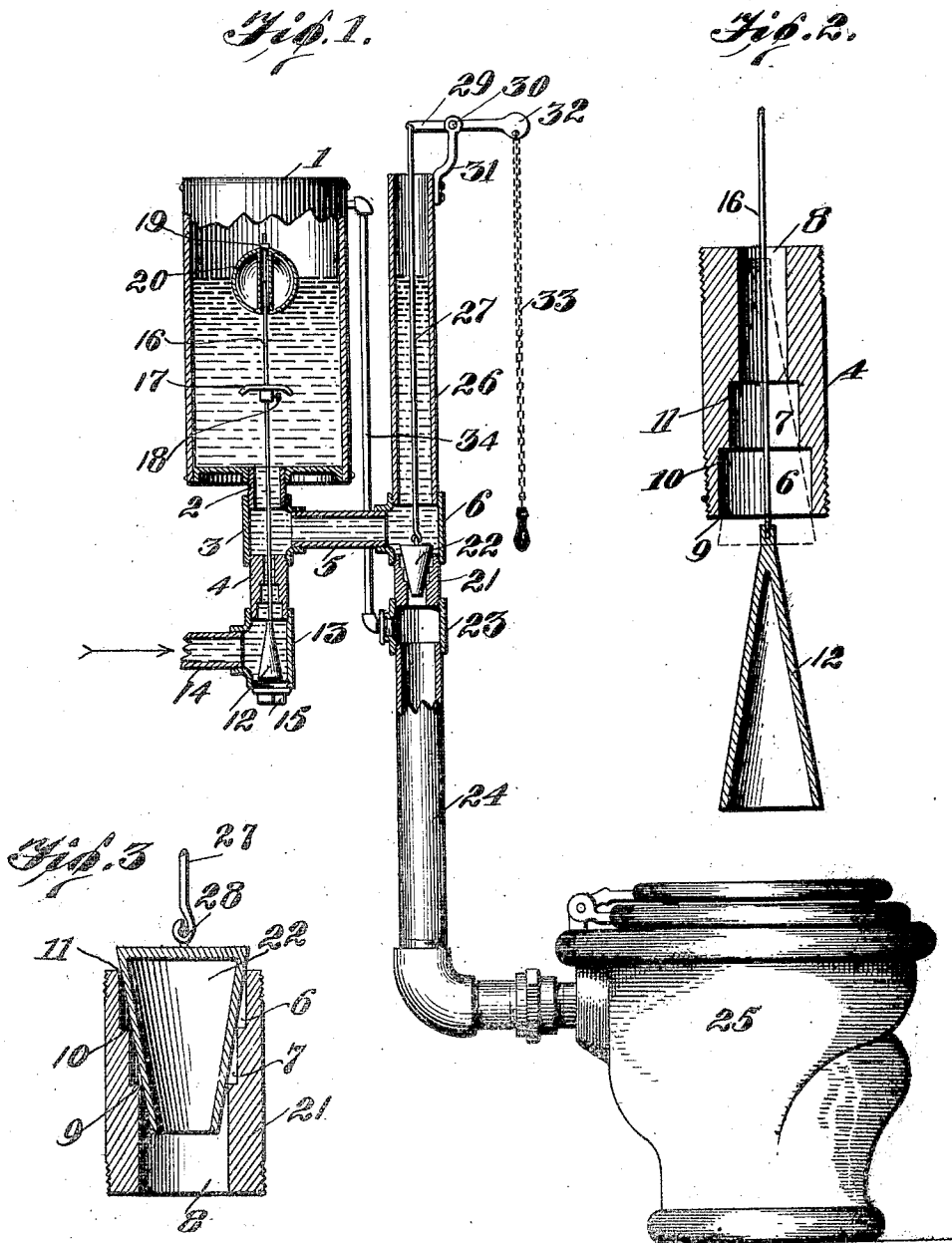


A. S. FAILING.
 FLOAT VALVE MECHANISM.
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UNITED STATES PATENT OFFICE.

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FLOAT-VALVE MECHANISM.

