

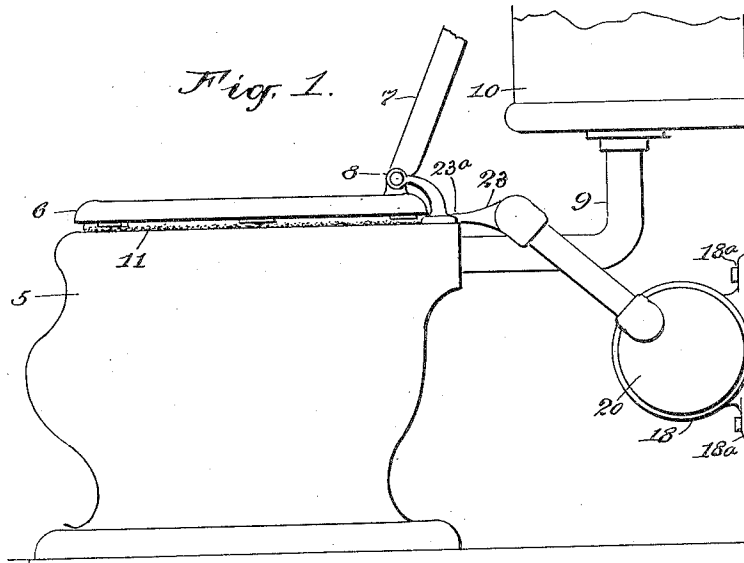
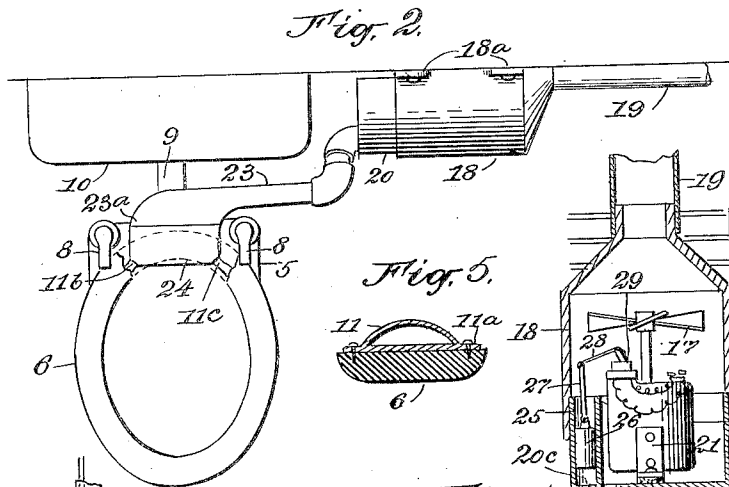
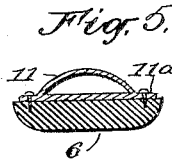
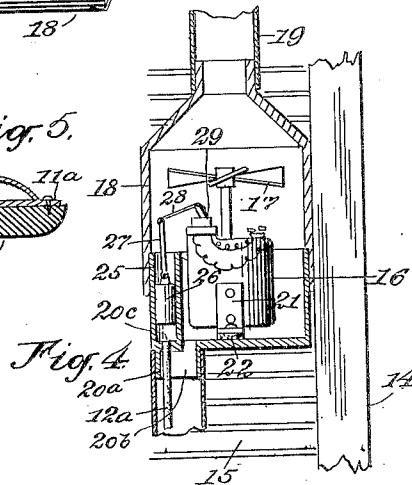
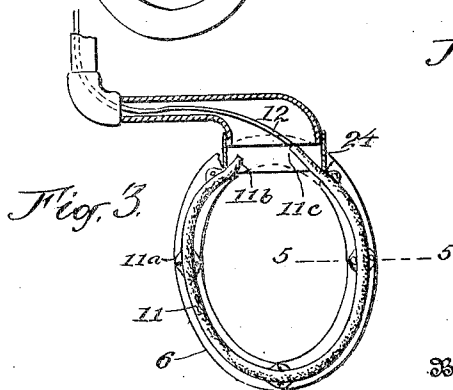
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CLOSET BOWL VENTILATOR

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UNITED STATES PATENT OFFICE.

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CLOSET-BOWL VENTILATOR.

Application filed February 3, 1928. Serial No. 251,542.

This invention relates to water closets, and the object of the invention is to provide means for ventilating the bowl preliminary to the flushing operation

5 This invention contemplates the forcible removal of such foul odors by the creation of a partial vacuum, and quite independently of the flushing operation.

10 The invention comprises an electrically operated exhaust fan and suitable conduits to draw off the effluvia, the fan being automatically operated only while the closet seat is in use, and the whole apparatus being adapted for installation without any essential change in the structure of existing closet equipment.

15 In the accompanying drawing, Fig. 1 is a side elevation of apparatus embodying our invention. Fig. 2 is a plan view of the same, but with the position of the exhaust mechanism reversed. Fig. 3 shows the electric-switch operating mechanism as applied to the under side of the seat, a part of the exhaust-pipe being in section. Fig. 4 is a section longitudinally central to the exhaust chamber, showing the exhaust fan and motor and pneumatic means for actuating the electric switch. Fig. 5 is a cross-section in the line 5-5 of Fig. 3.

20 In the drawing, the numeral 5 denotes a typical water-closet bowl, provided with the usual seat 6 and cover 7 jointly connecting with the bowl by the common double hinge 8. A pipe 9 connects the bowl with a low-set flush-tank 10. This construction, in the main, with the seat separated from the bowl by a space sufficient for cushioning rubber buttons under the seat, is almost universal. Ordinarily it does not, of course, prevent the escape of foul odors both between the seat and the bowl, and between the legs of the occupant.

