

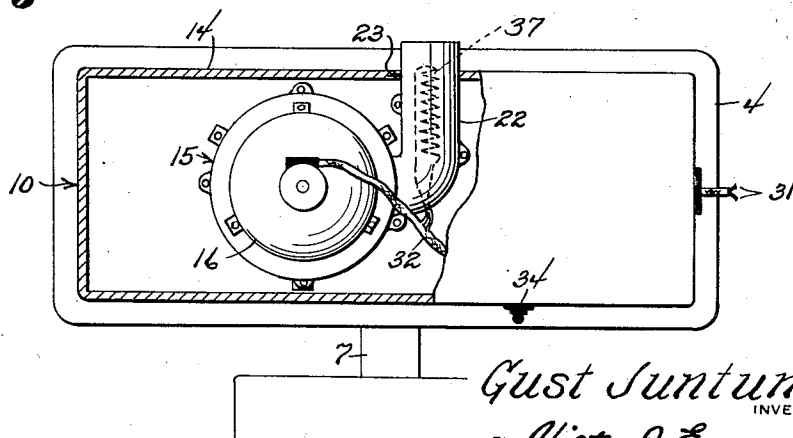
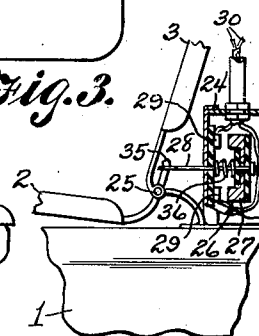
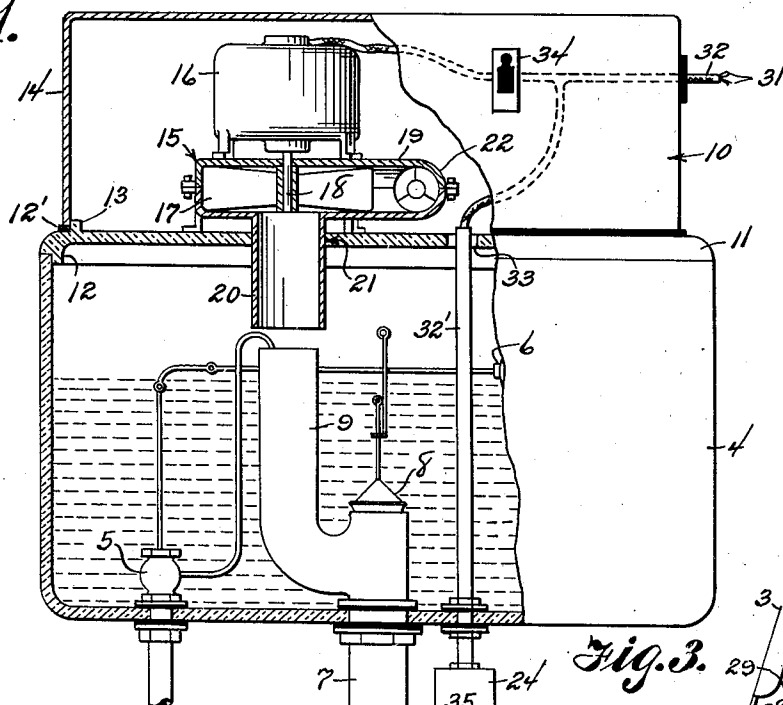
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G. JUNTUNEN

**2,100,962**

# VENTILATING APPARATUS FOR TOILETS

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## UNITED STATES PATENT OFFICE

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## VENTILATING APPARATUS FOR TOILETS

Gust Juntunen, Hancock, Mich.

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## 1 Claim. (Cl. 4—213)

My invention relates to improvements in toilets and more particularly to ventilating apparatus therefor.

The primary object of my invention is to provide efficient, practical means for incorporation in standard toilet equipment to dissipate odors from the bowl independently of flushing and automatically rendered effective by the weight of the person on the seat.

Another object is to provide apparatus of the type and for the purpose above indicated which is operative from the usual house circuit and disconnectible therefrom at will.

Still another object is to provide a device for the purposes above set forth which is adapted for incorporation in standard toilet equipment without necessitating any modification of the usual bowl structure.

Other objects are to provide apparatus for the purpose set forth which may be readily installed, is practically noiseless and is inexpensive to manufacture.

To the accomplishment of the above, and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawing, set forth in detail in the following description, and defined in the claim appended hereto.

In said drawing:

Figure 1 is a view partly in vertical section and partly in front elevation of toilet equipment having my improvements incorporated therewith.

Figure 2 is a view partly in top plan and partly in horizontal section, and

Figure 3 is a fragmentary view in side elevation illustrating a switch for controlling the operation of the apparatus and the manner in which the switch is operated.

Describing my invention in detail, with reference to the drawing, the numeral 1 designates the usual toilet bowl, 2 the seat thereof and 3 the cover. The type of equipment illustrated comprises a flush tank 4 having the usual inlet valve 5, controlled by a float 6, the flush pipe 7 controlled by the valve 8 and the vertically disposed over-flow discharge pipe 9 communicating with the flush pipe 7 and providing for the escape of excess water from the tank 4.