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To all whom it may concern:

Be it known that I, ARCHIE S. FAILING, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Float-Valve Mechanism, of which the following is a specification.

My invention relates to improvements in float-valve mechanism designed for use in connection with washout bowls.

One of the objects of the invention is to provide float-valve mechanism in which the supply or inlet valve and the flush or outlet valve are arranged exteriorly of the flush tank proper at all times readily accessible for purposes of repair, or the like, and in such manner as to preclude any possibility of corrosion.

Another object of the invention is to provide novel forms of valves and valve seats to insure a relative tight fit and easy operation.

Still another object of the invention is to devise a flush tank which obviates any possibility of accumulation of dirt and other foreign matter, and which furthermore, is self-cleaning.

To the accomplishment of the recited objects and others coordinate therewith, the preferred embodiment of my invention resides in that construction and arrangements of parts hereinafter described, illustrated in the accompanying drawings, and embraced within the scope of the appended claims.

In said drawings: Figure 1 is an elevation of the float-valve mechanism partly in section, connected to a wash-cut bowl. Fig. 2 is a detail sectional elevation of the supply valve, and Fig. 3 is a similar view of the flush or outlet valve.

Referring more particularly to the drawings for a detail description of my invention, the numeral 1 designates a substantially rectangular shaped flush tank, constructed of any suitable metal, and provided medially of its bottom with an outwardly and downwardly extending nipple 2, to which is connected the upper end of a vertically disposed T member 3, the opposite end of the latter being secured to one extremity of a casing 4, and the intermediate portion of said T 3 having a nipple, as 5, extending therefrom in a horizontal plane. The casing 4 is bored longitudinally thereof, as best seen in Fig. 2 of the drawings, and said bore has three distinct dimen-

sions, that is to say, from the bottom of the casing the bore progressively decreases in diameter to the top to present bores 6, 7 and 8. By virtue of this interior construction of the casing 4 three seats 9, 10 and 11 are formed at the junction of the said bores, and the peripheries on these bores converge, whereupon it follows that the conical shaped supply valve 12 will engage the same at three points when the latter is elevated into the position illustrated by dotted lines in Fig. 2 of the drawings. The supply valve 12 is adapted to be lowered in the T 13, having a supply pipe 14 and a detachable closure or clean-out plug 15, and is preferably hollow to make it lighter and thereby insure a more easy operation. It will be understood that nipple 2, member 3, casing 4, T 13 and pipe 14 constitute the inlet of the main tank 1.

Preferably screw-threaded to the upper terminal of the supply valve 12 is a vertical rod 16 which projects through the nipple 4, T 3 and nipple 2 into the flush tank 1. This rod is equipped intermediate its ends with a baffle plate 17, which may be adjusted longitudinally of the rod through the medium of the set screw 18, and movable between the said baffle plate 17 and an adjustable nut 19 on the outer end of the rod is a float, as 20.

Connected to the outer end of the nipple 5 is another vertical T 6 confronting the hereinbefore mentioned T 3, and suitably connected at its lower terminal is the casing 21 which is similar in construction to the said casing 4, only in the latter instance the varying bores progressively increase in diameter, instead of decrease from the bottom to the top of the casing, and obviously involves the coöperation of a flush valve, as 22 which is a substantial reversal of the supply valve 12, but operates in precisely the same manner. In this connection it will be noted that the bore 8 of the casing 21 is slightly larger than the corresponding bore in the casing 4 so as not to restrict the flow of water.

The lower end of the casing 21 is suitably fastened to a T 23, and this in turn is secured to a vertical pipe 24 connected to the wash-out bowl 25, and the upper end of the T 6 has secured thereto a vertical pipe 26 in alinement with said pipe 24 and serving as a casing or inclosure for the rod 27, which extends centrally therethrough and is connected to said flush valve 22 by the

hook 28. This rod 27 projects through the open end of the pipe 26 and is pivoted to the free end of the horizontally arranged link 29, which is also pivoted intermediate its ends, as at 30, to the vertical bracket 31 suitably secured to the upper extremity of the pipe 26.

