

July 21, 1931.

M. J. TRACY

1,815,384

SAFETY FLUSHING APPARATUS

Filed Nov. 28, 1927

3 Sheets-Sheet 1

Fig. 1.

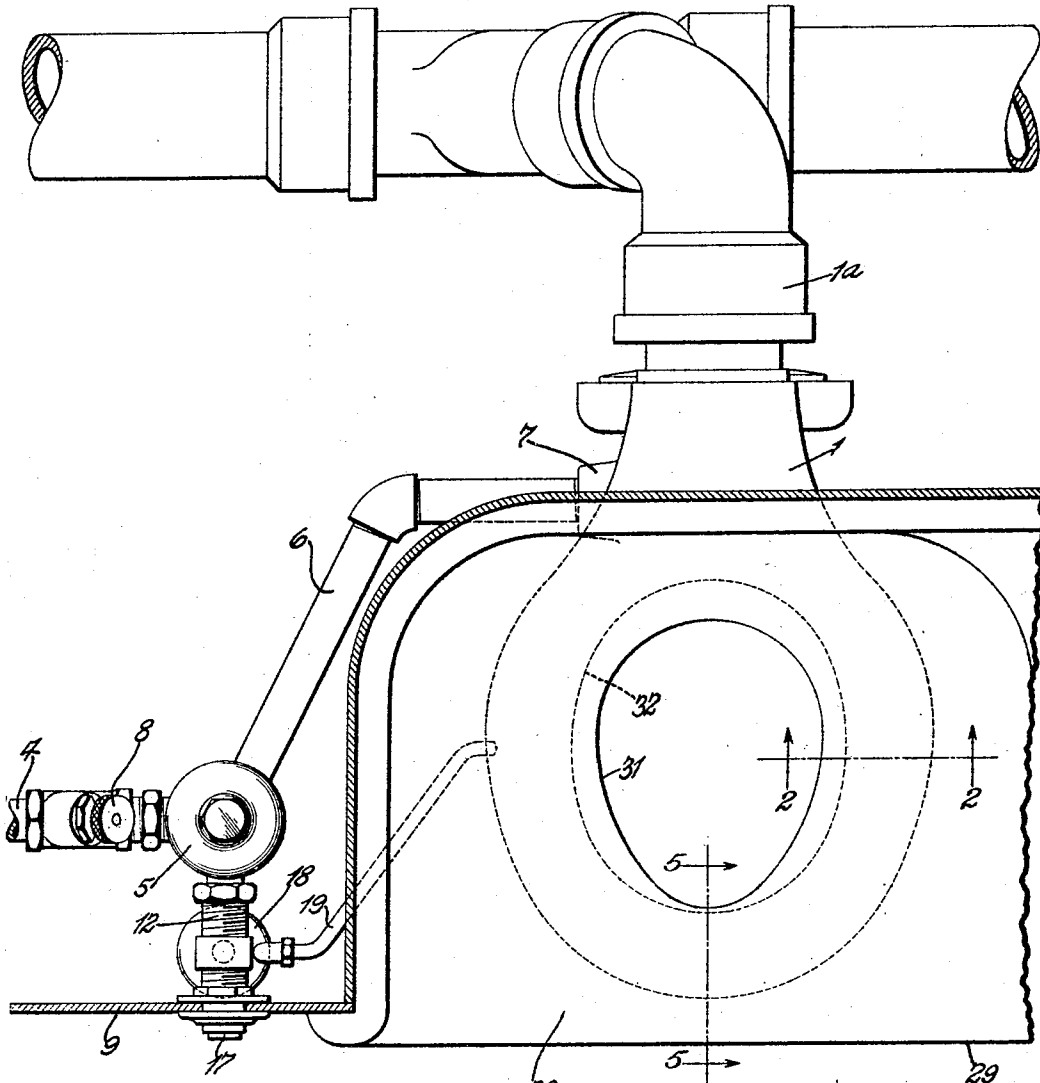


Fig. 2.

