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ODOR REMOVING DEVICE FOR TOILETS

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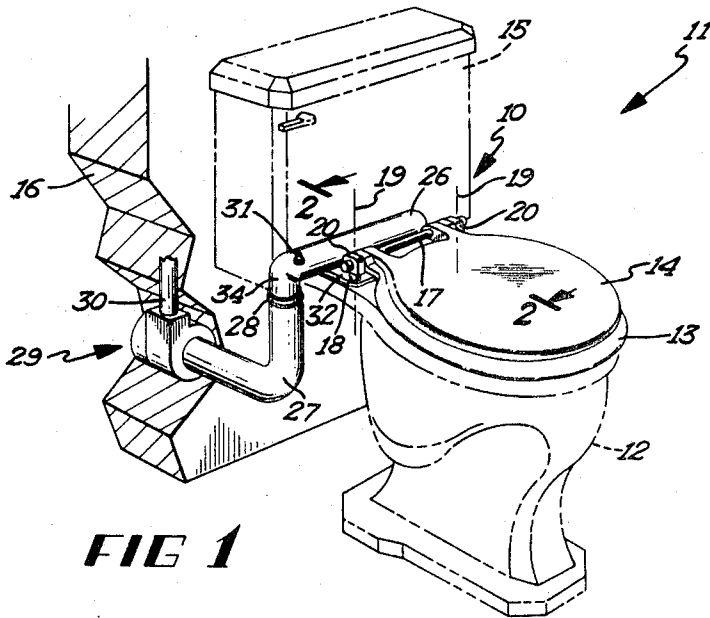
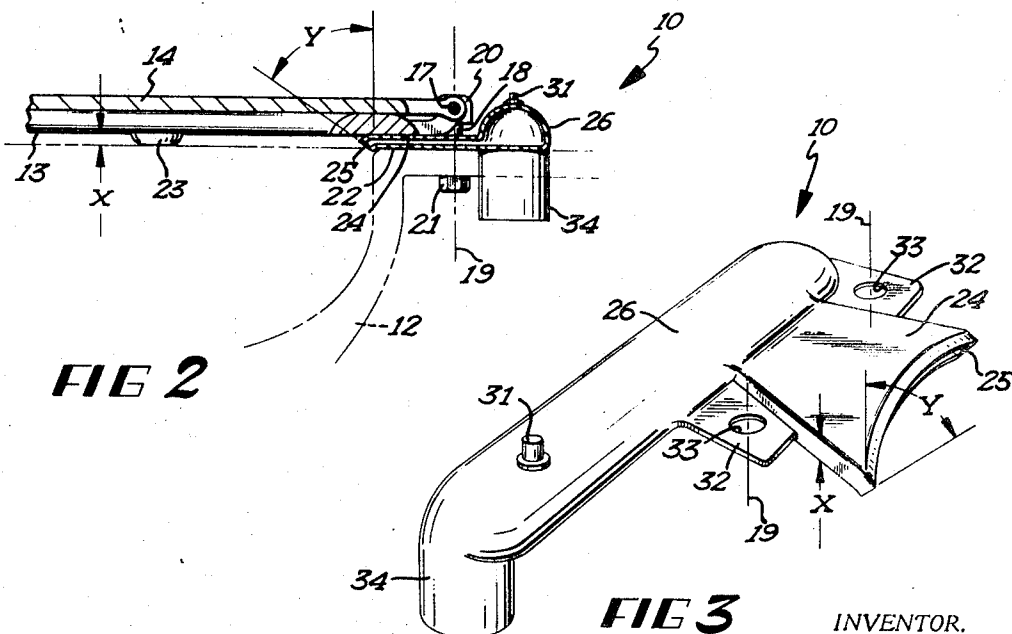


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ODOR REMOVING DEVICE FOR TOILETS

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2 Claims

ABSTRACT OF THE DISCLOSURE

An odor removing device for toilets comprising an odor receiving duct adapted to be contained within the space between a toilet bowl rim and the overlying toilet seat and communicating with a laterally extending vent conduit. The aforesaid vent conduit serves to direct vented vapors around the toilet waterbox and communicates with a blower which functions to draw vapors out of the toilet bowl through the odor collecting duct.

This invention relates to an odor removing device for toilets and, more particularly, relates to an odor removing device for toilets which is readily adapted to standard toilets without the need for modification of the toilet bowl or the toilet seat.

Many types of odor removing devices are presently available for addition to toilets. The need has greatly increased for such devices over the past years in that it is becoming increasingly more common to locate the toilet adjacent the kitchen or living room in a one story home or, include an extra first floor toilet near the living room or kitchen in a two story home. Further, many of the owners of two story homes which were built before the time it was common to include a first floor bathroom have added a bathroom, typically in the kitchen vicinity in that piping is more readily available in that area. Because of the bathroom's proximity to the living room and eating areas, it is desirable to have an efficient means to exhaust noxious odors and prevent them from reaching the living or eating areas.

