

June 20, 1961

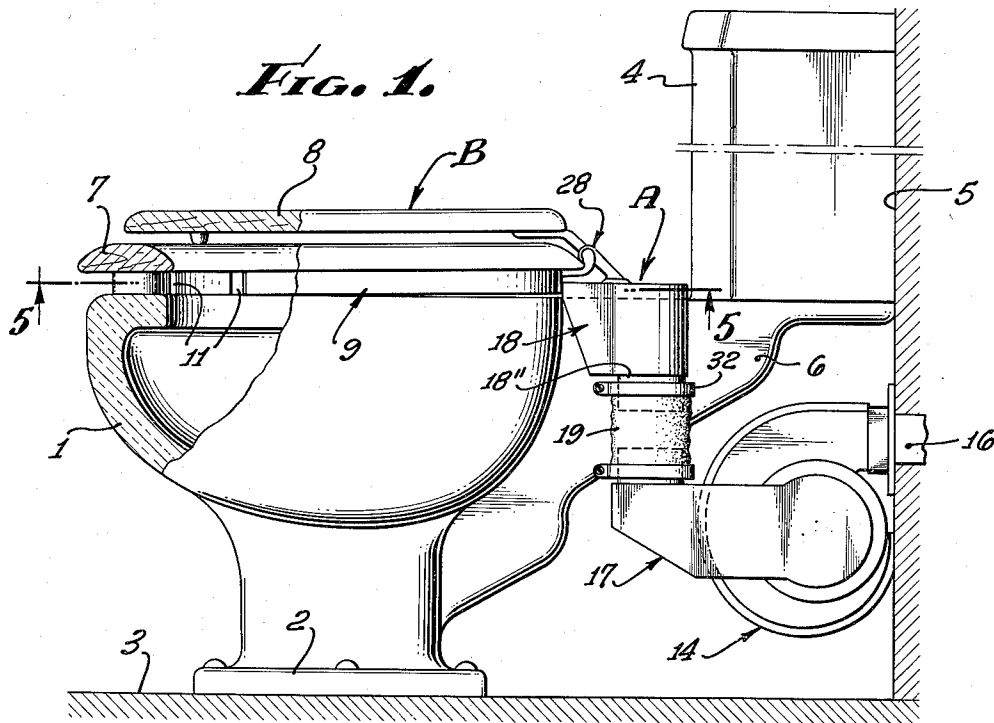
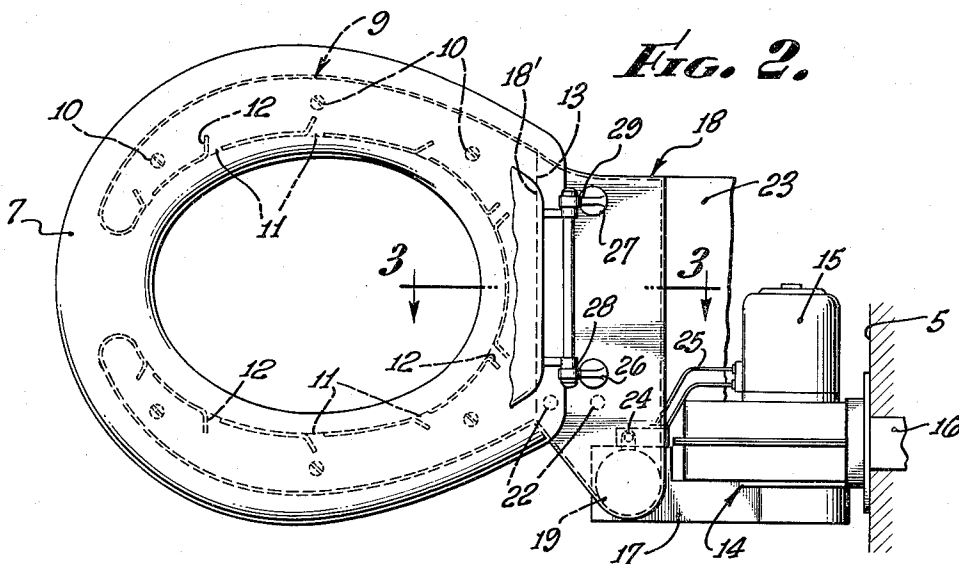
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2,988,756