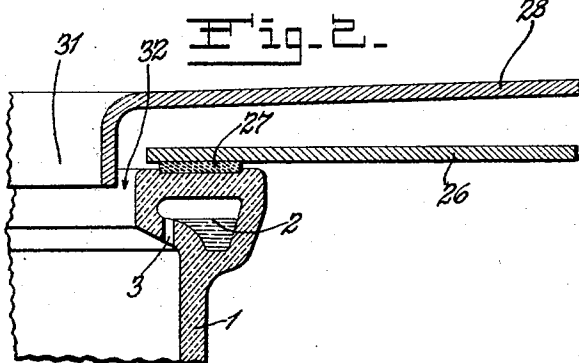
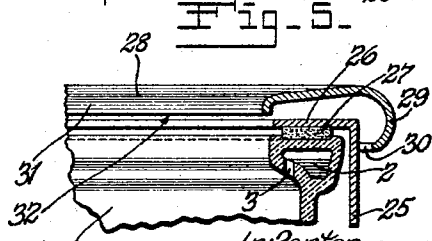


Fig. 5.



Inventor:
Michael J. Tracy,
by Reppay & Slingsland,
His Attorneys.

July 21, 1931.

M. J. TRACY

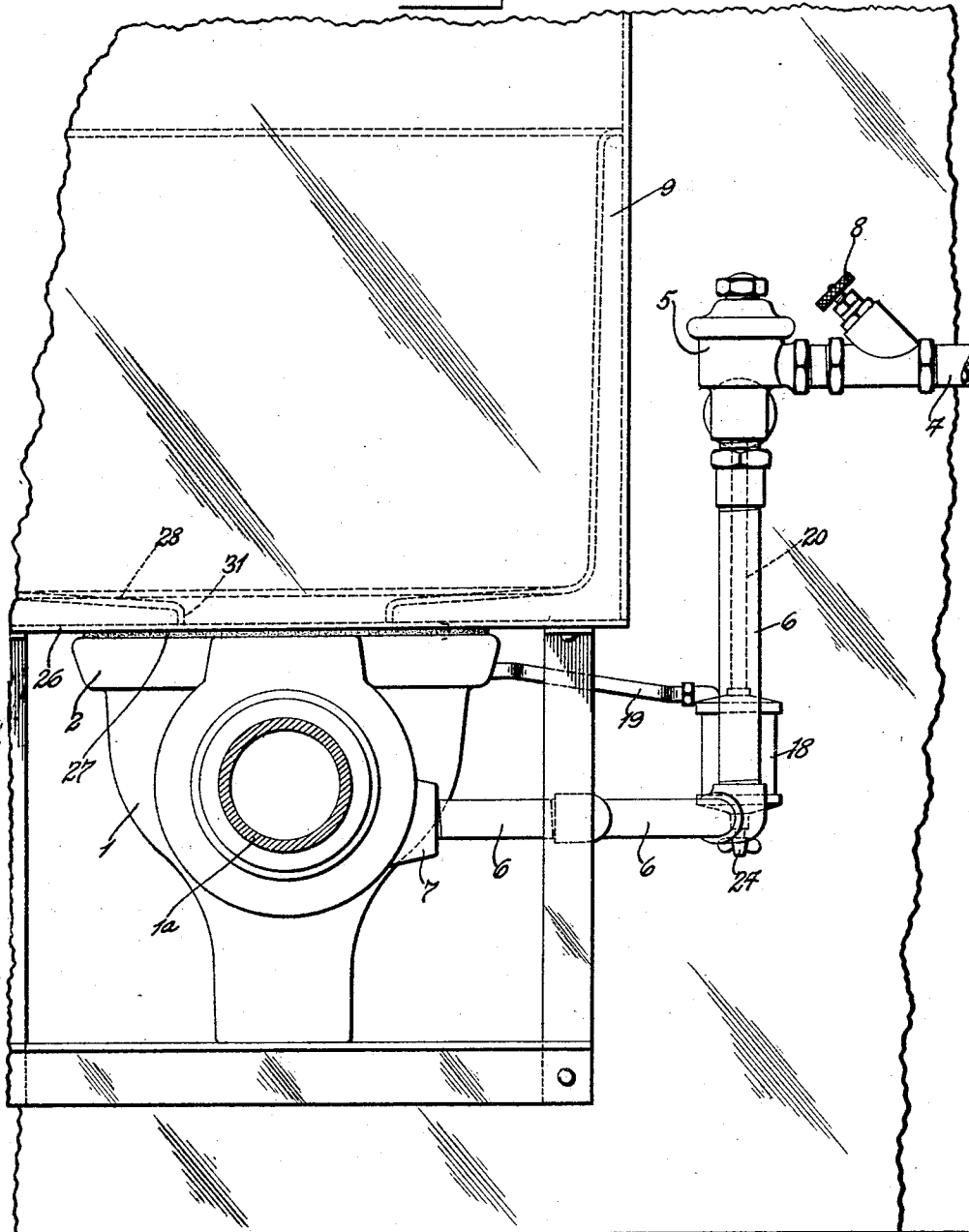
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3 Sheets-Sheet 2

