V. J. CORNAGGIA.

AUTOMATIC FLUSH TANK REGULATOR.

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1,119,137.

Patented Dec. 1, 1914.

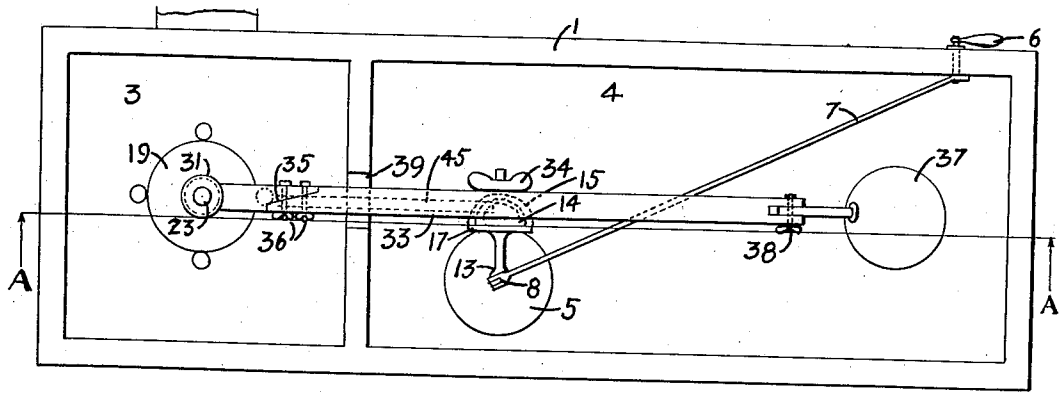


FIGURE 1

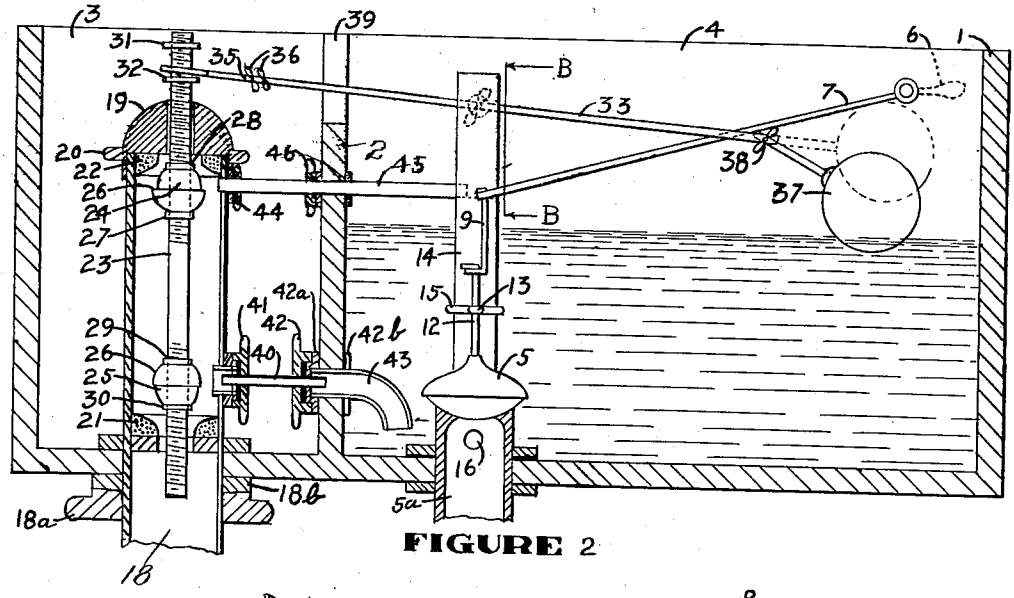


FIGURE 2

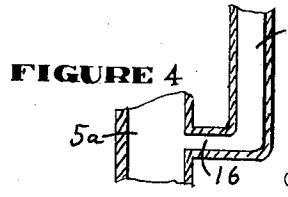


FIGURE 4

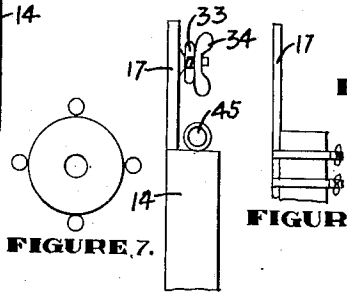


FIGURE 3.

