

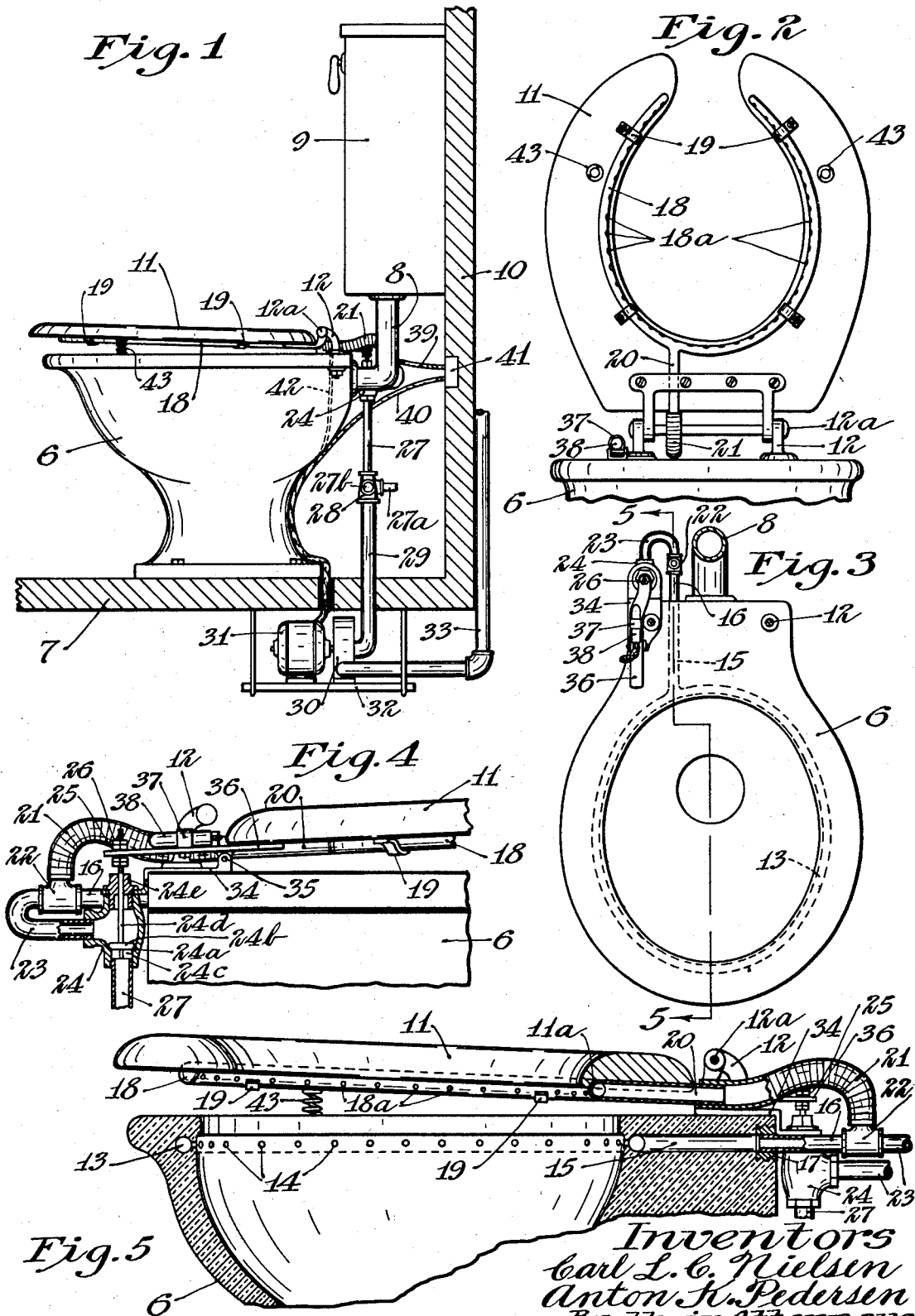
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WATER CLOSET VENTILATING DEVICE

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WATER CLOSET VENTILATING DEVICE

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This invention relates to ventilating devices for water closets.

