Sept. 6, 1938. G. H. DAVIS 2,129,048

TOILET ODOR EXPELLER

Filed Sept. 15, 1937

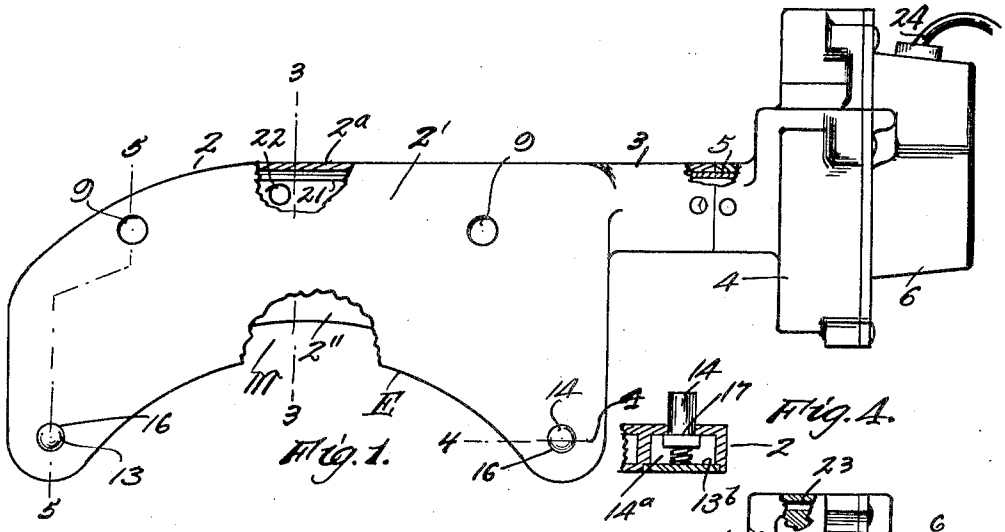


Fig. 1.

Fig. 4.

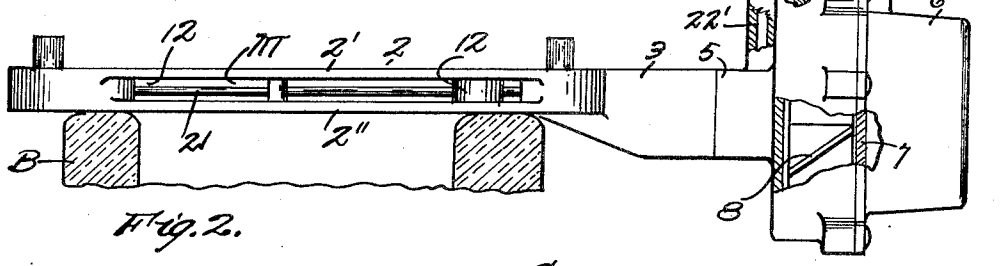


Fig. 2.

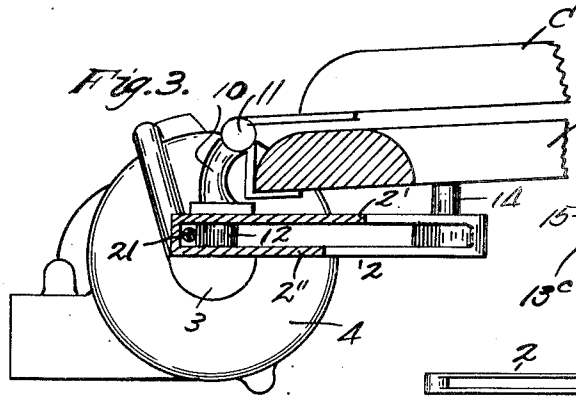


Fig. 3.

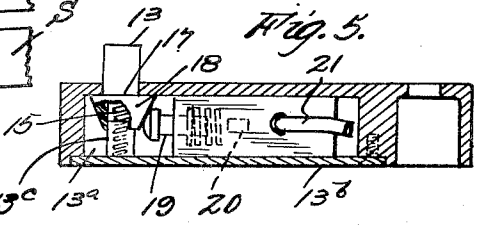


Fig. 5.

