Nov. 15, 1932. W. J. CONNORS 1,887,498

TOILET VENTILATOR

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Fig. 1

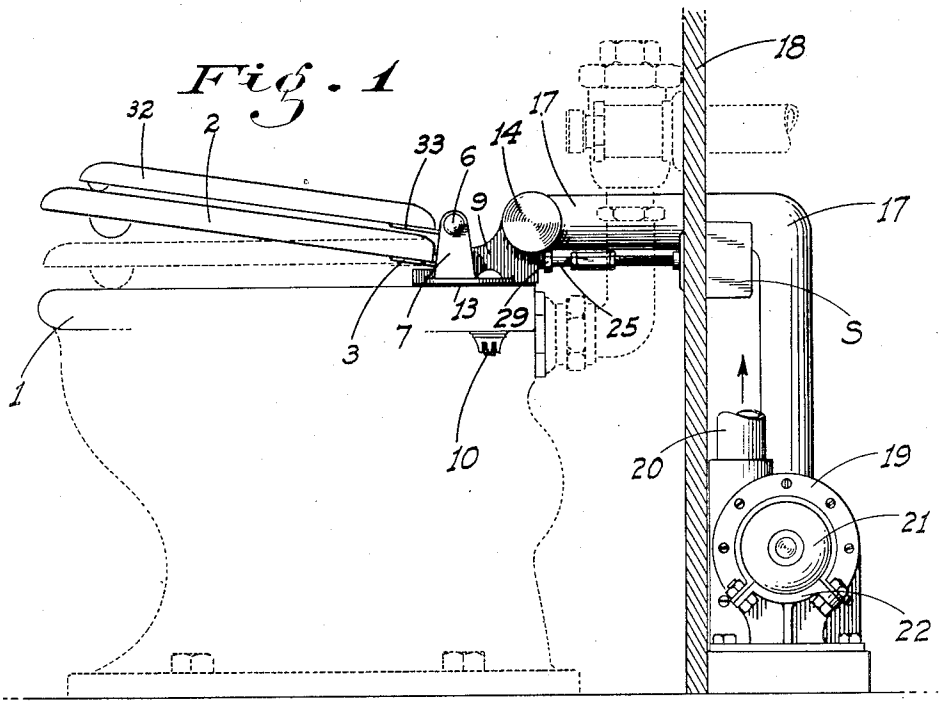


Fig. 2

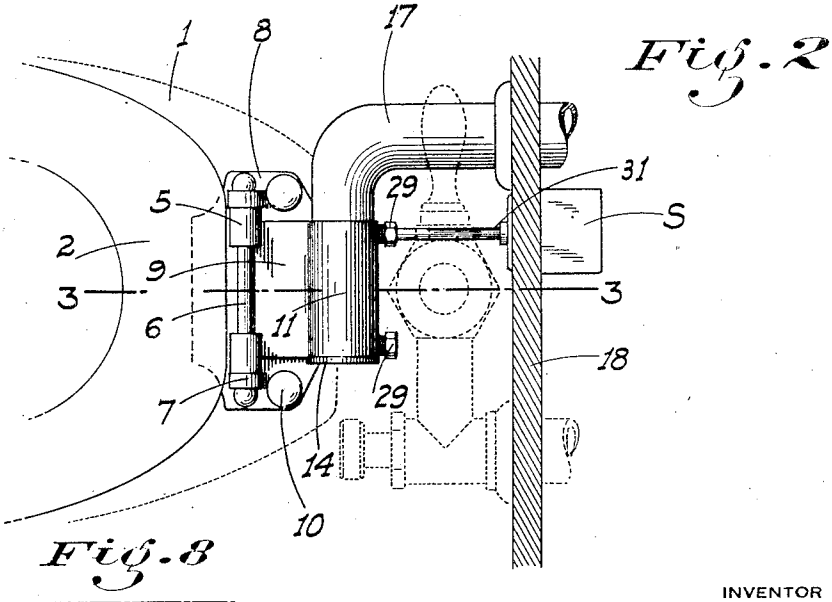
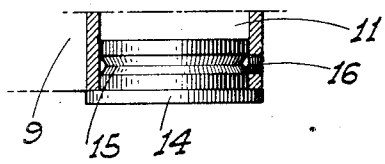


