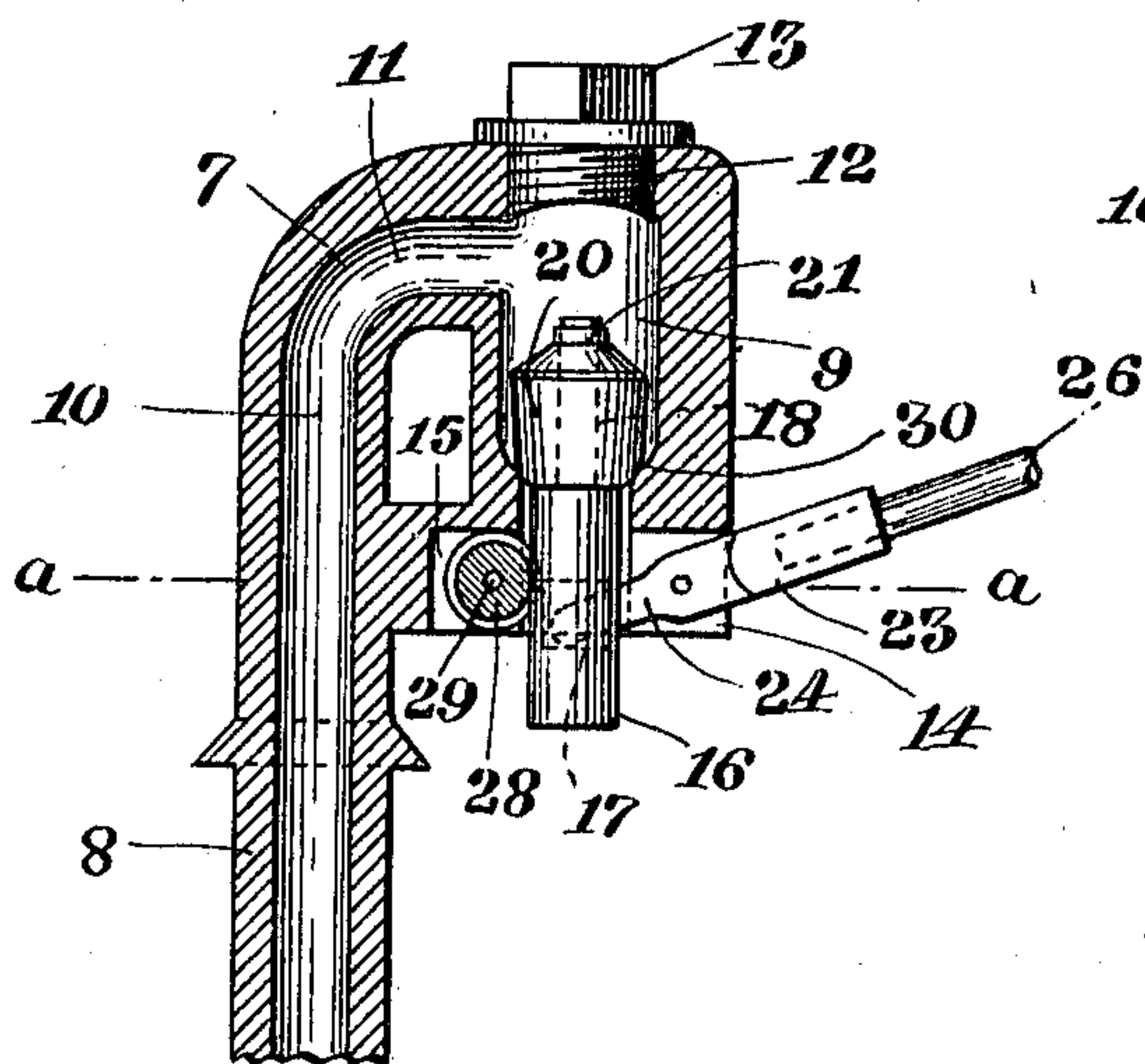