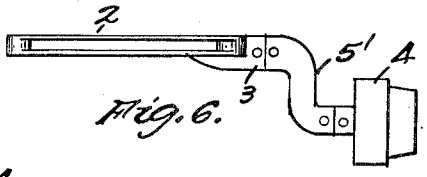


Fig. 6.

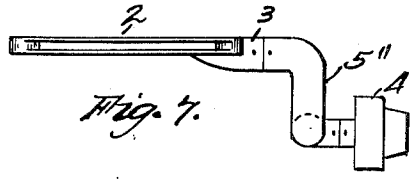


Fig. 7.

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Patented Sept. 6, 1938 2,129,048

UNITED STATES PATENT OFFICE

2,129,048

TOILET ODOR EXPELLER

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Application September 15, 1937, Serial No. 163,968

5 Claims. (Cl. 4—213)

This invention is a unitary appliance for ready attachment to and for expelling odors from toilet bowls and is an improvement in closet ventilators such as shown in U. S. Patent No. 1,498,789, issued to Drouillard, June 24, 1924.

An object of the invention is to increase the exhausting capacity and speed of the device in expelling air from the bowl. A further object is to provide for keeping the unit in a clean and sanitary condition by features designed to prevent, as far as practical, the accretion of objectionable fluids in or about the structural parts. Another object is to provide for the protection and concealment of circuit cords which connect a seat controlled switch and a fan driving motor included in a suitable housing of the assembly.

Particularly, an object is to provide a suction chamber having a wide, flat, arcuate mouth portion designed to lie under and close to the forward edge of the rear portion of the bowl seat and have a width considerably greater than the spacing between the almost universally adopted spacing of the bolts of the bowl seat and its cover and thus present a large air intake to the suction chamber. And an object is to provide a simple, compact, durable and low cost odor expeller, easily attachable to the conventional toilets without mechanical change.

The invention consists of certain advancements in this art as set forth in the ensuing disclosure and has, with the above, other objects and advantages hereinafter developed, and whose construction, combination and details of means will be made manifest in the description of the annexed illustrative embodiment; it being understood that modifications, variations and adaptations may be resorted to within the concept of the invention as it is more directly claimed hereinbelow.

Figure 1 is a top plan, partly broken away, of the appliance. Figure 2 is a mouth-side elevation, partly in section, of the device, and Figure 3 is a transverse section on line 3—3, Fig. 1. Figure 4 is a detail section of an equalizing, spring button as mounted in a portion of the chamber, on line 4—4, Fig. 1. Figure 5 is sectional detail of the controlling switch mounting and its actuating button, on line 5—5, Fig. 1. Figures 6 and 7 are front elevations showing different forms of swivel couplings for the motor assembly and the suction chamber.

The appliance includes three main shell sections comprising a flat suction chamber 2 having a joint extension 3 at one end, a suction fan housing 4 coupled at 5 to the extension 3, and a motor-enclosing casing 6 having a sidal partition 7 closing the near open side of the fan housing to exclude moist air from the motor parts and serving to radiate heat from the motor to the cool air dispelled by the fan wheel 8 which is driven by the motor.

The extension 3 is tubular and leads into the suction space formed by an upper or top wall 2' and a lower or bottom wall 2'' of the chamber 2; which is of an oblong shape and its ends and back are closed by a perimital web 2^a while the frontal edges are incurved to substantially conform to the average contour of the rear rim portion of the conventional toilet bowl B, and provide a very wide but shallow inlet mouth M. The chamber 2 is provided with bolt holes 9 adjacent to its rear side which are so spaced as to receive the usual bolts 10 of the toilet which support the hinge 11 of the bowl seat S and the usual cover C.

