

P. E. GOWEY.
INLET VALVE FOR FLUSH TANKS.

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1,063,125.

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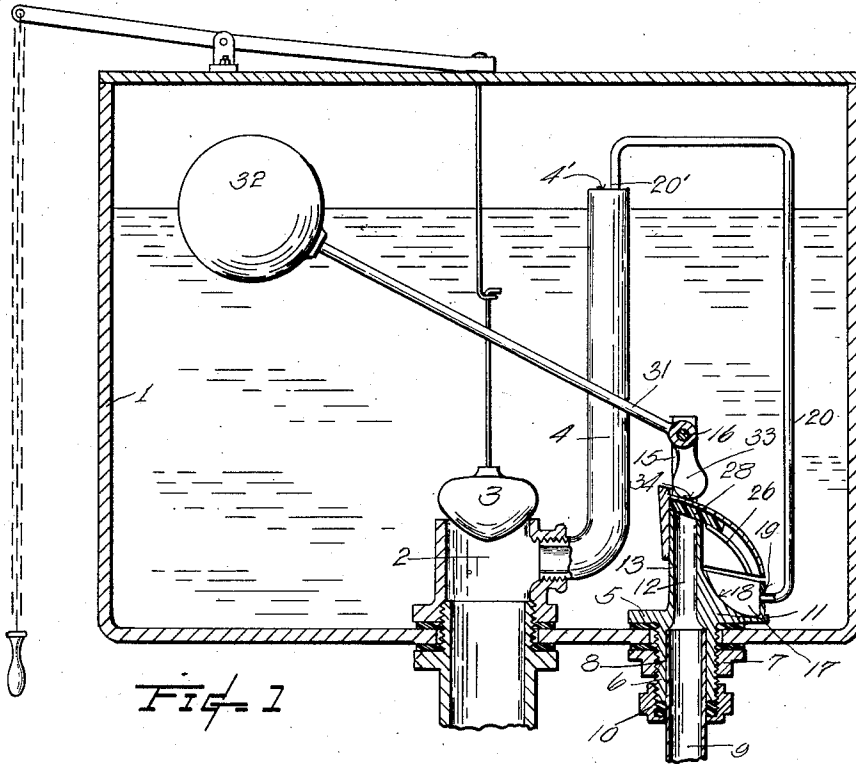


Fig. 1

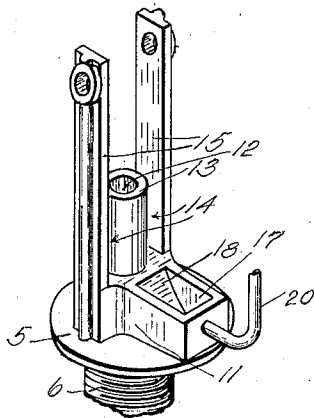


Fig. 3

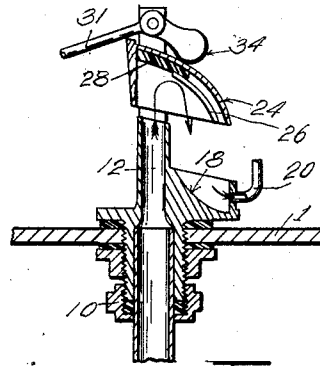


Fig. 2

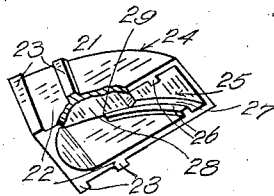


Fig. 4

WITNESSES:

F. C. Matheny
Horace Barnes

INVENTOR

Paul E. Govey

BY

Rein. Barnes
ATTORNEY

UNITED STATES PATENT OFFICE.

PAUL E. GOWEY, OF SEATTLE, WASHINGTON.

INLET-VALVE FOR FLUSH-TANKS.

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To all whom it may concern:

Be it known that I, PAUL E. GOWEY, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Inlet-Valves for Flush-Tanks, of which the following is a specification.

This invention relates to improvements in inlet valves for flush tanks.

The object of the invention is the provision of an inlet valve of simple and relatively inexpensive construction that is positive and efficient in its action.

A further object of the invention is the provision of valve members that may be quickly and readily disassembled by an inexperienced person to investigate and repair any disordered condition and, particularly, to afford convenient means to renew the packing material from time to time.

A still further object of the invention is the provision of an after-fill device of simple construction that is well adapted for the service for which intended.

The invention consists in the novel construction of an inlet valve and the combination and adaptation of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a flush tank including an embodiment of my invention. Fig. 2 is a view in vertical section of the invention shown in a different position to that illustrated in Fig. 1. Fig. 3 is a perspective view of a detail of the invention. Fig. 4 is an underside perspective view of the cover-block, shown detached.

Referring to said drawings, the reference numeral 1 designates a flush-tank for water-closets provided with an outlet 2 and a ball valve 3 therefor for controlling the flushing functions of the tank.

4 designates an overflow pipe connected at its lower end with said outlet and having its upper end 4' extended somewhat above the normal water level in the tank.

All of the above described parts are, or may be, of the usual or suitable construction.

