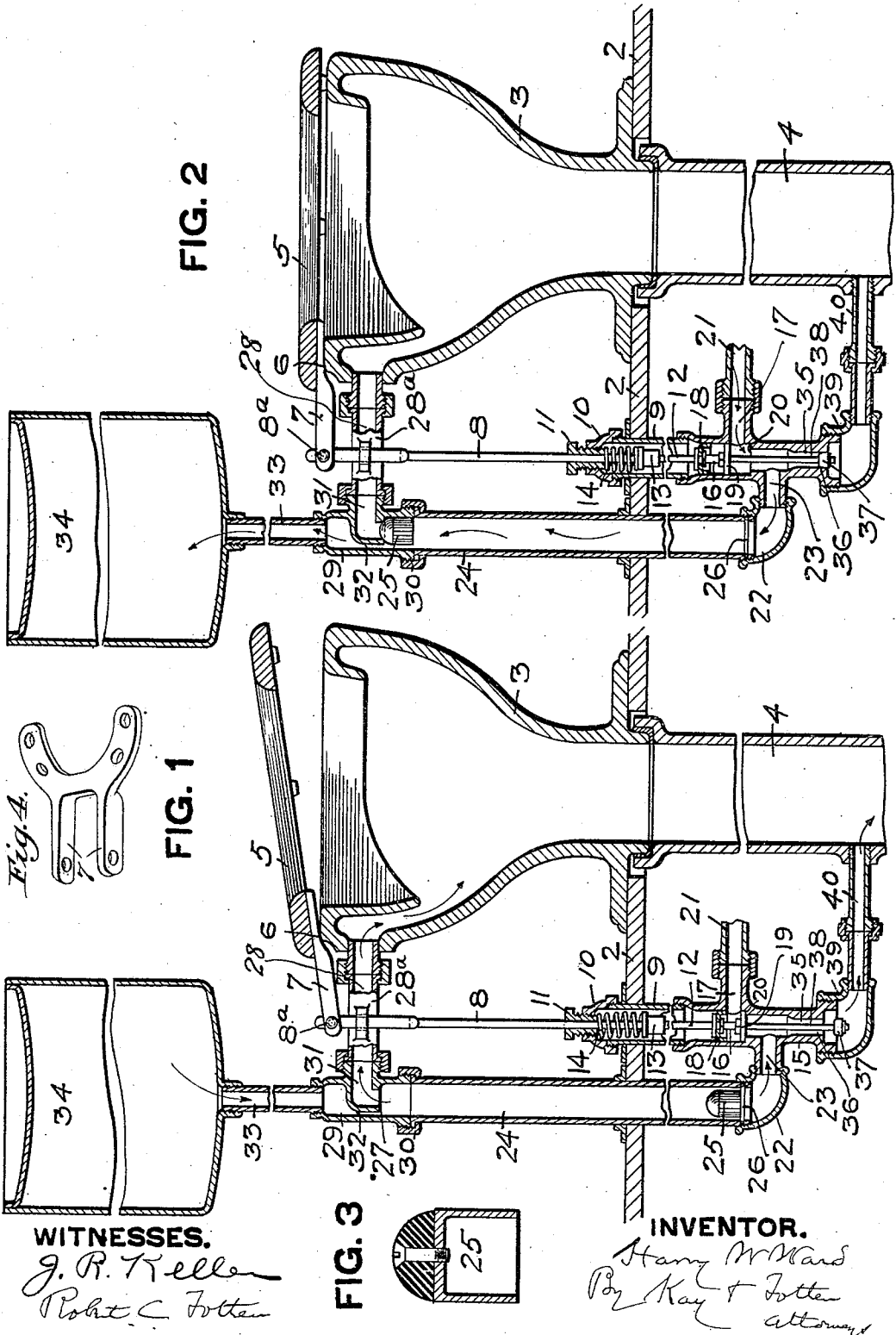


936,388.

Patented Oct. 12, 1909.



WITNESSES.

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FIG. 3

INVENTOR.

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UNITED STATES PATENT OFFICE.

HARRY W. WARD, OF PITTSBURG, PENNSYLVANIA.

WATER-CLOSET.

936,388.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed June 1, 1908. Serial No. 436,048.

To all whom it may concern:

Be it known that I, HARRY W. WARD, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Water-Closets; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to water closets and more particularly to that class of closets adapted for use in exposed places where there is liability of the freezing of the water if stored to flush the closet, as in the ordinary house closet.

