Nov. 20, 1945. A. P. RIEDELE 2,389,165

VENTILATED TOILET

Filed Dec. 2, 1941

Fig. 1.

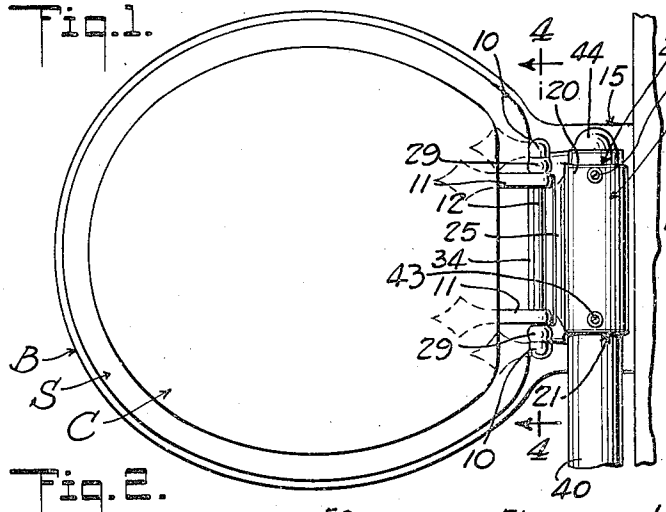


Fig. 5.

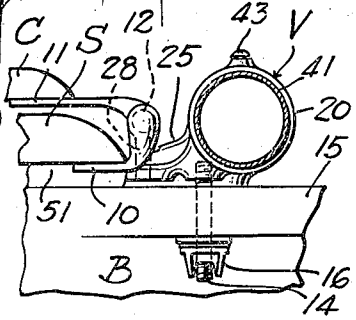


Fig. 2.

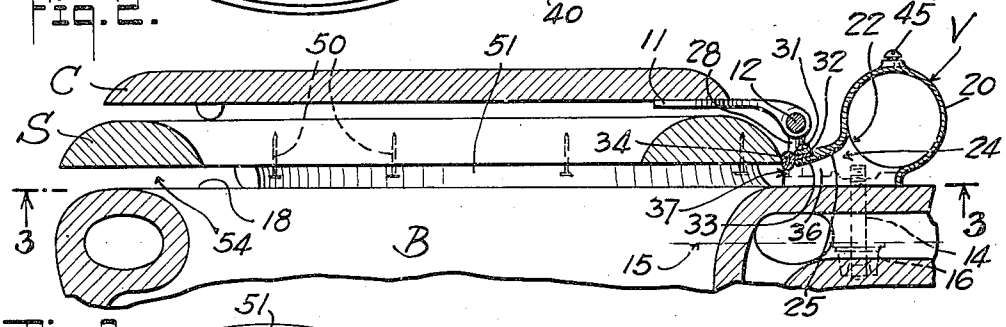


Fig. 3.

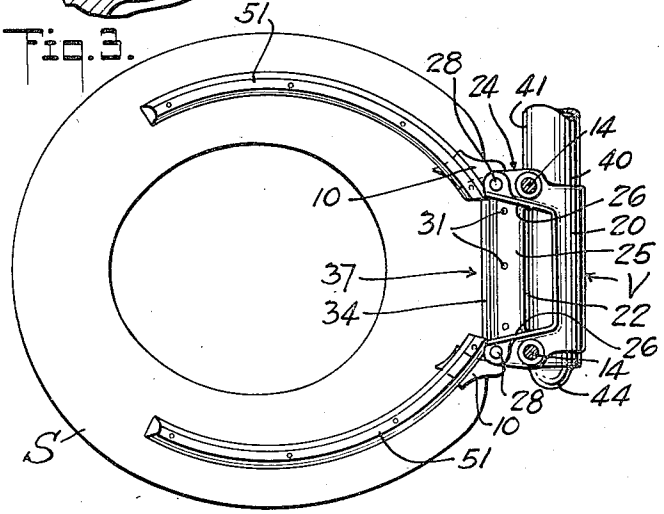
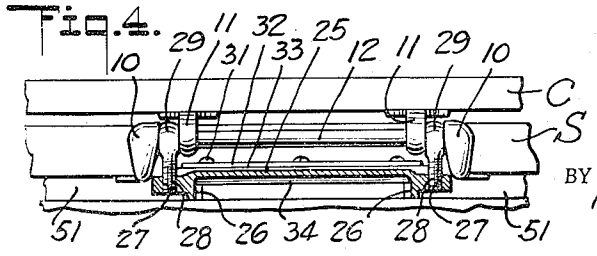


Fig. 4.