FUME REMOVING DEVICE FOR TOILET BOWLS

Filed Jan. 26, 1959

2 Sheets-Sheet 1



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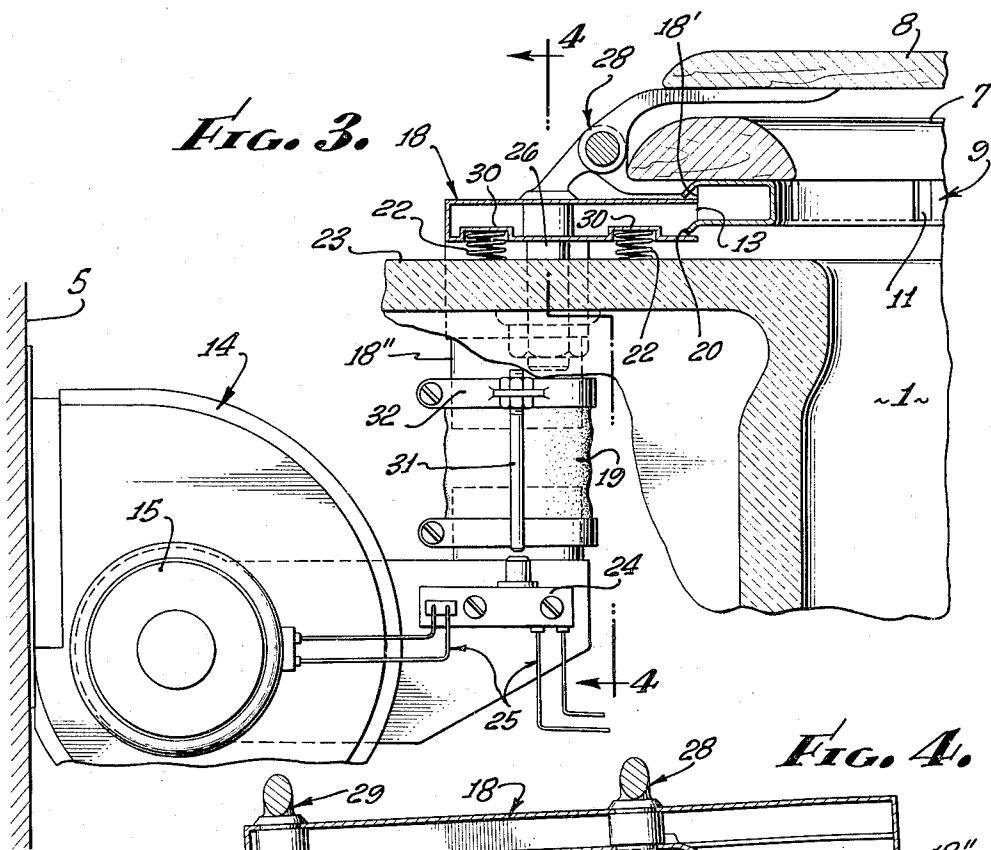
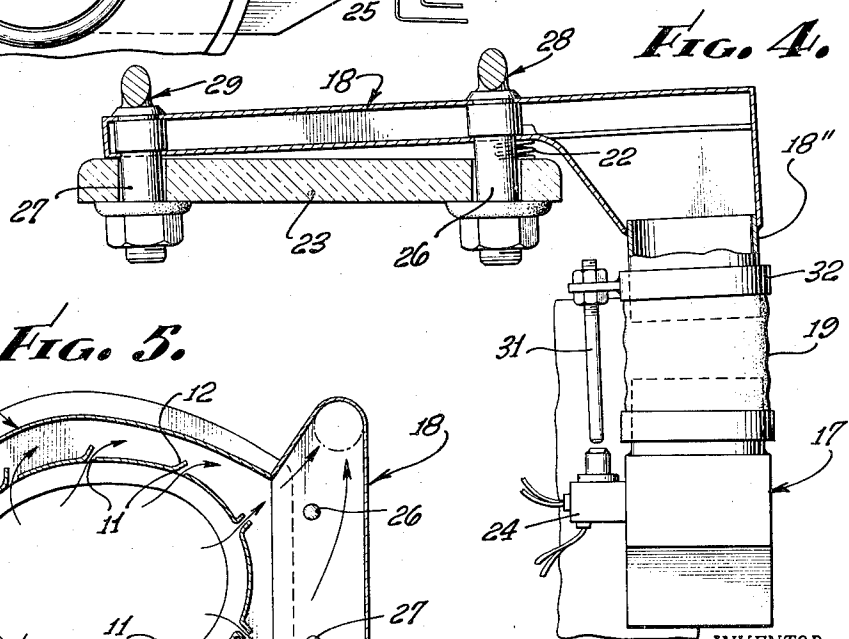
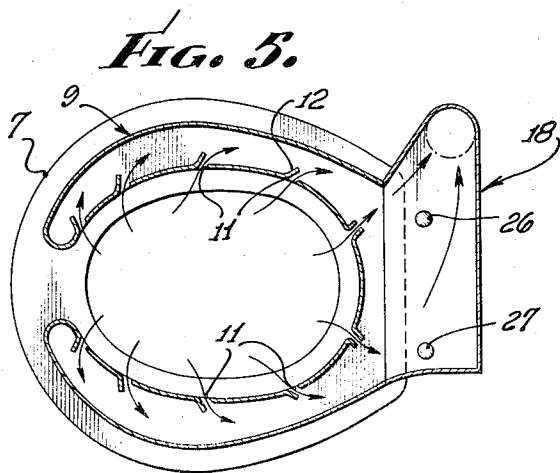
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FUME REMOVING DEVICE FOR TOILET BOWLS

