Nov. 14, 1950 S. W. SINCOMB 2,530,209

VALVE ROD GUIDE FOR FLUSH TANKS

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Fig 1

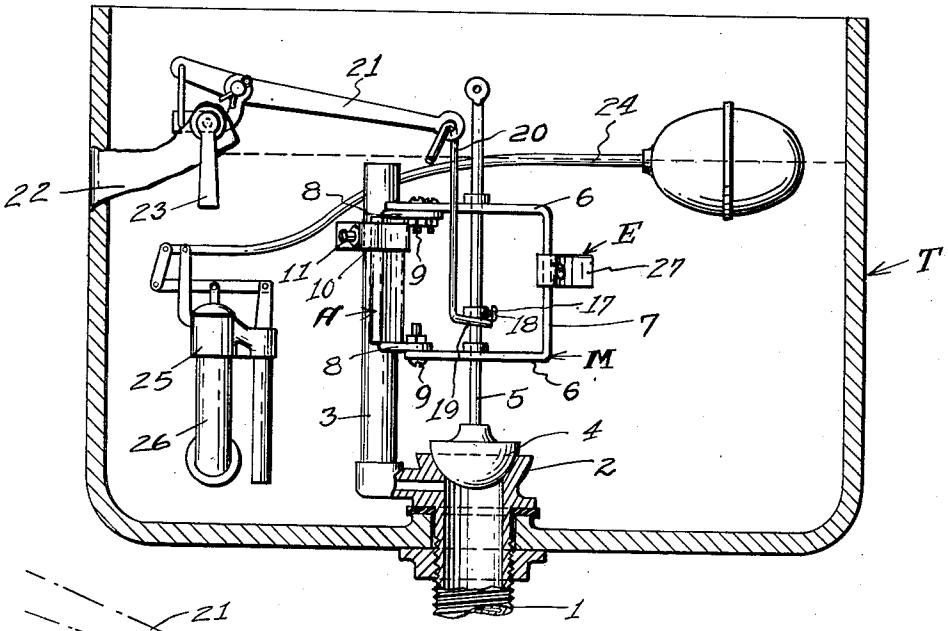



Fig 2

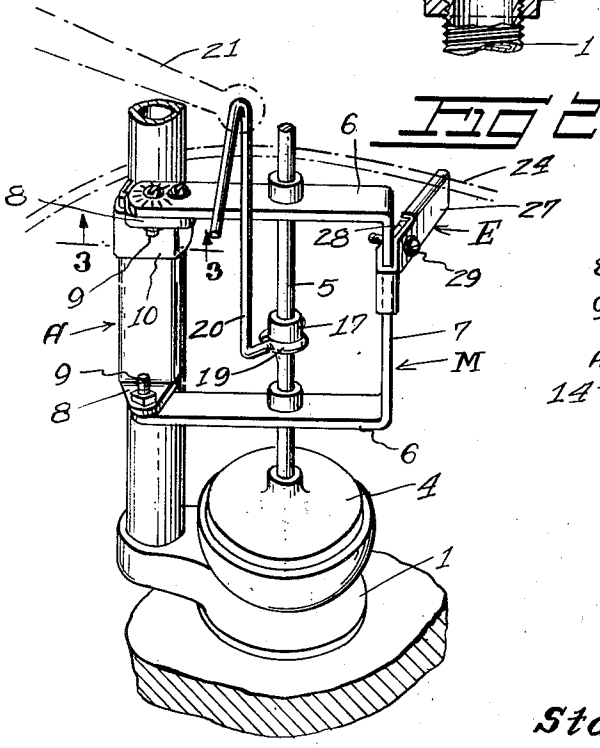
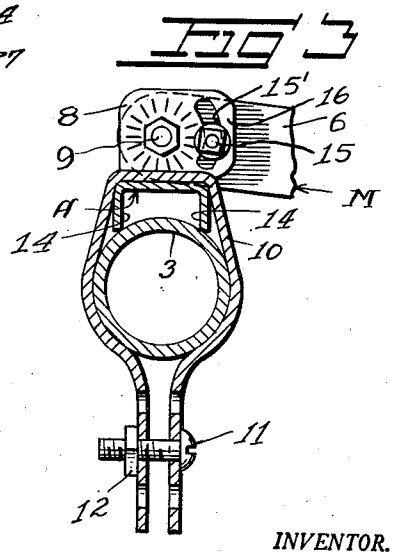



Fig 3




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## VALVE ROD GUIDE FOR FLUSH TANKS

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2 Claims. (Cl. 4—57)

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This invention relates to a valve rod guide for flush tanks and it is an object of the invention to provide one of a construction and arrangement to assure effective seating of the flush valve following the emptying of the tank.

It is also an object of the invention to provide a guide structure of this kind which can be readily adjusted as required to effectively align the valve rod with the tank outlet to assure proper seating of the flush valve.

Another object of the invention is to provide a device of this kind with means for regulating the extent of opening of the inlet valve to permit slow or fast filling of the flush tank as may be preferred.

A still further object of the invention is to provide a device of this kind whereby the valve ball may be maintained in a position in line with the center of the valve seat and positively seat in that position under all conditions to which the valve ball may be subjected in use.