Fig. 3-



Inventor:
Michael J. Tracy,
by Kippay & Stingsland.
His Attorneys.

July 21, 1931.

M. J. TRACY

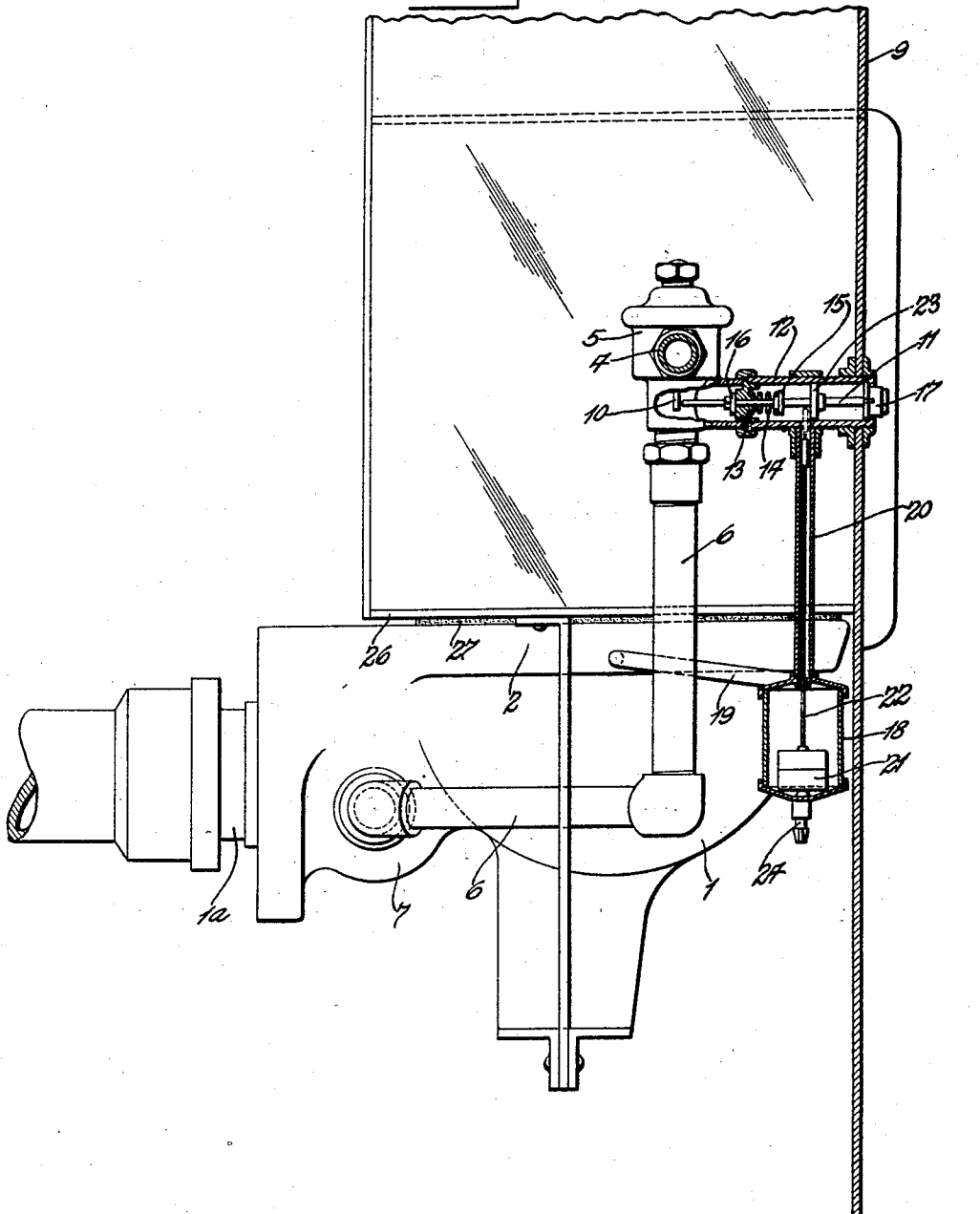
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SAFETY FLUSHING APPARATUS

