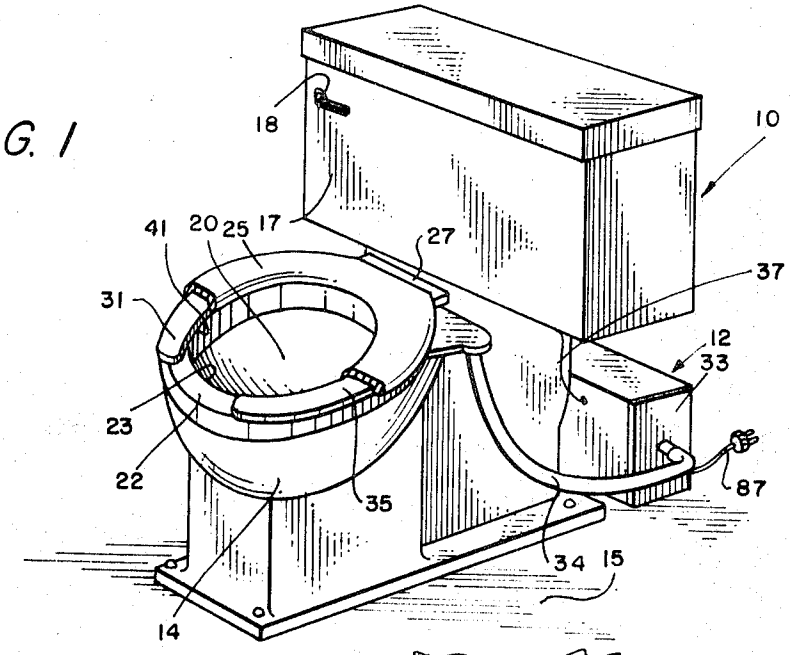
Oct. 13, 1970 C. E. POISTER 3,533,112

TOILET STOOL VENTILATING MEANS

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FIG. 1



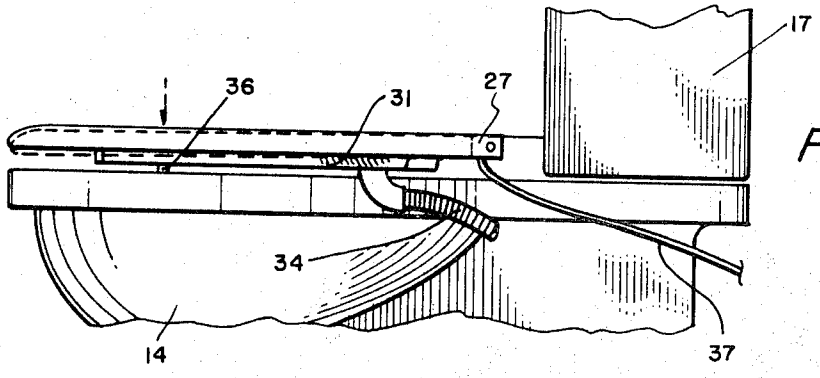


FIG. 2

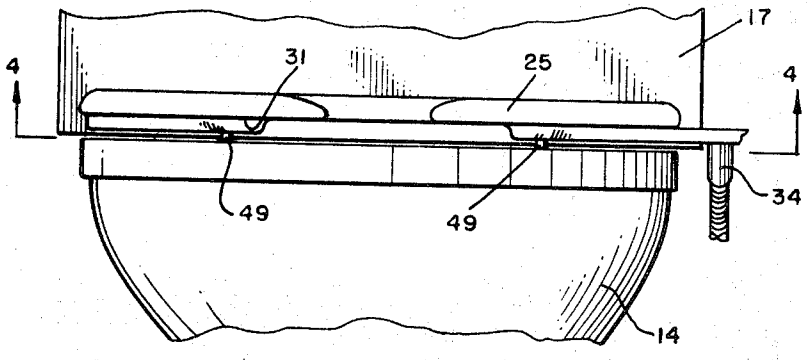


FIG. 3

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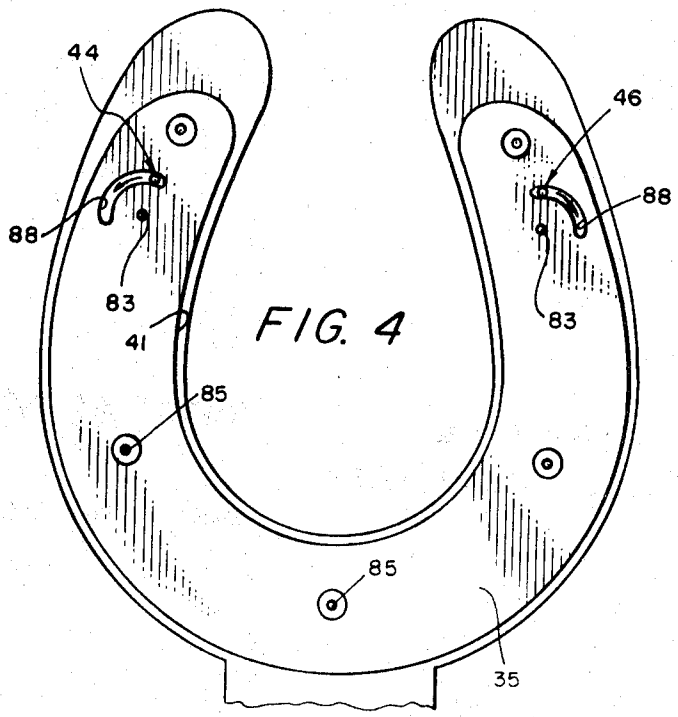


FIG. 4

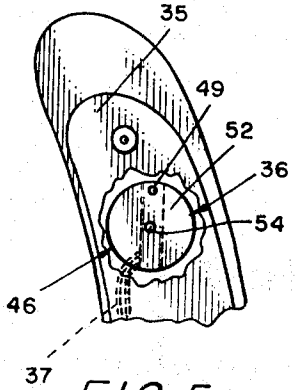


FIG. 5

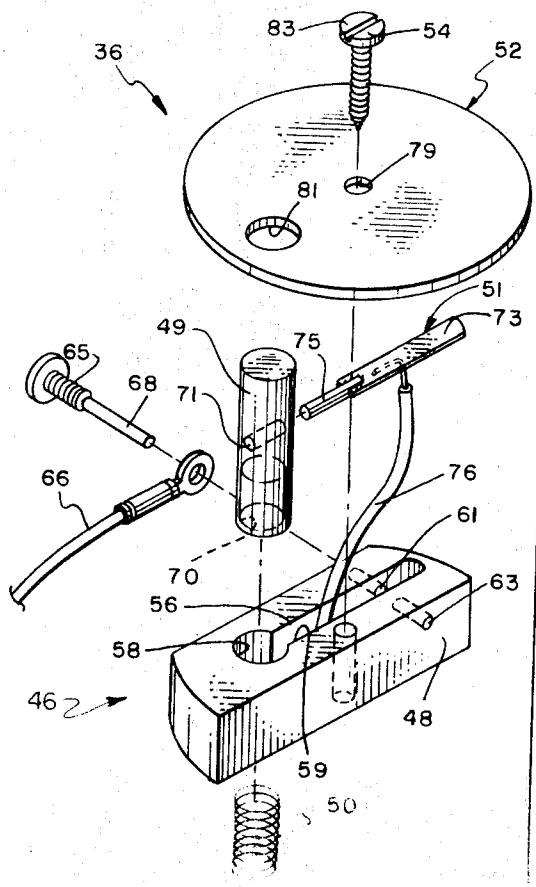
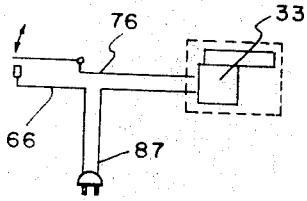


FIG. 6

FIG. 7



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TOILET STOOL VENTILATING MEANS

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Continuation-in-part of application Ser. No. 634,969, May 1, 1967. This application Apr. 7, 1969, Ser. No. 813,979

Int. Cl. A47k *13/00*

U.S. Cl. 4—217 2 Claims

ABSTRACT OF THE DISCLOSURE

This invention is a ventilated toilet stool structure having an air filtering apparatus connected thereto with inlet sections adjacent the upper open rim portion of a toilet bowl structure to convey the air therefrom for removing odors through an activated charcoal filtering element. More particularly, this invention is an adjustable support and switch means connected to the seat portion of a toilet bowl structure being adjustable so as to engage the upper rim or bowl portion thereof in a downward position notwithstanding the size thereof and operable to activate an air filtering apparatus when weight is placed thereon.

This application is a continuatin-in-part application of an application filed by the applicant herein entitled, "Toilet Stool Ventilating Means," Ser. No. 634,969, having a filing date of May 1, 1967.

