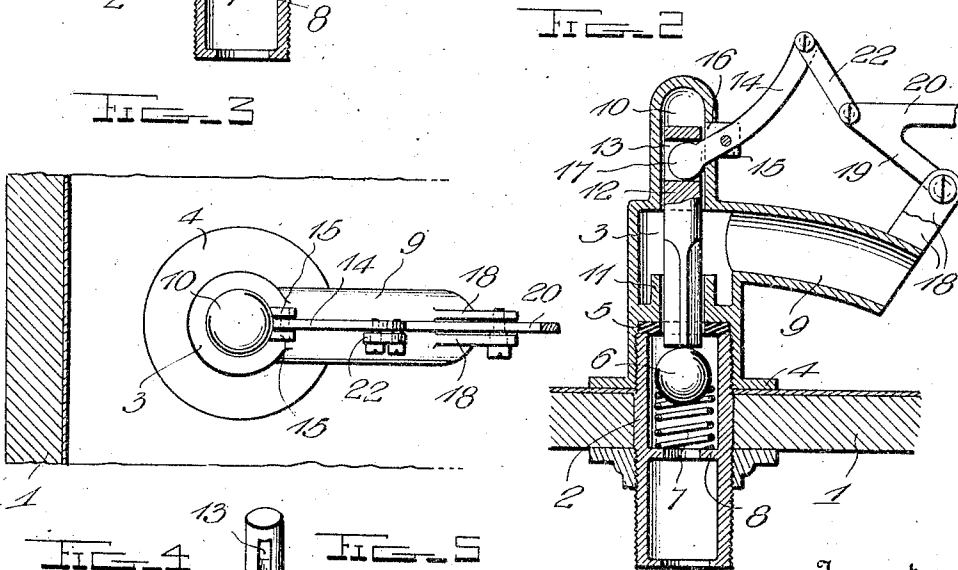
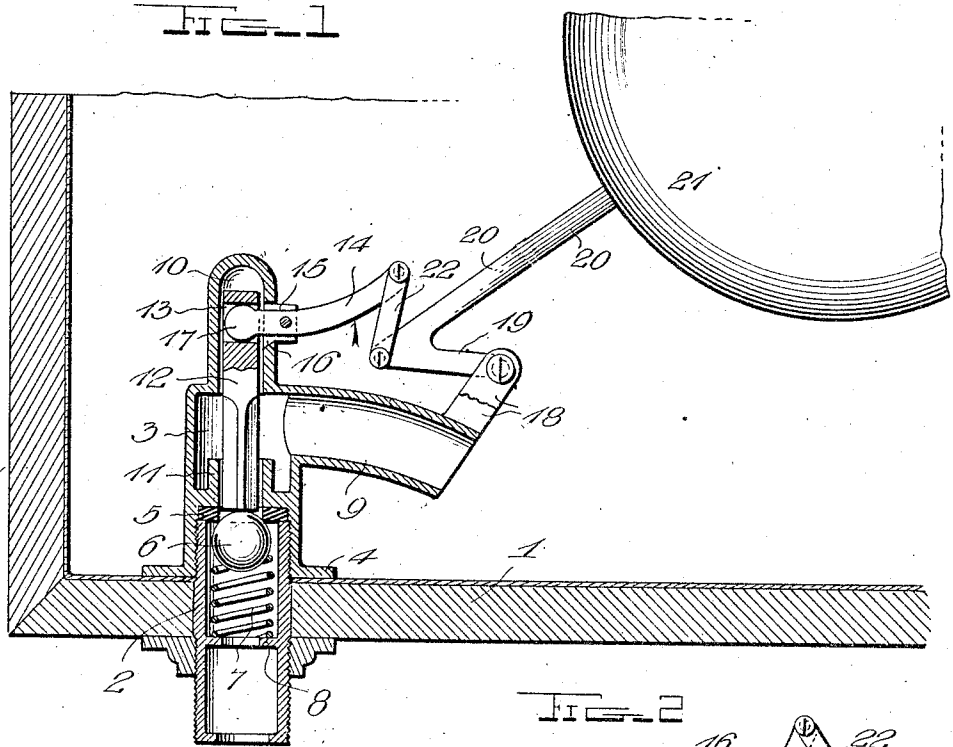


J. W. WALL.
 FLOAT OPERATED VALVE.
 APPLICATION FILED MAY 16, 1912.

1,047,863.

Patented Dec. 17, 1912.



Witnesses
 C. E. Hunter
 C. E. Hunter



+

by *A. B. Wilson & Co.*
 Attorneys

Inventor

J. W. Wall

UNITED STATES PATENT OFFICE.

JOHN W. WALL, OF BISBEE, ARIZONA, ASSIGNOR OF ONE-THIRD TO LEONARD KOCH
AND ONE-THIRD TO L. A. BROWN, BOTH OF BISBEE, ARIZONA.

FLOAT-OPERATED VALVE.

1,047,863.

Specification of Letters Patent.

Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that I, JOHN W. WALL, a citizen of the United States, residing at Bisbee, in the county of Cochise and State of Arizona, have invented certain new and useful Improvements in Float-Operated Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in float operated valves.

One object of the invention is to provide a valve of this character having an improved construction and arrangement of operating levers whereby the valve will be positively opened upon the discharge of the water from and the lowering of the float in the tank to which the valve is applied.

