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TOILET VENTILATING APPARATUS

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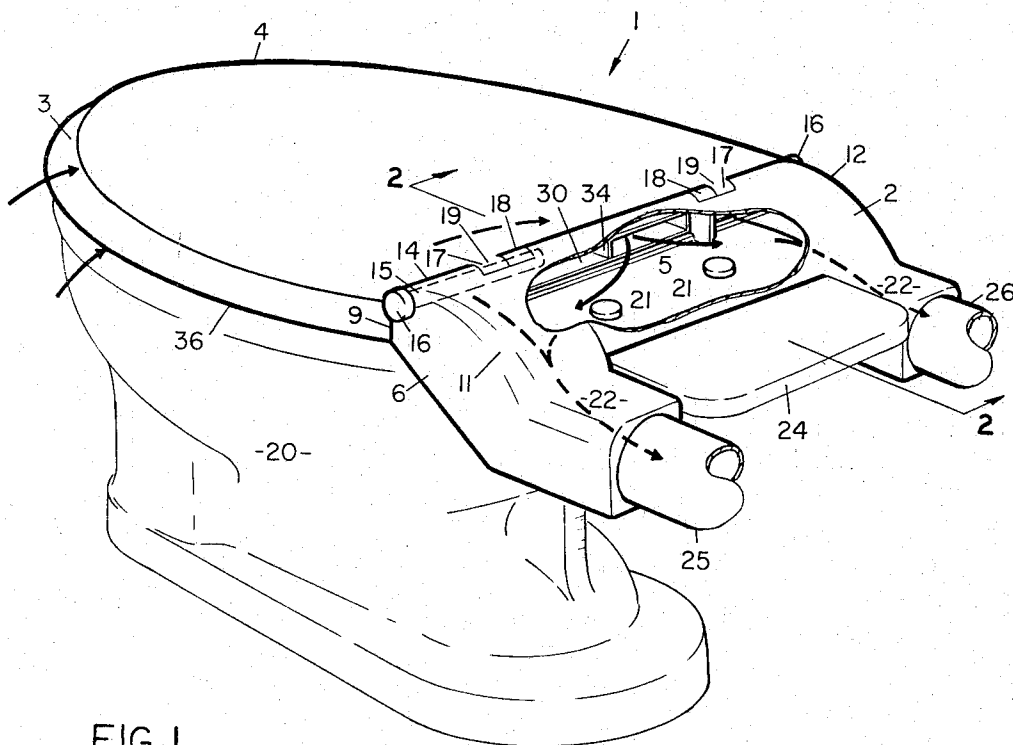


FIG 1

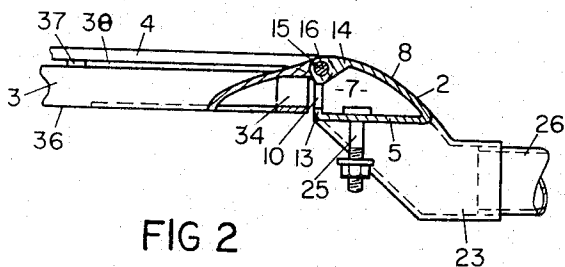


FIG 2

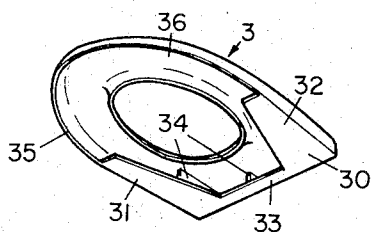


FIG 3

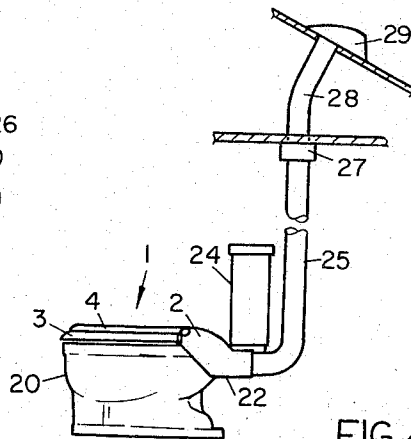


FIG 4

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TOILET VENTILATING APPARATUS

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1 Claim. (Cl. 4-217)

ABSTRACT OF THE DISCLOSURE

An air collecting chamber elongated transversely of the toilet bowl having a front air opening receiving air from the toilet bowl and rearwardly and downwardly inclined chutes discharging into a suction controlled venting medium.