Various kinds of toilet stool ventilating structures are known to the prior art operable to remove odors from within a toilet bowl. However, these prior art devices are inefficent in operation, generally unsightly in appearance and costly to manufacture. Additionally, the prior art ventilating devices normally require specially designed toilet bowls and/or seats and are not readily adaptable to conventional toilet stool structures to account for the various sizes and shapes of the toilet bowl rims. The common means of ventilating a bathroom area by a ceiling or wall vent is unsatisfactory as the heated or air-conditioned atmosphere is removed therefrom resulting in a monetary waste plus numerous problems in retaining a desired air temperature condition.

In accordance with one embodiment of this invention, a new toilet stool ventilating means is provided usable on a stool having a toilet bowl supported on a ground surface with a flushing tank connected thereto operable to supply flushing fluid to the bowl in a conventional manner. The toilet stool ventiltaing means includes an air chamber means connected to the toilet seat or to the bowl; a filter means operable to draw air from the toilet bowl and remove odors therefrom; conduit means connected to the air chamber means and the filter means to convey air from the toilet bowl; and support and switch control means connected to the toilet seat operable under an in-use condition to actuate the filter means, The air chamber means overlies the upper enlarged opening of the toilet bowl and has substantial open inlet areas to receive air from the bowl to be conveyed to the filter means under vacuum pressure. The filter means includes a housing having a blower therein to remove air through an inlet section transversely of a replaceable filter member to discharge the purified air through an outlet section to the surrounding area. The support and switch control means connectable to the air chamber means is provided with an outwardly projecting actuator plunger which is biased into the inactive or off position by a spring member and pressed inwardly or depressed on contact with the upper rim of the toilet bowl structure to achieve the active condition thereby providing the necessary power and energy to the filter means. More

particularly, the support and switch means includes a dial plate member having the actuator plunger therein whereupon the same is rotatable about a central mounting screw through an arcuate slot within the air chamber means so that the same may be adjusted laterally so as to rest upon the upper surface of the tip rim of the toilet bowl structure accounting for variations in sizes and widths thereof.

Accordingly, it is an object of this invention to provide a new toilet stool ventilating means overcoming the aforementioned disadvantages of the prior art devices.

Another object of this invention is to provide a toilet stool ventilating means having a chamber structure readily connectable to a conventional seat of a toilet bowl structure for the conveyance of air therefrom to a remotely located filter means.

One other object of this invention is to provide a toilet stool ventilating means which may be used with any standard toilet stool structure, has substantially the same outward appearance as any conventional toilet stool arrangement, may be easily cleaned to maintain sanitary conditions, and is relatively simple and inexpensive in operation.

Still another object of this invention is to provide a toilet stool ventilating means including an annularly shaped chamber means readily connectable to the toilet seat structure in overlying relation to an enlarged upper opening of a toilet bowl and having adjustable support and switch means connected thereto engageable with the upper portion of the support rim to activate filtering means therein when in the down in-use condition and deactivate the same when in the upper non-use condition plus being so as to fit various sizes of toilet bowl structures.

Various other objects, advantages and features of the invention will become apparent to those skilled in the art from the following discussion, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a conventional toilet stool structure having a ventilating means of this invention connected thereto with portions of a toilet seat member broken away for clarity;

FIG. 2 is a fragmentary elevational view of the ventilating means of this invention connected to the toilet seat member;

FIG. 3 is a fragmentary front elevational view of the ventilating means of this invention as mounted upon a toilet bowl structure;

FIG. 4 is a fragmentary sectional view taken along line 4—4 in FIG. 3;

FIG. 5 is a fragmentary elevational view of a portion of the toilet seat member as shown in FIG. 4 with portions broken away for clarity;

FIG. 6 is an exploded perspective view of the adjustable support and switch means of the ventilating means of this invention; and

FIG. 7 is an electrical schematic diagram illustrating the operation of the support and switch means of the ventilating means of this invention.

The following is a discussion and description of preferred specific embodiments of the new toilet bowl ventilating means of this invention, such being made with reference to the drawings whereupon the same reference numerals are used to indicate the same or similar parts and/or structure. It is to be understood that such discussion and description is not to unduly limit the scope of the invention.

