April 27, 1926. 1,582,748

U. G. HARING ET AL

VENTILATING WATER CLOSET

Filed May 20, 1924 2 Sheets-Sheet 1

Fig. 1.

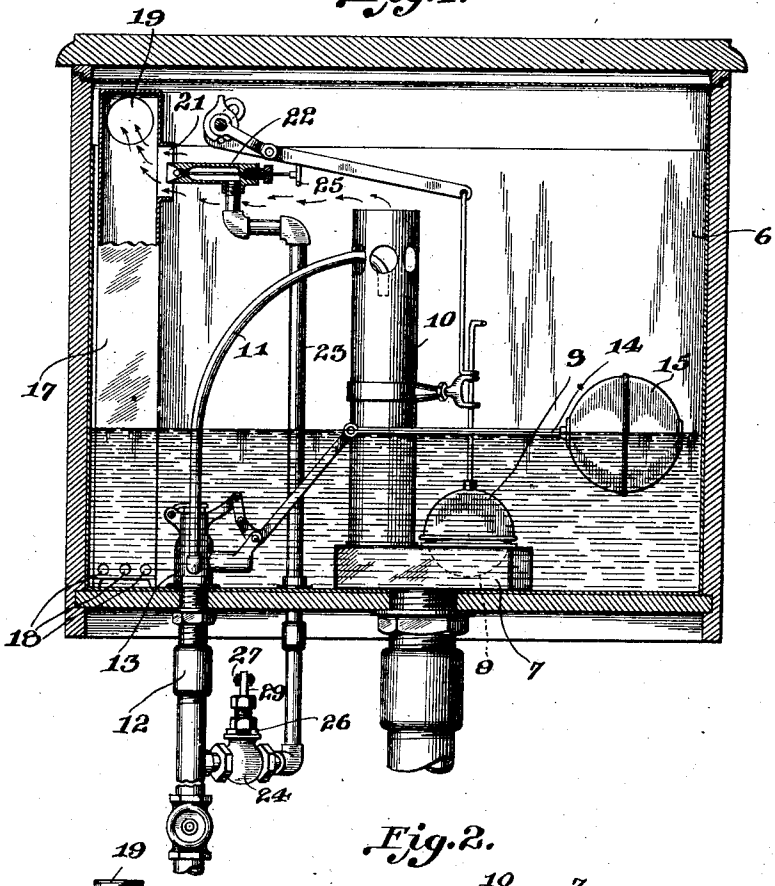
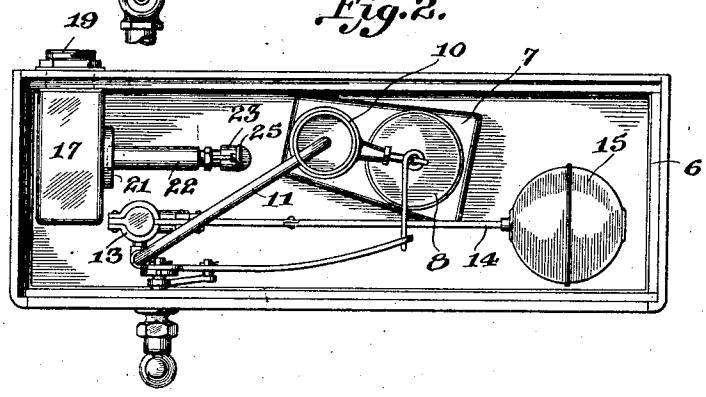


Fig. 2.



