Oct. 29, 1963 C. V. SMITH 3,108,289

TOILET VENTILATOR

Filed July 20, 1962

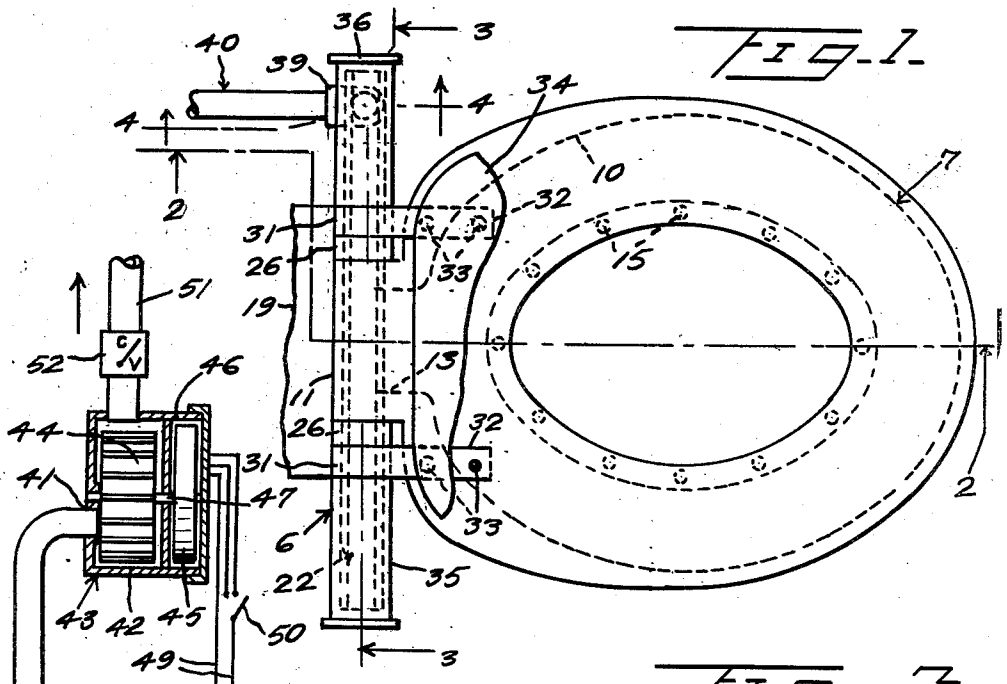

FIG. 1

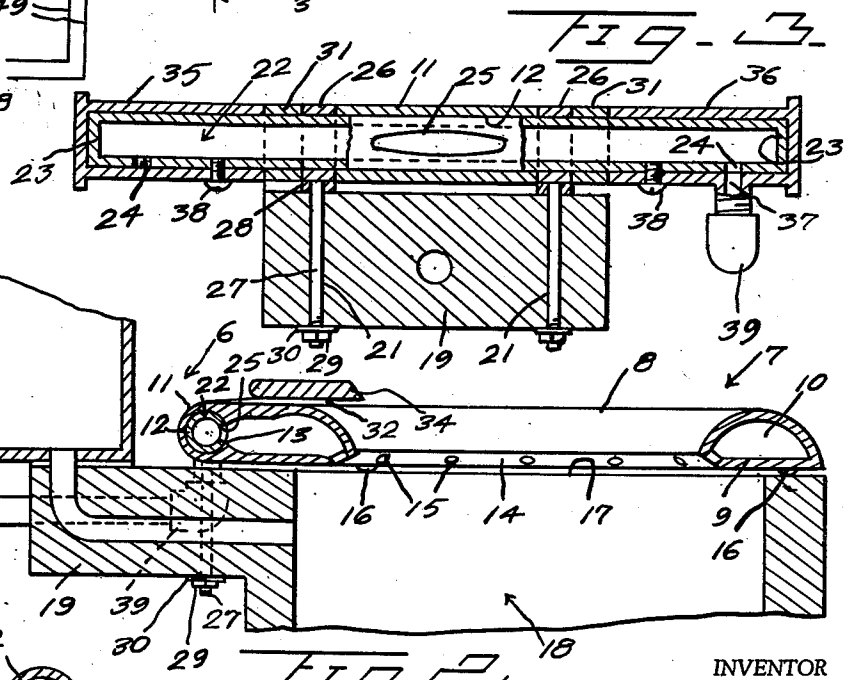

FIG. 3

FIG. 2

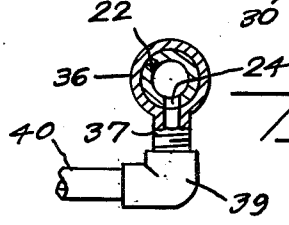

FIG. 4

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TOILET VENTILATOR

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The invention relates to a novel ventilating unit for toilets or water closets and more particularly to a seat and associated parts for a toilet bowl and which is especially constructed for attachment thereof to a suction conduit for extracting and carrying off foul odors from the toilet bowl.

Still another object of the invention is to provide an improved toilet seat and associated parts which may be utilized as a replacement for a conventional toilet bowl seat and to provide a part of a toilet ventilator, which may be very conveniently and inexpensively installed without requiring any modification of the conventional toilet bowl.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a presently preferred embodiment thereof, and wherein:

FIGURE 1 is a fragmentary top plan view of the toilet ventilator;

FIGURE 2 is a vertical sectional view thereof taken substantially along the line 2—2 of FIGURE 1, including additional parts of the ventilator not illustrated in FIGURE 1;

FIGURE 3 is an enlarged sectional view taken along the line 3—3 of FIGURE 1, and

FIGURE 4 is an enlarged sectional view taken along the line 4—4 of FIGURE 1.

Referring more specifically to the drawing, the toilet ventilator in its entirety and comprising the invention is designated generally 6 and includes a toilet seat, designated generally 7, having an upper surface 8 which is convexly rounded in cross section, as best seen in FIGURE 2, and a substantially flat bottom surface 9. The seat 7 is hollow to provide a cavity or chamber 10 and includes a rear extension 11 which is likewise hollow to provide a bore 12 of circular cross section which extends from end-to-end thereof and which is disposed crosswise of the longitudinal axis of the seat 7. A passage 13, formed in the seat 7, connects the chamber 10 to the bore 12. The seat 71 includes a substantially flat under and inner surface 14 extending between the inner edge of the top surface 8 and the inner