FIGURE 7.

FIGURE 8.

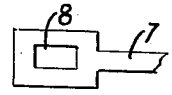


FIGURE 5.

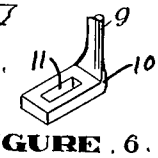


FIGURE 6.

WITNESSES:

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AUTOMATIC FLUSH-TANK REGULATOR.

1,119,137. Specification of Letters Patent. Patented Dec. 1, 1914.

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To all whom it may concern:

Be it known that I, VICTOR J. CORNAGGIA, a citizen of the United States, residing in Santa Clara, county of Santa Clara, and State of California, have invented certain new and useful Improvements in Automatic Flush-Tank Regulators; and I do hereby 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.

My invention relates to improvements in automatic flush tank regulators in connection with water-closets.

One object of my invention is to provide an automatic flush tank regulator that can be adjusted to water supplies of different pressures.

Another object is to provide a mechanism in which the valves controlling the water supply in the tank can be easily disconnected and removed from and replaced in said tank without the use of tools and without draining the water from said tank, also one in which the various parts may be easily dissembled or assembled, cleaned, and repaired.

Further objects and advantages will appear in the following description and are more particularly embodied in the claims.

I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my automatic flush tank regulator in position. Fig. 2 is a vertical section on line A—A of Fig. 1. Fig. 3 is a detail side elevation at B—B of Fig. 2. Fig. 4 is a detail section showing overflow connection to flushing pipe. Fig. 5 is a detail view of one end of the flush lever arm. Fig. 6 is a detail view of the lower end of the connecting link. Fig. 7 is an elevation of a lock nut. Fig. 8 is a detail elevation of a round overflow pipe with extension attached thereto.

In the drawing 1 refers to the flush tank and 2 to a transverse partition placed the required distance from one end of said tank 1 forming two compartments as 3 and 4 respectively. Compartment 4 is water tight, designed to contain the water for flushing the water-closet bowl, and contains the flush valve 5 which seats upon flushing pipe 5^a, said flushing pipe 5^a leading to a water-closet bowl not shown. Flush valve 5 is operated in the usual manner by means of a handle 6 and flush lever arm 7, said arm 7 having a slot in one end thereof, as 8, to receive and hold connecting link 9. Connecting link 9 has its lower end bent upward at right angles a distance as shown at 10, said bent portion having a slot cut therein as shown at 11 in which hooked valve stem 12 moves freely in a vertical direction. Valve stem 12 also moves freely in a vertical direction in guide 13 which is fastened to an overflow pipe 14 by a collar 15. Overflow pipe 14 has an open connection with discharge pipe 5^a as shown at 16 for the purpose hereinafter described. Overflow pipe 14 is preferably flat on one side, said flat side projecting upward a distance above the top of said overflow pipe 14 as shown at 17.

Compartment 3 is adapted to receive one end of a water supply pipe 18, said pipe 18 being fastened in place with a lock nut 18^a and washer 18^b. Supply pipe 18 is fitted with a hemispherical top 19 adapted to be screwed on to said supply pipe 18 by hand, a grip 20 being formed thereon for that purpose. A valve seat is shown at 21 placed a distance below the top of said supply pipe 18 and a valve seat 22 is placed at the top of said supply pipe 18 and is attached to top 19. A valve stem 23 is shown passing through said top 19 and removable valves 24 and 25 respectively shown thereon in the proper position to operate on said valve seats 22 and 21. Said valves 24 and 25 are made of any suitable material, the inner portion thereof being protected by metal coverings 26, and are held in their proper places on said valve stem 23 by threaded nuts 27 and 28, and 29 and 30, respectively, said valve stem 23 being threaded the proper distance from both ends for that purpose. On the end of valve stem 23 which projects through the top 19 of supply pipe 18 are screwed two nuts 31 and 32 respectively, which hold in place on said valve stem one end of float rod 33. Float rod 33 is pivoted to the projecting portion 17 of overflow pipe 14 and held in place by thumb-screw 34, and is rigidly jointed at a point preferably in compartment 3 as shown at 35, said joint 35 permitting the separation of the rod into two parts at this point by means of thumb-screws and bolts as 36. Float 37 is adjustable on said float rod 33 by means of a tongued joint with thumb-screw and bolt as 38. A slot 39 is cut in partition 2 to permit the free operation of float rod 33. Supply

