

C. W. WEAVER & P. G. ANDERSON.

BALL COCK.

APPLICATION FILED APR. 7, 1908.

925,538.

Patented June 22, 1909.

2 SHEETS—SHEET 1.

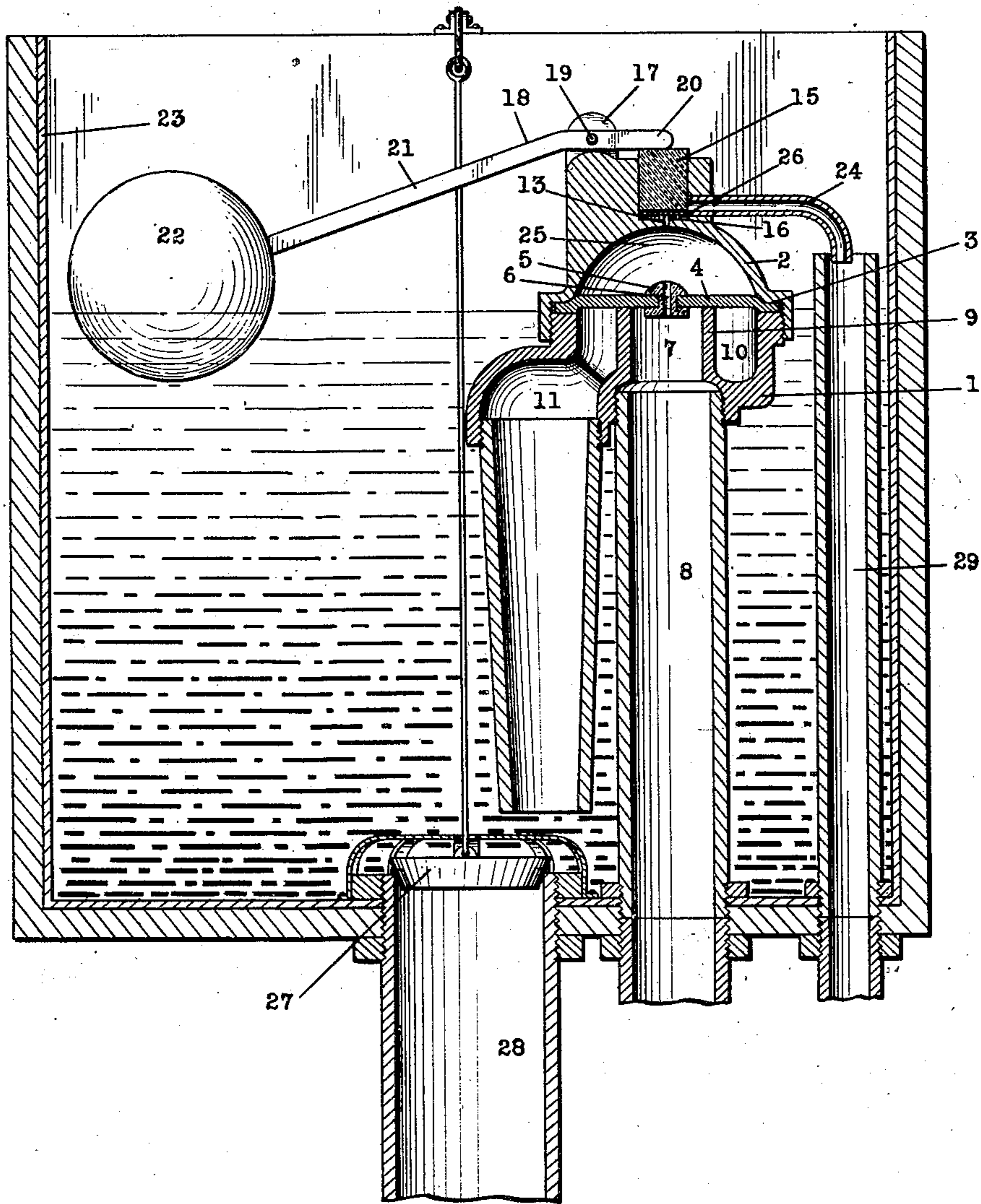


Fig. 1.