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3 Sheets-Sheet 3

Fig. 4.



Inventor:
Michael J. Tracy,
by Hickey & Stinson,
His Attorneys.

UNITED STATES PATENT OFFICE

MICHAEL J. TRACY, OF ST. LOUIS, MISSOURI

SAFETY FLUSHING APPARATUS

Application filed November 28, 1927. Serial No. 233,133.

This invention relates to safety flushing apparatus having equipment to prevent adjustment or manipulation thereof to cause flooding and overflow.

5 It is a matter of knowledge that inmates of institutions, such as penal institutions, sometimes cause damage to the institutions by flooding the same from the flushing apparatus to which the inmates have access. This is
10 caused by obstructing the waste outlet from the flushing apparatus and adjusting or manipulating the valve controlling the admission of water to the apparatus, so as to permit a continuous flow of water into the ap-
15 paratus. The result is that the apparatus is overflowed because a greater volume of water is admitted than can pass through the waste outlet. Much damage has been caused in this
20 way and the problem has arisen of designing means for preventing adjustment or manipulation of the apparatus by the inmates of the institutions whereby damage is caused, as stated.

25 An object of the invention is to provide means for preventing successive operations of the valve after the latter has been operated once for flushing the apparatus. This means for preventing successive operations
30 of the valve is combined with the apparatus in a place and position inaccessible to the inmate, so that it is impossible for the inmate to tamper with said means.

35 Another object of the invention is to indicate which flushing apparatus has been obstructed so that the source of trouble may easily be located. While this information may be given in different ways within the scope of the present invention, the means by which I
40 have chosen to give the information is by causing an overflow from the flushing apparatus of a part of the excessive amount of water admitted thereto without permitting such
45 overflow to cause damage to the institution.

Other objects will appear from the following description, reference being made to the accompanying drawings in which

50 Fig. 1 is a plan view of a flushing apparatus embodying the present invention.

Fig. 2 is an enlarged vertical sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a rear elevation of the invention.

Fig. 4 is a side elevation.

Fig. 5 is a vertical sectional view on the 55 line 5—5 of Fig. 1.

In the embodiment of the invention shown, the flushing bowl 1 has a continuous chamber 2 around its upper portion. The bowl 1 is provided with the usual waste outlet 1^a. This
60 chamber 2 receives the flushing water and discharges the same downwardly into the bowl through slots or openings 3 (Figs. 2 and 5).

A water supply pipe 4 from a source of 65 supply opens into a valve 5 from which a pipe 6 extends and communicates through a chamber 7 with the chamber 2. A valve 8 in the pipe 4 is adjustable to open and to close said pipe and also to vary the amount of
70 water permitted to pass through said pipe to the flushing apparatus. A wall 9 separates the bowl 1 from the water supply connections described, so that it is impossible for the
75 inmate of the institution having access to the bowl to tamper with any of the water supply equipment.

Within the valve housing 5 a valve of known or approved construction is mounted, and is capable of being opened by manipu-
80 lating a stem 10. The valve device 5—10 shown is of the Sloan type and it is well known that movement of the stem 10 laterally in one direction will open the valve. This fact being well known, it is deemed un-
85 necessary to illustrate other details of this valve beyond the device for manipulating said stem.