Of the devices presently available, many require modification to the toilet bowl or to the toilet seat. For example, some require the recessing of the toilet seat to provide clearance for the odor removing device. Others require the addition of a completely revised seat and gasketing between the seat and the toilet bowl. Still others are so complex and correspondingly expensive that modification of a toilet to include the odor removing device is prohibitive. Further, the more complex the odor removing device becomes, the more difficult it is to install, maintain and keep clean.

With these comments in mind it is to the elimination of these and other disadvantages to which the present invention is directed, along with the inclusion therein of other novel and desirable features.

An object of my invention is to provide a new and improved odor removing device for toilets of simple and inexpensive construction and operation.

Another object of my invention is to provide a novel odor removing device for toilets which does not require the modification of the toilet bowl or toilet seat in the assembly of my odor removing device to a standard, presently available toilet.

Still another object of my invention is the provision of an improved and novel odor removing device for toilets which is extremely efficient in its operation yet which does not require gaskets between the toilet bowl and toilet seat.

A further object of my invention is the provision of a new and improved odor removing device for toilets which is extremely simple in its installation and operation and which, in its lack of complexity, is extremely simple to clean thereby permitting operation, installation and clean-

ing by a person of minimum skill and manual dexterity.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views and in which:

FIG. 1 is a diagrammatic sketch showing a typical installation of the odor removing device;

FIG. 2 is a sectional view taken along the lines 2-2 of FIG. 1; and

FIG. 3 is a perspective view showing the odor removing device of my invention.

One form of the present invention is shown in the drawings and is described herein.

Referring to FIG. 1, the odor removing device of my invention is indicated by the numeral 10 and is shown installed on a toilet, indicated generally by the numeral 11. The toilet includes a toilet bowl 12, a seat 13 and a seat cover 14. Tank 15 is also shown and is mounted on wall 16. Seat 13 and seat cover 14 are hingedly mounted for rotation about shaft 17 which is substantially horizontal thereby providing a vertical upward movement for seat and seat cover 13 and 14, respectively. Shaft 17 is assembled to bowl 12 through a pair of bolts 18 which have a generally upright orientation with the bolt axis oriented along the center lines 19. Bolts 18 are disposed into bolt receiving nut assembly 20.

FIG. 2 shows nut 21 of the bolt assembly 18 securing the seat 13, and seat cover 14 to the toilet bowl 12. Toilet bowl 12 has an upper rim surface 22 upon which seat 13 rests supported by grommets 23. Grommets 23 have sufficient thickness, as indicated by the dimension x, to provide a clearance between seat 13 and the upper rim surface 22 of bowl 12. Odor removing device 10 includes an odor receiving duct 24 which has a thickness approximating the clearance between seat 13 and rim 22 as indicated by the dimension x. Therefore, the odor receiving duct may be inserted between the rim 22 and the seat 13 without any modification to the bowl 12, seat 13 or cover 14. The odor receiving duct is relatively thin and includes an elongate orifice 25 which is positioned alongside and conforms to the rim 22. Orifice 25 is positioned at a slight angle to the odor receiving duct 24, which angle is indicated by the letter y. This orientation provides maximum efficiency in the removal of odor from the toilet in general and the odor removing device in particular. It should be noted that dimension x approximates 1/4" to 1/2" and that angle y approximates 30° to 60°.

Odor receiving orifice 25 communicates with odor receiving duct 24 which directs the flow of noxious gases rearwardly into odor conduit 26 which communicates with duct 24.

Referring now to FIG. 1, a flexible conduit 27 is securely attached to odor conduit 26 as by a spring steel clip 28. Flexible hose 27 is then connected to the suction side of pump 29 shown mounted in wall 16. The pump may be installed in wall 16 in any manner details of which are not shown here. Exhaust pipe 30 is placed on the pressure side of the pump 29 and is directed to the outside of the dwelling. It is particularly advantageous to mount pump 29 in wall 16 to provide clearance around the toilet 11 for cleaning or mopping. The lack of pump devices and piping at the floor and wall adjacent the toilet eases the task of cleaning in the area and, a considerably better appearance is created when pump 29 and attendant piping is placed out of sight. The pump may be any commercially available pump of whatever size is desired. Hose 27 is connected to pump 29 in any conventional manner. The pump is actuated by pump actuating mechanism or button 31 which is mounted on conduit 26. Of course, the button 31 may be placed at any convenient location. It is important to note that a manual opera-

tion is provided in that oftentimes it is not necessary to actuate the pump and, it should therefore not be necessary to have the pump running at all times that the bathroom may be in use.