This invention relates to improvement in toilet ventilating apparatus.

It is conventional practice to provide ventilation for washrooms and the like by means of an evacuation fan generally placed in the ceiling of the room. The chief disadvantage of this method of ventilation is that a large volume of air must be moved in order to fully ventilate the room and toilet bowl so that removal of odour is a relatively time-consuming process. Furthermore, contaminated air is caused to move over substantially the whole of the room before being vented.

Various means have also been proposed for withdrawing foul air from the toilet bowl and discharging same into the outside atmosphere by suction created in pipes leading from the interior of the bowl. Such means have, however, in the main have involved extensive constructional departures from the conventional type of bowl, which have greatly added to the cost of the equipment and to the bulk and in most cases have not satisfactorily accomplished the object for which they were intended.

The main object of my invention is, therefore, to provide toilet ventilating apparatus which will remove air direct from the interior of the toilet bowl instantly and expel same directly into the outside atmosphere.

A further object of the instant invention is to provide ventilating equipment which may be fitted to any conventional toilet in the same manner as the normal seat.

Still a further object of my invention is to provide toilet ventilating apparatus which will also adequately ventilate any room, such as a bathroom, in which it is located.

I achieve these and other objects and features by providing a channelled toilet seat hinged to the forward end of an air collector chamber and so related thereto that when the seat is in its seating position the channelled portion thereof is in register with the inlet to said air collector chamber. The air collector chamber in turn is connected through suitable duct work to the inlet side of an exhaust fan which then evacuates the air to outside atmosphere.

And generally the objects of the invention are to provide toilet ventilating apparatus which will be efficient in operation, of simple construction readily adaptable to a great many known types of bowls, and which can be produced at reasonable cost.

With the above and other objects in view the invention consists in the novel features of construction, arrangements and combinations of part set out herein and shown and more particularly pointed out in the claim for novelty which follows.

In drawings which illustrate the presently preferred embodiments of the invention:

FIGURE 1 is a part cut-away perspective view of a toilet embodying the features of the present invention, shown attached to a conventional toilet bowl,

FIGURE 2 is a sectional side elevational of the rear

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part of the toilet seat of FIGURE 1, taken on the line 2-2,

FIGURE 3 is a perspective view of the undersurface of the seat portion of the invention, and

FIGURE 4 is a diagrammatic sketch of the general layout of the ventilation system incorporating the ventilating features of the present invention.

Referring to FIGURES 1 and 2, a toilet ventilating assembly 1 includes an air collector chamber 2, a toilet seat 3 and a lid 4. The air collector chamber 2 extends across the bowl comprises a bottom wall 5 supporting side walls 6 and 7 at the ends thereof and enclosed at the top by an upper wall 8. The side walls 6 and 7 are of substantially quadrantal configuration with their vertical edges 9 and 10 respectively being at the front of the chamber 2, and their upper edges 11 and 12 respectively being arcuate. The upper wall 8 is also arcuate in section in order to follow the contour of the upper edge 11 and 12 of the side walls 6 and 7.

The front of the chamber 2 is open with the exception of a low flange 13 extending upwardly from and over the full length of the front edge of the bottom wall 5.

The material forming the upper wall 8 is of increased thickness at the front edge thereof as indicated at 14 and a pair of cylindrical holes 15 are formed, therein, one at each side, to accommodate hinge pins 16. The cut-aways 17 formed in the front edge 14 accept the hinge portions 18 of the seat 3 and the hinge portions 19 of the lid 4.