edge of the bottom surface 9, which surface 14 faces downwardly and inwardly as seen in FIGURE 2 and is provided with a plurality of spaced openings 15 which open into the cavity 10 and outwardly of the seat 7. The underside 9 of the seat 7 is preferably provided with yieldable buttons 16, as is conventional, which are adapted to rest upon a rim 17 of a conventional toilet bowl 18, only the upper part of which has been illustrated.

The toilet bowl 18, as is conventional, has a rearwardly extending shelf 19 above which is disposed a conventional flush tank 20. The shelf 19, as seen in FIGURE 3, has laterally spaced bores 21 extending from top to bottom therethrough.

The ventilator unit 6 includes a hollow or tubular pintle 22 having closed ends 23. A port 24 opens radially into the pintle 22 and outwardly thereof near each end 23. The outer diameter of the pintle 22 is only slightly less than the diameter of the bore 12 and the intermediate portion of said pintle 22 fits turnably in the bore 12. Said intermediate portion of the pintle has an elongated opening 25 which registers with the passage 13 and which thus provides a communication between the seat cavity 10 and the hollow interior of said

pintle 22. When the opening 25 is in registration with the passage 13, as seen in FIGURE 2, the ports 24 are disposed to open downwardly, as seen in FIGURE 3.

A pair of collars 26 embrace the pintle 22 in straddling relationship to the rear seat portion 11. A bolt 27 is fixed to and extends downwardly from each collar 26, said collars being spaced apart a distance relative to one another so that the bolts 27 extend downwardly therefrom through the bores 21. The bolts 27 carry washers 28 which are disposed between the collars 26 and the upper surface of the shelf 19, and nuts and washers 29 and 30, respectively, engage the threaded lower ends of the bolts 27 and are disposed below the shelf 19 for securing the collars 26 immovably to said shelf.

A pair of collars 31 are rotatively mounted on the pintle 22 and straddle the collars 26, said collars 31 having rigid straps 32 extending forwardly from their top portions and which are secured by fastenings 33 to the underside of the rear portion of a conventional toilet seat cover 34, only a fragmentary portion of which has been illustrated.