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VENTILATED TOILET

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Application December 2, 1941, Serial No. 421,302

3 Claims. (Cl. 4—217)

This invention relates to ventilated toilets of the general character having a means which, in association with a toilet, functions to remove from the toilet bowl, all odors resulting from the use of the toilet or originating in the bowl or trap thereof, and to conduct such odors from the premises so as to prevent contamination of the air in the premises.

An object of the present invention is to provide a toilet of the above described character in which a ventilating unit is structurally characterized to permit its application to a toilet without any alteration of the toilet seat; to enable the ventilating unit to be applied to all types of seats with equal facility; to enable a proper sealing fit between a sealing member and the bowl rim to be obtained by compensating for different heights of seat hinges above the bowl; to arrange for an air inlet of maximum efficiency when the seat is occupied; to provide for attaching members for the ventilating unit by which the latter can be rigidly secured to the bowl, and the seat and seat cover, if any, mounted on the ventilating unit on vertically adjustable brackets in order to obtain the aforestated sealing fit between the seat and bowl rim irrespective of dimensional differences between seat mountings of various manufacturers; and to provide for a sealing fit between the ventilating unit and the seat when lowered on the bowl so as to prevent escape of odors from the bowl between the unit and seat.

With the above and other objects in view, the invention resides in the combinations, arrangements and functional relationships of elements as set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawing,

Figure 1 is a plan view of a toilet embodying this invention;

Figure 2 is an enlarged vertical sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a bottom plan sectional view taken on the line 3—3 of Figure 2;

Figure 4 is an enlarged vertical sectional view taken on the line 4—4 of Figure 1; and

Figure 5 is an enlarged fragmentary view in side elevation, of the ventilating unit applied to the toilet.

Referring specifically to the drawing and particularly to Figures 1 to 5 inclusive, a ventilating adapter embodying this invention is rigidly secured to the bowl B of a conventional toilet including a seat S and a cover C, mounted directly on the ventilating adapter for raising and lowering movements with respect to the bowl, rather than on the bowl as is the usual practice. Thus, the ventilating adapter, in addition to its ventilating function, serves as a mounting or support for the seat S as well as for the cover C if used in an installation.

The ventilating adapter V comprises a body having a tubular portion or pipe section 20 open at its ends to provide one or two outlets as desired and as indicated at 21. The portion 20 is provided with a lateral or peripheral opening 22 in the form of a slot defining an inlet from a housing portion 24 projecting laterally from the portion 20 and formed by a top wall 25 and side walls 26 so as to be generally U-shaped in cross section with its forward end and bottom open.

At opposite ends of the tubular portion 20, threaded attaching studs 14 depend from the adapter V and pass through openings in the flat rearward extension 15 projecting from the back of the bowl. The studs 14 are provided with nuts 16 to rigidly secure the adapter to the bowl with the bottom edge of the housing portion 24 clamped tightly against the top surface of the extension 15, thereby closing the open bottom of the housing portion to define a duct 36 having an inlet 37 at the rear portion of the bowl as clearly shown in Figure 2.

Screwed into threaded vertical bores 27 in the adapter V at opposite ends of the housing portion 24 and forwardly of the studs 14, are the shanks of brackets 28 the upper portions of which terminate in sleeves 29 through which extends the usual pivot forming pin 12 having mounted thereon at opposite sides of the brackets, pairs of bearing arms 10 and 11 secured to the undersides of the rear portions of the seat S and cover C respectively. The seat and cover are thus mounted on the adapter V by means of the brackets 28 for independent pivotal movements about the axis of the pin 12 to occupy raised and lowered positions relative to the bowl B and to each other.

Secured by screws 31 and a metal bar 32 to the forward end of the top wall 25 of the housing portion 24, is the flat lateral attaching flange 33 of a tubular sealing member 34 constructed of resilient rubber or other suitable material, which, in the lowered position of the seat S, is engaged and compressed by the rear edge of the latter as shown in Figure 2, so as to effectively seal any space between the top wall 25 and the seat, and thus prevent the escape of odors from the bowl at this point.