An inlet valve adapted to control the supply of water to the tank is provided and consists in a base 5 having an externally threaded sleeve 6 projecting through an aperture in the tank bottom and secured to the latter by means of a lock nut 7. Said sleeve

is formed with a bore 8 adapted to receive a water-service pipe 9 and provided with a gland nut 10 to prevent the leakage of water therebetween. Integrally formed upon said base is a body 11 having a nozzle 13 projecting upwardly therefrom provided with a bore 12 in axial alinement with said bore 8, and terminating in an upper extremity having a sloping face, as clearly shown in the views. Integral with the body upon opposite sides of the nozzle and separated therefrom by spaces 14 are standards 15 which are bored in proximity of their upper ends for the reception of a split or cotter-pin 16. Formed in said body is a rectangular recess 17 whose inner side wall and bottom are merged in an outwardly curved or inclined wall 18, while its outer vertical wall is apertured at 19 for the reception of the lower end of an after-fill pipe 20. Said after-fill pipe has its opposite or upper end 20' discharging in said overflow pipe 4.

The numeral 21 designates a valve-member or hood whose side walls 22 are each provided with pairs of guide-ribs 23 adapted to slidably receive the respective standards 15 therebetween. Said hood is formed with a curved or inclined top wall 24 and is formed interiorly with a chamber having a correspondingly curved upper surface 25 also with a pair of correspondingly curved ribs 26 integral with side walls 22 and respectively spaced from said surface 25 to afford guideways 27 for the insertion and retention of a block of rubber or other packing 28. Said ribs may be cut away, as at 29, to accommodate the upper end of said nozzle, as will be explained.

31 designates a rod which is pivoted at one end upon said pin 16 between the standards 15 and at its other end is provided with a float 32. Integral with the first named end said rod is provided with an angularly disposed lever arm 33 having an enlarged rounded end 34 which is adapted to engage with the sloping exterior face of said hood.

The operation of the apparatus may be explained as follows: The inlet valve is assembled by the hood 21 provided with a strip of packing 28 being slidably engaged in operative condition upon the standards 15 and whose side walls 22 are adapted to pass between said standards and the nozzle 12 causing the latter to intrude within the hood-chamber, its upper inclined extremity in con-

tact with said packing to cut off the influx of water. Assuming that the tank and apparatus is in the condition illustrated in Fig. 1, in which the inlet valve is closed and the water in the tank is at its normal high level; when the valve 3 is raised from its seat the water in the tank escapes through the outlet 2 to flush the closet bowl. As the water level in the tank lowers the float 32 descends therewith which causes the arm 33 to oscillate and relieve the pressure upon the hood 21 whereupon the water pressure in the nozzle 12 raises said hood and permits the inlet of water in the tank. Said inrushing water flows upwardly with its full force and impinges upon the curved upper surface 25 of the hood whence it is deflected forwardly and downwardly into the recess 17 where a portion of same again impinges upon the inclined wall 18 which directs a relatively small amount of the water into the aperture 19 and thence into the after-fill pipe 20 which conveys it to overflow pipe 4 to provide water to cover the trap in the closet bowl after the flushing operations. The balance of the water issuing downwardly from said directrix surface 25 escapes out into the tank and gradually fills the same upon the reseating of the valve 3, as is well understood. As the water in the tank rises the float 32 is raised correspondingly and causes the end 34 of the arm 33 to engage the inclined top wall 24 of the hood and progressively depresses the latter toward the nozzle 12 and finally closes the same by bringing the packing 28 hard against the opening of said nozzle.

The particular advantage afforded by this invention resides in the simplicity of its construction and the ease with which it may be taken apart to examine or renew the packing. The pin 16 may be slipped out of its engagement in the standards 15 whereupon the rod 31 may be removed and the hood is free to be slipped upwardly and released from engagement from said standards and is readily accessible for readjustment or repair of any kind. At the same time the inlet nozzle

12 is likewise perfectly accessible and any kind of minor repairs may be made by a relatively inexperienced person.

What I claim, is—

1. In an inlet valve for flush tanks, the combination of a body provided with a bore having communication with a source of water supply, a nozzle having connection with said bore, a pair of combined guides and standards on opposite sides of said nozzle, a valve member slidably-mounted on said standards to close the opening of said nozzle and having a chamber adapted to receive packing, said valve member having a downwardly curved wall lying to one side of the nozzle and over a recess provided in the body at the base of the nozzle, an afterfill pipe communicating with said recess, a rod pivotally-mounted in the upper end of said standards and having a float on its free end, and an arm depending from the pivoted end of said rod to engage said valve member to force the latter upon the nozzle opening as the water level in the tank is raised.

2. In an inlet valve for flush tanks, the combination of a body provided with a bore having communication with a source of water supply, a nozzle having communication with said bore, a pair of combined guides and standards on opposite sides of said nozzle, said body having a recess at one side thereof having a downwardly and outwardly-curved base wall, an afterfill pipe leading from said recess, a valve member slidably-mounted on said standards and having a downwardly curved top wall overlying said recess, a rod pivoted in the upper end of said standards and having a float on one end, and a depending arm carried by the pivoted end of said rod to engage the valve member and force the latter upon the nozzle opening as the water level in the tank is raised.

PAUL E. GOWEY.

Witnesses:

HORACE BARNES,
E. PETERSON.