The device for manipulating the stem 10 to open the valve in the housing 5 to flush the bowl, comprises a stem 11 mounted in a sup-
90 port 12. The stem 11 extends through and is guided by a partition 13 in the support 12. This stem 11 is capable of longitudinal movements and is actuated outwardly in a direc-
95 tion away from the stem 10 by a spring 14 encircling the stem and having its inner end bearing against the partition 13 and its outer end bearing against a collar 15 on said stem
100 11. Outward movement of the stem 11 is

limited by a collar or ring 16 attached to the stem 11 at the inner side of the partition 13. The support 12 opens through the wall 9 to the compartment of the inmate having access to the bowl 1 and is provided on its inner end with a push button 17 whereby said stem may be actuated in opposition to the spring 14. Movement of the stem 11 by the button 17 in opposition to the spring 14 and toward the stem 10 oscillates said stem 10, with the result that the valve in the housing 5 is opened to permit passage of water to flush the bowl 1.

My present invention comprises means for locking or preventing further or other operations of the valve stem 11 and thus permitting the valve in the housing 5, which is controlled by the stem 10, to close and remain closed after each flushing operation. For this purpose I provide a float receptacle 18 arranged to receive water from the chamber 2 whenever the bowl 1 is flushed. A pipe 19 opens into the chamber 2 and inclines downwardly to an opening into the receptacle 18. A tube 20 from the upper end of the receptacle 18 opens into the valve stem support 12. A float 21 in the receptacle 18 has a stem 22 extending upwardly within the tube 20 and being of such length that the upper end of said stem is below the inside of the support 12 when the float 21 is at the bottom of the receptacle 18. When water flows into the receptacle 18, as a result of the flushing of the bowl 1, the float 21 is raised, moving the upper end of the stem 22 into the support 12. The stem 11 has a collar 23 forming an abutment thereon. When the stem 11 is in the position in which it is moved and held by the spring 14 and to which it must be moved at each flushing operation, the collar abutment 23 is at one side of the opening to the tube 20, so that the water in the receptacle 18 will raise the float 21 to project the upper end of the stem 22 at the side of the abutment 23 and prevent any other or additional operation of said stem, after one flushing operation thereof. The construction is such that the abutment 23 will form an obstruction and prevent the stem 22 from extending into the support 12 when the stem 11 is out of the position to which it is moved and in which it is yieldingly held by the spring 14. Thus, since it is necessary for the stem 11 to return to its normal position, in which it is yieldingly held by the spring 14 in order to perform a flushing operation, it must be apparent that the stem 11 is locked as a result of each flushing operation and cannot be operated until the stem 22 is withdrawn from the support 12. The stem 22 may be withdrawn from the support 12 by withdrawing the water from the receptacle 18. For this purpose, I provide a drain valve 24 for said receptacle. This drain valve 24 is normally closed, and it is intended and required that

the same be opened after each flushing operation of the apparatus before another flushing operation can be performed.

As shown (Fig. 1) the wall 9 forms an alcove in which the bowl 1 is located. A metallic plate 25 extends across the front of the alcove. Said plate 25 extends upwardly from the floor, across the front of the alcove and has a horizontal extension 26 into the alcove and provided with an opening to the bowl. A gasket 27 is seated in a groove (Figs. 2 and 5) in the upper wall of the chamber 2 and is clamped by the horizontal portion 26 of the plate 25. This gasket is impervious to water and moisture and forms a seal to prevent the passage of water under the plate 25—26, and also prevents accumulation of desposits in the space in which the gasket is mounted.

Above the plate 25 is the alcove a dished plate 28 is secured, the same having a downwardly curved flange 29 across its front edge extending below the upper edge of the plate 25 and spaced therefrom to provide an opening 30 (Fig. 5). The upper dished portion of the plate 28 has a central opening above the bowl 1 provided with a marginal downwardly curved flange 31 spaced from the edge of the opening through the horizontal plate portion 26 to leave a space 32, through which water may flow when the bowl becomes filled to a depth above the plate portion 26. The water flowing under the plate 28 passes through the opening 30 to the cell, compartment or room occupied by the inmate who flooded the bowl.

