Dec. 13, 1966 R. J. JOYNER ET AL 3,290,698

BATHROOM DEODORIZER

Filed Aug. 10, 1964 2 Sheets-Sheet 1

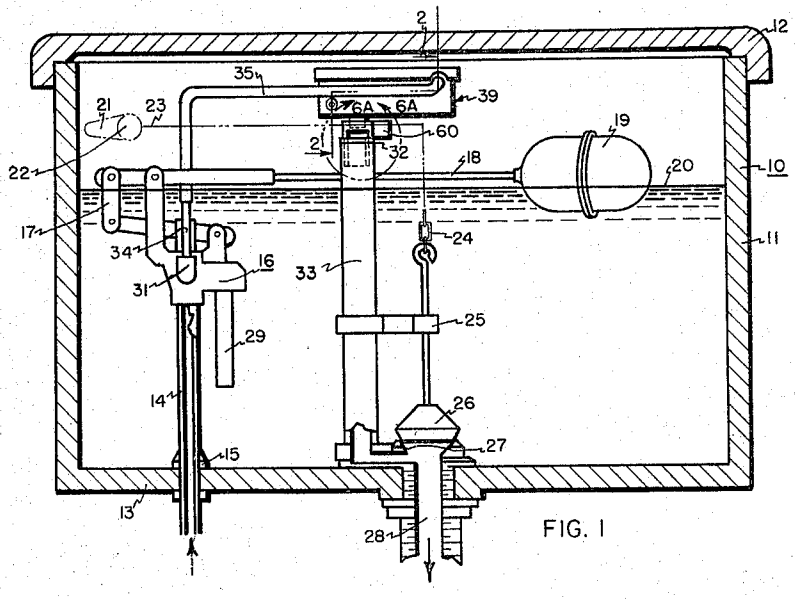


FIG. 1

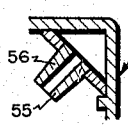


FIG. 3B

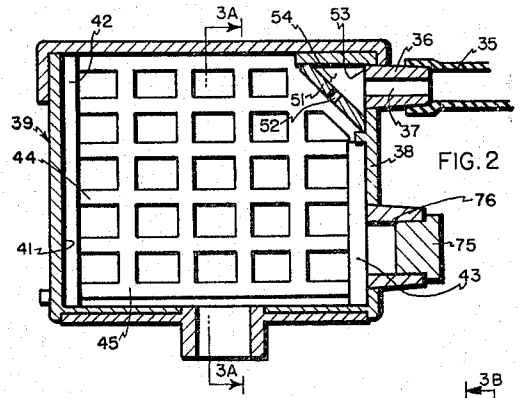


FIG. 2

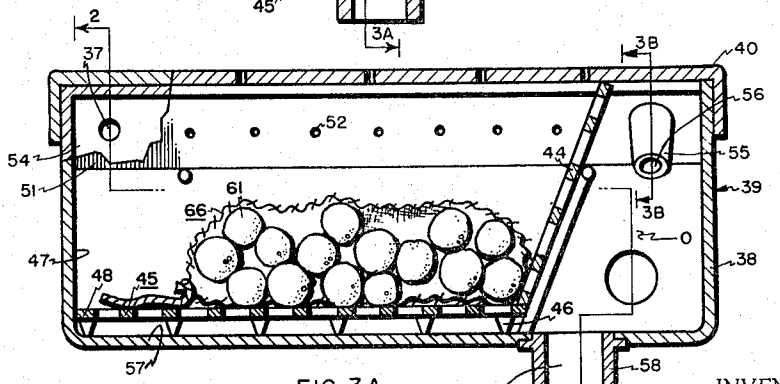


FIG. 3A

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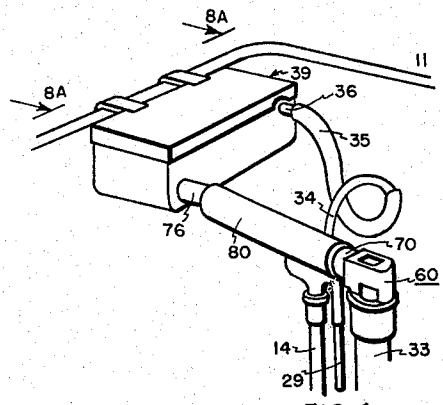