Witnesses:

H. C. Trimble.

H. R. Robertson.

Inventors.

Courtland W. Weaver
Peter G. Anderson
by Charles H. Riches
Their Attorney

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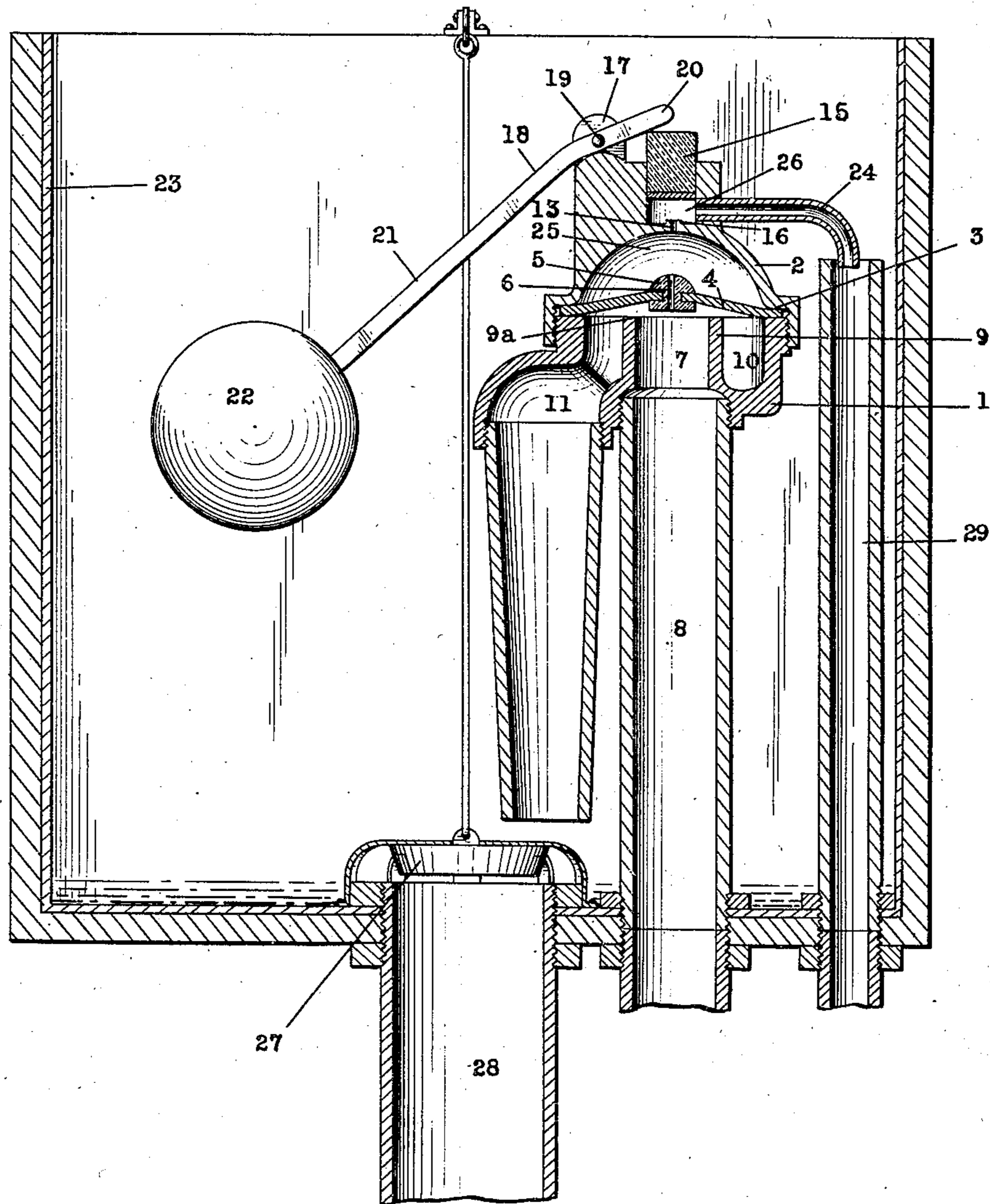


Fig. 2.

