G. H. VAN ECK.

VENTILATING TOILET.

APPLICATION FILED MAR. 18, 1921.

1,424,955. Patented Aug. 8, 1922.

Fig. 1.

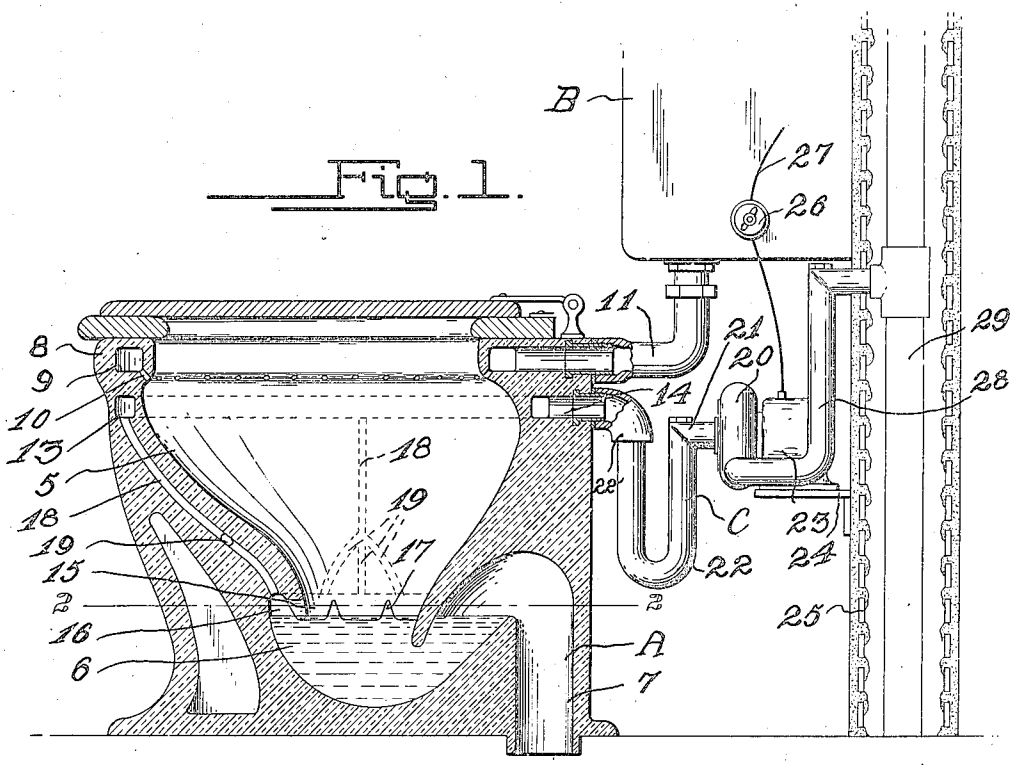


Fig. 2.

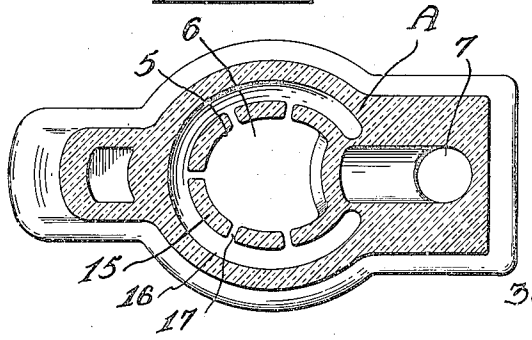
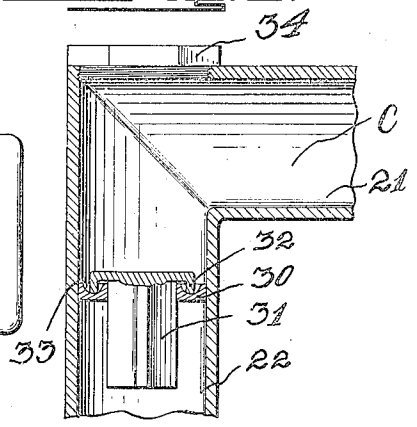


Fig. 3.



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VENTILATING TOILET.

1,424,955. Specification of Letters Patent. Patented Aug. 8, 1922.

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To all whom it may concern:

Be it known that I, GEORGE H. VAN ECK, a citizen of the United States, residing at Tampa, in the county of Hillsborough and State of Florida, have invented certain new and useful Improvements in Ventilating Toilets, of which the following is a specification.

This invention relates to toilets, and the primary object of the invention is to provide a novel toilet embodying means for conveying obnoxious odors therefrom so that the same can not intermingle with the surrounding atmosphere.

Another object of the invention is to provide a novel toilet bowl having a suction chamber therein, and passageways extending above the water trap in the bowl to said suction chamber, said passageways also tending to draw all of the noxious odors from the bowl above the water trap, said passageways also tending to facilitate the placing of paper in the bowl.

A further object of the invention is to provide in a ventilated toilet bowl a novel arrangement of passageways therein for conveying obnoxious odors therefrom, said passageways being so arranged as to prevent the same from becoming clogged by paper or other débris in said bowl.

A still further object of the invention is to provide a novel means for creating a suction in said suction chamber, and a novel means for conveying the gases and odors drawn from said suction chamber to an outlet pipe.

A still further object of the invention is to provide a novel means for preventing the back flow of the gases through said means for creating a suction in said suction chamber of the toilet bowl.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part of this specification, in which drawings:

Figure 1 is a vertical longitudinal section through a toilet bowl constructed in accordance with this invention.

