

W. WRIGHT.
INLET CONTROL VALVE FOR FLUSH TANKS.
APPLICATION FILED JAN. 7, 1919.

1,368,088.

Patented Feb. 8, 1921.

Fig. 1.

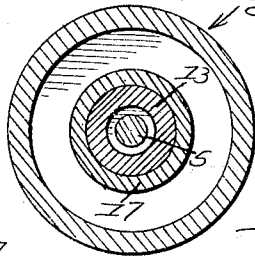
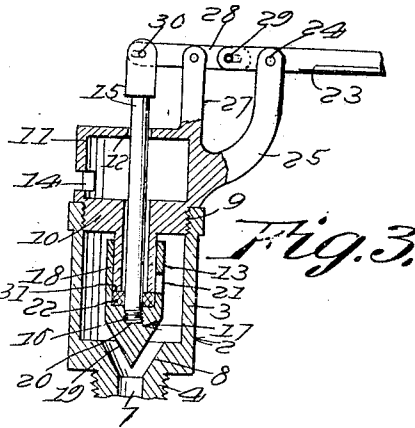
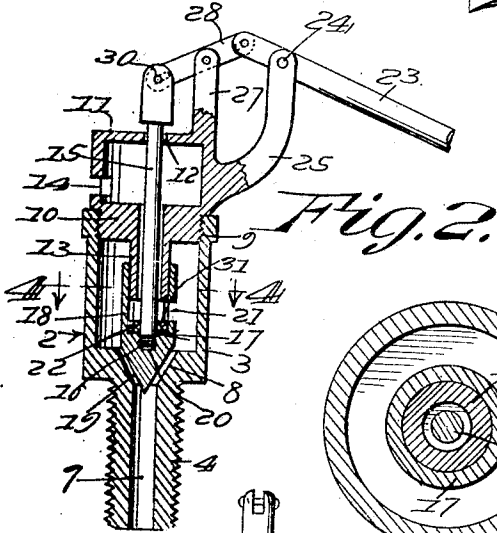
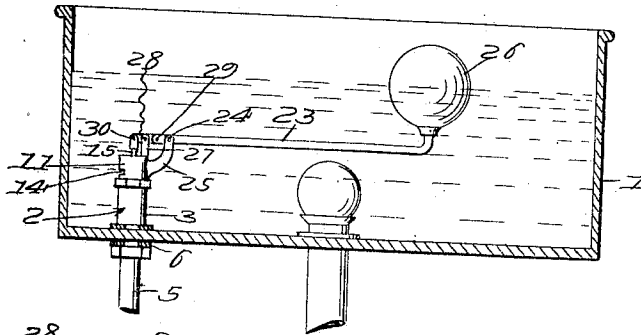


Fig. 4.

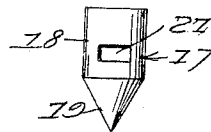
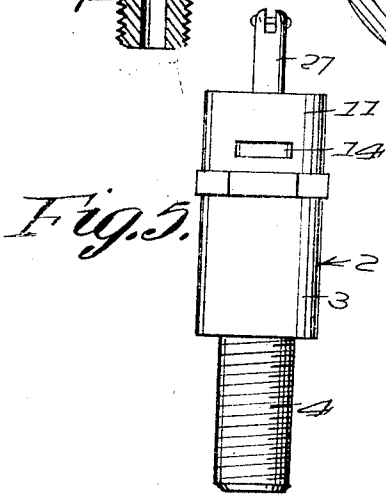


Fig. 6.

William Wright,
Inventor

E. Hume Talbot
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM WRIGHT, OF TEXARKANA, TEXAS.

INLET-CONTROL VALVE FOR FLUSH-TANKS.

1,368,088.

Specification of Letters Patent.

Patented Feb. 8, 1921.

Application filed January 7, 1919. Serial No. 269,972.

To all whom it may concern:

Be it known that I, WILLIAM WRIGHT, a citizen of the United States, residing at Texarkana, in the county of Bowie and State of Texas, have invented new and useful Improvements in Inlet-Control Valves for Flush-Tanks, of which the following is a specification.

This invention comprehends generally improvements in that class of inventions known as valves and more particularly relates to an inlet control valve for flush tanks.

It is the principal aim and object of this present invention to provide a valve of the above mentioned character the construction of which is novel being designed to act quickly under any head or pressure of water, to seat itself truly at all times upon the valve seat, to obviate water hammering and to also close noiselessly.

As an additional object the present invention contemplates the provision of a device of the above mentioned character wherein the valve is designed to automatically close with the water pressure in case of broken or defective float connecting rods or pins thereby eliminating the waste of water and leaving the several parts at rest without strain when closed.

More particularly the present invention consists in the provision of a device of the above mentioned character wherein the attaching casing itself, cap, and the movable valve member and the valve stem are of novel construction and are peculiarly related with respect to each other for assuring of the automatic closing of the valve when the water reaches a predetermined level in the tank.

It is an additional object of this invention to provide a device of the above mentioned character which is simple in construction, thoroughly reliable and efficient in its purpose and inexpensive in manufacture.

Other objects will be in part obvious and in part hereinafter set forth.

The invention accordingly consists in the features of construction, the combination of elements and the arrangement of parts which will be amplified, and the construction of which will be indicated in the appended claims.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a transverse section through

the flush tank showing the valve applied thereto and in elevation.

Fig. 2 is an enlarged vertical sectional detail of the valve in open position. 60

Fig. 3 is a fragmentary vertical sectional detail showing the parts in closed position.

Fig. 4 is a transverse section taken on line 4—4 of Fig. 2.

Fig. 5 is an elevational detail of the casing, and 65

Fig. 6 is an elevational detail of the valve body.