Secured to the underside of the seat S by headed fastening members 50, are gaskets 51 of a contour to rest upon the rim 18 of the bowl B in the lowered position of the latter, so as to seal the space between the seat and the bowl with the exception of a portion at the rear of the bowl corresponding to the width of the duct 36 at its inlet 37, and a portion at the front of the bowl to provide an air inlet 54, it being noted from Figure 3 that the forward edges of the side walls 26 of the housing portion 24 engage and compress the rear ends of the gaskets 51 for coaction of the sealing member 34 in producing a sealed joint between the housing portion of the adapter and the seat.

With the adapter V installed on the bowl, a section 40 of a vent pipe 41 is secured in one end of the tubular portion 20 by a set screw 43, and a cup shaped closure 44 is secured in the other end of the portion 20 by a set screw 45. The section 40 is connected by suitable fittings to the vent pipe 41 which is installed in the wall and extends to the outer atmosphere.

In operation, the ventilating adapter V is secured to the bowl B, and the brackets 28 vertically adjusted on the adapter by rotating the brackets to a vertical position in which the pivot pin 12, when inserted in the sleeves 29 and in the bearing arms 10 and 11, will be at the proper height for the gaskets 51 of the seat S to have firm sealing contact with the bowl rim 18 under the weight of a person occupying the seat.

By means of this vertically adjustable mounting of the seat directly upon the adapter, with the latter rigidly secured to the bowl, dimensional differences of seat fittings of different manufacturers, can be easily and simply compensated for so as to insure correct operative relationship between the seat and bowl. By the provision of the sealing member 34, the slight dimensional variation between the rear end of the seat and the pivot pin 12 is compensated for by more or less compression of the sealing member.

Any and all odors existing in the bowl B when the toilet is in use, will be drawn into the adapter V by natural thermal circulation, it being noted that the air inlet 54 between the gaskets 51 insures a supply of unodorized air into the bowl and across the latter from front to rear to most effectively utilize the thermal circulation in removing all bowl odors from the premises.

By virtue of the above described embodiment of the invention, the adapter can be inexpensively supplied as an accessory to toilet seats already manufactured, as no modification of the seat is required.

I claim:

1. In a ventilated toilet, a bowl; a seat therefor; a ventilating adapter having an inlet disposed at the rear portion of the bowl to receive odors therefrom, and an outlet adapted for connection to a vent pipe; means for securing the adapter rigidly to the bowl; the adapter having threaded vertical bores; brackets screwed into said bores for vertical adjustment and having sleeves; bearing arms carried by said seat; and a pivot pin extending through said sleeves and bearing arms to mount the seat on the adapter for pivotal movement and for vertical adjustment relative to the bowl by rotation of the brackets when said pin is removed from the sleeves of said brackets.

2. In a ventilated toilet, a bowl, a seat therefor, a ventilating adapter having an inlet disposed at the rear portion of the bowl to receive odors therefrom, and an outlet adapted for connection to a vent pipe; means for securing the adapter rigidly to the bowl; eye screws adjustably carried by the adapter, a pin carried by the eye screws and pivotally supporting the seat, said eye screws being adjustable for raising or lowering the pivot point of the seat with respect to the bowl and adapter for locating the seat the necessary distance above the bowl top when the seat is lowered to give passage for the odors to the adapter, and sealing members spacing the seat above the bowl when the former is lowered.

3. In a ventilated toilet, a bowl; a seat therefor having sealing members secured to the underside thereof to rest upon the bowl when the seat is lowered; a ventilating adapter having an inlet disposed at the rear portion of the bowl to receive odors therefrom, and an outlet adapted for connection to a vent pipe; means for securing the adapter rigidly to the bowl; means including spaced brackets on the adapter by which the seat is pivotally mounted on the adapter; and means coacting with the adapter and brackets by which the latter are mounted on the adapter for vertical adjustment independently of each other to enable the pivotal mountings of the seat to be raised or lowered at either one or both sides of the seat in order for the sealing members to have sealing contact with the bowl when the seat is lowered thereon, irrespective of inequalities in the rim of the bowl.

ANDREW P. RIEDELE.