Feb. 6, 1968 M. I. JOHNSTON 3,366,979

DEODORIZING APPARATUS

Filed May 6, 1965

FIG. 1

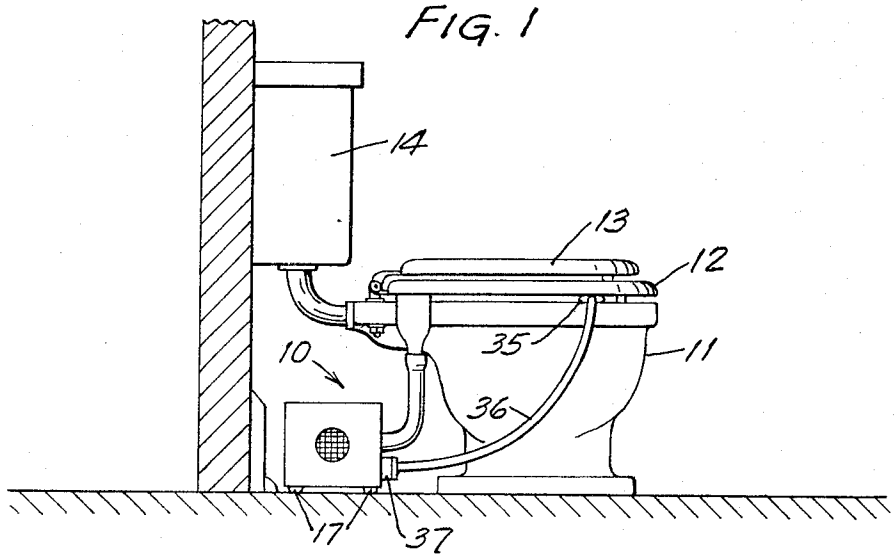


FIG. 2

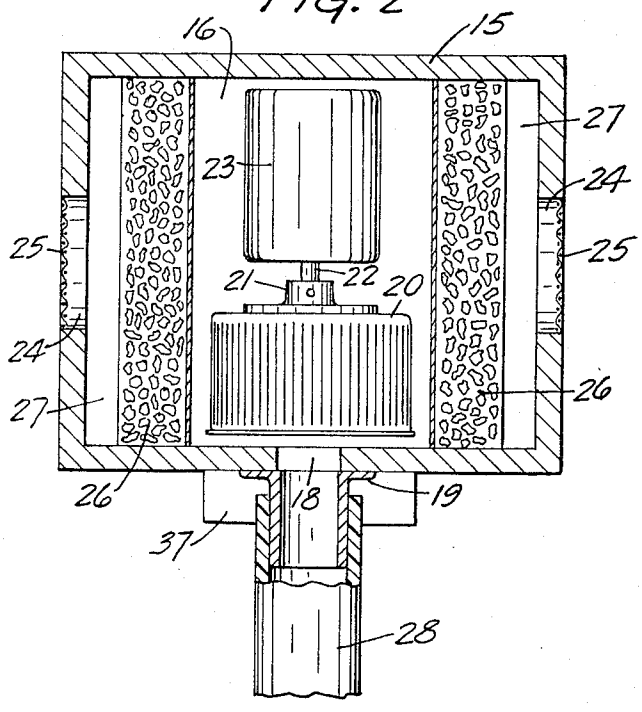
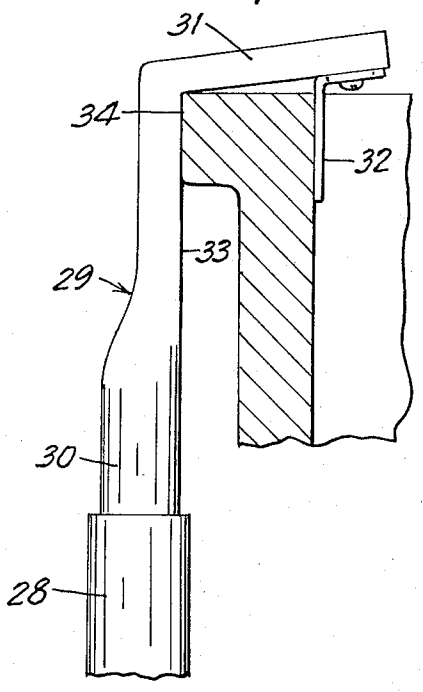


FIG. 3



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DEODORIZING APPARATUS

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ABSTRACT OF THE DISCLOSURE

A portable deodorizing apparatus for use with commodes comprising a housing having an inlet opening and outlet opening therein, and having an exhaust fan mechanism within the housing. A charcoal filter structure in the housing positioned adjacent the outlet and an elongate conduit having one end connected to the housing and having the other end connected to a nozzle, which is adapted to be positioned between the commode seat and bowl. And a pressure responsive bulb interposed between the commode bowl and commode seat and being operable when compressed to actuate the control switch for energizing the fan mechanism.

This invention relates to a filter type deodorizing apparatus for use in conjunction with conventional commodes.

An object of this invention is to provide a novel and improved filter type deodorizing apparatus for use with conventional commodes which is operable to eliminate noxious odors and which requires no exterior ventilation.