Witnesses.

H. L. Trimble.
H. H. Robertson.

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UNITED STATES PATENT OFFICE.

COURTLAND WHITFIELD WEAVER AND PETER GRAY ANDERSON, OF TORONTO, ONTARIO, CANADA.

BALL-COCK.

No. 925,538.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed April 7, 1908. Serial No. 425,588.

To all whom it may concern:

Be it known that we, COURTLAND WHITFIELD WEAVER and PETER GRAY ANDERSON, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Ball-Cocks; and we hereby declare that the following is a full, clear, and exact description of the same.

10 This invention relates to a ball cock for automatically controlling a water inlet and it relates particularly to the peculiar construction and operation of the parts hereinafter set forth and pointed out in the claims.

15 For an understanding of the invention reference is to be had to the following description and to the accompanying drawings in which:—

Figure 1, is a vertical section showing the position of the parts when the tank is filled. Fig. 2, is a similar view to Fig. 1, showing the position of the parts when the tank is empty.

Like characters of reference refer to like parts throughout the specification and drawings.

20 The tank 23 is supplied through the inlet pipe 8 and emptied through the outlet pipe 28. The inlet pipe 8 extends into the tank 23 and is fitted with a valve body 1. The valve body 1 has a waterway 7 formed by a wall 9 within the valve body 1, and an annular water chamber 10 surrounding the waterway 7 and forming a means of communication from the latter through the waterway 11 to the tank 23. The top surface of the wall 9 is finished to form a seat 9^a for the valve 4, which is of a flexible character, and has its outer edge 3 clamped between the top surface of the valve body 1 and the adjacent surface of the dome 2, so that it can move into and out of contact with the valve seat 9^a to cut off and open the communication between the waterway 7 and the water chamber 10. Fitted in the valve 4 is a plug 5, having a diminutive waterway 6 for the passage of water from the waterway 7 to the water chamber 25 in the dome 2. Within the dome 2 is a valve chamber 26 and leading from the water chamber 25 to the valve chamber 26 is a waterway 13, and leading from the valve chamber 26 is a waterway 24 which discharges into the overflow pipe 29.

Contained in the valve chamber 26 is a plunger valve 15 arranged to engage the valve seat 16 surrounding the waterway 13,

and close the passage from the chamber 25 through the waterway 13 and valve chamber 26 to the waterway 24.

Fulcrumed on a pin 19, supported by lugs 17 forming part of the dome 2, is a lever 18 the arms 20 and 21 of which project on opposite sides of the fulcrum pin 19. Fixed to the arm 21 is a float 22. The arm 20 engages the plunger valve 15 and presses it into engagement with the valve seat surrounding the waterway 13 when the float 22 rises in the tank 23, to the position shown in Fig. 1. As the float 22 falls in the tank, the arm 20 disengages the plunger valve 15. The water passes through the inlet pipe 8 to the waterway 7 and a diminutive stream circulates through the waterway 6 into the chamber 25. When the water in the tank 23 is at the level shown in Fig. 1, the float positions the arm 20 to press the plunger valve 15 into engagement with the valve seat surrounding the waterway 13 and shut off the passage from the chamber 25 to the waterway 24 so that the water circulating from the waterway 7 through the waterway 6 to the chamber 25 can accumulate in the chamber 25 and press the valve 4 against the valve seat 9^a and close the passage from the waterway 7 to the water chamber 10. By raising the valve plug 27 from its seat in the outlet pipe 28 the water in the tank 23 can empty through the outlet pipe. As the level of the water falls in the tank 23 the float 22 and lever 18 move from the position shown in Fig. 1, to that shown in Fig. 2, and when the lever and float are in the position shown in Fig. 2, the plunger valve 15 is relieved of the pressure of the arm 20. The pressure of the water in the chamber 25 then lifts the plunger valve 15 to open the passage from the chamber 25 through the waterway 13 and valve chamber 26 to the waterway 24 so that the valve 4 will be relieved of the pressure of the water in the chamber 25. The pressure of the water in the inlet pipe 8 and waterway 7 then moves the valve 4 from the position shown in Fig. 1, to that shown in Fig. 2, to open the passage from the waterway 7 to the water chamber 10 so that the water can flow from the inlet pipe 8 through the water chamber 10 and waterway 11 into the tank 23. When the valve plug 27 is restored to its seat in the outlet pipe 28 the water accumulates in the tank and raises the float from the position shown in Fig. 2, to that shown in Fig. 1. When the

