May 30, 1939. W. M. HOFFMAN 2,160,213

CLOSET VENTILATOR

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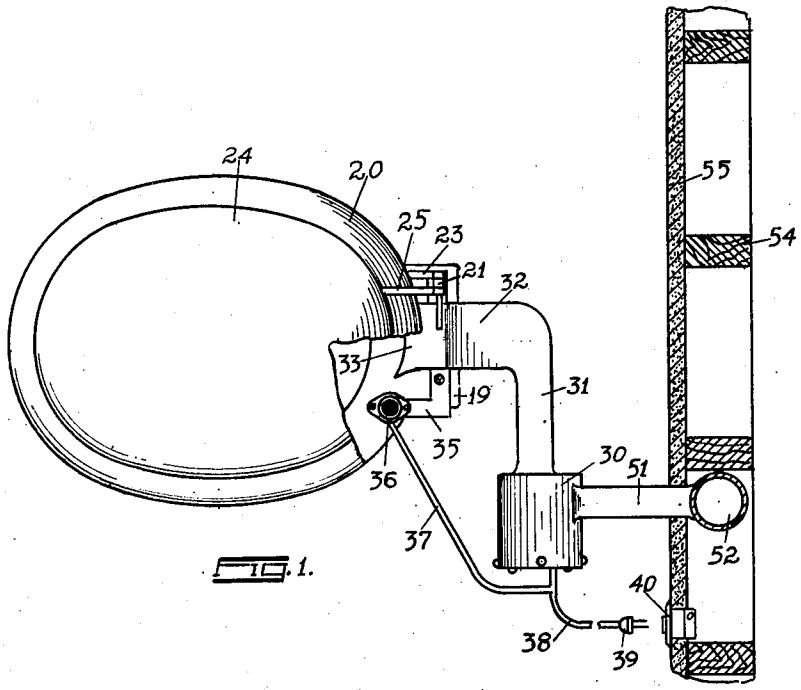


FIG. 1.

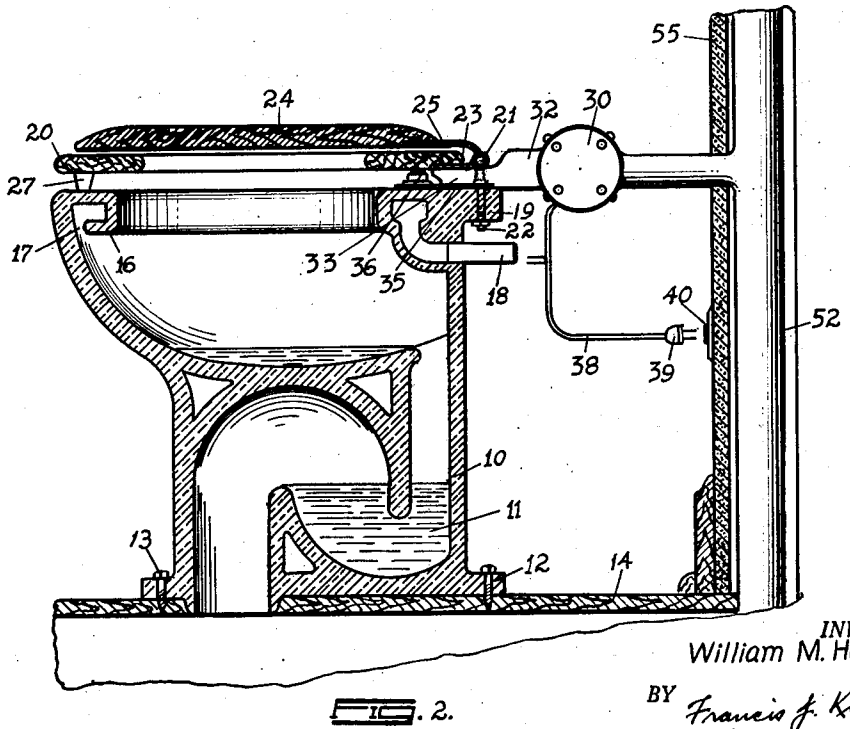


FIG. 2.