Another object of this invention is to provide a novel and improved portable type deodorizing apparatus for conventional commodes and the use of which requires absolutely no alteration of the commode, the apparatus being operable to effectively filter and remove substantially all noxious odors.

A more specific object of this invention is to provide a novel and improved dedorizing apparatus, of simple and inexpensive construction, for use with conventional toilets, and which includes an intake nozzle which is positionable between the toilet bowl and seat thereof, the intake nozzle being connected to a suction fan mechanism provided with suitable filter elements whereby the noxious gases may be very effectively removed without necessitating expelling the gases to the exterior.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like character references refer to the same or similar parts throughout the several views, and in which:

FIG. 1 is a side elevational view of the dedorizing apparatus as it is used in conjunction with the conventional commode;

FIG. 2 is a transverse cross-sectional view thereof on an enlarged scale and looking downwardly for better illustrating the relationship of the various parts; and

FIG. 3 is a detailed view of the intake nozzle on an enlarged scale illustrating the manner in which it is mounted on the commode.

Referring now to the drawings and more specifically to FIG. 1, it will be seen that one embodiment of the dedorizing apparatus, designated generally by the reference numeral **10** is thereshown. It will be seen that the deodorizing apparatus **10** is shown as it is used in conjunction with a conventional commode including a bowl **11** having a seat **12** and a cover **13** hinged thereto and also provided with a water jacket **14** of conventional construction.

The deodorizing apparatus **10** includes a substantially rectangular-shaped housing **15** preferably constructed of a rigid gas-impervious material such as metal, plastic or the like. The housing **15**, as shown, includes top and bottom walls and upstanding opposed pairs of side walls whereby the interior of the housing defines a suction chamber **16** as best seen in FIG. 2. The housing may be provided with supporting foot elements **17** and one side of the housing is provided with an inlet opening **18** as best seen in FIG. 2. A suitable sleeve-type fitting **19** is secured to that side wall of the housing which is provided with the inlet opening **18** therein and this fitting is disposed in coaxial relation with respect to the inlet opening **18**.

The chamber **16** is provided with a squirrel cage type exhaust or suction fan mechanism **20** therein and the hub **21** of the fan mechanism is connected to the output shaft **22** of an electric motor **23**. It will therefore be seen that when the squirrel cage type exhaust fan mechanism **20** is driven, air or other gaseous fluid will be caused to flow through the fitting **19** and through the inlet opening **18**.

A pair of opposed side walls of the housing **15** are provided with outlet opennigs **24** therein, it being noted that the side walls containing the outlet opennig **24** are disposed in substantially right angular relation with respect to the side wall having the inlet opening **18** therein. Each of the outlet openings **24** is provided with a suitable grill type guard element **25** for preventing debris and other materials from entering the interior of the housing **15**.

The chamber **16** of the housing **15** is provided with a pair of filter elements **26** disposed in substantially parallel relation with respect to each other and each disposed in obstructing relation between the inlet **18** and one of the outlets **24** of the housing. These filter elements are constructed of activated charcoal and are positioned on opposite sides of the fan mechanism **20** or source of negative pressure so that the air or gas introduced through the opening **18** will be forced outwardly through the filters **26** prior to discharge through the outlet openings **24**. To this end, it will be noted that the surface of each filter element **26**, which is disposed most adjacent the associated outlet **24**, is spaced from the side wall in which the outlet **24** is formed so that a head space **27** is defined. With this arrangement, maximum benefit is obtained from the respective charcoal filters without impairing the flow of gases through the housing **15**.

An elongate flexible conduit **28** has one end thereof engaging the sleeve fitting **19** associated with the inlet opening **18** in telescoping relation and the other end of the flexible conduit telescopically engages the tubular end portion **30** of an intake nozzle member **29**.

This nozzle member **29** is preferably constructed of a suitable plastic material and flares outwardly, then is flattened somewhat as it extends from the tubular portion **30**. It will be noted that the flat terminal portion **31** of the nozzle **29** is angularly bent on the major portion thereof so that the included angle is slightly greater than 90 degrees. An L-shaped retaining member is secured to the underside of the terminal portion **31** of the nozzle member and depends therefrom. This retaining element **32** as shown serves to retain the nozzle in mounted relation upon the bowl of the commode and prevents accidental disengagement therefrom. To this end, it will be noted that the inner vertical surface **33** of the nozzle engages the outer vertical surface **34** of the upper peripheral flange of the commode bowl and is held thereagainst by a coaction of the retaining element **32** with respect to the inner upper peripheral surface of the commode bowl. It will also be noted that the lower surface of the terminal portion **31** of the nozzle member **29** projects upwardly beyond the upper surface of the commode bowl. Thus, with the intake end of the nozzle disposed in a position above the upper surface of the bowl, there is little if any chance of any water en-

tering the nozzle even in the event that the bowl fills with water.