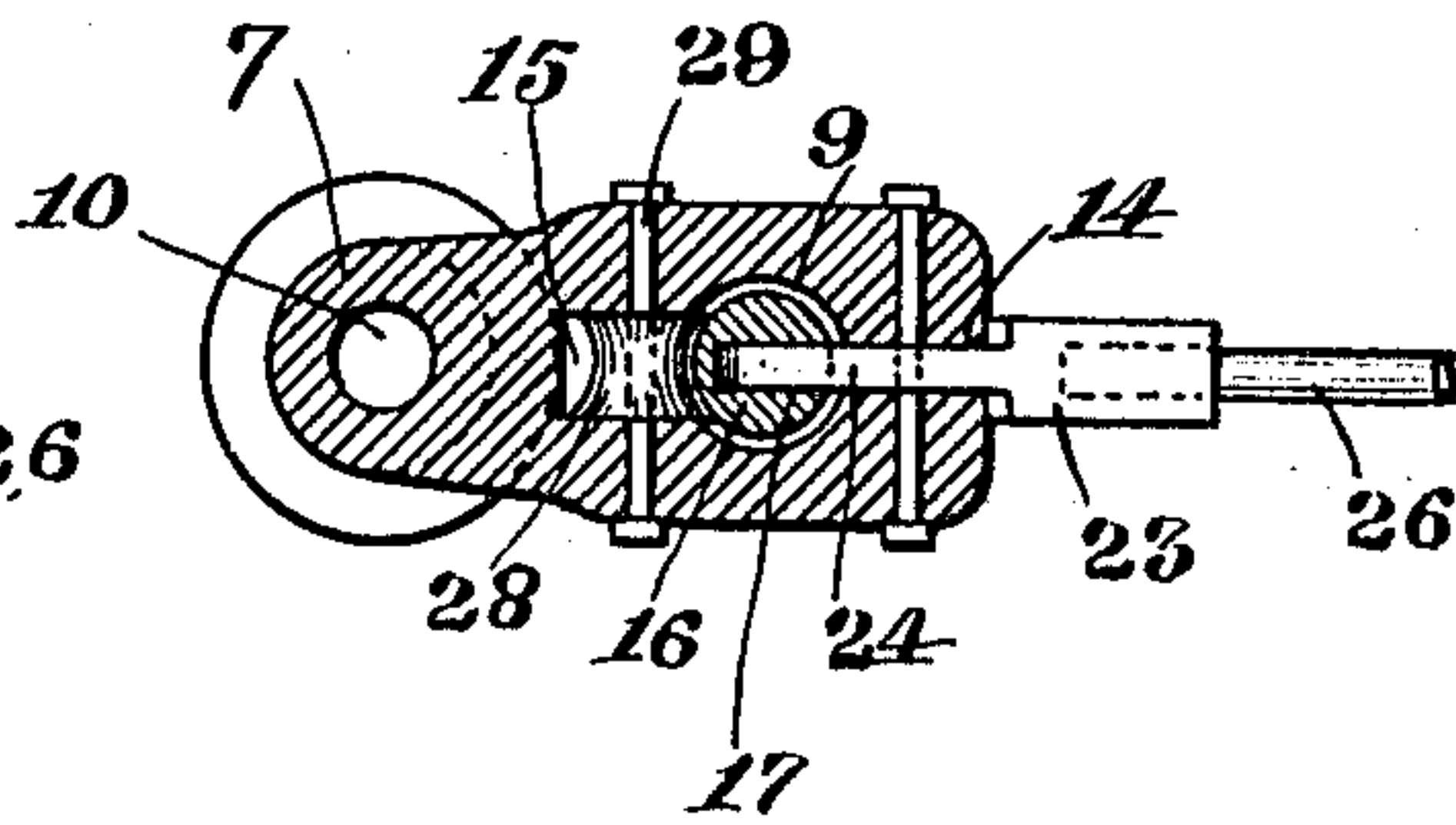