Referring to the drawings in detail and in particular to FIG. 1, a toilet stool structure, indicated at **10** is shown as having a toilet stool ventilating means **12** of this invention connected thereto. The toilet stool structure **19** is

substantially conventional having a toilet bowl **14** mounted upon a floor surface **15** and a flushing tank **17** mounted on the rearward upper portion of the bowl **14** in an elevated relationship. The flushing tank **17** is provided with a handle member **18** operable in a conventional manner to release fluid from therewithin to the toilet bowl **14** for flushing purposes. The toilet bowl **14** is provided with a water section **20** and an integral upper rim section **22** defining the periphery of an enlarged opening **23**. A stool seat **25** is pivotally connected to the bowl **14** in an adjacent spaced relationship to the opening **23** and engageable with the rim section **22** in defining the periphery of the enlarged opening **23** in a closed position. The seat **25** is provided with a hinge **27** connected to a clamp means secured to the rim section **22**.

The toilet stool ventilating means **12** includes an air chamber means **31** connected to the stool seat **25**; a filter or air conveyance means **33** mounted on the floor surface **15** behind the bowl **14** and below the flushing tank **17**; conduit means **34** connected to the chamber means **31** and the filter means **33** for air conveyance therebetween; and control means **36** connected to the toilet stool seat **25** for controlled energization of the filter means **33** through an electrical conductor **37** as will be explained.

The air chamber means **31** is of a generally oval shape and rectangular in transverse cross-section. An upper surface **35** of the air chamber means **31** is mounted against the under surface of the stool seat **25** and secured thereto as by a plurality of mounting screws. The forward portion of the chamber means **31** is open so as to be readily usable in conventional stool seats having open front sections. An inner upright surface **41** of the chamber means **31** is substantially aligned with the inner edge of the stool seat **25** and extended over the enlarged opening **23** of the toilet bowl **14**. A lower surface of the chamber means **31** is provided with a plurality of openings so as to receive air from the toilet bowl **14**.

The filter means **33** includes a box-like housing means having a removable lid member and provided with a charcoal activated filtering element and blower structure mechanism therein. However, the details of the filtering means **33** is not deemed pertinent to the improved embodiment of this invention as the same is fully described in detail in applicant's co-pending application, Ser. No. 634,969, filed May 1, 1967 entitled "Toilet Stool Ventilating Means."

The control means **36** includes adjustable support and switch means **44** and **46** operably connected to the under surface and opposite sides of the air chamber means **31** as shown in FIG. 4. As the support and switch means **44** and **46** are substantially identical, only one need be described in detail. The adjustabel support and switch means **46** includes a main support housing **48**; an actuator plunger **49** mounted in the housing **48** biased to an off condition by a spring member **50**; a leaf contact member **51** connected to the plunger **49**; and a dial plate **52** operable to position the plunger **49** secured to the housing **48** by a lock screw member **54**.

More particularly, the main housing **48** is preferably constructed of a plastic, nonconductive material indcluding an elongated keyway slot **56** therein having a cylindrical portion **58** and a slot portion **59**. The main housing **48** is additionally provided with aligned holes **61** and **63** therein extended transversely of the slot portion **59** and adapted to receive a contact screw member **65** therewithin which is engageable with a line **66** of the electrical conductor **37**. A conductor portion **68** of the screw member **65** extends transversely of the slot **56** within the main housing **48**.

The actuator plunger **49** is of a generally cylindrical shape having a hole **70** in one end adapted to receive the spring member **50** therewithin which acts to bias the same outwardly. A midportion of the actuator plunger **49** is

provided with a transversely extended hole **71** to receive the leaf contact member **51** therewithin as will become obvious.

The leaf contact member **51** is provided with a flexible contact portion **73** integral with a shaft portion **75**. A midportion of the contact portion **73** is connected to a second line **76** of the electrical conductor **37** as by soldering or the like. The shaft portion **75** is anchored within the hole **71** in the actuator plunger **49** so that the contact member **51** is movable on axial movement of the plunger **49** as will be explained in detail.

The dial plate **52** is of a generally circular shape having a central connector hole **79** and an offset enlarged opening **81** positioned radially from the center to receive the actuator plunger **49** therethrough. The lock screw member **54** is adapted to anchor the dial plate **52** downwardly against the main housing **48** with a head portion **83** also engageable with the air chamber means **31** so as to anchor the same thereto.