pipe 18 is connected to compartment 4 by means of a slip pipe 40 fastened to said supply pipe 18 by lock nut 41 and to partition 2 by lock nut 42. Said slip pipe 40 discharges into a larger pipe 43 secured in said partition 2 by nuts 42^a and 42^b and curves downwardly into compartment 4. Near the upper end of supply pipe 18 is removably connected by lock nut 44 an auxiliary overflow pipe 45 which passes through water tight bearings 46 in partition 2 and discharges into overflow pipe 14 as shown in Fig. 3.

To remove valves 24 and 25, disconnect float rod 33 at joint 35 by thumb-screws 36; unscrew head 19 from supply pipe 18, and the stem and valves can be readily removed. To remove supply pipe 18 it is only necessary to unscrew lock nuts 44, 41, 42, and 18^a respectively.

When the water is discharged from compartment 4 the float 37 drops downward and allows a fresh supply to flow in through valve 25, valve 24 closing the upper opening. If the water discharges into the bowl with such force as to flow away and leave little or no water in the bowl, sufficient water will flow into said bowl through auxiliary overflow 45, overflow 14, and opening 16 to always leave some water in said bowl. If the fresh supply of water flows into compartment 4 under great pressure, then float 37 is adjusted as shown in the drawing so as to act more quickly on valve 25 and close off the supply and thus prevent splashing over the top of tank 1. If the pressure is not great, then float 37 is adjusted as shown in dotted lines thus closing valve 25 more slowly. Joint 38 permits over 180° of adjustment of float 37. The lock nuts are all provided with grips, one form of which is shown in Fig. 7, in order that they may be unscrewed without the use of tools. When desired an extension may be fastened to the top of a round overflow pipe as shown in Fig. 8, instead of using an overflow with a flat side as specified above.

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

1. In a device of the class described, the combination of a flush-tank, a compartment attached thereto, a water supply mechanism operatively positioned in said compartment having a discharge opening in the side thereof, a lock-nut adapted to receive a slip-pipe fitted to said opening, a downwardly curving discharge pipe positioned in the wall dividing said tank from said compartment, a lock-nut fitted to the compartment end of said discharge pipe and adapted to receive a slip-pipe, and a slip-pipe adapted to engage both of said lock-nuts forming open communication between said tank and said supply mechanism, substantially as shown and described.

2. In a device of the character described, the combination of a flush tank having a flushing mechanism with overflow pipe operatively positioned therein, and a supply pipe rigidly positioned in close proximity to the exterior of said flush tank having a discharge opening in the side and a distance from the top thereof and an auxiliary discharge opening in the side and at the top thereof, a lock-nut adapted to receive a slip-pipe fitted to each of said openings, a downwardly curving discharge pipe positioned in the wall of said flush tank, a lock-nut fitted to the outer end of said discharge pipe adapted to receive a slip-pipe, a slip-pipe adapted to engage said last mentioned lock-nut and the lock-nut fitted to said discharge opening in said supply pipe, watertight bearings adapted to receive a slip-pipe positioned in the wall of said flush tank, an auxiliary overflow pipe adapted to engage said watertight bearings and said lock-nut in said auxiliary discharge opening, an inwardly facing valve seat positioned in the upper end of said supply pipe, an outwardly facing valve seat positioned in said supply pipe below said discharge opening, a valve stem having valves removably positioned thereon adapted to engage said valve seats in said supply pipe, and a float rod having a float adjustably pivoted to the outer end thereof removably attached to the upper end of said valve stem, substantially as shown and described.

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

VICTOR J. CORNAGGIA.

Witnesses:
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J. B. CAMBERS.