Fig. 3.



WITNESSES

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WINFIELD S. BELLOWS, OF STEELTON, PENNSYLVANIA.

FLOAT-CONTROLLED VALVE.

970,167.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed June 17, 1909. Serial No. 502,692.

To all whom it may concern:

Be it known that I, WINFIELD S. BELLOWS, citizen of the United States, residing at Steelton, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Float-Controlled Valves, of which the following is a specification.

My invention relates to float-controlled valves, and it consists of an improved form of flush-tank valve designed to close with the pressure, being finally forced to its seat thereby.

My invention is fully shown in the drawings herewith, and other features of the same are fully pointed out hereinafter.

Figure 1 is a vertical section of a flush tank equipped with my improved valve. Fig. 2 is an enlarged vertical section of the valve structure. Fig. 3 is a horizontal section on line *a-a*, Fig. 2.

In Fig. 1, 1 represents an ordinary flush tank having an outlet pipe 2, with any usual form of siphoning overflow valve 3 controlled by a lever 4 which may be operated by an ordinary chain pull. Such parts may be of any type.

The pipe for the inlet of water is indicated at 6, and connected to the upper end of the same is a casting 7 forming the valve casing. This casting has a lower projecting end 8 extending through the bottom of the tank and secured in any suitable manner to the pipe for the inlet of water. The casting forming the valve casing has a vertical bore 9 forming the valve chamber, the passage 10 leading from the inlet pipe having a curved portion 11 which communicates with the upper end of such chamber. The upper portion of the vertical bore is threaded at 12 for the reception of a plug 13 which forms the top of the valve casing, while the lower part of the casting adjacent the bore 9 is recessed at 14 and 15 for a purpose to be described.

The valve consists of a stem 16 having a rectangular recess 17 and a reduced upper end 18. The valve proper comprises a tubular section 20 adapted to pass over the threaded portion of the stem and be secured by a nut 21.

The valve is mounted in the casing in the manner clearly shown in Fig. 2. Pivotaly mounted in the recess 14 of the casing is an arm 23, having a projecting end 24 which enters the recess 17 of the valve stem, while its opposite end 25 is bored to receive the

arm 26 carrying the ball or other form of float 27. To steady the stem of the valve, a roller 28, mounted in the recess 15 of the casing and arranged to turn upon a suitable spindle 29, engages the stem. This roller prevents any binding upon the valve stem and insures its vertical rise and fall. The casing is provided with a seat 30 for the valve, the bore 9 of the same being contracted to form the seat.

When the tank empties, the weight of the ball or other float causes it to follow the level of water and turn on its pivotal connection with the casting forming the valve casing. As it turns, the projecting end 24 engages the valve stem and raises the valve from its seat against the pressure of the entering water, while the roller 28 steadies the stem. As the water fills the tank after the flushing operation, the ball or other float is raised, and as it turns on its pivotal connection with the casting, it lowers the valve, being assisted in such action by the water pressure. A slight amount of play is provided between the projection 24 of the arm 23 and the upper and lower walls of the recess 17; in the one instance permitting the discharge to commence before the valve is opened, and in the other allowing the valve to be seated finally by the water pressure.

The construction is at once cheap, simple in operation and not liable to get out of order.

I claim:—

1. The combination of a casting forming a valve casing provided with a valve seat and having a downward discharge, a vertically movable valve disposed within the casing and movable by gravity toward said seat, a stem projecting downwardly from said valve, a roller mounted in the casing on one side of said stem and engaged therewith, and an arm pivoted to the casing on the side of the stem opposite to the roller and engaged with said stem for raising the same.

2. The combination of a casting forming a valve casing provided with a valve seat and having a downward discharge, a valve disposed within the casing and movable toward and from said seat, a stem projecting from said valve and having a recess formed therein, a roller mounted in the casing on one side of said stem and engaged therewith, and an arm pivoted to the casing on the side of the stem opposite to the roller and extending into said recess and arranged to

operate said stem, said stem having a wall between said arm and said roller.

3. The combination of a casting forming a valve casing provided with a valve seat
5 and having a downward discharge, a valve disposed within the casing and movable toward and from said seat, a stem projecting from said valve and having a recess formed therein, a roller mounted in the casing on one
10 side of said stem and engaged therewith, and an arm pivoted to the casing on the side of the stem opposite to the roller and extending into said recess and arranged to operate said stem, said stem having side walls en-
15 gaged by the sides of said arm, said stem having end walls arranged to be engaged by said arm when moved to open and close the valve and said stem having a wall between said arm and said roller.

20 4. The combination of a casting forming a valve casing and having a vertical bore, a vertically movable valve disposed within the casing, means for closing the upper end of said bore, the latter being contracted to form
25 a seat for the valve, and the casting being recessed adjacent the outlet controlled by the valve, a roller disposed in one of said recesses for engagement with the stem of

the valve and an arm pivotally mounted in the other recess for engagement with said 30 valve stem.

5. The combination of a valve casing having a downward discharge, a vertically movable valve mounted therein, a stem carried by said valve, the seat for such valve being 35 within the casing and the stem of the same projecting through the discharge opening of the latter, such valve being arranged to close with pressure passing through said opening, said stem having a recess, an arm pivoted to 40 the casing and having a projection for engagement with said recess whereby the valve may be raised from its seat, a float connected to said arm, and a roller carried by the casing for steadying the movements of the 45 valve, the recess of the valve stem being slightly enlarged so as to provide for slight movement of the arm in both directions independent of its engagement with the valve stem. 50

In testimony whereof I affix my signature in presence of two witnesses.

WINFIELD S. BELLOWS.

Witnesses:

ALBERT B. SMITH,
MARY E. SPAHR.