Fig. 3



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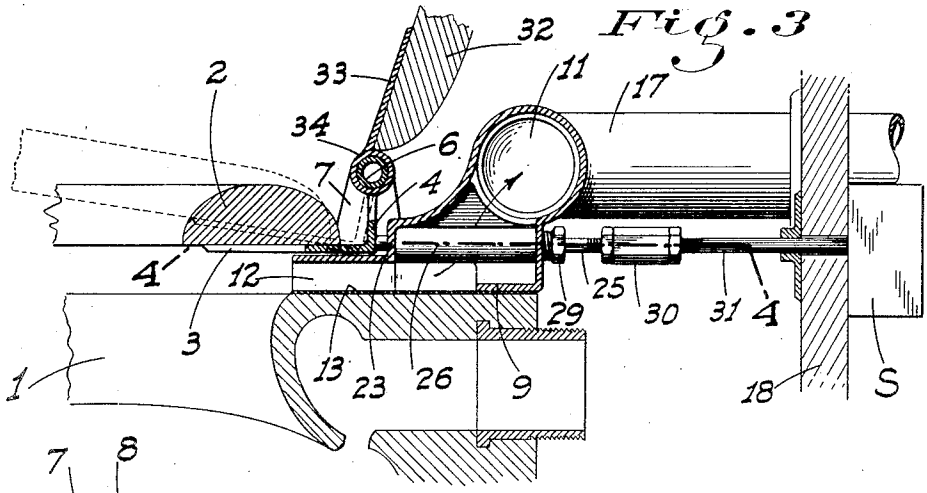
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TOILET VENTILATOR

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Fig. 3



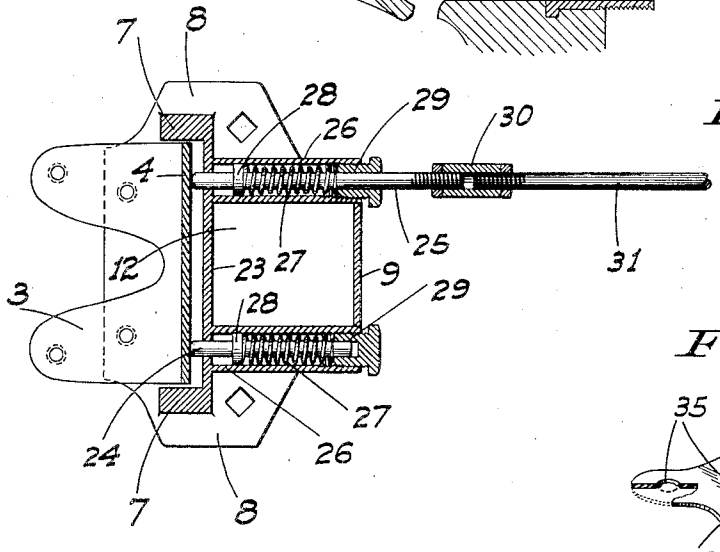


Fig. 4

Fig. 5

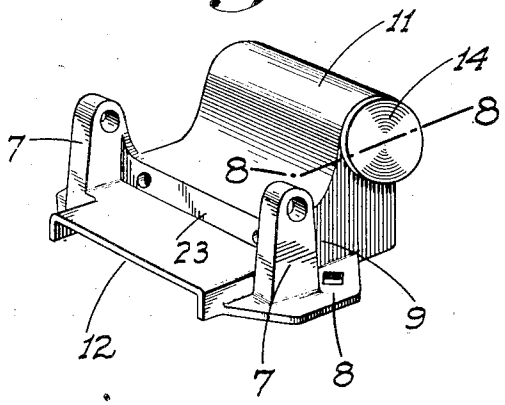


Fig. 6

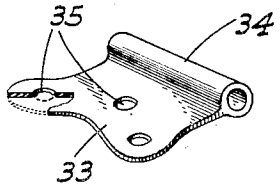
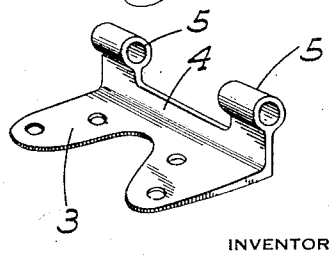


Fig. 7



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Patented Nov. 15, 1932

1,887,498

UNITED STATES PATENT OFFICE

WILLIAM J. CONNORS, OF SAN JOSE, CALIFORNIA, ASSIGNOR TO SANI-TOIL TRUST ASSOCIATION, OF WASHOE COUNTY, NEVADA, A COMMON-LAW TRUST

TOILET VENTILATOR

Application filed January 2, 1932. Serial No. 584,394.