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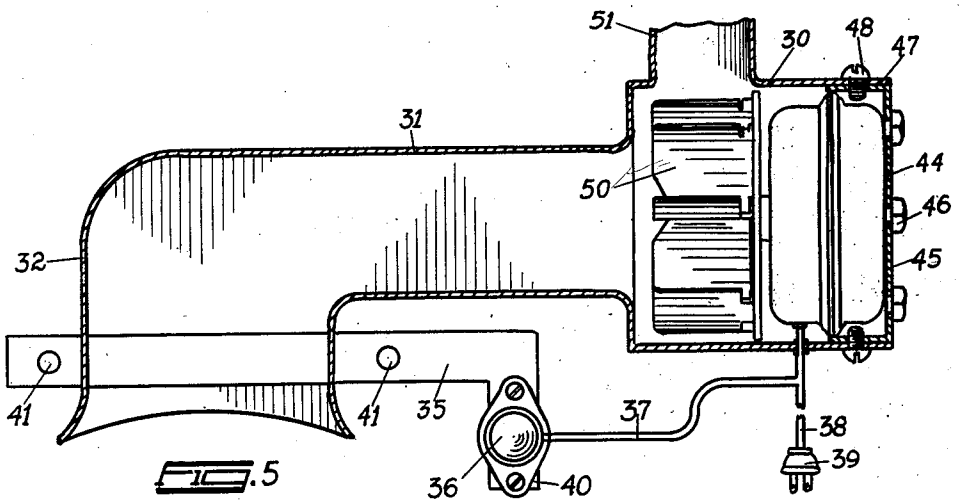


FIG. 5

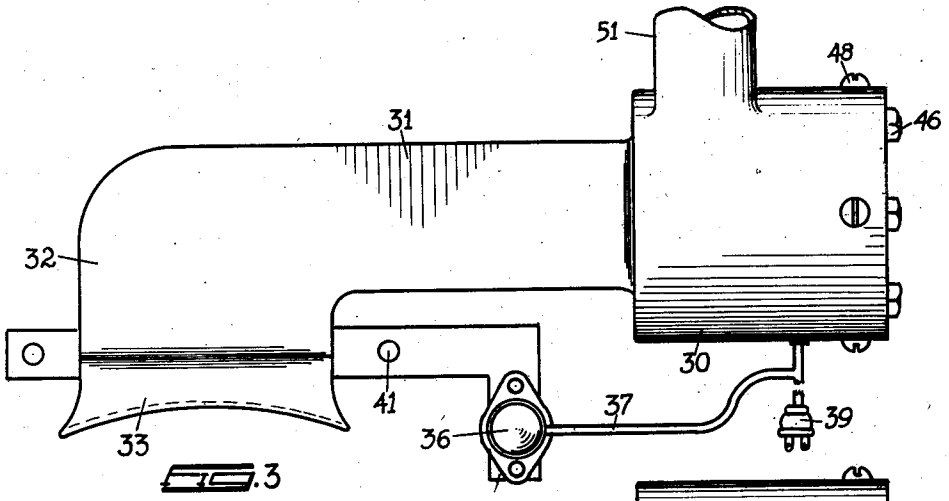


FIG. 3

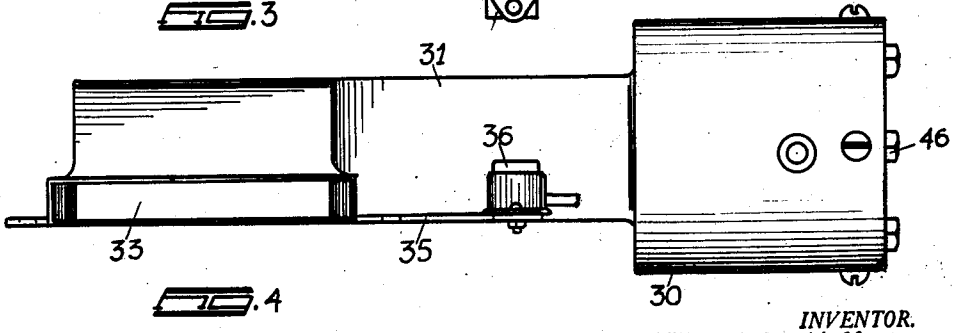


FIG. 4

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UNITED STATES PATENT OFFICE

2,160,213

CLOSET VENTILATOR

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Application May 17, 1937, Serial No. 143,013

