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J. J. BOYNE

WATER CLOSET

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Fig. 1.

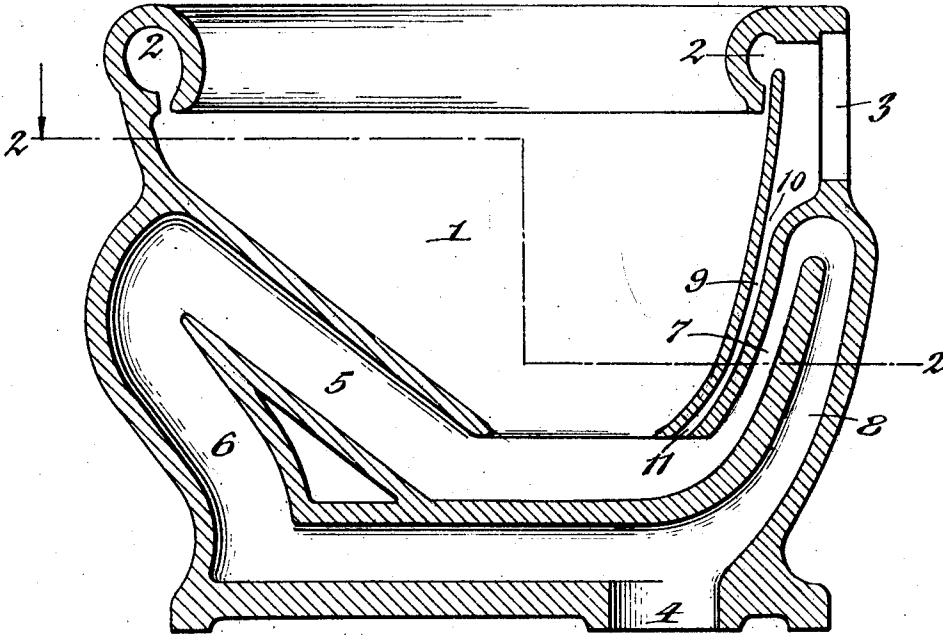
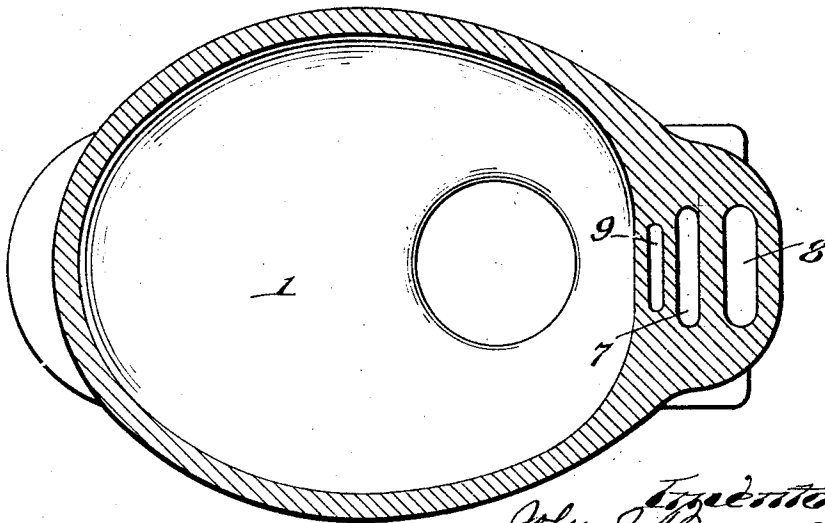


Fig. 2.



Inventor
John J. Boyne
By Poppe & Powers
Attys.

UNITED STATES PATENT OFFICE.

JOHN J. BOYNE, OF BUFFALO, NEW YORK.

WATER-CLOSET.

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This invention relates to a water closet of the type having a siphon and an overflow whereby flooding of the bowl is prevented if the siphon become clogged accidentally by dropping into same tooth brushes, hair brushes, drinking glasses or other articles too large to pass through the siphon. A closet of this character is shown in Letters Patent of the United States granted to me February 15, 1916 and Number 1,171,694, and January 11, 1916 Number 1,167,738.