25 This invention aims first to prevent any escape of effluvia between the seat and the bowl, and secondly to draw out the foul air so rapidly that none can escape into the room between the seat and the body of the occupant.

30 Referring to Figs. 1 and 3 it will be seen that the under side of the seat is provided with a cushion 11 almost completely elliptical, and serving as a gasket to close the seat tightly on the bowl when pressed down by the weight of the occupant. Its other function is to furnish air under pressure for the operation of an electric switch, as will be

described presently. For this reason it is formed as a tube, preferably of rubber, and suitably attached to the under side of the seat by projecting lugs 11^a. One of its legs is sealed at 11^b, and the other at 11^c connects with a small tube 12 leading to the pneumatic switch-shifter. This tube may be of small-gage copper, or the like, bendable to any sinuosities in its course, or a small rubber tube 12^a, as indicated in Fig. 4.

35 At any convenient place (to the room wall as shown in Figs. 1 and 2, or in the partition space behind the wall, as indicated by the studding 14 and lath 15 in Fig. 4) is mounted an exhaust chamber for the reception of a small electric motor 16 and a connected fan 17. The chamber as herein shown comprises two main parts, a cylindrical fan-housing 18 attachable to a wall or other support by lugs 18^a, and connected at its outer end with the discharge pipe 19. The housing connects telescopically, and by a fairly close joint, with a head section 20, which serves as a support for the motor. This is shown provided with brackets 21 by which it is secured to the head, preferably with interposed cork or rubber cushions 22 to prevent any noisy vibration. The head is revoluble in the housing so that wherever the housing may be placed, and in whatever position, the head may be conveniently connected with the apparatus at the closet bowl. The connection for a part of the way may be simple piping (metal or flexible) engaging the head at 20^a where a suitable nipple is provided. A part of the air conduit is a special fitting 23, almost necessarily offset to miss the installed parts behind the bowl, and with a flattened and expanded inlet mouth 23^a to rest on the bowl just behind the seat. From that point inwardly a connection is made with the interior of the bowl by a correspondingly flattened boot 24 closely fitting over the mouth of the air intake, and extending under the back of the seat, as best shown in Figs. 2 and 3. Into this boot the ends of the tubular cushion 11 project, and through the whole intake is preferably carried the pneumatic switch control, to be next described. Adequate communication with the bad air of the bowl is thus made without any structural change whatever in standard closet equipment.

40 In the embodiment of the invention herein shown the head-nipple is provided with a main air passage 20^b and a small one 20^c com-

communicating with a small cylinder 25. In this is mounted a nicely fitting piston or plunger 26, and this connects suitably, as by a link 27 with the extended arm 28 of a standard snap-switch 29. In practice the arm 28 may be elastic, so as to make a yieldable connection of the switch with the air pressure by which it is actuated, and thus compensate for any excess in such air pressure.

It is evident that when properly made and assembled the action of the whole apparatus is automatic. The weight of the occupant forces air under compression behind the plunger, which thereby closes the motor switch. The motor and fan continue to run as long as the seat is occupied, thus exhausting the foul air. As soon as the occupant rises the compressed tubular cushion re-expands, and the partial vacuum thus created retracts the plunger and opens the motor circuit.

It is to be noted that in the construction of the apparatus there is no metal connection between the bowl and its fittings and the electrical mechanism. This gives complete immunity to the closet and its occupant against any damage or shock from any electrical source whatever.

Having thus described our invention, we claim:

1. In a closet-bowl ventilator including electrically operated air-exhaust means communicating with the interior of the bowl, a switch in the motor circuit, pneumatically operated means connecting with said switch, and a compressible air-receiving member disposed under the seat and in communication with the pneumatic switch actuator, whereby air expelled by the occupant's weight on the seat closes the switch.

2. In a closet-bowl ventilator including electrically operated air-exhaust means communicating with the interior of the bowl, a pneumatically actuated switch in the electric circuit, a compressible, elastic air-receiving member disposed between the seat and

bowl, and a connection of the same by an air-conductor with said pneumatic switch.

3. In a closet-bowl ventilator including motor-actuated exhaust means, a switch in the motor circuit, a piston connecting therewith, a cylinder containing said piston, and having an air intake behind the piston, a conduit leading therefrom to a source of air pressure, and a compressible air-receiver disposed between the bowl and its seat.

4. In a closet-bowl ventilator including motor-actuated exhaust means, a switch in the motor circuit, a piston connecting elastically therewith, a cylinder containing said piston and having an air inlet behind it, a conduit leading therefrom to a source of air pressure, and a compressible air-receiver disposed between the bowl and its seat.

5. In a closet-bowl ventilator, motor-actuated exhaust means including a conduit with a flattened intake insertable between the bowl and its seat, a switch in the electric circuit, a pneumatically actuated plunger connecting with said switch, a cylinder for said plunger, and having an air inlet behind it, an air-pipe leading therefrom to a source of air pressure, and inside the flattened intake conduit, and a compressible air-receiver connecting with said air-pipe, and disposed between the bowl and its seat.

6. A closet-bowl ventilator, comprising, with means for forcibly and intermittently exhausting air from the bowl and a conduit leading to said exhausting means, a flattened, laterally expanded intake insertable between the bowl and seat, an imperforate tubular gasket forming a loop between the seat and bowl, and compressible by the occupant, an air tube connecting with a terminal of said gasket, and pneumatically and operatively connecting with the air-exhausting means.

In testimony whereof we affix our signatures.

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