The bottom wall 5 of the chamber 2 is adapted to extend transversely across the rear of a conventional toilet bowl 20 and to be attached thereto in the same manner as a conventional toilet seat by means of a pair of bolts 21, the wall 5 being suitably perforated to permit the bolts 21 to line up with the holes provided in the toilet bowl 20.

The side walls 6 and 7 extend downwardly and rearwardly to act as side walls for a pair of outlet boxes 22 and 23 respectively which are extensions of the air collector chamber 2. The outlet boxes 22 and 23 are located at opposite sides of the device and are sufficiently spaced apart to permit them to be assembled on each side of the base of the tank 24 generally utilized to supply water to the toilet bowl 20. Outlet pipes 25 and 26 extend rearwardly from the outlet boxes 22 and 23 respectively and, as illustrated particularly in FIGURE 4, these outlet pipes are adapted to connect with the inlet side of an exhaust fan 27, the outlet duct 28 of which is led to the exterior of the building under the hood as shown at 29.

Referring to FIGURES 2 and 3, the toilet seat 3 is of substantially conventional shape in plan but is substantially arcuate in section, partly enclosed at its rear most half by a base portion 30. The base portion 30 includes two oppositely located side strips 31 and 32 extending rearwardly and inwardly from locations substantially half way along the side of the seat and connected at the rear of the seat by a transverse strip 33. With the seat 3 in a horizontal position, the base portion 30 is also in a horizontal plane.

A plurality of vertical direction vanes 34 extend between the base portion 30 and the underside of the seat 3 in a generally longitudinal direction. As previously described, the seat 3 is hingedly attached to the chamber 2 by hinge portions 18, and, as in conventional toilet seats, resilient stops 35 are attached to the lower edge 36 of the seat to contact the toilet bowl 20 and at the same time ensure a space is maintained between the upper edge of the bowl 20 and the lower edge 36 of the toilet seat 3.

The lid 4 is of conventional design and is also hinged to the chamber 2 by means of its hinges 19 as described. Resilient stops 37 on the underside of the lid 4 are adapted to contact the seat 3 when the lid is closed and in this

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manner a gap 38 is maintained between the lid and the toilet seat when the lid is closed down.

In operation, upon activating the exhaust fan 27, air is caused to flow from the washroom or the like into the upper end of the toilet bowl 20 between the gaps existing between the seat and the bowl and the seat and the lid as described. This air, together with air from the toilet bowl is then directed by the directional vanes 34 through the collector chamber 2 in substantially equal amounts to the outlet boxes 22 and 23. From the outlet boxes the outlet pipes 25 and 26 duct the air to the exhaust fan 27 which then expels it to atmosphere through the outlet duct 28 and the hood 29.

From the foregoing, the construction and operation of the invention will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What I claim is:

In toilet ventilating apparatus of the kind including a toilet bowl, a seat, said seat having a dished under surface, and air deflecting means comprising rearwardly converging side members depending from the under surface of said seat and discharging air rearwardly between said side members, the improvement comprising: a ventilator casing extending transversely of said bowl behind said seat, said casing having an interior air collecting chamber ex-

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tending transversely with respect to said bowl and having a face contiguous to and parallel with said seat at the rear thereof, said air collecting chamber having an opening along its front face throughout the horizontal extent of the air discharge area between said converging side members to receive air discharged from said air deflecting means, a cover for said seat, said ventilator casing having hinged connection with said seat and said cover, said air collecting chamber being inclined downwards and rearwards and at points contiguous to the sides of said bowl being formed to provide rearwardly extending discharge members, said ventilator casing having a substantially horizontal member constituting the bottom of said air collecting chamber, said air collecting chamber having a top wall of substantially arcuate cross section inclined downwards into meeting contact with said bottom between said discharge members, a pipe venting into the outer atmosphere, suction means within said pipe, and air conducting means leading from said discharge members to said vent pipe.

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