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2 Sheets-Sheet 2



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2,988,756

FUME REMOVING DEVICE FOR TOILET BOWLS

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4 Claims. (Cl. 4-213)

The primary object of my invention is to provide a device of the type described for automatically removing noxious fumes from within a toilet bowl simultaneously with their creation to prevent the escape thereof into the atmosphere within the room or compartment wherein the toilet bowl is located.

A further object of my invention is to provide a device of said character whereby the fumes arising from a common toilet bowl are forceably drawn from the bowl area and diffused into the atmosphere without the room or compartment wherein the toilet bowl is located.

A further object of my invention is to provide an instantaneous automatic control means for dissipating the odors from the interior of a toilet bowl simultaneously with their creation so as to prevent any escape thereof into the room or compartment in which the toilet bowl is located.

And a further object of my invention is to provide a device of said character whereby the bowl seat when occupied starts operation of the device, and instantly upon being unoccupied shuts off operation of the device.

Thus, the invention is characterized by a device having a dual operating function wherein the toilet bowl seat automatically serves to start and stop operation of the device.

A still further object of my invention is to create a definite and positive means for simultaneously removing the noxious fumes during the entire period the toilet is in use, and thus prevent their escaping into the atmosphere within the room or compartment wherein the toilet bowl is located.

I attain these objects with the device illustrated in the accompanying drawings, in which:

FIGURE 1 is a side elevation of a fume removing device embodying the present invention as it would appear when installed for use with a conventional toilet bowl, parts of the toilet unit being broken away and shown in section for clarity of illustration;

FIGURE 2 is a top plan view of the device and toilet unit shown in FIGURE 1, with parts of the toilet unit omitted;

FIGURE 3 is an enlarged fragmentary sectional view taken on the plane of line 3-3 of FIGURE 2;

FIGURE 4 is an enlarged fragmentary sectional view taken on the plane of line 4-4 of FIGURE 3, and

FIGURE 5 is a sectional view taken on the plane of line 5-5 of FIGURE 1.

In the accompanying drawing there is shown a fume removing device A embodying this invention, as when attached to a conventional toilet unit B comprising a toilet bowl 1, a base 2 mounted on a floor 3, a flush tank 4 supported on the wall 5 and connected with the bowl through the usual conduit means 6, a hinged toilet seat 7, and a hinged seat cover 8.

The fume removing device A is constructed and arranged so that it may be attached to any conventional toilet unit without in any way interfering with the normal uses and functions of the toilet unit.

As here shown the fume removing device includes an intake duct or conduit 9 secured by suitable fastenings 10 to the underside of the hinged toilet seat 7, although said duct or conduit 9 may as readily be formed integrally with the seat 7. Said duct or conduit 9 is provided with a series of intake openings 11, each of which has one or more inwardly directed baffle portions 12 ar-

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ranged to direct the fumes toward an elongated discharge opening 13 in the rear of the duct or conduit 9. In this connection, it should be noted that the latter may be generally of the horse-shoe or U-shape here shown with the gap thereof at the front of the seat 7, or it may as readily correspond to the oval form of the seat.

Provision is made for withdrawing fumes from the bowl 1 through the duct or conduit 9 by means of a suction fan 14 operated by an electric motor 15 and with the fumes discharging into a duct 16 in the wall 5 and thence into a conventional vent pipe not shown, but arranged according to standard plumbing regulation to extend above the roof of the building in which the toilet is located, or discharged to diffuse among the rafters of the building as is preferred. The fan 14 and motor 15 form a compact unit which is mounted on the floor 3 or as here shown on the wall 5, to one side of the bowl 1 with the inlet 17 of the fan arranged to be communicated with the discharge opening 13 in the intake duct or conduit 9, aided by conduit means which include an intermediate conduit 18 and a flexible coupling 19, connecting the inlet 17 and the conduit 18.

In order that the hinged seat 7 may be raised and lowered without interference when this is desired, the duct or conduit 9 juxtapositioned to the seat is raised and lowered therewith, but when the latter is lowered to position for use, provision is made for communicating the discharge opening 13 in the duct or conduit 9 with the intake end 18' of the conduit 18. For this purpose a detachable connection is made between the units 9 and 18 by means of a pair of opposed angularly directed lips 20 at the margins of the opening 13 as shown in FIGURE 3. These lips 20 will rest upon the conduit 18 as to afford communication of the unit 9 with the unit 18, but will move free of unit 18 when the seat is raised.