Referring to FIG. 3, a pair of opposed laterally projecting bolt receiving flanges 32 are shown and are substantially co-planar with the odor receiving duct 24. Each flange includes bolt aperture 33 adapted to receive bolts 18. This provides for securely and conveniently assembling the odor removing device to the toilet.

The odor removing device of my invention is typically molded of a plastic material such as polyethylene and may be formed in one operation to give a high strength, inexpensive integral unit. Of course, other plastic material may be used and other means for forming the device may be utilized. It should be noted that the duct 24 converges as it approaches the conduit 26 thereby increasing the velocity of the noxious gases which proceed through duct 24 thereby aiding in the removal of the noxious gases. The opening indicated by numeral 25 is a relatively thin orifice creating a high velocity at the opening thereby pulling a relatively high percentage of noxious gases from the bowl 12 into the opening 25. The design of the opening 25 and converging duct 24 eliminates the need for gaskets between the seat 13 and rim 22 of the toilet bowl 12 in that the fumes are quickly carried off. Opening 25 is arcuate to conform to the rim surface 22 which is typically oval in shape. Therefore the duct 26 may include an elbow 34 if desired to receive hose 27.

The odor removing device of my invention is installed on a toilet 11 by simply removing the seat and seat cover, 13 and 14 and placing flanges 32 with the bolt receiving openings 33 in line with bolt axes 19 to permit bolts 18 to be inserted into apertures 33. The seat and seat cover, 13 and 14 respectively then may be reassembled to the toilet bowl 12 utilizing bolts 18 and nuts 21. Since the odor receiving duct 24 is relatively thin, and corresponds to the thickness of the grommet 23, the duct is thereby sandwiched between the seat and the rim, 13 and 22 respectively, providing sufficient clearance to raise the seat and the seat cover upwardly about shaft 17.

Pump actuating button 31 is connected to the pump 29 which, in turn, is connected to a suitable source of electrical power. Push button 31 is located convenient to the operator and the pump may be attached to the wall, rest on the floor or be securely attached within the wall as shown in FIG. 1. The exhaust pipe is then vented through the roof of the dwelling for complete removal.

From the foregoing it will be seen that I have provided a new and novel odor removing device which is adapted to work with a wide variety of commercially available pumps. Further, my device is not only simple to install but may be utilized on existing toilets and is simple to attach, requiring no modification in the toilet bowl or seat. Further, my device is such that additional equip-

ment does not surround the toilet bowl making it difficult to properly clean the area surrounding the toilet. My odor removing device is so designed that it quickly and efficiently removes noxious gases from the toilet bowl through a carefully designed arcuate orifice creating a high degree of suction at the rim of the toilet bowl and eliminating the need for gaskets between the toilet bowl rim and the seat in that exhaust of the fumes is fast and efficient.

What is claimed is:

1. In combination with a toilet having a waterbox and a toilet bowl including a rim having a substantially horizontal upper surface and a pivotal seat bolted to the bowl, said seat being supported a predetermined distance above said rim by spacer means, an odor removing device for removing odors from the toilet bowl comprising:

an odor receiving duct having an elongate orifice adapted to receive odors from the toilet bowl, said duct having a thickness substantially equal to said predetermined distance between the toilet bowl rim and the seat, whereby said odor receiving duct is sandwiched between the rim and the seat of the toilet; an odor conduit communicating with said odor receiving duct and extending laterally beyond one side of said waterbox in a direction substantially perpendicular to said duct, said duct converging rearwardly from said orifice to said conduit, and said odor conduit being adapted to be attached to the suction side of a pump mechanism whereby suction is created at said elongate orifice of said duct, thereby removing odors from the toilet bowl; and

laterally extending bolt receiving flanges affixed to said duct and said conduit and extending therebetween on opposite sides of said duct, said duct, conduit, and flanges being molded from plastic as an integral one-piece unit to thereby facilitate the installation of said odor removing device, said flanges having apertures therein whereby said odor removing device is bolted to the toilet with the bolts affixing the seat to the toilet bowl.

2. The odor removing device of claim 1 wherein:

said elongate orifice of said odor receiving duct is of arcuate configuration conforming to the curvilinear shape of the toilet bowl and angles inwardly and downwardly towards the interior of said toilet bowl at an angle between 30° and 60° from the vertical.

References Cited

UNITED STATES PATENTS

2,167,152	7/1939	Henschler	4-213
2,231,161	2/1941	Hanford	4-213
3,120,665	2/1964	Kirkland	4-213
3,153,794	10/1964	Hill	4-213
3,277,499	10/1966	Keefauver	4-213

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