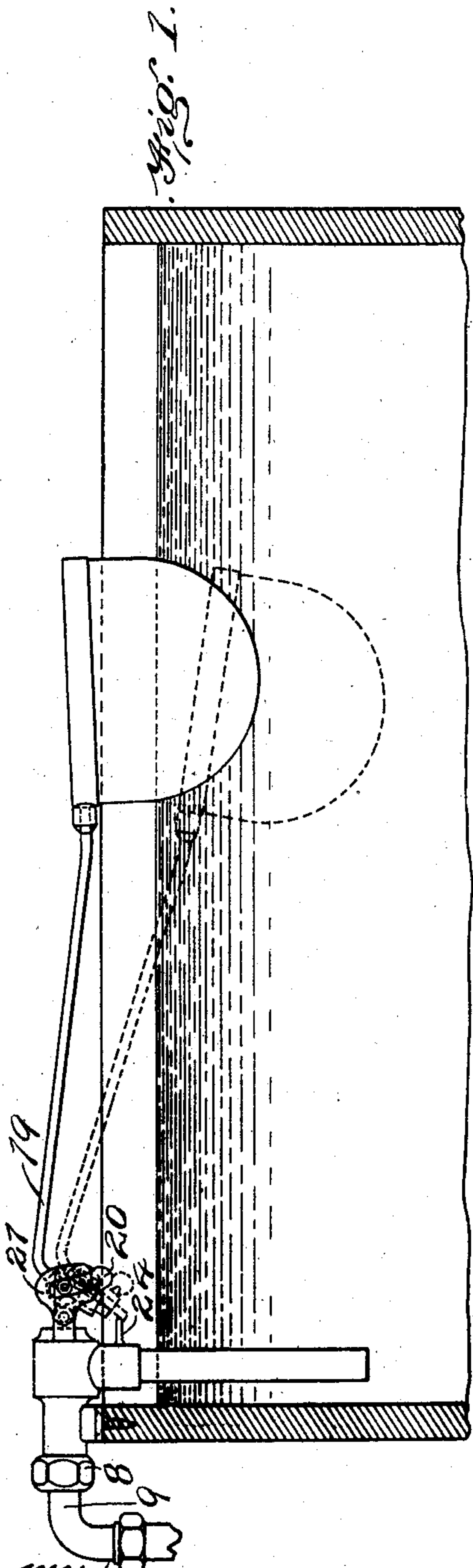


G. A. SODERLUND, DEC'D.
M. P. SODERLUND, ADMINISTRATRIX.
BALL COCK.