According to my invention the usual cover of the tank 4 is replaced by a casing 10, preferably rectangular and comprising a bottom plate 11 formed with a right-angled edge flange 12 designed to fit onto the upper edge of the tank 4 and forming a cover for said tank. A gasket 12' is interposed between the bottom plate 11 and

the tank 4. The bottom plate 11 is provided on its upper face with an upstanding flange 13 co-operating with the lower edge of an open bottom housing part 14. Suitably secured within the casing 10 to the bottom plate 11 is a blower 15 comprising a motor 16, a suction fan 17 fast on the armature shaft 18 of said motor and a fan casing 19. The fan casing 19 is sectional for access to the fan 17. Preferably the arrangement of the motor 16 and fan casing 15 is such that the axis of the armature shaft 18 and the fan 17 is in axial alignment with the overflow pipe 9. The fan casing 15 is provided with an inlet pipe 20 depending therefrom through an aperture 21 in the cover plate 11 preferably axially of said overflow pipe 9 and larger than the same and terminating preferably slightly above the same. A suitably arranged discharge pipe 22 extends from the fan casing and through an aperture 23 in the rear wall of the housing 10. The discharge pipe 22 is designed for connection to a vent pipe, not shown, leading to the outside of the building.

A switch box 24 is mounted in any suitable manner on the upper edge of the bowl in the rear of the hinge 25 of the seat 2. A pull switch 26 comprising a bridging member 27 is mounted in said box upon a pull rod 28 slidably mounted in the box 24 and extending forwardly of the same. The bridging member 27 co-operates with two contacts 29 to close a circuit through the conductor wires 30. The motor 16 is connected in circuit with said wires 30 in any suitable manner by means of leads 31 in a cable 32 extending through one end of the housing 10 for connection to the house circuit. The wires 30 are extended through a tube 32' upstanding from the top of the box 24 and extending through the tank 4 and into the housing 10 by way of a suitable aperture 33 in the bottom plate 11. A cut-out switch 34 secured to the front face of the housing 10 is interposed in any suitable manner in the line of connection between the switch 30 and the motor 16 for disabling the apparatus when desired. The seat 2 is operatively connected to the pull rod 28, to close the switch 26, by means of a crank arm 35 designed to be swung by the seat 2 about the axis of the hinge 25 to pick up said rod when the seat 2 is swung down flat against the bowl 1. A suitably arranged spring 36 co-operating with the bridging member 27 normally holds the switch 26 open and the seat 2 slightly raised.

Referring to the operation of my improved apparatus, as soon as the seat 2 is lowered against

the bowl 1, the crank arm 35 picks up the pull rod 28 and moves the bridging member 27 against the tension of the spring 36 into bridging connection relative to the contacts 29. The motor 5 16 is energized to rotate the fan and create a suction in the tank 4 sufficient to draw off the odors from the bowl 1 by way of the flush pipe 7 and overflow pipe 9 through the fan casing 15 and the discharge pipe 22. As soon as the seat 10 2 is relieved of the weight of the person thereon, the spring 36 raises said seat in the position shown in Figure 2 and the bridging member 27 to circuit breaking position.

In some instances, it may be desirable to heat 15 the exhaust air in the discharge pipe 22, in order to increase the flow thereof through the vent pipe, as it is obvious that warm air rises more rapidly than cold air, therefore I have shown a heating unit 37 in the discharge pipe, as will be noted 20 upon inspection of Figure 2, and which is in circuit with the motor to operate simultaneously therewith.

It might be mentioned that the overflow pipe 9 is preferably of much larger diameter than 25 that now in general use in flush tanks, in order to allow a larger volume of air to be drawn there-through, and in actual practice, it will of course be understood that an overflow pipe of the proper size and diameter will be employed to meet exist- 30 ing conditions and to bring about the desired results and efficient operation of the apparatus.

The foregoing description of my invention will, it is believed, suffice to impart a clear understanding of the structure and operation thereof together with the advantages arising in the practice of my invention. 5

It is to be understood, however, that the present disclosure is illustrative rather than restrictive and that right is herein reserved to modifications in details described as well as different relations of parts falling within the scope of the appended 10 claim.

What I claim is:

The combination with a toilet bowl having a hinged seat and a flush tank including an up- 15 right overflow pipe therein communicating with said bowl, of a casing surmounting said tank and forming a cover therefor, suction apparatus in said casing including a motor for operating the same, a suction pipe for the apparatus and depending therefrom into said tank for disposal directly over 20 the overflow pipe an outlet pipe for the apparatus and extending through the casing, a switch box on said bowl, a conduit extending from said box through said tank and into said casing, a nor- 25 mally open switch in said box, conductors for the switch and extending therefrom through said conduit and connected in said casing in circuit with said motor, and means for closing said switch on the downward hinging movement of said seat. 30

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