float attains the position shown in Fig. 1, the lever arm 20 exerts a pressure on the plunger valve 15 and restores the plunger valve to the valve seat surrounding the waterway 13 and
 5 shuts off the passage for the water from the chamber 25 to the overflow pipe 29 so that the water will accumulate in the chamber 25. The accumulation of the water in the chamber 25 exerts sufficient pressure on the valve 4
 10 to restore the last mentioned valve to its valve seat 9^a and close the passage from the waterway 7 through the water chamber 10 to the tank. The flexibility of the valve 4 is sufficient to permit it to move from the position
 15 shown in Fig. 1, to that shown in Fig. 2, under the pressure of the water in the waterway 7, when the plunger valve 15 is in the position shown in Fig. 2, and to resume the position shown in Fig. 1, under the pressure
 20 of the water in the chamber 25 when the plunger valve 15 is in the position shown in Fig. 1.

By means of this construction the action of the valve 4 is positive when moving from
 25 and returning to its valve seat 9^a.

The valve 4 is preferably made of rubber or other like material having not only the property of flexibility but also of resiliency so that it can adapt itself to its valve seat 9^a
 30 and establish a tight contact therewith when in the position shown in Fig. 1.

Having thus fully described our invention what we claim as new and desire to secure by Letters Patent is:—

35 1. In a ball cock, a valve body comprising a pressure chamber, an inlet waterway within the valve body and opposed to the pressure chamber, a water chamber surrounding the inlet waterway, an outlet waterway communicating with the water chamber, a flexible
 40 valve held by the valve body, the central part of the valve normally engaging the inner end of the inlet waterway to separate the pressure chamber from the water chamber and control the flow from the inlet waterway to the outlet waterway, a diminutive

port formed through the valve from the inlet waterway to the pressure chamber, a subsidiary valve chamber within the valve body, a relief port for the pressure chamber communicating with the subsidiary valve chamber, an outlet port for the subsidiary valve chamber, a valve within the subsidiary valve chamber controlling the passage from the relief port, to the outlet port, a lever fulcrumed
 55 between its ends to the valve body, one end of the lever engaging with the last mentioned valve but not connected therewith, and the other end provided with a float.

2. In a ball cock, a valve body comprising
 60 a pressure chamber, an inlet waterway within the valve body and opposed to the pressure chamber, a water chamber surrounding the inlet waterway, an outlet waterway communicating with the water chamber, a flexible
 65 valve held by the valve body, the central part of the valve normally engaging the inner end of the inlet waterway to separate the pressure chamber from the water chamber and control the flow from the inlet waterway to the outlet waterway, a diminutive
 70 port formed through the valve from the inlet waterway to the pressure chamber, a subsidiary valve chamber within the valve body, a relief port for the pressure chamber communicating with the subsidiary valve chamber, an outlet port for the subsidiary valve chamber, a conduit connected with the outlet port to extend beyond the tank, a valve
 75 within the subsidiary valve chamber, controlling the passage from the relief port to the outlet port, a lever fulcrumed between its ends to the valve body one end of the lever engaging with the last mentioned valve but not connected therewith and the other
 80 end provided with a float.

Toronto, April 2nd, A. D. 1908.

COURTLAND WHITFIELD WEAVER.

PETER GRAY ANDERSON.

Signed in the presence of—

OLIVE BATEMAN,

C. H. RICHES.