5 Claims. (Cl. 4—213)

This invention relates to a water-closet ventilator and more particularly to an electrically or mechanically operated device applicable to existing and conventional water-closet installations to carry off foul odors accompanying excretion to prevent diffusion of such odors throughout the air in the chamber containing the closet. The device is particularly useful in lavatories of theatres, restaurants and other public places where the continued use of the sanitary equipment overtaxes the usual room ventilation facilities to remove the obnoxious odors.

The primary object of the invention is to provide a ventilator for the purpose described which is simple in construction and which may be readily attached to the conventional water-closet without alteration thereof.

Another object of the invention is to provide a ventilator for a water-closet which utilizes a power driven means for removing the fouled air, said means being automatically controlled by the use of the closet.

A further object of the invention is to provide a ventilator for the purpose described which is attractive in appearance, easily cleaned, readily accessible, and which is so positioned in relation to the closet that the likelihood of its being damaged or soiled is minimized.

Another object of the invention is to provide a ventilator for the purpose described in which the motor and fan constituting the air moving means is located at a point removed from the closet and in which the motor and fan may readily be removed as a unit for replacement or repairs without disturbing the connection with the closet or the connection with the flue.

A still further object of the invention is to provide means operable by the weight of the person using the closet to control the operation of the motor and fan.

These and other objects and advantages of the invention will become apparent from a consideration of the drawings and the following detailed specification.

In the drawings:

Figure 1 is a plan view of a device constructed in accordance with my invention, applied to a conventional water-closet;

Figure 2 is an elevational view, partly in section, of the ventilator applied to the closet;

Figure 3 is a plan view of the ventilator per se;

Figure 4 is a side view of the ventilator; and

Figure 5 is a sectional view of the ventilator.

Referring more particularly to Figures 1 and 2, the closet bowl 10 having the usual water trap 11 and rolled rim 16 with apertures 17 to disperse the flushing water coming into the fixture through supply pipe 18 is secured to the floor 14 by the screws 13 passing through the flange 12. A projection 19 extends rearwardly from the upper end of the fixture and is provided with a pair of spaced bores to receive the bolts 22, the upper ends of which are provided with eyelets to support the hinge pin 21. Mounted to swing about the pin 21 is the seat 20 which is connected to the pin by the straps 23. A pair of resilient spacer blocks 27, preferably made of rubber, are attached to the under side of the seat and are adapted to engage the rim of the bowl 10 to space the seat from the rim. A cover 24 is pivotally attached to the pin 21 by the straps 25.

As shown more clearly in Figures 3, 4 and 5, the ventilator consists generally of a motor and fan housing 30, a projecting casing 31 and a nozzle portion 33. The nozzle 33 is substantially reduced in height and is adapted to be inserted between the upper surface of the bowl 10 and the bottom surface of the seat between the two bolts 22. A strap 35 passing through the side walls of the nozzle and welded, soldered or otherwise suitably fastened to the bottom wall of the nozzle is provided with spaced apertures 41 aligned with and adapted to receive the bolts 22 to securely fasten the ventilator to the closet.

The housing 30 is provided with an extended free end closed by the flanged disk 45. A number of spaced screws 48 passing through apertures in the housing 30 and threaded into the flange 47 of disk 45 securely fastens the disk in position. A motor 44 supporting a fan 50 is carried by the disk 45 by means of the bolts 46. If desired, suitable vibration and noise dampening means may be inserted between the motor and the disk to insure smoothness of operation of the device.

Current is supplied to the motor through outlet 40, plug 39, conductor 38 and conductor 37 and its flow is controlled by the push button switch 36 which is supported directly beneath the seat 20 on the extended portion 40 of the strap 35. The operation of the switch 36 is such that no current flows to the motor when no weight is on the seat. The weight of the user on the seat will cause flexure of the resilient blocks 27 and straps 23, lowering the seat and moving the push button downwardly, thus causing contact to be made and the motor to operate.