Means are also provided for automatically energizing the electric motor **23** when the commode is being used. To this end, it is pointed out that the electric motor **23** will be connected by suitable conductors to a source of electrical power for supplying electrical current thereto. This source of electrical current may be dry cell batteries or the motor may be connected to a conventional electrical outlet. The control means includes an actuating bulb **35** which is of hollow construction and which is formed of a yieldable resilient material such as rubber, plastic or the like. The bulb **35** is sealed with respect to the exterior and is connected in communicating relation to one end of an elongate flexible air-impervious conduit **36**, the other end of the conduit being connected to a switch mechanism **37** in sealing relation therewith. Although the details of construction of the switch mechanism **37** are not shown, it is pointed out that this switch mechanism is connected in controlling relation with respect to the circuit for energizing the motor **23**. The switch mechanism is also of the pressure-responsive diaphragm type whereby when the bulb **35** is compressed as when a user sits upon the seat **12**, the air in the sealed system will actuate the diaphragm element in the switch mechanism **37** to operate the switch and to close the circuit to the electric motor **23** whereby the fan mechanism **20** will be operated.

During operation of the deodorizing apparatus, the housing **15** may be positioned in any convenient location and since it is of relatively light weight, can be easily handled by a user in so locating the same.

It is pointed out that the housing may have a different configuration and may be suspended from the water jacket **14**. Although not shown in the drawing, the electrical conductors will be connected by suitable bayonet type plug to the conventional electrical outlet socket and the nozzle will be interposed between the upper surface of the bowl **11** and the seat **12**. It is pointed out that most conventional commodes or toilets have a clearance space between the lower surface of the seat and the upper surface of the bowl. To this end, it will be noted that the nozzle member **29** is shaped and contoured to nicely fit between the bowl and the seat. Since the nozzle is preferably constructed of a plastic material, there will be little chance of an abrasive action with respect to the seat or the bowl. The control bulb **35** will also be positioned between the seat and the bowl and will serve to support the seat in a slightly spaced relation with respect to the bowl. Thereafter, when the seat is urged downwardly by a user, the compression of air within the bulb conduit and switch system **37** will actuate the switch to close the same and thereby energize the circuit to the electric motor **23**. The noxious gases will be caused to flow through the inlet opening in the intake nozzle **29** and will thereafter flow through the conduit **28** into the chamber **16**. These air-entrained gases will thereafter be forced through the charcoal filter elements **26** and the gases will be removed therefrom before the air is reintroduced in the very same room or volumetric space from which it has been taken. It will therefore be seen that my apparatus obviates the need of exterior venting and the like.

Because of its lightweight construction and since the entire apparatus embraces a space of relatively small compass, the apparatus may be easily handled and is adapted for use with any conventional commode and would have utility in both public and private facilities.

Thus, it will be seen that my novel deodorizing apparatus utilizes a filter principle in an exhaust system and is therefore capable of substantially deodorizing gases within an enclosed area.

It will further be noted that my novel deodorizing apparatus may be applied to any conventional commode without requiring any alteration of the commode.

Thus, it will be seen that I have provided a novel deodorizing filter apparatus for use with conventional commodes which is not only of simple and inexpensive construction but one which functions in a more efficient manner than any heretofore known comparable device.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. A portable deodorizing apparatus for use with a conventional commode located within a substantially closed room space, said apparatus comprising,

a housing adapted to be positioned within the room space and having a hollow interior defining a chamber and having an inlet opening and an outlet opening therein communicating with said chamber,

an exhaust fan mechanism within said housing chamber, power means operatively connected with said fan mechanism for operating the same,

an activated charcoal filter structure positioned within said housing and closely adjacent said outlet to thereby define a relatively small volumetric headspace between the filter structure and outlet, said filter structure having a pair of activated charcoal filter elements disposed in substantially parallel relation with respect to each other and to a pair of opposed substantially planar housing side walls, each side wall containing an outlet opening with each filter element disposed in obstructing relation between the inlet and one of the pairs of outlets, whereby essentially all air entering said chamber is caused to pass through a filter element,

an elongate conduit having one end thereof connected in communicating relation to said housing, an L-shaped nozzle member having a substantially flat terminal portion within an elongate intake opening therein, said terminal portion of the nozzle mechanism being positionable between the commode seat and bowl with the intake opening therein disposed slightly above the upper surface of the bowl, said nozzle member including a vertical portion integral with said terminal portion and depending therefrom exteriorly of the bowl and adapted to engage the latter, a retaining member affixed to said terminal portion of said nozzle member and depending therefrom and being adapted to engage the inner surface of the bowl, whereby said fan mechanism when operated will cause the air-entrained noxious odors from the commode bowl to be forced through the charcoal filter structure and thereby cause removal of the odors from the air prior to discharge of the air into the room space,

and a pressure responsive control mechanism for controlling operation of said fan mechanism, said control mechanism including a yieldable, resilient, hollow actuating bulb member removably interposed between the commode bowl and the commode seat and being operatively connected to said power means, said actuating member, when compressed, being operable to energize said power means to thereby cause operation of said fan mechanism.

References Cited

UNITED STATES PATENTS

1,700,936	2/1929	Klemish et al.	4—213
1,774,156	8/1930	Root	4—213
1,798,457	3/1931	Cole	4—213
1,819,521	8/1931	Root	4—213
2,001,593	5/1935	Teetor	4—213

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