Heretofore closets have been provided in the bottom thereof with an outlet for the jet passage through which a stream of water was delivered upwardly and directed toward the ascending passage of the siphon for the purpose of assisting in the removal of the solids from the bottom of the bowl and creating a quick siphonic action through the main siphon, thereby emptying the bowl of its contents. It has been found in practice that a jet passage having its outlet thus located is objectionable because it forms a pocket in which the acids of urine and the lime in the water collect and corrode and eventually clog this outlet so as to render the same useless, thereby causing the closet to flush out sluggishly when same is flushed. There is no way of emptying the liquids in this pocket except by soaking it out with a small cloth and sharp instrument, projected into it, or by means of a separate passage cast in the bowl leading from the interior of the bowl to the outside of the same and provided with a screw cap to be removed when the said pocket is to be emptied of its contents. This is hardly ever done by the workmen when they are sent to remove the water from the bowl to prevent freezing in unoccupied buildings. The result is that the liquids in said pockets freeze and burst the bowl at this location thus necessitating the installation of a new bowl.

It is the purpose of this invention to provide a water closet of this character with a jet passage which eliminates this objection, the outlet of which passage is so located that the same forms no pocket in which acids of urine and the lime in the water can collect, corrode and clog, and when the water in the closet is removed to prevent freezing in unoccupied buildings there is no water left in this jet to freeze due to the absences of a pocket in same, and this jet is so located that when the closet is flushed the water from the

jet strikes the solids from the back and forces the same through the main siphon, thereby creating a quick siphonic discharge action on the contents in the bowl.

To that end this invention consists generally in providing this closet bowl with a jet passage which has its outlet arranged above the bottom of the bowl and preferably opposite the siphon whereby the jet outlet is not only concealed but also cannot become clogged and operates most effectively in assisting in the emptying operation of the bowl.

In the accompanying drawings:—

Figure 1, is a vertical longitudinal section of a water closet embodying my improvements.

Figure 2, is a horizontal section in line 2—2, Fig. 1.

Similar characters of reference indicate like parts in both figures.

Although my invention is applicable to water closets which may be variously constructed so far as the details are concerned, that shown in the drawings comprises a bowl 1 having an internal flushing rim 2 and a water supply pipe 3 or inlet connected with the rear part of this rim.

Underneath the bowl is arranged the outlet 4 for the closet which may be connected with the drain or soil pipe in any suitable manner. During the normal operation of the closet the contents of the bowl are removed therefrom through a siphon preferably arranged on the front part of the closet and having an ascending passage 5 which extends upwardly from the bottom or lower part of the bowl and a descending passage 6 extending downwardly from the upper end of the ascending passage 5 to the outlet 4.

Upon admitting water into the bowl from the supply pipe and flushing rim so as to cause the water in the bowl and ascending passage 5 to rise until it escapes into the descending passage 6 a siphonic action is produced in a well known manner which causes the contents of the bowl to be drawn from the bowl upwardly through the ascending passage 5 and discharged downwardly through the descending passage 6 and out of the outlet to the waste pipe. After each flushing operation the water remaining in the bowl seals the lower end of the ascending passage 5 so as to prevent the escape of any sewer gas from the drain pipe through the siphon into the building, the level of the

water at this time not rising above the upper ends of the ascending and descending passages of the siphon.

It sometimes happens that the main siphon becomes clogged by reason of children dropping tooth or hair brushes, drinking glasses or other hard substances in the bowl so that they are drawn into the passages of the siphon and choke the same. When this occurs in closets as heretofore constructed the subsequent addition of water upon opening the flushing valve will eventually fill the bowl completely with water and often flow from the top of the latter to the floor causing damage and inconvenience. To avoid this an overflow is provided which is preferably arranged on the rear side or part of the closet and which consists of an ascending passage 7 extending upwardly from the bottom of the bowl and a descending passage 8 extending downwardly from the upper end of the ascending passage 7 to the outlet 4. The upper ends of the ascending and descending passages of the overflow are arranged higher than the upper ends of the ascending and descending passages of the main siphon so that no water will flow over the turn or highest part of the overflow while the water is free to flow over the turn or highest part of the siphon. But if the siphon is obstructed either completely or to such an extent that the water is not carried away from the bowl by the siphon as fast as it is supplied by the flush pipe then the water will rise in the bowl and in the ascending passage of the overflow until it reaches the highest part of the same after which any additional water discharged into the bowl by the flush pipe will flow downwardly through the descending passage of the overflow and escape through the outlet 4 to the drain or sewer. Inasmuch as the ascending passage of the overflow is filled with water from the bowl this overflow is water sealed and sewer gas is prevented from passing through the same from the drain or waste pipe into the building.