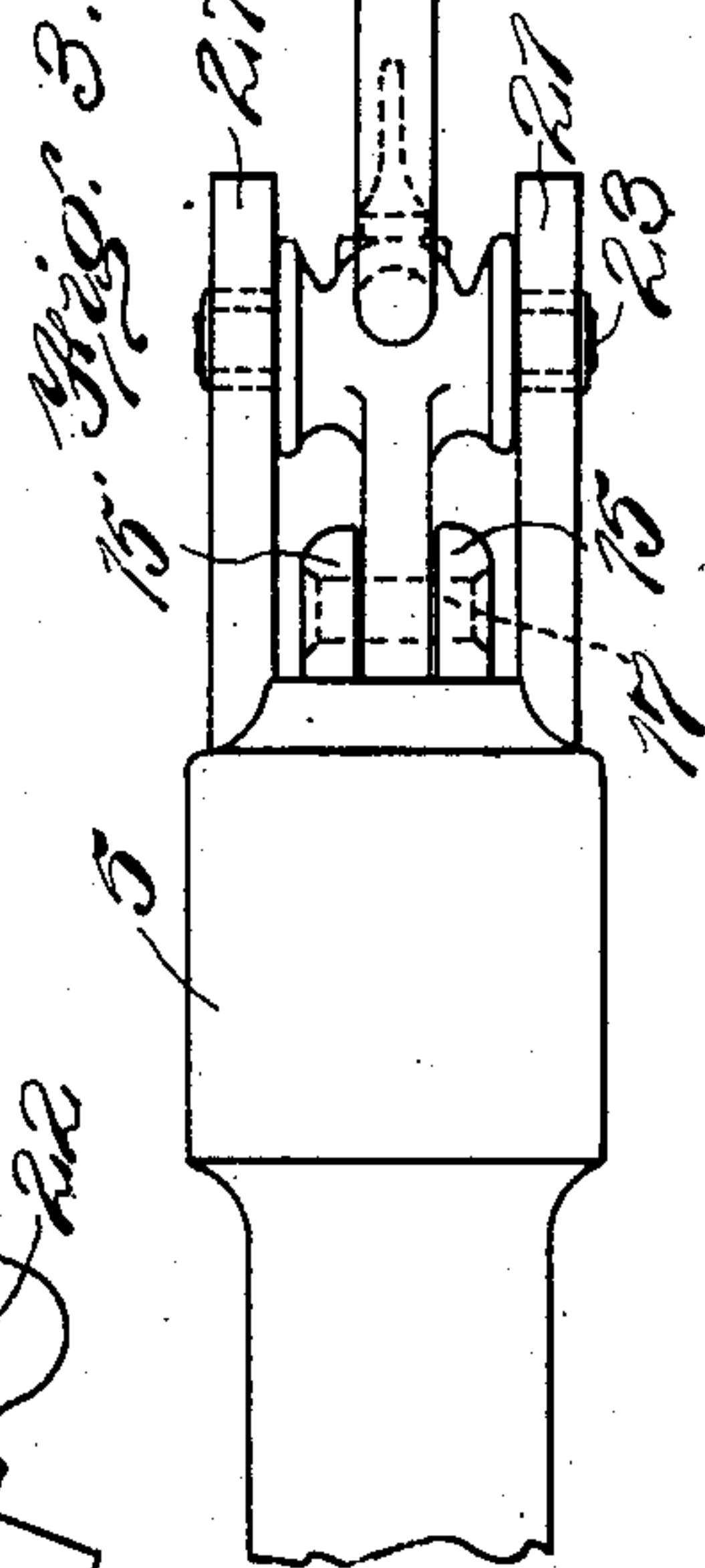
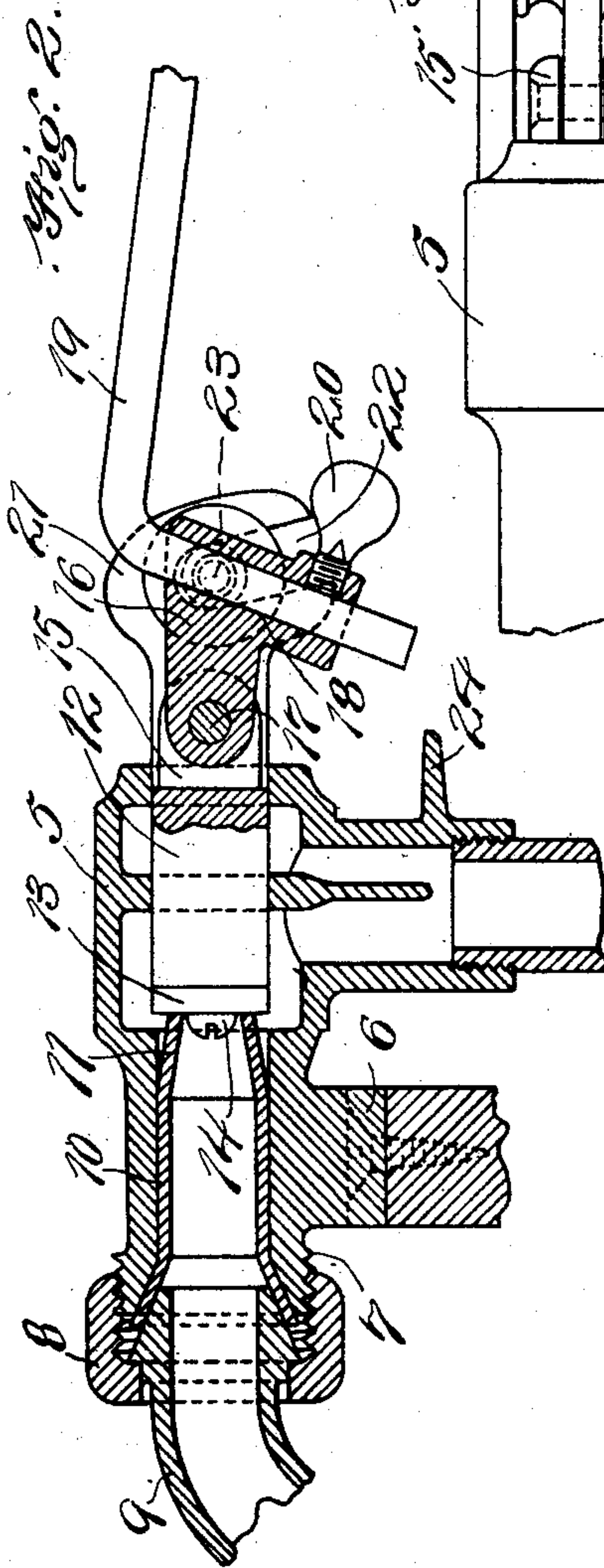
APPLICATION FILED MAR. 28, 1904. RENEWED DEC. 21, 1907.