Another object is to provide a float operated valve which will be simple, strong and durable in construction, efficient and reliable in operation and well adapted to the purpose for which it is designed.

With these and other objects in view, the invention consists of certain novel features of construction and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a vertical section of my improved valve showing the same applied to a tank and in closed position; Fig. 2 is a similar view showing the valve in open position; Fig. 3 is a plan view of the same; Fig. 4 is a perspective view of the valve operating plunger; Fig. 5 is a cross sectional view of the same.

Referring more particularly to the drawings, 1 denotes the tank to which my improved valve is applied. In the bottom of the tank near one end is arranged a valve casing 2 the lower end of which projects a suitable distance below the tank and is threaded to receive the coupling of the water supply pipe of the tank. The upper end of the valve casing 2 projects a suitable distance above the bottom of the tank 1 and is threaded to receive a plunger casing 3 which is screwed thereon and into engagement with the bottom of the tank. The lower end of the plunger casing 3 has thereon an annular radially projecting

flange 4 which when the plunger casing is screwed onto the upper end of the valve casing closely engages or binds against the bottom of the tank and forms a fluid tight engagement between the inner end of the valve casing and said bottom of the tank. Clamped between the end of the valve casing 2 and the inner end of the socket in the plunger casing with which the end of the valve casing is engaged is a washer 5 the lower side of which forms a valve seat which is normally engaged by a ball valve 6 arranged in the casing 2 and held in engagement with the valve seat by a coiled spring 7. The spring 7 is confined in the upper portion of the valve casing and held in position to engage the valve 6 by an inwardly projecting annular flange 8 formed on the inner side of the valve casing as shown.

On one side of the plunger casing is a water discharging spout 9 above which the plunger casing is reduced to form a plunger guiding socket 10. In the plunger casing 3 immediately below the spout 9 and on the upper end of the socket of the plunger casing which receives the inner end of the valve casing is an upwardly projecting plunger guiding flange 11. Arranged in the plunger casing 3 is a valve opening plunger 12 the lower end of which is slidably engaged with the flange 11 while the upper end thereof is slidably engaged with the plunger guiding socket 10 on the upper end of the plunger casing. The upper end of the plunger 12 which engages the guide socket 10 is preferably of cylindrical form while the lower end is constructed in the form of a Greek cross, the outer edges of the arms of which slidably engage the flange 11 and provide openings through which water may pass into the plunger casing and out through the discharge spout when the valve 6 is opened.

In the upper end of the plunger 12 is a transversely disposed slot 13 in which is engaged the inner end of a plunger operating lever 14 which is pivotally mounted between a pair of bearing lugs 15 on one side of the socket 10 of the plunger casing. The inner end of the lever 14 projects through and works in a slot 16 in one side of the socket 10 and on the inner end of the lever 14 is a circular head 17 which loosely engages in the slot 13 in the upper end of the

plunger whereby when the lever 14 is rocked in the proper direction the plunger 12 will be forced downwardly thus depressing the valve 6 and disengaging the same from the seat in the washer 5 thereby permitting the water from the supply pipe to pass through the valve casing and plunger casing into the tank.

On the outer end of the discharge spout 9 is a pair of upwardly projecting apertured bearing lugs 18 to which is pivotally connected the angularly formed or V-shaped inner end 19 of a float rod or lever 20 on the outer end of which is secured a float 21 which is adapted to rise and fall with the rise and fall of the water in the tank. The apex or point of the rod or lever 20 is connected by a short link 22 with the outer end of the plunger operating lever 14 whereby when the water is discharged from the tank and the float 21 is thus lowered the inner end of the float rod or lever 20 will, through the link 22, swing the outer end of the plunger operating lever 14 upwardly and the inner end thereof downwardly in the socket 10 of the plunger casing thereby depressing the plunger and causing the same to open the valve 6 in the manner described. After the water has been discharged from the tank and the discharge valve closed the water flowing into the tank from the spout 9 will raise the float 21 thereby relieving the plunger operating lever 14 from the weight of the float which will permit the spring 7 to again close the valve 6 after the float has been raised to the proper height in the tank.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

In a float operated valve for tanks, a valve casing arranged in the bottom of the tank and projecting below the same to form a supply pipe connection, a plunger casing engaged with the inner end of said valve casing and forming a fluid tight connection between the valve casing and the bottom of the tank, a washer arranged between said valve casing and plunger casing, said washer having therein a valve seat, a valve arranged in said valve casing, a spring to normally hold said valve in engagement with said seat, a plunger guiding socket on the upper end of said plunger casing, a plunger guiding flange arranged in said casing, a plunger slidably mounted in said socket and flange and having its lower end engaged with the valve whereby when the plunger is depressed the valve will be opened, a discharge spout on said plunger casing, a plunger operating lever pivoted on said socket and having its end projecting into the same and engaged with said plunger, a float rod having an angular inner end pivotally connected at the end to said spout, a link to connect the apex of said angular inner end of the valve rod with the outer end of said plunger operating lever and a float carried by the outer end of said float rod whereby when said float is lowered by the discharge of the water from the tank said lever will be actuated to depress said plunger and thereby open said valve and whereby when the tank fills and the float rises, said lever will be actuated to permit the valve operating spring to close the valve.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN W. WALL.

Witnesses:

ALEXANDER MURRY,
J. D. TAYLOR.