The object of my invention is to provide a closet of this character in which a temporary storage reservoir is filled while the closet is in use and the hopper flushed automatically as the person rises from the seat by the water stored temporarily in said reservoir, so that when the closet is not in use the reservoir and connections are all thoroughly drained to prevent freezing at any point above the frost line.

To these ends my invention comprises, generally stated, a hopper, a supply pipe, a reservoir, connections between said supply pipe and said reservoir and between said reservoir and said hopper, a valve controlling the supply from said supply pipe, means for operating said valve automatically, and a gravity-valve in the path of the fluid admitted by said supply pipe and adapted to cut off communication to said hopper, said gravity valve when not in use being below the frost-line.

In the drawings Figure 1 is a sectional elevation of my improved closet; Fig. 2 is a like view showing the position of the parts when the closet is occupied; Fig. 3 is an enlarged detail of the gravity valve; and Fig. 4 is a perspective view of the seat-hinge.

By reference to the drawings the numeral 2 designates the floor which supports the hopper 3 secured thereto. A soil pipe 4 is connected up to the hopper 3 in the ordinary manner. A seat 5 is fulcrumed at 6 in the hopper 3. The arms 7 on the seat 5 are connected to the upper end of the rod 8 by pin 8^a, said rod extending down into the pipe 9. The upper end of rod 8 is forked. At the upper end of the pipe 9 is the collar 10 and a threaded nipple 11 engages a threaded seat in said collar. The rod 8 passes through the nipple 11 and said rod is connected to the supplemental rod 12 by the connecting nut

13. A spring 14 is interposed between the nut 13 and the nipple 11 and said spring acts to hold the seat normally in its raised position.

Secured to the lower end of the pipe 9 is the casting 15. A valve 16 on the stem 12 controls the supply port 17. This valve may be of any suitable construction, that shown comprising the cup-leather 18 and the washer 19. The washer 19 rests normally on the shoulder or seat 20. The supply pipe 21 is connected to the supply-port 17.

A coupling 22 connects the outlet 23 with the pipe 24. At the lower end of the pipe 24 is the gravity-valve 25 which normally rests on the stop 26. The stop 26 which supports the valve 25 is located below the frost-line so that the valve will not freeze to the said stop and be prevented from rising when it is desired to lift said valve and seat it on the valve-seat 27. The valve 25 is not of sufficient size to entirely close the pipe 24, as clearly indicated, so that any fluid in the pipe 24 can find its way to the drain. The upper end of the valve 25 is conical in shape and when said valve is elevated in the pipe 24 it will be guided and seated in the valve seat 27 at one end of the passage 28 which leads to the hopper 3. A connection 29 is connected by the collar 30 to the pipe 24. This connection 29 has the by-pass 31 to receive the pipe 28^a. There is a passage 32 between the end of the by-pass 31 and the inner wall of the connection 29 which permits the passage of fluid to the pipe 33 connected to the reservoir or tank 34. The drain outlet 35 has the seat 36 controlled by the valve 37 on the stem 38 at the lower end of the rod 8. A coupling 39 connects the drain pipe 40 leads into the soil pipe 4.

When my improved closet is in use and the seat is depressed by the weight of the occupant the rod 8 will be raised, compressing the spring 14. This movement of the rod 8 raises the valve 16 and the fluid passes from the supply pipe 21 to the outlet 23 whence it passes to the pipe 24. The pressure of the fluid so admitted will elevate the gravity valve 25 and move said valve up until it reaches the seat 27. The pressure of the fluid will act to hold the valve securely to its seat and cut off the flow of water to the hopper. The fluid passes the valve 25 and enters the reservoir 34. As long as the seat 5 is depressed the water continues to flow

to the reservoir. It should be stated that the elevation of the rod 8 also lifts the drain-valve 37 to shut off the drain and prevent the escape of the fluid admitted to pipe 24.

5 When the occupant rises from the seat the action of the spring 14 lowers the rod 8 and lifts the seat to the position shown in Fig. 1. The valve 16 is immediately lowered and the supply cut off, while the drain is opened. 10 When the pressure which holds the valve 25 to its seat is relieved said valve will descend of its own weight until it rests on the stop 26. This opens communication from the tank 34 by the pipes 33, 24 and 28 to the hopper and the water rushes into and flushes 15 said hopper. The column of water contained in the reservoir and pipe 24 gives sufficient volume to thoroughly flush the hopper only a small portion escaping through the drain. When the hopper has been 20 flushed in this manner any water remaining in the tank or the pipes is drained off so that there is no liability of freezing or the difficulties which arise therefrom. By having 25 the valve 25 below the frost-line there is no danger of said valve freezing to the stop 26, but it is always free to be lifted by the flow of water to the tank.