The bolt holes are well within the ends of the chamber 2 and are isolated from the mouth space by bosses 12 through which the holes extend. This construction provides for the ready attachment of the appliance to the bowl B and provides for a very elongate suction mouth M for the efficient and rapid induction of air from the bowl.

The forward corners of the chamber 2 are provided with push buttons 13 and 14 each pressed, in about equal reaction, by suitable springs 15 concealed in respective pockets 13^a and 14^a in the chamber corners which latter have top holes 16 through which the buttons are pushed up to a limit determined by their shoulders 17. The pockets are closed by removable bottom plates 13^b.

The button 13 has a conical cam-face 18 operative against the near end of yieldable plunger 19 of an appropriate switch device 20 sealed in the pocket 13^a. From the switch 20 extends an electric cord 21 which is arranged as far back in the chamber space as is practical and is passed rear of a retaining lug 22 and the boss 12 near the outlet extension 3 through which the cord 21 is then laid in a radial duct 22' in the fan housing 4 whence it passes in a wall duct 23 to the motor casing 6, thence out at 24 to a service connection.

The frontal edge E of the top wall 2' of the chamber 2 forwardly overhangs the front edge of the lower wall 2'' for the purpose of shedding water from the bottom wall so that this may be kept as dry as practical.

The springs 15 press the buttons upward with sufficient reaction to sustain the lowered seat S and the superposed cover C so that their weight

will not be sufficient to press down the switch operating button 13 and thus push back the switch plunger 19. But as a suitable excess weight is applied to the lowered seat S the two buttons 13 and 14 will be repressed and button 13 will repress the plunger 19 and the motor circuit will be closed and the motor energized, and suction is at once started to exhaust air from the bowl for the period that the seat is pressed down. Upon release of pressure on the seat S the buttons 13–14 will spring upward and the switch plunger 19 breaks the motor circuit. The spring supported buttons offer equal or balanced resistance to downward movement of the seat S and the cover C.

Fig. 6 shows a modified form of swivel coupling 5' for adapting the motor end of the expeller to different toilet tank installation, and Fig. 7 shows a further variation of coupling 5''.

To the plate 13^b is attached a guide 13^c on which the button 13 is slidably guided, and spring 15 is nested in the button and in the guide.

What is claimed is:

1. A toilet bowl odor expeller having a suction chamber with a frontal mouth for air intake from a bowl, an exhaust conduit leading from the chamber, a motor and fan housing attached to said conduit, a switch concealed in the chamber and seat cushions in said chamber engageable and actuated by the lowered bowl seat, means connected to one of said cushions to actuate the switch, an electric cord connected to said switch and concealed in said chamber and passing through the conduit to the motor housing, and means for retaining the cord in a rearward, protected position in said chamber.

2. In a device of the class set forth, a suction chamber of flat form presenting a wide, frontal mouth between its top and bottom walls, said chamber having pockets in its forward corners, a motor switch sealed in one of said pockets, cushions in said pockets for the toilet seat, and means on one of said cushions for closing the switch.

3. An odor expeller including a flat suction chamber for installation between a bowl rim and its lowered seat and having seat-bolt holes between its ends for the seat bolts, the chamber having a frontal, arcuate mouth, and yieldable, equi-resistant seat engaging buttons mounted in the forward corners of the chamber at the ends of the mouth, and a motor controlling switch device engageable and operative by one of said buttons.

4. An odor expeller for attachment to a toilet bowl and including a generally oblong, flat chamber seat cushioning means mounted in said chamber, and a motor controlling switch operatively engaged by said means when the seat is depressed thereon.

5. An odor expeller including a chamber having a suction mouth and provided with closed pockets in its forward corners at the ends of the mouth, and seat engaging buttons yieldably mounted in said pockets, and a motor switch device sealed in one of the pockets and operatively engaged by the relative button when the bowl seat is pressed down to close the switch.

GASPÉ H. DAVIS.