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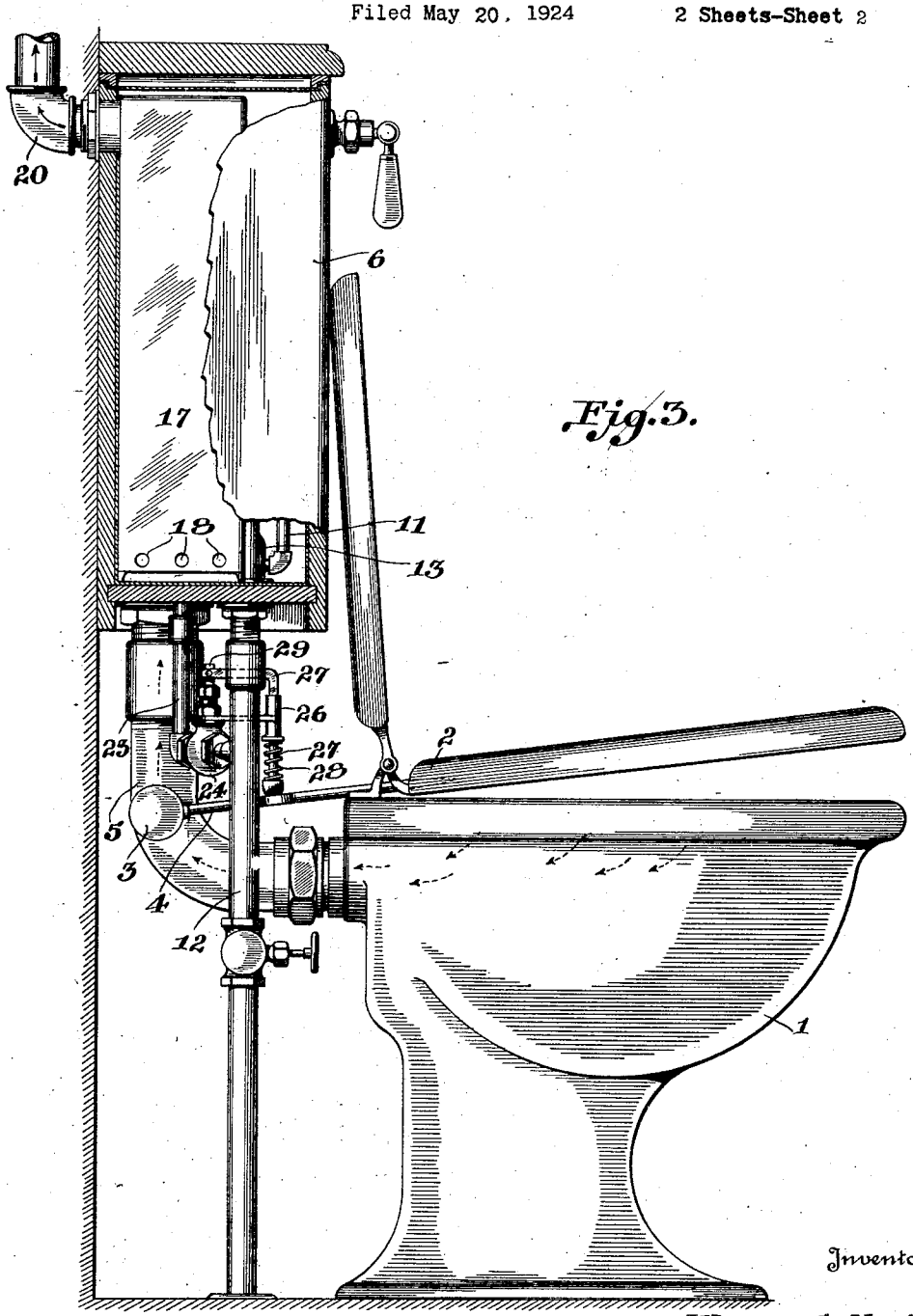


Fig. 3.

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UNITED STATES PATENT OFFICE.

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VENTILATING WATER CLOSET.

Application filed May 20, 1924. Serial No. 714,606.

To all whom it may concern:

Be it known that we, ULYSSES G. HARING, EDGAR E. SUTTER, and RALPH HARING, citizens of the United States of America, residing in the city of Washington, District of Columbia, have invented certain new and useful Improvements in Ventilating Water Closets, of which the following is a specification.

Our invention relates to new and useful improvements in water closets and more particularly to water closets that are arranged to be ventilated so that the disagreeable gases and odors will be continuously drawn from the bowl and pass off through the vent pipe and from the instant the seat is depressed until the pressure is removed from the same. The present invention is similar in its broader aspects to the invention shown in the patent to Deike, 1,287,249 of December 3, 1918.

In that disclosure, however, the tank and its mechanism is of special construction throughout and there is only one main supply pipe of water to the tank so that the ventilating of the bowl is also dependent on the filling of the tank. Furthermore, the seat as well as the lid enter into the operation of the ventilation and the filling of the tank, while the present application shows how the tank is filled and flushed in the regular manner and the ventilating of the bowl operates wholly independently of the flushing and continues to operate as long as a user remains on the seat.

The present application consists of a preferred form wherein the standard form of tank used, it only being necessary to install a small auxiliary air chamber, an auxiliary supply pipe having an air nozzle protruding into said auxiliary chamber, a valve connected with the main and auxiliary supply pipes and a means for operating the last mentioned valve when pressure is applied to the seat.

Still another object of the invention is to utilize any one of the standard forms of tanks and supply an additional air chamber (preferred form) with an auxiliary water pipe having a spray nozzle on one end thereof, which nozzle may be regulated depending upon the amount of water pressure supplied to the tank, and to further provide connecting means with a balanced seat to a valve placed between the auxiliary and main pipes for admitting water to the air nozzle, the combined instrumentalities being relatively cheap to construct and easily applied to the many tanks now in service.

Still another object of our invention is to provide means for ventilating the tank independently of the action of filling and discharging the tank, which will operate continuously, while the seat is depressed and the bowl flushed independently when desired.

With these and other objects in view, our invention consists in certain new and novel structures and combination of parts as will be hereinafter more fully described and pointed out in the claim.

Referring now to the drawings showing a preferred embodiment and modified form.

Fig. 1 is a sectional view of a standard form of tank, together with the auxiliary air chamber and the means for forming a vacuum within said auxiliary air chamber to draw up the gases from the bowl and through the main tank.

Fig. 2 is a top plan view of the same with the cover removed from the tank.

Fig. 3 is a side elevation of a bowl and tank, part of the tank being broken away for the sake of clearness, and a portion of the wall of the tank shown in section.