Furthermore, the invention has for an object to provide a rod guide that will assure proper seating of the valve ball regardless of variations in force and swirling actions of the water leaving the tank and to assure the valve ball to be tightly sealed when the tank is full and thus avoid, by leakage, loss of water in the tank until the tank is discharged in the regular way.

The invention consists in the details of construction and in the combination of the several parts of my improved valve flusher whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view partly in elevation and partly in section, illustrating a rod guide embodying the invention and in applied position.

Figure 2 is a fragmentary view in perspective of the guide in applied position, certain parts of the valve actuating mechanism being diagrammatically indicated by broken lines.

Figure 3 is an enlarged detail section view taken substantially on the line 3—3 of Figure 2.

As illustrated in the accompanying drawings, T denotes a conventional flush tank having the usual discharge pipe 1, leading from the valve seat 2 within the tank T and which also has in communication therewith the usual overflow pipe 3. Coacting with the valve seat 2 is a prevailing type of buoyant outlet valve member 4, generally referred to as a valve ball.

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The member or ball 4 is carried by the lower extremity of the rod or stem 5 of desired length and which is at substantially the axial center of the member or ball 4. The rod or stem 5 is slidably disposed through the spaced parallel arms of the guide member M. The outer extremities of the arms 6 are connected by an intermediate member or arm 7 which may be integral with the arms 6. The opposite or free extremities of the arms 6 extend over the outstanding ears 8 carried by the opposite end portions of an attaching member A and pivotally secured thereto by the bolts 9, or the like. The member A is herein disclosed as U-shaped in cross section or of a channel type. The member A is held in selected position upon the overflow pipe 3, by the straps 10 rigid with the member A and preferably at the top portion thereof. These straps 10 extend across the pipe 3 at opposite sides thereof and are tightly held to the pipe 3 by the clamping screw 11 and its associate nut 12, coacting in a well-known manner with the end portions of the straps 10 at the side of the pipe 3 remote from the member A. The side flanges 14 of the member A have direct contact with the periphery of the pipe 3 whereby it is assured the member A is effectively held in desired adjusted position along the pipe 3 and therearound as the requirements of practice may require to properly center the member or ball 4 with respect to the seat 3.

The desired adjustment of the member or ball 4 is further obtained by swinging the member M as may be required. When the member M is in selected positions of adjustment with respect to the member A, it is releasably held in such position by a conventional holding screw 15 passing through an arm 6 and through an arcuate slot 15' provided in an extension 16 of one of the ears 8 of the member A and preferably the top ear as shown in the drawings.

The rod or stem 5 between the arms 6 has held thereto, at a desired point, a surrounding collar 17. As shown in Figure 1, this collar 17 is maintained in required position by a binding screw 18 threading through the collar and in proper engagement with the rod or stem 5. The rod or stem 5 is freely disposed through an eye or loop member 19, extending laterally from the lower end portion of the elongated link 20, and is contacted from below by the collar 17. The opposite or upper extremity of the link 17 is provided with the prevailing hook which operatively engages the usual operating lever 21, supported for required rocking movement by a wall 22 of the tank

T and which is manually operated in a conventional manner by the handle **23**.

Associated with the guide member M is an element E for coaction with a conventional float arm **24** for opening and closing the valve structure **25** for the filling pipe **26**. The float arm **24** and the valve structure **25** may be as preferred and therefore a detail description and illustration are believed unnecessary other than to explain that the flow from the pipe **26** is closed when the arm **24** is in its uppermost position and the flow from the pipe **26** is a maximum when the arm **24** is at its lowermost position. By selectively limiting the extent of downward movement of the arm **24**, the valve structure will be caused to open in accordance with the desired discharge of the water from the inlet pipe **26** into the tank T.

As disclosed in the accompanying drawings, the element E comprises an elongated arm of required length and extending from the intermediate member or arm **7** of the guide member M to a point beyond the path of travel of the float arm **24**. This arm **27** also underlies the float arm **24** so that the contact of the arm **24** from above with the arm **27** of the element E will limit the downward movement of the arm **24** and thereby control the extent of opening of the valve structure **25**.

The inner end of the arm **27** is provided with a short return arm **28** and the intermediate member or arm **7** of the member M passes between the short arm **28** and the adjacent portion of the arm **27**. Coating with the overlying portions of the arms **27** and **28** is a clamping screw **29**, whereby the element E may be firmly locked at desired selected position on the member or arm **7** as determined by the desired opening of the valve structure **25**.

The arm **27** prevents such downward movement of the arm **24** that would allow the float carried by the arm **24** to interfere with the proper seating of the flush member or ball **4**.



From the foregoing description it is thought to be obvious that a valve flusher constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. In a flush tank mechanism, including the float arm, the flush valve rod and the overflow pipe, a vertically elongated bracket adjustably clamped to said overflow pipe, laterally offset ears at the upper and lower ends of said bracket, guide arms extending from said ears and having aligned apertures slidably engaged by said valve rod, means pivotally connecting said guide arms with said ears, means rigidly coupling the arms for unitary pivotal movement and means for securing said guide arms in positions of adjustment relative to said bracket necessary to accurately align said valve rod with the center of the flush valve seat in the bottom of the flush tank.

2. The invention as defined in claim 1, with a stop arm adjustably mounted on said member and projecting across the path of downward movement of said float arm.

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