Similar characters of reference are employed in all of the above described views, 70 to indicate corresponding parts.

Referring now, more particularly, to the accompanying drawings there is provided a flush tank 1 of a conventional construction in which is operably mounted improved 75 inlet control valve generally indicated by the numeral 2.

In the present instance, the valve consists of a cylindrical casing 3 which has depending therefrom an exteriorly threaded 80 nipple 4 for insertion through the bottom of the tank for connection with the supply pipe 5 as at 6. The inner bore 7 of the nipple has its upper portion, where it communicates with the interior of the cylinder 85 3 flared as at 8. The upper portion of the cylinder is interiorly threaded as at 9 while mounted therein is a reduced threaded portion 10 of a hollow cylindrical cap 11. The hollow cap has its top and lower reduced 90 portion provided with alining openings 12 while integral with and depending from the reduced portion is a sleeve 13 which alines with the lower opening 12. The cap is also provided with a horizontal rectangular 95 water outlet opening 14 for a purpose that will presently appear. Slidable through the alined openings 12 and the sleeve 13 is a valve rod 15 the lower end of which is threaded as at 16. A movable valve mem- 100 ber generally indicated by the numeral 17 is employed and consists of a tubular portion 18 and a solid and inverted conical head 19 which is integral with the tubular portion and which is provided with a 105 threaded socket 20 for receiving the lower threaded end 16 of the rod 15 the inner surface of the tubular portion of the valve being in close telescopic relation with the outer surface of the sleeve 13. The wall of 110 the tubular portion is provided with the water inlet opening 21 while disposed within

the same and resting on the head is a gasket 22 which when the movable valve member rises upwardly seats against the lower end of the sleeve for shutting off the flow of water into the tank, the opening 21 being, of course, closed by the sleeve when the valve is in a raised position. When open the water passes through the bore 7, through the flared portion 8, through the opening 21, thence through the sleeve and the cap and finally passes through the opening 14 into the tank. In order to control the position of the movable valve member suitable mechanism is employed in the present instance in the form of a lever 23 pivoted on a pintle 24 near one end to the upper end of an arm 25 which rises from the side of the cap. A float 26 is carried by the outer end of the lever. A relatively short standard 27 also rises from the cap and has pivoted thereto a link 28 one end of which is pivoted by means of a pintle 29 to the inner end of the short portion of the lever 23 while the opposite end of the link is pivoted by means of a pin 30 to the upper end of the valve rod 15.

In use, assuming that the parts have been assembled in the manner described and as illustrated in the drawings, when the water in the tank 1 falls below a certain level the outer or long portion of the lever 23 which carries the float, of course, moves down while the link which is connected to the short portion of the lever is swung about its pivot consequently moving the valve rod downward and allowing water to flow through the bore 7 and over the seat 8 into the casing 3 from which point it passes through the opening 21 in the tubular portion of the valve member and then through the sleeve into the cap and finally passes from the cap through the opening 14 into the tank. The water continues until the lever reaches a substantially horizontal position and as the lever 23 moves upwardly into this horizontal position the link is swung reversely about its pivot and the rod 15 drawn upwardly so as to move the gasket 22 into engagement with the lower edge of the sleeve and thus close the valve, the opening 21, of course, being closed by the sleeve when the valve is raised upwardly.

With the float 26 in the raised position and the valve seated against the lower end of the sleeve 13, the pressure of water below the movable valve member aids in keeping it on its seat. When the tank 1 is emptied, the float 26 drops with the result that the link 28 is rocked to unseat the valve member, thus permitting water to flow, as before described, into the tank wherein, when it reaches a predetermined level, operates to again close the valve. Should the lever 23 or any of its attendant parts be broken or should anything

occur destroying the operative connection between the float and the valve member, the latter would not be opened, for the water pressure below the valve would retain it on its seat thereby precluding the flowing of water into the tank 1 to overflow the same. Further if the discharge from the tank 1 were open, the valve being retained on the seat by the water pressure would preclude the flowing of the water and therefore the waste of the same.

What is claimed is:

1. A device of the character described consisting of a cylindrical casing, an attaching nipple integral therewith and formed with a longitudinal bore the bore at the point of communication with the casing being flared to form a seat, a hollow cylindrical cap for the casing formed with an outlet opening and also formed with central alined openings, a sleeve integral with and projecting from the cap in alinement with the central openings and disposed within the cylinder, a valve rod slidable through the alined central openings, a tubular valve member connected to the stem and disposed within the casing and in close telescopic relation with the sleeve and formed with an inlet opening, a conical head on the valve member for cooperating with the seat, a gasket disposed in the valve member for cooperating with the lower edge of the sleeve, an arm projecting from the cap, a lever pivoted to the arm, a float on the outer end of the lever, a standard rising from the cap, a link pivoted medially its ends to the standard and having its respective ends pivoted to the adjacent end of the lever and adjacent the upper end of the valve rod for insuring the valve member moving correspondingly to the float.

2. A device for the purpose indicated, consisting of a cylindrical casing provided with a depending nipple having a central bore terminating in a flaring valve seat at the point of entrance of the bore into the casing, a hollow cap closing the casing at the top and formed with a depending sleeve, a valve rod passing loosely through the top and bottom walls of the cap and through the sleeve, a tubular valve member carried by the rod and disposed within the casing in surrounded relation to and in close contact with the sleeve, and having an inlet opening and a conical head for engagement with the flaring seat, the said head being carried with the valve member, a gasket disposed within the valve member for engagement with the lower end of the sleeve, and means for operating the valve member.

In testimony whereof I affix my signature.

WILLIAM WRIGHT.