It is desired that the fan 14 and the motor 15 will start incident to occupancy of the seat 7 and stop when the occupant leaves the seat. The latter is mounted so that when occupied at least a portion thereof will remain depressed and thereby depress the conduit 18 through engagement of conduit 9 as shown in FIGURE 3 with the conduit 18. When the occupant rises from the seat, the conduit 18 and a portion of the seat are elevated by springs 22 arranged between a rearward extension 23 of the bowl and the conduit 18. Movement of the conduit 18 is made possible by the flexible coupling member 19 and is utilized to actuate a switch 24 for controlling the electrical circuit 25 for the fan motor 15.

Bolts 26 and 27 forming parts of the hinged units 28 and 29 are mounted on the bowl extension 23 for limited axial movement with a bolt 26 having the greater movement as shown in FIGURE 4. These bolts pass through and engage with the conduit 18 so that this conduit moves up and down with the bolts as the seat 7 is depressed and released. The springs 22 are located adjacent the bolt 26 and therefore normally elevate the conduit 18 and the portion of the seat nearer to the bolt 26 as shown in FIGURES 3 and 4. Depressions 30 are formed in the underside of the conduit 18 for reception of the upper ends of the springs 22 thereby retaining the springs in place with the lower ends thereof resting on the bowl extension 23.

With reference to FIGURES 3 and 4 it will be apparent that the normally elevated conduit 18 and portion of the seat 7 adjacent thereto, will be depressed and will compress the springs 22 when the seat is occupied. This depression of the conduit 18 likewise depresses the downwardly extended portion 18'' thereof on which is mounted a plunger rod 31 by the aid of a clamping band 32 surrounding the portion 18''. The plunger rod 31 is positioned so that it will be depressed with the conduit 18 and will engage and operate the switch 24 to close the

motor circuit 25 and therefore start the fan motor 15. The switch 24 may be of the push button type enclosed so as to be properly insulated, the upward movement of the plunger 31 causing the switch to open the motor circuit 25. The plunger 31 may be made of non-conductive material so that no electrical charged part of the switch or associated elements will be exposed, thereby eliminating the possibility of users of the toilet receiving an electric shock.

With reference to the foregoing description and the accompanying drawings, it will be apparent that I have provided a novel and highly efficient device for removing disagreeable odors from a toilet bowl, the device operating automatically incident to occupancy of the seat and remaining in operation as long as the seat is occupied, then shutting off as the occupant arises from the seat.

It is also important to note that my device is subject to attachment to any conventional toilet unit without changing appreciably the construction and arrangement thereof, it only being necessary to provide vent means to the atmosphere either through a conventional pipe, or to permit the fumes to escape amongst the rafters of the building proper.

Produced from material readily obtainable on the open market at no great cost, the device forms a small compact unit that takes but little space, is inconspicuously positioned rearwardly of the toilet bowl, operates noiselessly, is precision assembled in a fool proof manner, and has no objectionable features either in appearance or operation. Moreover, the toilet bowl may be cleaned at will, the device in no manner or means interfering with this process.

It should be obvious that changes in structure may from time to time suggest themselves, but within the scope of the herein invention. Hence, I do not limit the present invention to the exact description and structural arrangement shown, but what I do claim is:

1. A device for removing fumes from a toilet bowl having a hinged seat compressing: a fume intake duct mounted on the under side of said seat; said duct having

a discharge opening; power operated exhaust means mounted adjacent said bowl; a sectional conduit communicating said discharge opening with said exhaust means; said sectional conduit including an intake section supported on said bowl so as to engage said duct; spring means interposed between said bowl and said intake section for urging said intake section against said duct so as to dispose said seat and said intake section in a position to be depressed when the seat is occupied; and means operatively connected with said sectional conduit for starting the operation of said exhaust means upon depression of said seat and said intake section when the seat is occupied.

2. A device for removing fumes from a toilet bowl as specified in claim 1, wherein said sectional conduit includes between said intake section and said exhaust means a flexible and deformable conduit section.

3. A device for removing fumes from a toilet bowl as specified in claim 1, wherein said means for starting operation of said exhaust means includes cooperable elements on said intake section and said exhaust means engageable to start said operation upon said depression of said intake section; and said sectional conduit includes a flexible conduit section between said intake section and said exhaust means; said cooperable elements disengaging to stop said operation when the occupant rises from the seat.

4. A device for removing fumes from a toilet bowl as defined in claim 1 wherein the hinge means for said seat holds said intake section in operable position on said bowl.

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