It is now clear that the water for flushing the bowl 1 enters the chamber 7 from the pipe 6; and that from the chamber 7 the water is discharged into the chamber 2 and thence through slots or openings 3 into the bowl. It is also clear that the pipe 19 forms communication from the chamber 2 to the receptacle 18, so that when the water rises in the chamber 2 to a height sufficient to overflow from said chamber through the slots or openings 3 a part of said water in the chamber 2 flows through the pipe 19 into the receptacle 18. Accordingly every time the bowl is flushed water passes from the chamber 2 through the pipe 19 into the receptacle 18 and raises the float 21 and thereby the stem 22 so as to place the upper end of said stem 22 across the path of movement of the abutment 13, as shown by dotted lines in Fig. 4. The float 21 will be sustained by the water in the receptacle 18 until the valve 24 is opened to drain water from the receptacle 18. Therefore, every time the bowl is flushed the float 21 is raised and the valve stem 11 is blocked against a subsequent operation until the receptacle 18 is drained. This is not dependent upon any obstruction in the waste outlet 1^a but occurs automatically and as an incident to each operation of the valve stem 11 to flush the bowl.

As an incident to each operation of the valve stem 11 to flush the bowl and as previously described, the valve operating stem 11 became locked when the stem 22 was raised by water entering the float compartment 18. Thus, as an incident to the flushing of the bowl, the stem 11 is locked against successive operation. And, if the bowl is flooded by an obstruction in the waste outlet 1^a a quantity of the excess water overflows into the cell or compartment of the inmate who caused the flooding, so that detection of the one whose bowl was flooded is easily obtained.

I am aware that the construction, arrangement and relationship of the parts may be varied without departure from the nature and principle of the invention. I do not restrict myself unessentially in any respects, nor otherwise than as set forth in the appended claims.

I claim:

1. A flushing apparatus comprising a bowl to be flushed, an element controlling admission of water to flush the bowl, and a device movable from and to a starting position to control said element, in combination with a receptacle which is being filled with water during the entire period the bowl is being flushed, a float device actuated by water in said receptacle and movable thereby to position to prevent a successive operation of said first named device, and means inaccessible to the user of the bowl for withdrawing water from said receptacle to permit said float device to move to position to permit operation of said first named device.

2. A flushing apparatus comprising a bowl to be flushed and provided with an open waste outlet, a device operative to control the admission of water to flush said bowl, an overflow passage from said bowl to the compartment in which the bowl is located arranged to discharge water into said compartment only when said waste outlet is obstructed and a predetermined amount of water enters said bowl, and means controlled by the water entering the bowl to prevent a successive operation of said device.

3. A flushing apparatus comprising a bowl to be flushed and provided with an open waste outlet, a device operative to control the admission of water to flush said bowl, an overflow passage from said bowl to the compartment in which the bowl is located arranged to discharge water into said compartment only when said waste outlet is obstructed and a predetermined amount of water enters said bowl, means controlled by the water entering the bowl to prevent a successive operation of said device and thereby stop the admission of water to said bowl, and means for causing said last named means to move to position to permit a successive operation of said device.

4. In combination, a compartment, a bowl

to be flushed located in the compartment, means for flushing the bowl, and means for preventing more than one successive operation of the flushing means located behind the wall of the compartment so as to be inaccessible to the occupant of the compartment.

5. In combination, a compartment, a bowl to be flushed located in the compartment, devices for flushing the bowl located outside of the wall of the compartment so as to be inaccessible to the occupant of the compartment and including an element accessible to said occupant movable from and to a position to place in operation said flushing device, and means for preventing more than one successive operation of said element also located outside of the wall of the compartment.

6. In combination, a compartment, a bowl to be flushed located in the compartment, means for flushing the bowl, means for preventing more than one successive operation of the flushing means located behind the wall of the compartment so as to be inaccessible to the occupant of the compartment, and means for resetting said preventive means also located behind the wall of the compartment.