The fan exhausts into a suitable flue 52 positioned in the wall 54—55 through the conduit 51 which connects with the housing 30 at a point adjacent the inner end of the housing. The con-

duit 51 may be connected directly with the outdoors, the exhaust ducts of existing ventilating systems or into hollow tile walls which are open to the atmosphere.

All exposed metallic members are preferably made of "Monel" or other non-corrosive metal. In the design of the device, sharp corners have been avoided so as to facilitate the cleaning of the device. The motor and fan have been positioned remote from the fixture so as to reduce the probability of harm from water. In order to render the motor and fan unit readily removable for replacement and repair, they have been combined into one unit mounted on the disk 45. To remove these elements it is only necessary to remove the disk 45. The mechanical connections with the closet or the conduit connections need not be disturbed. This is of singular advantage in the servicing of the system.

An important object obtained by the use of my invention is that the offensive odors are removed before they are diffused into the air of the room. This is accomplished by positioning the nozzle 33 beneath the rim of the seat 20 so that the air within the bowl is continuously evacuated while the closet is in use. While I have shown a motor and fan means to cause circulation of the air, it is obvious that I may rely on natural draft in the flue 52, if sufficient, for circulation of the air, or the conduit 51 may discharge into the outlet of the existing room ventilation means in which event the motor and fan may be dispensed with.

As various changes may be made in the construction herein specifically disclosed without departing from my invention, the disclosed embodiment should be taken as illustrative only of my invention, the scope of which is indicated in the appended claims.

I claim:

1. The combination with a closet bowl having a rearwardly extending projection at its upper end and a seat resiliently spaced from said bowl and hingedly mounted on vertical bolts passing through said projection, of a ventilating means therefor comprising a housing having a projecting nozzle adapted to be positioned between a portion of said bowl and said seat and between said bolts, a strap rigidly secured to said nozzle, said bolts clamping said strap to said projection, an air circulating means in said housing, an outlet duct for said housing, a flue connected with said outlet duct, a motor driving said air circulating means, a source of current for said motor, and a switch operable by weight on said seat connected between said power source and motor, said switch being supported on said strap directly beneath a portion of said seat whereby downward movement of said seat actuates said switch.

2. A ventilator for a closet bowl comprising an L-shaped casing having an enlarged end on one leg, a flattened inlet at the end of the other leg, a removable disk forming the outer wall of said enlarged portion, a motor secured to the inner face of said disk, an air circulator carried and driven by said motor on the opposite side of said motor from said disk, a discharge duct connected with said enlarged portion adjacent the periphery of said air circulator, a strap extending transversely through said inlet adjacent the bottom wall thereof and secured thereto, and a switch carried by said strap in control of said motor.

3. A ventilator for a sanitary fixture having a bowl and a seat hingedly mounted on and resiliently spaced from said bowl comprising a flattened duct having an inlet nozzle adapted to be positioned between the upper edge of said bowl and a portion of said seat, opposed apertures in the side walls of said duct, hinge pins supporting said seat, means to clamp said pins to said bowl, and a strap passing through said apertures and adapted to be clamped to said bowl by said pins whereby the bottom wall of said duct is clamped to said bowl.

4. A structure according to claim 3 including a motor driven fan for exhausting air from within said bowl through said duct, and a switch in control of said motor driven fan mounted on said strap and having its operating member in contact with said seat, the arrangement being such that the weight of a user on said seat will lower the seat and operate the switch.

5. A ventilator for a closet bowl comprising a unitary casing having an enlarged portion at one end thereof, a flattened inlet at the other end thereof, a removable disk forming the outer wall of said enlarged portion, a motor secured to the inner face of said disk, an air circulator driven by said motor on the opposite side of said motor from said disk, a discharge duct connected with said enlarged portion at the periphery of said air circulator, a strap extending through said casing and secured thereto, means to secure said strap to said bowl, a seat over said bowl, and a switch carried by said strap and adapted to be actuated by engagement with said seat for controlling said motor.

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