In the use and operation of the toilet stool ventilating means **12** of this invention, the air chamber means **31** is readily connectable to the under surface of the toilet seat **25** as by screws **85** to place the plurality of air inlet openings extended over the upper enlarged opening **23** of the toilet bowl **14**. The filter means **33** is mountable behind the toilet bowl **14** and beneath the flushing tank **17** so as to be substantially hidden and unnoticed by one in the area. An electrical conductor **87** is placed within a conventional 110 volt outlet to provide electrical energy to the filtering means **33**. It is seen that the adjustable support and switch means **44** and **46** are readily connectable to the under surface of the air chamber means **31** so that the respective actuator plungers **49** are biased outwardly by the spring members **50** through arcuate slots **88** in the air chamber means **31**. It is obvious that only one of the support and switch means **44** and **46** need be connected to the filtering means and the other such structure may be a dummy to provide the necessary support on the rim **22** of the toilet bowl **14**. It is noted that the actuator plungers **49** may be grasped and rotated about the central mounting screws **54** whereupon the same moves within the arcuate slots **88** in the under surface of the air chamber means **31**. This operates to provide a lateral adjustment of the switch means **44** and **46** so that the same will most assuredly rest upon the upper surface of the rim portion **22** of the toilet bowl structure **14**. This provides for sufficient lateral adjustment to be readily operable notwithstanding size and width of the upper end of the toilet bowl structures **14**.

In the use and operation of the support and switch means **46**, it is noted that the compression spring member **50** biases the actuator plunger **49** outwardly in the raised, nonuse condition of FIG. 4. This moves the leaf contact member **51** outwardly out of contact with the contact screw member **65**. On lowering the toilet seat **25** to the usage condition, it is noted that the actuator plunger **49** is depressed by contact with the upper surface of the rim of the toilet bowl **14** which moves the same and interconnected leaf contact member **51** downwardly into contact with the contact screw member **65**. This operates to complete the circuit through the electrical conductor **37** to the filtering means **33** to actuate the blower mechanism therewithin and achieve the new and novel result of this invention.

It is seen that the toilet stool ventilating means of this invention provides a compact, easily hidden structure readily connectable to conventional toilet stool structures and stool seats and having means thereupon so as to be readily adjustable to provide for operation of the switch means of this invention regardless of the size of the toilet stool structure. It is seen that the toilet stool ventilating means of this invention is simple to operate, does not affect the adjacent atmospheric conditions, is relatively inexpensive to manufacture, and readily adjustable to fit the various sizes of toilet bowl structures.

It will be apparent from the foregoing description of preferred specific embodiments of the applicant's toilet stool ventilating means, relatively simple means have been provided easily attachable to conventional toilet stools so as to provide efficient and effective means of removing odors from the immediate area as required.

While the invention has been described in connection with preferred specific embodiments thereof, it will be understood that this description is intended to illustrate the invention which is defined by the following claims.

I claim:

1. A toilet bowl mounted on a supporting surface and a flushing tank connected and operable to supply fluid thereto, the improvement being a venting means comprising:

(a) a seat pivotally connected to said toilet bowl in an overlying relation to the enlarged opening of said toilet bowl,

(b) an air chamber means mounted on the underside of said seat and positioned between said seat and said toilet bowl having an inner portion adjacent said enlarged opening of said toilet bowl, said air chamber means having an inlet area to receive air from said toilet bowl,

(c) conveyance means operably connectible to convey the air from said toilet bowl to remove odors therefrom,

(d) means to connect said air chamber means to said conveyance means to remove air from said toilet bowl,

(e) switch means mounted on said seat and connected by electrical conductors to said conveyance means and operable on downward movement of said seat to engage the upper surface of the rim of said toilet bowl and actuate said means for removing the air from said toilet bowl only when said toilet bowl is in use.

(f) said switch means has a main housing, a contact screw member is secured to said housing, a movable plunger is mounted in said housing, and conductor members are connected to said contact screw member and said plunger respectively, whereby said plunger is capable of engagement with the toilet bowl to complete contact in said conductor members to energize said conveyance means,

(g) said switch means is rotatably connected to said air chamber means having said plunger extended within an arcuate slot transversely of said air chamber means, and

(h) said plunger is off-set relative to the center of rotation of said switch means whereby said plunger is movable within said arcuate slot to assure contact with various sizes of toilet bowls.

2. A venting means as described in claim **1**, wherein:

(a) said switch means has a leaf contact member with one end secured to said plunger, the opposite end is capable of engagement with said contact screw member, and an intermediate portion is connected to one of said conductor members whereby axial movement of said plunger operates to make and break contact between said leaf contact member and said contact screw member.

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