G. S. JOHNSON.

QUICK DETACHABLE VALVE.

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1,251,235.

Patented Dec. 25, 1917.

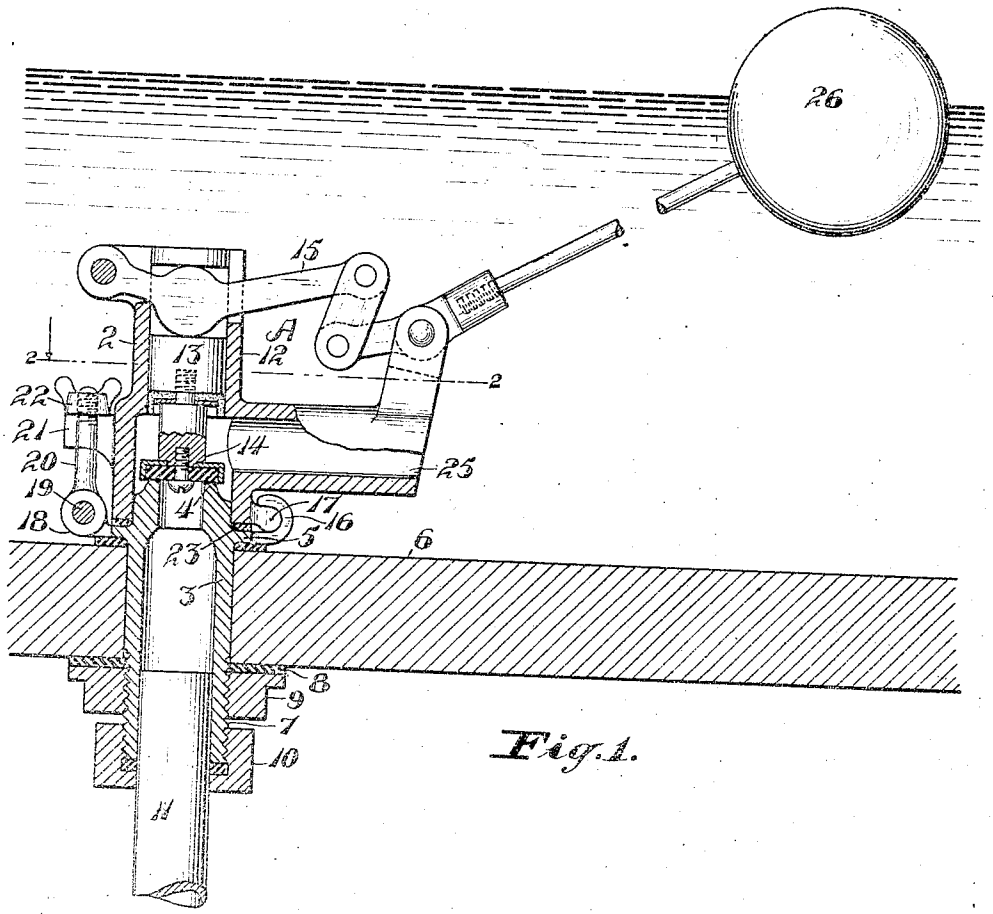
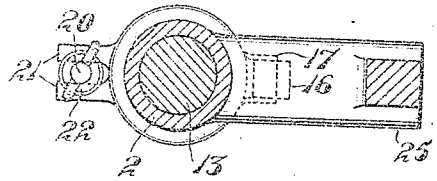


Fig. 1.

Fig. 2.



WITNESSES:

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GOOD S. JOHNSON, OF DIXON, CALIFORNIA.

QUICK-DETACHABLE VALVE.

1,251,235. Specification of Letters Patent. Patented Dec. 25, 1917.

Application filed March 31, 1917. Serial No. 158,830.

To all whom it may concern:

Be it known that I, GOOD S. JOHNSON, a citizen of the United States, residing at Dixon, in the county of Solano and State of California, have invented new and useful Improvements in Quick-Detachable Valves, of which the following is a specification.

This invention relates to a quick detachable valve of the ball-cock type.

Float-actuated valves such as are generally employed in connection with flushing tanks and the like are as a rule constantly submerged in the water or other liquid contained in the tank, and as such are subject to corrosion and natural wear. It therefore often happens that these valves must be removed for repair or adjustment, and as they are generally screwed into the bottom of deep and narrow tanks, it will readily be seen that their removal is accomplished with considerable difficulty and loss of time, this being particularly true when it is necessary to disconnect and remove projecting float levers and the like before it is possible to turn or unscrew the valve proper.