It will thus be noted that so long as the siphon is in an operative condition to carry away the contents of the bowl when the flushing water is supplied thereto, the overflow is inactive; but when the siphon fails to carry away the contents of the bowl then the water rises to an abnormal height in the bowl, whereby the overflow becomes active and carries away the water from the bowl to the outlet, thereby preventing flooding of the room in which the closet is installed. When this abnormal rising of the water in the bowl is observed this serves as a signal that something is wrong with the siphon so that a plumber can be called to correct the defect. The closet is not intended to be used when only the overflow is available since the primary function of the latter is that of a safety device to prevent overflowing of the closet

and also as an indicator to call attention to a clogged condition of the siphon.

The descending passage of the overflow is of larger cross section throughout its length than the companion ascending passage so that this descending passage has a larger capacity than the ascending passage co-operating therewith. By this means a siphonic action of the overflow is rendered impossible because the descending passage 8 will carry away the water faster than the ascending passage 7 can supply the same, thereby preventing filling of the descending passage 8 with water so that the same can at no time operate to siphon out the contents of the bowl, by reason of a vacuum action.

The lower ends of the ascending passages of the siphon and overflow are on the same level so that they are both sealed simultaneously when water is supplied to the bowl and thereby effectually prevent the entrance of sewer gas from entering the building either through the siphon or through the overflow and also breaking the siphonic action simultaneously and avoiding a gurgling noise.

Along the inner side of the overflow the bowl is provided with a jet passage 9 which is preferably upright and communicates at its upper end 10 with the inlet 3 so as to receive a water supply therefrom while the outlet 11 at its lower end faces downwardly and is in line with the lower end of the ascending passage of the overflow.

The outlet of the jet passage is therefore concealed when viewing the bowl from above and it is also arranged above the bottom of the bowl so that any solids deposited in the bowl will not fall on the jet outlet and accumulate over the same. Nor does the same form a pocket in which acids in the urine and lime in the water can be collected, thereby preventing this jet outlet from being corroded and eventually clogged, as would otherwise be the case and impair the function of the closet.

Instead of this the jet outlet is always clear of obstructions and when water is admitted through the inlet 3 for flushing the closet, part of this water passes from the rim 2 downwardly along the inner side of the bowl and at the same time a jet of water is directed downwardly and inwardly from the outlet at the lower end of the jet passage which jet strikes the mass of solids resting on the bottom of the bowl on the back and pushes the same laterally toward the lower end of the ascending passage of the siphon and causes the latter to be filled quickly with water and the solids to be carried quickly through the siphon and the outlet on the lower side of the closet.

It will be apparent from the foregoing that in this organization the three passages 7, 8 and 9 are located in the same part of the bowl, thereby simplifying the construction and re-

ducing its cost of manufacture, and also avoiding at all times the possibility of clogging the jet, as well as constantly concealing the jet from observation.

5 It will be noted that in this construction the auxiliary overflow siphon is wholly unobstructed and has no communication at its top with the water inlet at the top of the bowl, and that the jet passage also is wholly unob-

10 structed and has no communication of any kind at its top with the top of the overflow passage or the top of the main siphon.
Moreover, when water is present in the bottom of the bowl this water acts as a trap or

15 seal for the lower ends of the ascending passages of the main siphon and the auxiliary overflow and also for the lower end of the jet passage.
Due to this construction the passage of any

20 gas from the sewer or drain through the bowl into the building is positively prevented as long as the lower ends of the ascending passages of the main siphon and auxiliary overflow and the lower end of the jet are dipped in

25 water and still permit of readily discharging solid matter through the main siphon which is assisted by the pressure of the jet, thereby safeguarding the bowl against overflow in the event that the main siphon should become

30 clogged when rising of the water to the level of the dam of the overflow occurs this serves

as a telltale or warning that cleaning out of the bowl is necessary.

I claim as my invention:—

A water closet comprising a bowl; a water 35 distributing rim arranged above the bowl and having a water inlet, an outlet at the bottom of the bowl; a main siphon having an ascending passage communicating at its lower end with the lower part of the bowl and a de- 40 scending passage with said outlet; an auxiliary unobstructed overflow having no communication at its top with said water inlet and having a narrow ascending passage communicating with the lower part of the bowl 45 opposite the lower end of said ascending siphon passage and a wide descending passage connecting the upper end of said ascending overflow passage with said outlet; 50 and a descending unobstructed jet passage having no communication at its top with said overflow and extending directly from said water inlet along the ascending overflow passage and terminating at its lower 55 end adjacent to the bottom of the bowl opposite the lower end of the ascending siphon passage and adapted to have its lower end submerged in the same water in the bowl which seals the lower ends of the ascending passages of the main siphon and auxiliary overflow.

JOHN J. BOYNE.