7. In combination, a compartment, a bowl to be flushed located in the compartment, means for flushing the bowl, means for preventing any more than one successive operation of the flushing means located behind the wall of the compartment so as to be inaccessible to the occupant of the compartment, said last named means including a receptacle in communication with the means for flushing the bowl, a float within the receptacle, and means operated by the float to be moved into the path of travel of a portion of the flushing means for preventing more than one successive operation of the latter.

8. In combination, a compartment, a bowl to be flushed located in the compartment, means for flushing the bowl, means for preventing any more than one successive operation of the flushing means located behind the wall of the compartment so as to be inaccessible to the occupant of the compartment, said last named means including a receptacle in communication with the means for flushing the bowl, a float within the receptacle, means operated by the float to be moved into the path of travel of a portion of the flushing means for preventing more than one successive operation of the latter, and means for resetting said preventive means.

9. In combination, a bowl to be flushed, means for flushing the bowl, and means rendered active by the flushing of the bowl for preventing more than one successive operation of the flushing means, said last mentioned means being inaccessible to the user of the bowl.

10. In combination, a bowl to be flushed,

means for flushing the bowl, means for preventing more than one successive operation of the flushing means located inaccessibly to the user of the bowl, and means for resetting said preventative means also located inaccessibly to the user of the bowl.

11. In combination, a bowl to be flushed, means rendered active by the flushing of the bowl for preventing more than one successive operation of the flushing means, said last mentioned means being located inaccessibly to the user of the bowl, and means for resetting said preventative means also located inaccessibly to the user of the bowl.

12. In combination, a bowl having a chamber formed integral therewith to receive flushing water and from which said water is discharged to the bowl to flush the latter, means for controlling the flow of flushing water into said chamber, and means rendered active by water that enters the chamber only for preventing more than one successive operation of the controlling means.

13. In combination, a bowl having a chamber formed integral therewith to receive flushing water and from which said water is discharged to the bowl to flush the latter, means for controlling the flow of flushing water into said chamber, means rendered active by water that enters the chamber only for preventing more than one successive operation of the controlling means, and means for resetting the preventive means.

14. In combination, a bowl having a chamber formed integral therewith to receive flushing water and from which said water is discharged into the bowl to flush the latter, means for controlling the flow of flushing water into said chamber, means connected to the chamber to receive water only from said chamber, and means rendered active by the water entering the last mentioned means for preventing more than one successive operation of the controlling means.

15. In a water closet, the combination with the bowl having its main outlet aperture watersealed, but otherwise open in normal use and also having a second outlet near its top concealed from view, of a flush valve connected to said bowl for operation in the customary manner and having only its operating member accessible to the user, said flush valve being capable of discharging only a limited amount of water at a single movement of its operating member, a lock for said flush valve operating member inaccessible to the user to prevent its further operation when the bowl is filled above the level of the second outlet, a receptacle normally adapted to receive a considerable quantity of water and located below the second aperture, through which it is adapted to receive water from the bowl just before it overflows if its main outlet is clogged, connections from said receptacle to said lock operated by the rising

of water therein to operate the lock to prevent further operation of the flush valve, and means for emptying said receptacle, none of the movable parts except the operating member for the flush valve being accessible to the user.

16. In a water closet the combination with the bowl having its outlet aperture watersealed, but otherwise open in normal use, of a flush valve connected to said bowl for operation in the customary manner and having only its operating member accessible to the user, said flush valve being capable of discharging only a limited amount of water at a single movement of its operating member, a lock for said flush valve operating member inaccessible to the user to prevent its further operation when the lock is actuated, a receptacle normally adapted to receive a considerable quantity of water, a conduit connected to said receptacle and position and adapted to conduct water which has passed through such flush valve to said receptacle, connections from said receptacle to said lock operated by the rising of water therein to operate the lock to prevent further operation of the flush valve, and means for emptying said receptacle, none of the movable parts except the operating member for the flush valve being accessible to the user.

17. In combination, a bowl to be flushed, means for flushing the bowl, a lock for said flushing means, means rendered active by the flushing of the bowl for actuating the lock, and means for releasing the lock inaccessible to the user of the bowl.

MICHAEL J. TRACY.