Figure 2 is a horizontal section through the bowl taken on the line 2—2 of Figure 1, and

Figure 3 is a detail enlarged vertical section through a portion of the suction creating means showing the valve arrangement therein for preventing the back flow of gases therethrough.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A indicates a toilet bowl; B a flush tank therefor, and C the suction creating means.

The bowl A is constructed along the general lines of the improved toilet bowl construction and is preferably formed of vitreous material as in the usual construction. As shown the bowl A includes the usual internal chamber 5 having the lower water trap 6, which communicates with the usual waste pipe outlet passageway 7. The upper end of the bowl A is provided with the usual rim 8 which is provided with the internal annular flush water chamber 9, and this chamber communicates with the internal chamber 5, by means of a plurality of apertures 10. This internal annular chamber 9 has the usual communication with the flush water pipe 11 which extends downwardly from the flush pipe B. This is the usual construction and does not form any part of my invention.

Directly below the internal annular chamber 9 is formed a second annular chamber 13, which will be hereinafter called the suction chamber, as in this chamber a draft is created, so as to form means for drawing all obnoxious odors from the toilet bowl. This chamber 13 is provided with a laterally extending outlet passageway 14 which has connection with the suction creating means C as will be hereinafter more specifically described. Directly above the water trap 6 the internal chamber 5 is provided with a depending substantially annular flange 15, which is arranged in spaced relation to the wall of the water trap, and the lower edge of this flange extends into or below the level of the water in said trap which forms the seal. This flange 15 forms an internal closed chamber 16 and this flange is provided at equi-distantly spaced points with substantially V-shaped slots 17, the purpose of which will be hereinafter more fully described. A plurality of downwardly extending passageways 18 are formed in the bowl A and communicate at their upper

ends with the annular suction chamber 13 and the lower ends of these passageways are provided with a plurality of branches 19 which communicate with the lower chamber 16. It can be seen from this construction, that when a suction is created in the upper chamber 13, all of the obnoxious odors in the bowl directly from and around the water trap will be drawn into the upper chamber 13 from said bowl, and thus the flange 15 and the V-shaped slots 17 will prevent the passage of paper or other débris in the bowl into the passageways 19 and thereby prevent the clogging up of said passageways.

The suction creating means C for the suction chamber 13 consists of a suction fan 20, the inlet port of which is connected to a pipe 21, which is in turn connected with a trap pipe 22 and this trap pipe 22 is connected by an elbow joint 22′ with the laterally extending passageway of the suction chamber 13. The suction fan mechanism 20 can be driven in any preferred manner and as shown an electric motor 23 has been provided for driving this fan. The motor 23 has been shown arranged on a shelf bracket 24, which can be securely attached to a wall 25 arranged in rear of the toilet. The switch 26 for controlling the flow of current through the feed wires 27 of the motor can be secured in any preferred manner to the flush tank B on any convenient point which can be easily reached by the users of the toilet. The outlet port of the suction fan mechanism 20 has connected thereto an outlet pipe 28 which leads to a pipe 29, which can be embedded as shown in the wall 25. This pipe 29 can, if so desired, lead to the atmosphere to the outside of the building, or can be of the usual waste water type, if so desired.

It can be seen that in use of the improved device, it is merely necessary to turn the switch 26 when the toilet is in use and the suction fan mechanism 20 will be operated, which will create a suction in the chamber 13 and thus draw all of the obnoxious odors from the toilet bowl A and deliver the same to the pipe 29. This renders the toilet sanitary and removes all likelihood of disease being contracted from the escape of obnoxious odors or gases therefrom.

The pipes 22 and 28 are provided with valve seat 30 on which are adapted to seat gravity actuated valves 31. The valves 31 are provided with flanges 32 which are adapted to fit in the annular grooves 33 formed in the valve seats 30. This prevents the flow of fluid past the valves when the same are seated. The provision of the valves precludes the possibility of gases flowing back into the bowl, when the motor is not in operation and it can be seen that when the motor is in operation the valves will be automatically lifted off of their seats by the force of the air flowing past the same. If desirable one of the valves can be eliminated. Removable plugs 34 can be provided for the pipes 22 and 28 to permit access to be had to the valves.

Changes in details may be made without departing from the spirit or scope of this invention; but,

I claim:

1. A toilet bowl having an internal suction chamber therein arranged above the water trap, a second chamber arranged adjacent to the water trap and communicating with the interior of the bowl and passageways in said bowl connecting the chambers.

2. A toilet bowl having an internal suction chamber therein, and a water seal, a chamber arranged directly above and adjacent to the water seal and communicating with the interior of the bowl, the bowl having passageways connecting the suction chamber with the last mentioned chamber, and means for preventing the clogging of the passageways by débris in said bowl.

3. A toilet bowl including a water seal, an internal suction chamber arranged in the bowl at a point above the water seal, a depending flange formed on the bowl and extending below the water line in said water seal, the flange forming an internal chamber and having V-shaped notches formed therein connecting the last mentioned chamber within the interior of the bowl, the bowl having passageways therein connecting the suction chamber with the last mentioned chamber and means for creating a suction in said suction chamber.

4. A toilet bowl having a water seal therein, a flush chamber, a plurality of openings extending from the flush chamber communicating with the interior of the bowl, a suction chamber arranged within the bowl below the flush chamber and having a laterally extending passageway communicating therewith, a depending flange formed in said bowl and extending below the water line of said water seal forming a chamber, the flange having a plurality of spaced V-shaped notches formed therein connecting the last mentioned chamber with the interior of the bowl, a plurality of passageways formed in the bowl and communicating with the suction chamber, the last mentioned passageways having a plurality of branch passageways connected with the last mentioned chamber, and means connected with said laterally extended passageway of the suction chamber for creating a suction therein.

GEORGE H. VAN ECK.