FIG. 4

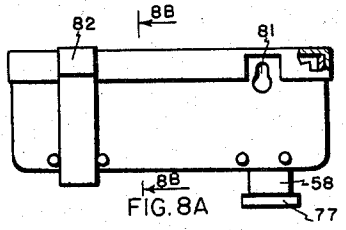


FIG. 8A

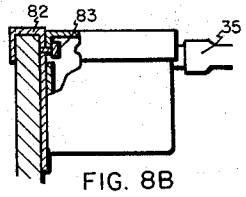


FIG. 8B

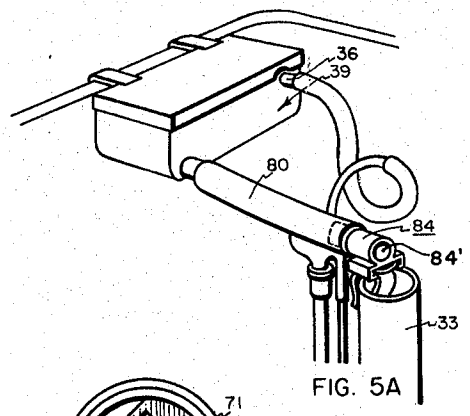


FIG. 5A

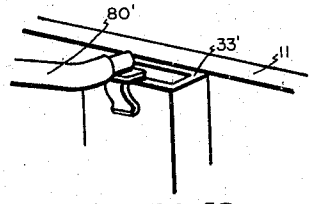


FIG. 5B

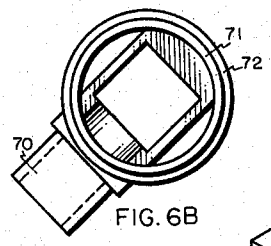


FIG. 6B

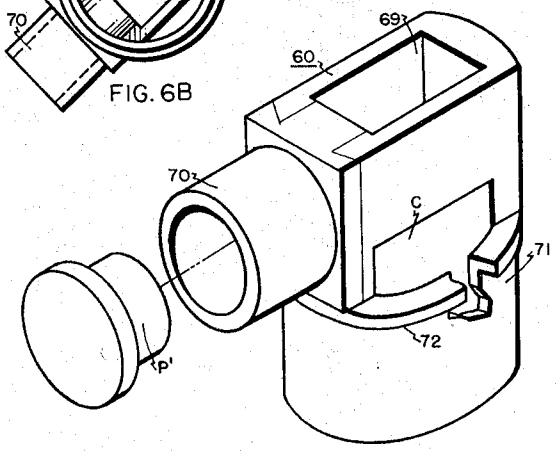


FIG. 6A

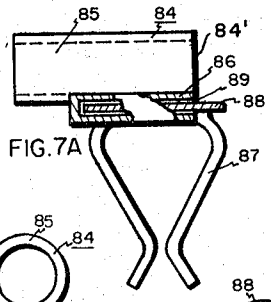


FIG. 7A

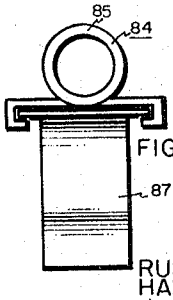


FIG. 7B

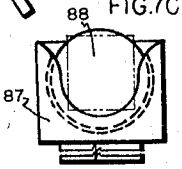


FIG. 7C

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United States Patent Office 3,290,698 Patented Dec. 13, 1966

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BATHROOM DEODORIZER

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Filed Aug. 10, 1964, Ser. No. 388,376
2 Claims. (Cl. 4—228)

This is a continuation-in-part by the same inventors of United States patent application entitled "Bathroom Deodorizer," Serial No. 223,509, filed September 13, 1962, now abandoned.