906,832.

Patented Dec. 15, 1908.



Witnesses:
P. H. Pizzetti
E. Bachelder



Inventor:
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Atty.

UNITED STATES PATENT OFFICE.

GUSTIVE A. SODERLUND, OF SOMERVILLE, MASSACHUSETTS; MARY P. SODERLUND, OF MEDFORD, MASSACHUSETTS, ADMINISTRATRIX OF SAID GUSTIVE A. SODERLUND, DECEASED, ASSIGNOR TO CHARLES E. BOWERS, OF BOSTON, MASSACHUSETTS.

BALL-COCK.

No. 906,832.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed March 28, 1904, Serial No. 200,332. Renewed December 21, 1907. Serial No. 407,502.

To all whom it may concern:

Be it known that I, GUSTIVE A. SODERLUND, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Ball-Cocks, of which the following is a specification.

This invention relates to that type of liquid-controlling apparatus commonly known as ball-cocks, and has for its principal object to provide a structure which will enable a valve to be quickly removed from the casing or replaced therein, without employing screws or equivalent devices for holding the parts in their relative positions.

A further object of the invention is to provide a convenient and economical removable tubular valve-seat, having a hardened and therefore durable end for coöperation with the plug-valve.

To these ends, the invention consists in the construction and combination of parts substantially as hereinafter described and claimed.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a sectional view of a water-tank having my improved ball-cock and float applied thereto. Fig. 2 represents a longitudinal section through the ball-cock, said figure being on a larger scale than in Fig. 1. Fig. 3 represents a detail plan view of portions shown at the right of Fig. 2.

The same reference characters indicate the same parts in all the figures.

In the drawings, the valve-casing is represented at 5, the said casing having ears 6 by means of which it may be attached to the wall of the tank. The casing is formed with a threaded end 7, whereby a water-supply pipe 9 may be connected to the casing by means of a coupling-nut 8. Within the casing 5 is secured the tubular valve-seat 10, said seat having a flaring outer end, which is clamped between the inner wall of the threaded portion of the casing, and the tapered end of the supply-pipe 9. This feature of construction, however, is not new with me, and I lay no claim thereto. The actual construction of the tubular valve-seat as a whole, however, I claim to be novel. Heretofore valve-seats of this type have usually been formed of cast metal.