This invention relates to toilets. My principal object is to provide a mechanism associated with the toilet which will prevent the dissemination of any objectionable odors into the atmosphere, and which is so connected to the toilet that the occupant automatically places the mechanism in operation. Similarly the operation of the mechanism is automatically halted when the toilet is vacated. No attention of any kind need therefore be given the apparatus by the users of the toilet, and such apparatus will be of benefit for toilet rooms of office and other public buildings, as well as homes.

A further object of the invention is to provide an apparatus for the purpose which may be applied to a standard toilet installation without alterations thereto and when thus installed will present a neat appearance.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side outline of a toilet of standard form shown equipped with my improved ventilating apparatus.

Fig. 2 is a top plan view of the same.

Fig. 3 is an enlarged cross section taken on the line 3—3 of Fig. 2.

Fig. 4 is a sectional plan taken on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of an air passage and hinge-pin supporting unit.

Fig. 6 is a similar view of the seat-cover hinge.

Fig. 7 is a similar view of the seat-hinge.

Fig. 8 is a fragmentary sectional plan taken on the line 8—8 of Fig. 5.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes a toilet bowl and 2 its seat; both these parts being of conventional or standard form. The seat is secured to a hinge plate 3 screwed to the bottom of the same at the back, a right-angle flange 4 projecting upwardly from said plate along the back of the same and immediately behind the seat. Transversely spaced sleeves 5 are formed in connection with the plate at the ends of and above the flange, which engage a hinge pin 6. The supporting brackets 7 of the pin project upwardly from and are formed on the base flanges 8 of a casting 9; said brackets being disposed outwardly of and close to the sleeves. The casting rests on and is secured to the bowl at the back of bolts 10 or the like projecting through the original pinpost holes provided in the back of the bowl.

Formed in the casting rearwardly of the brackets is a chamber 11 extending transversely of the bowl, from which chamber a passage 12 leads to the forward end of the casting. The passage at said end is of rectangular shape and while shallow in height extends practically the full width of the casting between the brackets as shown in Fig. 5. The bottom of said passage is formed by the top surface of the bowl or by a gasket 13 which is disposed between the bowl and the flanges 8 and secured in connection therewith by the bolts 10. The height of the passage is such that the hinge plate 3 may rest on the top of the passage as shown in Fig. 3, without the seat being raised from its normal position any appreciable amount.

The chamber 11 is initially open at both ends, one end being closed by a removable plug 14 having a peripheral groove 15 engaged by a screw 16 mounted in the back side of the chamber. A conduit 17 is connected to the other end of the chamber and extends thence at right angles thereto and through the adjacent wall 18 of the lavatory. Behind the wall the conduit extends down and is connected to the intake of a standard form of suction fan 19 from the outlet of which another conduit 20 extends upwardly to the exterior atmosphere through the roof of the building. The fan is driven by an electric motor 21 adjustably strapped in a saddle support 22, which support is flat on the bottom. By means of this mounting of the motor said motor may be retained in a desired seating

even though the support 22 may be turned from one position to another, as may be required to properly mount it in place under different conditions.

The casting 9 above the forward end of the passage 12 and just back of the location of the hinge flange 4 is formed with a vertical wall 23. Rods 24 and 25 project through said wall toward its ends and engage the flange 4. Back of the wall 23 the pins are enclosed in sleeves 26 formed with and extending from the front to the back of the casting. Compression springs 27 are disposed about the rods inside the sleeves. One end of these springs bears against collars 28 on the rods while at their opposite end they bear against adjustable sleeve nuts 29 screwed into the back end of the sleeves and which also form guides and supports for the adjacent portions of the rods. The springs have sufficient strength to normally advance the rods against the flange 4 and press the same forwardly so as to hold the seat raised a certain distance, as shown in Fig. 1.

The rod 24 terminates inside its nut which is closed on its outer end, as shown in Fig. 4. The rod 25 however projects through the corresponding nut and extends to an adjustable connection with a coupling sleeve 30 which is also adjustably connected to an extension rod 31 of insulation material. This rod projects through the wall 13 to operate the switch S of the motor circuit, said switch being preferably mounted back of the wall.

The switch is of that type whose closing is effected by a longitudinal movement of the rod toward the wall and which will open when the rod is moved in the opposite direction.

