

UNITED STATES PATENT OFFICE.

PETER WHITE, OF ST. LOUIS, MISSOURI.

TANK WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 425,921, dated April 15, 1890.

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To all whom it may concern:

Be it known that I, PETER WHITE, of St. Louis, Missouri, have made a new and useful Improvement in Tank Water - Closets, of which the following is a full, clear, and exact description.

The improvement relates partly to the construction of the main valve for controlling the delivery of the water from the tank and partly to the means for securing an afterwash in the closet-bowl, substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a view, partly in vertical section and partly in side elevation, of a water-closet tank and valves constructed according to the principle of the improvement. In this view all the valves are seated. Fig. 2 is a similar view, but showing all the valves unseated and the water standing at a lower level in the tank; Fig. 3, a similar view, but showing the main discharge-valve seated and the afterwash and tank-supply valves unseated. In the last two views the main discharge-valve, stem, and valve-seat are in section. Fig. 4 is a detail, being a plan of the seat of the two discharge-valves; and Fig. 5, a detail, being a vertical section of that portion of the main discharge-valve having the air-passage. This last view is upon an enlarged scale.

The same letters of reference denote the same parts.

A represents the tank, and B the threaded extension to connect with the pipe through which the water is discharged therefrom to the closet-bowl. This last-named part is not shown, its nature, as well as mode of connecting the tank discharge-pipe therewith, being well understood.

C represents the main valve for controlling the discharge of the water from the tank into the discharge-pipe. This valve is similar to one already in use, saving as it is modified by the improvement under consideration. The valve is hollow to contain air. Its stem *c* is a tube extending from the bottom of the valve upward, through it and above it to come, when the valve is seated at the proper level to serve also as an overflow-pipe for the tank. The valve, in the present instance, is adapted to be unseated by means of the lever

D, pivoted at *d*, and having the forked end *d'* to embrace the valve-stem and coact with the stem-flange *c'*, as indicated in the various views.

The valve-seat E is of the usual form to cooperate with the valve C in the usual manner, although the seat is preferably extended laterally at *e* to form a seat for the afterwash-valve F, and to contain a passage E', leading from the seat of the valve F to communicate with the discharge-pipe, substantially as shown.

G represents a passage establishing communication between the interior of the valve C and the tubular stem *c*, and having means, such as the adjustable screw-plug *g*, for more or less opening and closing the passage—that is, by unscrewing the plug the passage is opened and by screwing the plug inward the passage is closed. The passage G leads through the roof *c²* of the valve, and thence into the stem *c* at a point therein which comes below the level at which the water stands in the tank and stem when the valve is unseated.

H represents the ordinary tank-supply valve, saving as it may be modified to cooperate with the afterwash-valve lever *f*. The valve H is operated by a ball-lever *h*. As the water I rises in the tank the lever *h* acts to seat the valve, and as the water falls in the tank the lever *h* acts to unseat the valve in the customary manner. Suppose the parts to be in the position shown in Fig. 1. The three valves are seated, and the water is neither entering nor leaving the tank. Let the main valve *c*, by means of the lever D, be unseated, as in Fig. 2. The water is discharged from the tank, the ball-lever *h* drops and unseats the valve H, and the water flows into the tank, as indicated at *h'*. The current of entering-water encounters the cup-shaped end *f'* of the lever *f*, and that lever in consequence is upturned on its pivot *f²*, and the afterwash-valve F thereby unseated. The water is now being discharged through the passage *e'* into the extension B at a point therein below the seat of the valve C, and it continues so to be discharged until the tank has become refilled sufficiently to cause the ball-lever *h* to act to seat the valve H and thereby arrest the current of inflowing water from operating to raise the free end of the lever *f*,

which, when no longer uplifted, as described, drops and seats the valve F. The passage e' is smaller than the inlet h^2 , controlled by the valve H, and hence the water, after the valve C is seated, gradually rises in the tank until the ball-lever operates to seat the valve H, and as a certain amount of time is consumed in effecting this seating of the valve H after the valve C has become seated ample opportunity is provided for the requisite afterwash of the closet-bowl.

When the valve C is unseated, the air within it renders it buoyant, and its reseating is retarded until sufficient air has been discharged from the valve and water admitted thereinto, to cause the valve to sink. In this respect the valve is analogous to others already in use, and the improvement relates to the special means—namely, the passage G—for discharging the air. In valves previously constructed by me the air has been discharged past a valve arranged directly in the shell of the valve; in another construction the air has been discharged through a tube which leads from the valve upward to above the highest level of the water in the tank, and thence downward again to bring the outlet therefrom beneath the level of the water, and this tube has been used as the valve-stem. The present construction is advantageous, in that it provides an air-passage which can be readily kept free from obstruction, such as might occur in the water of the tank and find their way into an air-passage leading from the valve, such as the bent tube described, and also an air-passage which can be regulated, and, further, one wholly independent of the lever or other means for unseating the valve.

I claim—

1. The combination, with the supply-valve, the valve-rod thereof and the float attached to the end of said rod to close the supply-valve when the water has risen to a proper height, of the valve-seat for the afterwash-valve, the passage leading from said seat to the main discharge below the main discharge valve-seat, which passage has less capacity to discharge water than the supply-valve has to supply water, the afterwash-valve, and the pivoted lever of said valve having a cup-shaped end f'' standing above the discharge opening of the supply-valve, so that the incoming water will keep the afterwash-valve open till the supply-valve is closed, substantially as specified.

2. The combination, with the tank having the main valve-seat E and discharge-extension B, the main valve, the tubular valve-stem thereof, and the supply-valve, operated by the lever h and float on the end thereof, and having the upwardly-bent discharged part or nozzle h' , of the extension e , having a passage e' , leading from the extension B below the valve-seat E to the valve-seat of the afterwash-valve, the afterwash-valve F, and the valve-lever f , pivoted on the extension e , having the valve F hung upon it and provided with the cup-shaped end f'' , that stands over the discharge-nozzle h' of the supply-valve, the said valve being capable of supplying water to the tank more rapidly than the afterwash-valve can discharge therefrom, substantially as specified.

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Witnesses:

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