To properly form the tubular seats of

cast metal involves a considerable expense, and a greater amount of metal than is required in making my improved seats. In carrying out this part of my invention, I form the valve-seat from seamless tubing, having one end flared as above described, and having the other end tapered or reduced as at 11, by suitable dies. Such a reduction of the end of the tube to a taper form hardens the end and renders the seat more durable, and stronger than a cast tube. This feature of hardening the end of the tube which forms the valve-seat is of particular advantage in connection with a plug-valve of the type which I shall now proceed to describe, for the reason that the recurrent pressure of the plug-valve under the influence of the float is liable to disintegrate a cast tube.

Mounted within the casing 5 is the plug 12, having packing 13 secured thereto, as by a screw 14, said packing coöperating with the tapered and hardened end 11 of the valve-seat 10 in closing the thoroughfare through the casing.

The end of the plug 12 is formed with ears 15, between which a lever 16 is pivoted at 17. Said lever is formed with a vertical aperture 18, in which is secured the downwardly bent end of the float-lever 19, a set-screw for securing the float-lever in said aperture being represented at 20. The casing 5 is formed with two ears 21, having vertical inclined slots 22, the lower ends of which are open, the said slots being preferably inclined slightly out of a true vertical position. The lever 16 is provided with pintle-lugs 23, preferably having anti-friction rolls thereon, said pintles or their rolls being fitted to ride in the slots 22 of the casing-ears. Projecting from one side of the casing which forms the discharge-spout is an abutment 24, which forms a stop to limit the inward movement of the lower end of the bent arm of the lever 19 when the float is in its lower position. This stop 24 is of such length and in such a position as to limit the downward movement of the float-lever before the pintle-lugs 23 of the lever 16 have reached the lower ends of the open slots 22. Therefore, when the lever 19 is in position, the plug-valve cannot be removed from the casing; but by either removing the float-lever 19, or slightly raising its short

bent end, the lever 16 may be swung downwardly to a point that will enable the pintle-lugs 23 to pass out from the open ends of the slots, the plug-valve being at the same time slipped out from the casing. I have above mentioned the structure as enabling screws to be dispensed with. The drawings show a screw 20 to hold the lever 19 in position, but said screw is not essential and may be dispensed with. When employed, it is the only screw that needs to be manipulated when the plug-valve is to be either removed or replaced. At the other end of the lever 19 is secured a float. This float comprises a metallic cup, which preferably has the form of a little more than a hemisphere. The top or cover of the float is shown as substantially flat, and the end of the lever 19 is permanently secured to the band of said cover. The only seam employed in constructing the float is at the extreme top thereof, that is, where the cover or its band is secured to the cup-shaped portion of the float. Therefore said seam occupies a portion of the float which will always be above the level of the surface of the water, as will be readily understood by comparing the solid-line and dotted-line positions represented in Fig. 1, and the two water-levels indicated in said figure. It will also be noted by reference to Fig. 1, that the construction of the float and its lever and the connection of the latter with the lever 16 is such that the float can-

not tilt although it is cup-shaped, and the lever is connected thereto at its upper edge.

I claim:

1. A ball-cock comprising in its construction a plug-valve, a seat therefor, a lever connected with the end of the plug opposite the valve-seat, said lever having pintles, a float-lever connected to the first-mentioned lever, and open-slotted guide-ways for said pintles, means being provided for limiting the movement of the parts to prevent the pintles from passing out of the slotted guide-ways when the device is in use.

2. In a ball-cock, the combination with the casing having ears provided with guide-slots open at the bottom, of a valve-seat, a plug-valve, a lever pivotally connected with said plug-valve and having pintles entering said slots, a float connected with said lever, and means for limiting the movements of the parts to prevent the pintles from escaping from said slots when the device is in use.

3. In a ball-cock, a removable valve-seat formed from tubing having one end reduced, and hardened as a result of the reducing process.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GUSTIVE A. SODERLUND.

Witnesses:

A. W. HARRISON,
R. M. PIERSON.