It is the general object of the invention to provide a novel and improved ventilating device for water closets, which device is of cheap and simple construction and is efficient in operation.

The objects and advantages of the invention will more fully appear from the following description, made in connection with the accompanying drawing, wherein like reference characters refer to the same or similar parts throughout the various views and, in which,

Fig. 1 is a view in side elevation of a water closet having a device of the present invention installed thereon, portions of a room within which the water closet is located being shown in vertical section;

Fig. 2 is a view in front elevation of a portion of the device with the seat raised;

Fig. 3 is a plan view;

Fig. 4 is a view taken chiefly in side elevation of a portion of the equipment, the view being taken looking toward the opposite side of the water closet than that shown in Fig. 1 and some of the parts being shown in vertical section; and

Fig. 5 is a vertical section taken on the line 5-5 of Fig. 3, as indicated by the arrows.

Referring to the drawing, there is illustrated a water closet having most parts of standard construction and including a bowl 6 supported on a floor 7 and to which water is supplied by a flush conduit 8 from a tank 9 in the usual manner. A vertical wall is designated by the numeral 10. A seat 11 is connected to the bowl 6 by means of a hinge 12, the said hinge including a horizontal pivot 12a.

The bowl 6 is so molded near its upper rim that it forms an annular passage or air collecting head 13 communicating with the interior of the bowl by means of a plurality of ducts 14. At the rear of the bowl 6, the collecting head 13 communicates with a passage 15 which runs to the exterior rear wall of the bowl to receive therein an outwardly extending pipe 16, this pipe being preferably screwed in place within a nut 17 molded into the bowl structure.

Mounted on the seat 11 is a collecting head 18. This head, in the embodiment shown, comprises a horseshoe-shaped tube closed at its two ends and having a multiplicity of perforations 18a formed therein along the lower portion of its inner side. The seat 11 is provided with a groove 11a which partially receives the head 18 and the head is attached to the seat as by means of small clips 19 having arcuate portions underlying the

head and arms joining the arcuate portions and attached as by screws to the bottom of the seat. A pipe 20 is attached to and communicates with the head 18 and this pipe runs rearwardly to a point slightly beyond the rear edge of the seat 11 and has connected to its outer end one end of a flexible conduit 21 preferably of armored construction. The other end of the flexible conduit 21 is connected to one port of a three-way fitting 22 while a second port of the three-way fitting is connected to pipe 16. The remaining port of the three-way fitting 22 is connected to one end of a pipe 23 which, in turn, is connected to a valve 24. This valve includes a valve seat 24a, a valve member 24b, a guide 24c for guiding the valve member to and from its seat, a valve stem 24d connected to the valve member 24b and a bonnet 24e through which the valve stem 24d extends. The valve stem 24d is screw threaded from its upper end downwardly for some little distance and carried on this screw threaded portion are a pair of spaced stop nuts 25 backed by lock nuts 26. A pipe 27 is connected to the valve 24 below valve seat 24a and runs downwardly to a fitting 28 to which is connected a pipe 29. Pipe 29 may run downwardly through the floor 7 and it connects with the intake port of a blower 30 driven by an electric motor 31. The blower 30 and motor 31 may be supported as shown from the floor 7 by means of a suitable bracket 32. A conduit 33 is connected to the discharge port of the blower and this conduit may run up along the wall 10, as shown, to discharge into the outside air. In practice, other pipes 27a, 27b etc. similar to the pipe 27 but extending from apparatus mounted on other water closets and similar to the apparatus just described, may be provided and these pipes 27a, 27b etc. may be connected to the fitting 28. In other words, it is contemplated that the single blower 30 and motor 31 with the outlet pipe 33 will serve in connection with a number of ventilating devices mounted for use with a plurality of water closets as in a wash-room.

Mounted on the top of the bowl 6 adjacent but preferably beyond one end of the hinge 12 is a bracket 34 which has a downwardly offset arm projecting rearwardly beyond the bowl 6 and apertured to receive a reduced portion of the bonnet 24e. The bonnet 24e has a flange which bears against the said arm of the bracket 34, so that the arm is clamped between the bonnet and the body of the valve 24 and the valve 24 is supported by the bracket. The forward end of the bracket 34 is equipped with a pair of

upwardly projecting ears within which a pivot pin 35 is mounted and a lever 36 is connected to the pivot pin 35, so that the lever has freedom for swinging movement relative to bracket 34.