30 The construction is simple and composed of few parts so that there is little liability of its getting out of order, and if it should do so the parts are readily accessible and the valves quickly removed for purposes of repair.

35 What I claim is:

1. In a water-closet, the combination of a hopper, a supply-pipe, a reservoir, connections between said reservoir and said supply-pipe and between said reservoir and said 40 hopper, a valve controlling said supply, means for automatically operating said valve, and a gravity-valve in the path of the fluid admitted from said supply-pipe and adapted to close communication to said hopper when said supply valve is opened, said 45 gravity valve when not in use being supported below the frost-line.

2. In a water-closet, the combination of a hopper, a supply-pipe, a reservoir, connections between said reservoir and said supply 50 pipe and between said reservoir and said hopper, a valve controlling said supply, means for automatically operating said valve, a gravity-valve in the path of the fluid admitted from said supply pipe, the 55 connections between said reservoir and said hopper having a valve-seat with which said gravity-valve is adapted to engage to close communication to said hopper when said 60 supply-valve is opened, said gravity valve when not in use being supported below the frost-line.

3. In a water-closet, the combination of a hopper, a supply-pipe, a reservoir, connections between said supply-pipe and said res-

ervoir, a valve controlling said supply, means for automatically operating said valve, a passage leading from said connections to said hopper, a gravity-valve in the path of the fluid admitted from said supply-pipe and adapted to engage said passage to 70 close communication to said hopper when said supply-valve is opened, said gravity valve when not in use being supported below the frost-line. 75

4. In a water-closet, the combination of a hopper, a supply pipe, a reservoir, connections between said supply-pipe and said reservoir, a valve controlling said supply, means for automatically operating said 80 valve, a passage extending from said hopper into the connections leading to said reservoir, said passage opening downwardly, a gravity-valve in the path of the fluid admitted from said supply-pipe and adapted to 85 obstruct said downwardly opening passage to close communication to said hopper when said supply-valve is opened, said gravity valve when not in use being supported below the frost-line. 90

5. In a water-closet, the combination of a hopper, a supply-pipe, a reservoir, connections between said supply pipe and said reservoir and between said reservoir and said hopper, a valve controlling said supply, 95 means for automatically operating said valve, a gravity-valve partially closing the passage leading to said reservoir, said gravity-valve being in the path of the fluid admitted from said supply-pipe and adapted 100 to close communication to said hopper when said supply-valve is opened, said gravity valve when not in use being supported below the frost-line.

6. In a water-closet, the combination of a 105 spring actuated depressible seat, a hopper, a supply-pipe, a reservoir, connections between said reservoir and said supply-pipe and between said reservoir and said hopper, a valve controlling said supply, connections 110 between said seat and said valve, and a gravity-valve in the path of the fluid admitted from said supply-pipe and adapted to close communication to said hopper when said seat is depressed, said gravity valve 115 when not in use being supported below the frost-line.

7. In a water-closet, the combination of a hopper, a supply-pipe, a reservoir, connections between said reservoir and said supply-pipe and between said reservoir and said 120 hopper, a valve controlling said supply, means for automatically operating said valve, a gravity-valve in the path of the fluid admitted from said supply-pipe adapted to close communication with said hopper, said gravity valve when not in use being supported below the frost-line, and means for draining said reservoir and connections. 125

8. In a water-closet, the combination of a 130

hopper, a supply-pipe, a reservoir, connections between said reservoir and said supply-pipe and between said reservoir and said hopper, a valve controlling said supply, 5 means for automatically operating said valve, a gravity-valve in the path of the fluid admitted from said supply-pipe adapted to close communication with said hopper, said gravity valve when not in use being 10 supported below the frost-line, a drain-valve, and means for operating said drain-valve simultaneously with said first named valve.

9. In a water-closet, the combination of a hopper, a reservoir, a supply-pipe, connections between said supply-pipe and a vertical 15 passage leading to said reservoir, said

passage communicating with said hopper, a valve controlling said supply, means for operating said valve, a gravity valve in said passage partially filling the same and in the 20 path of the fluid and adapted to close communication with said hopper when said supply valve is opened, said gravity valve when not in use being supported below the frost-line. 25

In testimony whereof, I the said HARRY W. WARD have hereunto set my hand.

HARRY W. WARD.

Witnesses:

M. D. VOGEL,
ROBT. D. TOTTEN.