A cap 35 is disposed over one end of the pintle 22 and abuts one of the outer collars 31, for closing and sealing the port 24 located in said pintle end, and a similar cap 36 is mounted on the other end of the pintle 22. The caps 35 and 36 extend outwardly from the side edges of the shelf 19, as seen in FIGURES 1 and 3. The cap 36 differs from the cap 35 in that it is provided with an outwardly projecting nipple 37 which is disposed in registration with the port 24 of the pintle end on which said cap 36 is mounted. The caps 35 and 36 may be secured immovably to the pintle 22 in any suitable manner, as by means of setscrews 38.

An elbow coupling 39 is connected to the nipple 37 and one end of a pipe or conduit 40 is connected to and extends rearwardly from the coupling 39 and thence upwardly, as seen in FIGURE 2, and has an opposite discharge end 41 which opens into a chamber 42 of a housing 43. Said chamber 42 contains a blower 44. An electric motor 45 is mounted in another chamber 46 of the housing 43 and has a shaft 47 which extends into the chamber 42 and is secured to the blower 44. The motor 45 is connected to a conventional electric current source 48, such as a conventional electrical outlet, by wiring 49. The motor 45 constitutes a two-speed motor and a switch 50 is interposed in the wiring 49 for making and breaking the electric circuit to the motor 45 and for completing a circuit so that the motor can operate at either speed.

An outlet conduit 51 leads upwardly from the casing chamber 42 and is provided with an upwardly opening check valve 52. Said discharge conduit 51 may open to the atmosphere or into a flue or other vent, not shown. The electric switch 50 may be located in any convenient position.

Assuming that the seat 7 is in a lowered position as seen in FIGURE 2, with the cover 34 either in a lowered position or raised, the switch 50 can be closed to complete an electric circuit to the motor 45 for driving the blower 44 to create a suction in the conduit 40 and the hollow pintle 22. This will also create a suction in the seat chamber 10 for drawing air into said chamber through the inlet ports 15, which air will be extracted from the chamber 10 through the large opening 25 into the pintle 22. The air will be drawn from the pintle 22 through conduit 40 into the chamber 42 and will be expelled therefrom through the outlet conduit 51. When the motor 45 is de-energized the check valve 52 closes automatically to prevent any back draft through conduit 51 to the casing 43. By locating the inlet ports 15 on the inclined under surface 14, said ports will not be visible from above when the seat 7 is resting on the bowl rim 17.

It will be readily apparent that the seat 7, pintle 22 and the parts carried by said pintle may be readily substituted for a conventional seat. The pintle 22 is provided with a port 24 adjacent each end thereof so that the cap 36 may be mounted on either end of the pintle 22 for connection with a vent conduit, such as the conduit 40, located on either side of the shelf 19.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claim.

I claim as my invention:

In combination with a suction conduit having an electrically driven blower interposed therein for creating a draft through said conduit; an elongated hollow pintle having closed ends, said pintle having a radially opening port adjacent each end thereof, said ports being spaced equal distances from the pintle ends, fastenings adapted to be secured to a toilet bowl and having collars disposed thereabove in which the pintle is slidably and rotatively mounted, a toilet bowl seat having a rear portion journaled on an intermediate portion of said pintle, between said collars, said seat being hollow to define a chamber and having a plurality of inlet ports opening upwardly into said chamber, the intermediate portion of said pintle having an opening communicating with said chamber, a second pair of collars rotatively and slidably engaging said pintle and straddling and bearing against said first mentioned collars, rigid strap members projecting from said collars of the second pair and adapted to be secured to a toilet seat cover, caps detachably mounted on and secured to end portions of the pintle and bearing against the collars of the second pair of collars, one of said caps sealing one of said radial ports, the other cap having a nipple communicating with the other port and projecting radially from said last mentioned cap, and a coupling detachably connecting said nipple to an inlet end of said suction conduit at a point spaced outwardly from a side of the toilet bowl so that the interior of the pintle is in communication with said conduit whereby when the blower is in operation a suction is created in the pintle and seat chamber for drawing air into said seat chamber through said inlet ports.

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