5 Lever 36 has a forwardly extending arm which projects forwardly of the pivot pin 12a of hinge 12 in the path of the seat 11, so as to normally underlie a rear portion of the seat. The lever 36 also has a rearwardly extending arm which

10 is slotted to receive the valve stem 24d and the two stop nuts 25 are disposed one at either side of the lever 36 on the stem 24d.

The lever 36 carries a spring clip 37 within which a mercury tube electric switch 38 is held.

15 A pair of wires 39 and 40 run from a wall socket 41 and the wire 39 is connected to one contact of the mercury tube switch 38, while wire 40 runs to one contact of the electric motor 31. Another wire 42 runs from the other contact

20 of the mercury tube switch 38, to the other terminal of the motor 31. Similar electrical circuits will be set up to the motor through switches 38 used on other water closets, if a plurality of water closets are to be served by the single

25 blower 30 and electric motor 31.

Attached to the bottom of the seat 11 near the forward end of the same and in position to strike the top of the bowl 6 when the seat 11 is swung downwardly from its upper position, shown

30 in Fig. 2 to the position shown in Figs. 1 and 5, are a pair of coiled springs 43 which normally resiliently support the seat in slightly upwardly tipped relation from the horizontal. As weight is placed on the seat, however, these springs will

35 compress so as to allow the seat to swing slightly downwardly and it is this movement imparted to the seat that opens the valve 24 and closes the switch 38 to establish the electrical circuit to the motor 31. The lever 36 is normally held

40 in the position shown in Figs. 1, 4 and 5 so that when the seat is tipped as there shown to its normal position of rest on the bowl 6, when the seat is unoccupied, the valve 24 is closed and the mercury in the tube 38 is held by gravity at the

45 end of the tube opposite that carrying the two contacts. As the seat is occupied, however, so that weight is placed upon the same, movement of the seat to the horizontal position swings the lever 36 and causes the valve stem 24d to

50 rise, thereby carrying the valve member 24b away from its seat 24a. Simultaneously the mercury in the tube 38 will be carried by gravity to the end of the tube within which the tube

55 contacts are mounted to close this switch.

When the motor 30 is set in operation and the valve 24 is opened, the blower will cause the air and gases within the bowl 6 to be drawn into the two collecting heads 13 and 18 from whence the air and gases will be carried through the

5 several conduits and pipes through the valve 24 to the blower 30 and the blower will exhaust the air and gases through the conduit 33. The bowl will thus be automatically ventilated whenever it is occupied. It will be observed that the

10 valve 24 will close and the switch 38 will open to stop the action of the blower when the weight upon the seat is relieved. By provision of the valve 24, it will be seen that the blower can be

15 utilized for drawing the air from the collecting heads applied to different water closets without affecting the operation of the ventilating device applied to the particular water closet illustrated. As the conduit 21 is flexible, the seat 11 can be

20 freely swung about its pivot 12a.

The device of the invention has been demonstrated in actual practice and has been found to be successful for the purposes intended.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts

25 without departing from the scope of the present invention, which, generally stated, consists in the matter shown and described and set forth in the appended claims.

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What is claimed is:

1. The combination of a water closet having a bowl and seat hingedly connected thereto, means normally holding said seat in slightly

35 raised position from said bowl, said seat being depressible against said bowl as weight is placed thereon, a perforated receiving head carried by said seat, a conduit connected to said head and

40 extending therefrom, a blower, an electric motor for driving said blower, said conduit communicating with the intake of said blower, an electrical circuit for said motor, a member secured

45 to and extending rearwardly from said seat beyond the pivot of said seat so as to tilt as said seat is depressed, and a suitably mounted switch actuatable by tilting movement of said member

50 and arranged to be closed by tilting thereof occasioned by depression of said seat, said switch being connected in said circuit.

2. The structure defined in claim 1, and a valve in said conduit actuated by said rearwardly

55 extending member so as to open as said seat is depressed.

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