The outer end of the link 29 is enlarged, as at 32, to give a preponderance of weight and thereby counterweight the flush valve 12 and facilitate the unseating of the valve when the chain 33 is operated. An overflow pipe 34 is designed to connect the upper portion of the tank and the T 23, and serves as a precaution in the event of any irregularities.

Normally, the water in the flush tank 1 occupies approximately the same level as indicated in Fig. 1 of the drawings, and the supply valve 12 is resting against its seats 9, 10 and 11. Upon pulling the chain 33, the flush-valve 22 will be unseated, which will permit the water to have an unobstructed passage from the tank to the bowl. When the flushing has been completed, and the valve 21 allowed to resume its normal position, the float will have descended on top of the baffle plate 17 and by reason of the afflux of the water from the tank and the consequent loss of buoyancy to the float, the increased weight of the latter will be sufficient to force the valve 12 from its seat. The water will then enter through the supply pipe 14, and intermediate connections, into the tank 1 until the latter is refilled, whereupon the float will rise and cause the valve 12 to cut off the supply. The baffle or deflector plate 17 serves to shed the water around the nipple 2 and prevent it from spurting up into the tank in a stream.

Considerable difficulty is experienced with both the supply and flush valves of the present day, and this is due principally to the fact that the valves are under water and corrode quickly. When it is necessary to make repairs it is quite an arduous undertaking to get at the valves and correct the discrepancy. Furthermore, the tanks cannot be emptied unless a sponge or the like is used, and quantities of dirt collect and cause deterioration of the linings. By the use of my invention, these and other inherent disadvantages are overcome. In the first place all of the mechanism, with the exception of the float, the rod, and the baffle plate, is located outside of the tank, and is at all times easily accessible. When it is desired to inspect the supply valve, the plug 15 is removed, and said valve gravitates into plain view. The flush valve may be similarly examined by disconnecting the casing 21. Both casings are preferably

constructed of brass, for durability, and may be removed in a comparatively short time. The tank is devoid of any features which cause accumulation of dirt, and is self-cleaning, any particles that may have a tendency to be precipitated on the bottom of the tank, being disposed of when the tank is flushed.

It should be understood that in its broader aspect the invention comprehends the employment not only of the various means described, but of equivalent means for performing the recited functions.

While the arrangement shown is thought at the present time to be preferable, it is desired to reserve the right to effect such modifications and variations thereof as may come fairly within the scope of the appended claims.

What is claimed, is:

1. In mechanism of the character described, the combination of a tank having an inlet, one wall of said inlet being provided with an opening normally closed by a detachable plug, a float operated valve controlling said inlet and adapted to project exteriorly of said inlet when the plug is removed, and adjustable means independent of said float for limiting the exterior projection of the valve.

2. In mechanism of the character described, the combination of a tank having an inlet, one wall of said inlet being provided with an opening normally closed by a detachable plug, a valve controlling said inlet and adapted to project exteriorly of said inlet when the plug is removed, a float for operating said valve and having a movement independent of said valve, and common means for limiting the exterior projection of said valve and the downward movement of said float.

3. In mechanism of the character described, the combination of a tank having an inlet, one wall of said inlet being provided with an opening normally closed by a detachable plug, a valve controlling said inlet and having a vertically extending stem, a float mounted upon the upper extremity of said stem and free to move thereon, said valve being adapted to project exteriorly of said inlet when the closure is removed, and a member adjustably mounted intermediate the upper end of the stem and the valve for limiting the exterior projection of the latter and the downward movement of said float.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

ARCHIE S. FAILING.

Witnesses:

JENNIE T. FAILING,
ARTHUR E. WILCOX.