By means of the above construction and arrangement, it will be seen that the springs exert a constant tendency to move the seat hinge forwardly and pull the switch actuating rod away from the switch so as to open the latter. The strength of the springs is sufficient to overcome the weight of the seat and the latter will be normally raised somewhat, as previously stated. The depression of the seat to its normal position by the weight of a person thereon therefore causes the switch rod to be moved to close the switch. The motor and fan will thus be set in operation and a current of air will be drawn from the bowl and discharged to the exterior atmosphere.

It will also be seen that the switch rod unit may be mounted on either side of the casting and the air conduit 17 may also be mounted on either end of the chamber 11 depending on the structural conditions which may be met with when making installations in different buildings. This permits a single form of the apparatus to be used under any conditions which may be met.

Also the length of the switch rod unit may be adjusted from the purposely excessive length in which it is put out, so as to properly fit any individual installation, by cutting the rod 31 so that the desired length is roughly obtained and then accurately adjusting the length of the unit by means of the coupling 30 until the exact length necessary is had. Adjustment of the springs to compensate for seats of different weight and insuring the lifting of the latter is provided by adjusting the nuts 29, as will be evident.

A cover 32 is provided for the seat as usual. To mount the cover I provide a hinge plate 33 extending under and secured to said cover and having a sleeve 34 along its back edge to fit between the sleeves 5 of the seat hinge and to be engaged by the hinge pin 6. It will be noted that the plate 33 is offset from the horizontal plane of the center of the sleeve 34, or in other words, is not radial with said sleeve. The plate will therefore be higher in one position than the other when the sleeve is reversed on the pin. The screw holes 35 in the plate 33 are also countersunk on both sides as indicated in Fig. 6. This enables the same hinge connection for the cover to be used with seats of different thicknesses, such as are liable to be encountered; and this feature in turn enables the original seat and its cover to be used when installing the ventilating apparatus.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A toilet ventilating apparatus comprising a hollow body adapted to be mounted on the bowl of the toilet at the back, said body forming a suction passage to communicate with the bowl, means to create a tendency to vacuum in the passage including an electric motor, the bowl having a seat resting at its back end on the body, hinge means connecting the seat to the body, and including a vertical flange below the hinge axis extending transversely of and behind the seat, spring pressed elements mounted in connection with the body and engaging the flange to push the same forwardly and tilt the seat upwardly, a switch for the motor, and means secured to one of said elements to close the switch when the seat is depressed against the resistance of the elements and the flange is pushed back.

2. A toilet ventilating apparatus comprising a hollow body adapted to be mounted on

the bowl of the toilet at the back, said body forming a suction passage to communicate with the bowl, means to create a tendency to vacuum in the passage including an electric motor, the bowl having a seat resting at its back end on the body, hinge means connecting the seat to the body, and including a vertical flange below the hinge axis extending transversely of and behind the seat, horizontal rods mounted in connection with the body in transversely spaced relation and engaging the flange, springs associated with the rods to push the same forwardly and thus raise the seat, a switch for the motor, and an extension on the rear end of one of the rods engaging the switch to close the same when the seat is depressed against the resistance of the springs, and the flange and rods are moved rearwardly.

3. A structure as in claim 2, in which means is provided in connection with the body to interchangeably guide and support the rods and springs.

4. A toilet ventilating apparatus comprising a hollow body adapted to be mounted on the bowl of the toilet at the back, said body forming a suction passage to communicate with the bowl, means to create a tendency to vacuum in the passage including an electric motor, the bowl having a seat resting at its back end on the body, hinge means connecting the seat to the body, the front of the body having a vertical wall directly behind the seat, horizontal sleeves formed in the body toward the sides thereof and extending from the said front to the back wall thereof, nut members adjustably mounted in the back ends of the sleeves, rods projecting through said sleeves and guided and supported by said members and the front wall of the body, said rods projecting through said wall, means provided with the hinge means of the seat and engaged by the forward ends of the rods and arranged to cause the seat to be raised when the rods are advanced, springs about the rods enclosed within the sleeves to thus advance the rods and engaged at one end by said members whereby their tension may be adjusted, a switch for the motor, and means to close the switch including an extension on one of the rods.

5. A structure as in claim 4, in which said sleeves, members and rods are the same diameter, whereby the rods and members may be interchanged in position in the sleeves.

In testimony whereof I affix my signature.

WILLIAM J. CONNORS.