An object of the present invention is to overcome this difficulty by providing a simple, substantial, quickly detachable valve which can be readily removed without turning the valve or disconnecting the float lever or any other projecting part. Further objects will hereinafter appear.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a central, vertical section through the valve, showing it positioned in a flushing tank.

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

Referring to the drawings in detail, A indicates in general a valve of the ball-cock type. The casing of the valve is in this instance constructed of two separable sections, as indicated at 2 and 3. The lower or male section is provided with a valve seat 4 in the upper end and an exterior flange or shoulder 5 engageable with a gasket placed in the bottom of a tank 6. The lower end of the casing 3 is extended and threaded, as at 7, to receive a packing gasket 8, a clamping nut 9, and a slip joint 10 of standard construction to receive the pipe 11 through which water under pressure is admitted. The upper casing or female section 2 is provided with a cylinder extension 12, in which is slidably mounted a piston 13 supporting a valve 14 of the usual type which is engageable with the seat 4; the valve being normally held against the seat by means of a float-actuated toggle lever 15.

Formed as an extension of the annular shoulder 5 is a hook-shaped lug 16 having its mouth horizontally arranged and facing the male section, and formed on the lower end of the upper casing section is a lug 17 which is adapted to be received in and through the sides of the mouth of the hook-shaped lug 16. Formed on the annular shoulder 5, on the side opposite to the lug 16, is a pair of lugs 18, in which is pivotally mounted, as at 19, a screw 20. Formed on the upper casing section, in alinement with the lower lugs 18, is a pair of lugs 21, between which the screw is adapted to pass, and carried by the screw is a wing-nut 22 which coöperates with the lugs 16 and 17 to clamp or secure the casing sections together, a gasket 23 placed between the casing sections forming a water-proof joint.

The majority of valves of the type here employed are generally provided with a single valve casing which is screwed into the bottom of the tank. This causes considerable trouble as it is often necessary to remove the valve for repair, adjustment or the renewal of parts. In order to remove a valve that is screwed into the bottom of a tank, it is necessary to remove the float member; and as this cannot be removed without taking out one or more of the pivot pins in the toggle lever, it can readily be seen that considerable time is lost as the valve proper is constantly submerged in the water contained in the tank, causing the pivot pins to corrode to such an extent that it is almost impossible to remove the same. The necessity of removing the float lever is caused by the narrowness of the tanks usually employed. In other words, it is impossible to unscrew the valve casing or remove it without removing the float member as it would be impossible to turn the valve casing to unscrew the same.

The present invention entirely overcomes this difficulty as it is only necessary to partly unscrew the nut 22. This permits the screw 20 to be swung about its pivot 19 away from the lugs 21 and thereby permits the upper valve casing to be removed bodily without

turning the same or disconnecting any of the projecting parts or levers. The only parts subject to wear, such as the valve 14 and piston 13, together with the float and toggle levers, can, therefore, be removed without further disconnections and practically without any loss of time as the screw 20 employed is so large and so easily reached that no difficulty is encountered when this is released. The valve is otherwise operated in the usual manner; that is, the withdrawal of water from the tank causes the float to drop and thereby permits the toggle lever to open valve 14. Water from the pipe 11 will then pass through the lower and upper casing section and will then enter the tank through a discharge nozzle 25; the valve being automatically closed when the float 26 reaches a predetermined elevation or when the desired water level is obtained.

The materials and finish of the several parts of the device are such as the experience and judgment of the manufacturer may dictate.

I wish it understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claim and that I do not wish to limit myself to the specific design and construction here shown.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

In a quick detachable valve, a male section having a peripheral flange extending out therefrom and between its ends, said flange being formed so as to provide vertically alined gasket seats on its opposite side faces, gaskets engaged with said seats, a valve seat on one end of said section, a valve-bearing female section received over said end of the male section and seated on the adjacent gasket seat, a hook connected to the flange periphery and extending upwardly and curved inwardly and having its mouth horizontally arranged and facing the male section, a radial lug extending outwardly from the female section and having its end shaped to be received in and through the sides of the hook mouth, and a screw connection between the periphery of said flange and the other section to hold the sections against movement.

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

GOOD S. JOHNSON.

Witnesses:
L. P. Hall,
B. C. Fontono.