Referring now to the preferred form and more specifically to the several views, there is shown a standard type of bowl 1 on which there is a hinged seat 2, which is preferably balanced by a weight 3 on the end of a rod 4 connected to the rear end of the seat, so that the seat will normally occupy the position shown in Fig. 3. Connected to one end of this bowl is the main flush pipe 5, which in turn leads to the bottom of the tank 6, which tank may be of any standard type, and disposed centrally over the pipe 5 is the member 7 having the valve seat 8 in which the rubber ball 9 works; also extending from the member 7 is the standard form of cylinder 10 into which leads the over-flow pipe 11 which is connected to the main water supply pipe 12 just below the valve 13 which valve is operated in the usual way by the arm 14 and ball 15.

As far as the specification has proceeded, a standard form of tank and bowl are shown, the only exceptions being the weighted seat, and that the member 7 with the valve seat and cylinder 10 are located centrally of the pipe 5 and the cylinder 10 may be slightly larger than the standard form. Also, the usual rod 16 for lifting the ball 9 from the seat is provided.

Referring now to the gist of the invention, and to Fig. 1, there is shown located in the left hand side of the tank 6, an auxiliary tank or air chamber 17 which is provided with the opening 18 at its bottom and the opening 19 at its top, the latter opening being connected with the vent pipe 20 that leads up to the roof. Also provided in the upper portion of the air chamber 17 is a further opening 21 into which projects a spray nozzle 22 located on the end of an auxiliary supply pipe 23 which pipe passes through the bottom of the tank 6. Secured to the lower end of the auxiliary pipe 23 and also connected with the main auxiliary pipe 12 is a valve 24 for the admission of water to the auxiliary pipe and spray nozzle 22.

The spray nozzle 22 may be of any preferred type and so arranged that the jet or spray may be regulated by turning of a knob 25 or other means. Means are shown for cooperating with the seat 2 and the valve 24 so that the spray nozzle will function the moment the seat is depressed and will continue to function while the seat is depressed and immediately stop when the pressure is relieved from the seat.

This means comprises a small bracket 26 through which passes the arm 27, which at its lower end contacts with the rod 4 extending from the seat 2, a small spring 28 being shown extending between the lower end of the arm 27 and the portion of the bracket 26 for equalizing the water pressure of the valve and keeping it normally closed, while the upper end of the arm 27 is connected to the stem 29 of the valve 24 so that a downward movement of the seat permits a portion of the water from the main supply tank 12 to pass upwardly through the pipe 23 and out of the spray nozzle into the air chamber 17 to thereby create a vacuum within the tank 6 and to draw the air and the odor up through the cylinder 10 and pass them into the air chamber 17 and out through the opening 19 into the vent pipe 20.

The construction of the ordinary bowl is so well known that the small openings around the rim, in the drawing are not shown, but it will be understood to those skilled in the art that there is always provided a passageway around the rim so that the water besides flowing centrally into the bowl passes downwardly from the rim of the bowl to cleanse the same, and when the water nozzle 22 is in operation the air will be drawn from the bowl and from the rim of the bowl so that none of the odors will pass into the room. Of course the lid of the tank will fit snugly so that the air will be drawn from the bowl rather than from around the edges of the lid, which would be the case if the lid was not tight.

The operation from the drawings and description of the preferred form will be clearly understood and it will be seen that as soon as pressure is applied to the seat, the valve 24 will be opened so that the water from the spray nozzle into the tank 17 will create a vacuum in the tank 6 and will continue to operate as long as the seat is depressed to thereby draw the gases from the bowl; the entire operation being wholly independent of the flushing and filling of the tank.

From the foregoing it will be seen that the foul gases will be drawn continuously from the closet wholly independent of the filling of the tank and the flushing thereof.

Furthermore, the installation is one that may be quickly and readily accomplished and calls for but little material and little change when applied to the standard form of tanks now in service.

The tank is always full of water similar to the regular tanks and the draft is created from the instant of the depression of the seat, rather than waiting until the tank is flushed, which is the operation of some of the other ventilated closets. This is of importance as the odors and gases are never allowed to escape into the room before the draft is created by the flushing of the tank.

It will be understood that the seat will be so weighted that even though the lid is down it will not cause the valve to operate or to cause the electrical contact to be made, the lid being provided more for the sake of looks as all of the odors will be immediately drawn out of the bowl, the moment the seat is depressed.

Many slight changes might be made without in any way departing from the spirit and scope of the invention.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

The combination of a ventilated water closet comprising substantially an air tight water tank, a bowl and a pipe connecting the same, a main supply pipe for the tank, a separate air chamber in said tank and having an opening near its top, an auxiliary pipe leading from the main supply pipe to the opening in said air chamber, a valve between said auxiliary pipe and said main pipe, a depressible seat connected with said valve, a cylinder in said tank having an extension registering with the pipe from said bowl, a valve seat in the upper part of the extension, a valve for closing the same so that

normally the air may pass from said bowl into said extension through said cylinder up into said water tank, and said seat when depressed allowing the water to spray from said auxiliary pipe into said air chamber to thereby create a vacuum in said water tank to continually exhaust the air from the bowl and said tank, while said seat is depressed.

In testimony whereof we affix our signatures.

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