The present invention relates to toilet and, more particularly, to toilet deodorizer and cleaner structure which may be conveniently installed into any one of several types flush tanks presently on the market.

Accordingly, a principal object of the present invention is to provide a new and useful container unit, suitable for containing granules and pellets of various chemical compositions, which may be conveniently installed in any one of several types of toilet tanks, for example.

A further object of the invention is to provide a new and useful pellet container for toilet tanks wherein but a portion of the afterfill water stream coming from the toilet valve is utilized in dissolving chemical pellets or granules so that a desired action may be achieved in cleaning and scenting the toilet bowl.

A further object is to provide new and useful adapter members for accommodating the basic structure for mounting to and within any one of a number of types of toilet tanks.

A further object of the invention is to provide means for mounting a chemical container directly to the over-flow pipe of a toilet tank.

An additional object is to provide a unique water circuit in a chemical container within a toilet tank so that but a portion of the water is sprayed or otherwise circulated over the chemicals contained in the container, the remainder of the water being shunted past the chemicals so the pressure is maintained in producing sprays over the chemicals and yet majority of the water can be conducted around the chemicals, to reduce the rate of dissolving of the chemicals in the water leading to the toilet bowl equipment.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings in which:

FIGURE 1 is an elevation, principally in vertical section, of a toilet tank incorporating the equipment of the present invention.

FIGURE 2 is a transverse section, taken along the dog leg line 2—2 in FIGURES 1 and 3A, and is enlarged for convenience of illustration.

FIGURE 3A is a vertical section taken along the line 3A—3A in FIGURE 2.

FIGURE 3B is a vertical section taken along the line 3B—3B in FIGURE 3A.

FIGURE 4 is an enlarged, fragmentary view of the chemical container of the present invention installed within a toilet tank, similar to that of FIGURE 1, but wherein the container, through convenience or necessity, is mounted by brackets to the side of the toilet tank.

FIGURE 5A is of use similar to FIGURE 5 but illustrates an optional installation of the container and its constituents within a toilet tank.

FIGURE 5B illustrates that the outlet conduit from the container of the present invention may be extended and properly mounted so that the chemically treated over-

flow waters can spill down into a side overflow structure.

FIGURE 6A is an enlarged perspective view of the mount employed in the structure in the case of the embodiments shown in FIGURES 1 and 4.

FIGURE 6B is a bottom plan of the structure shown in FIGURE 6A.

FIGURES 7A, 7B, and 7C are side elevation, front, and bottom views, respectively, of alternate mount structure which may be employed in the invention as in the case of the embodiments shown in FIGURES 5A and 5B.

FIGURE 8A is a rear view of the container shown in FIGURE 4; it is taken along the line 8A—8A in FIGURE 4 (with the tank being removed for purposes of clarity) and with one of the mounting brackets or clips being removed to indicate a representative keyhole slot, used in the side of the container.

FIGURE 8B is a partially-sectioned view, taken along the line 8B—8B in FIGURE 8A, illustrating the construction of the brackets used with the container and their releasable securement to the container itself.

In FIGURE 1 flush tank **10** is shown to include the conventional tank **11** and lid **12** mounted thereover in a conventional manner. Upstandingly mounted from base **13** of tank **11** is an inlet pipe **14** which is sealed to the tank in a conventional manner at **15**. Inlet pipe **14** leads into valve **16** which is closed by virtue of linkage and lever system **17** when the valve lever **18** thereof is in horizontal position as shown. Bulb **19** is affixed to the valve lever **18** and is supported by water level **20**.

In a conventional manner, when toilet handle **21** is actuated around pivot **22** so that control lever **23** thereof raises, by chain **24**, the valve stem **25** of flush valve **26**, then water in the tank will proceed through the flush valve seat **27** down into outlet orifice **28** leading to the toilet bowl, not shown. Opening of the valve **16** in the manner indicated, by handle **21**, produces a large flow of water from inlet pipe **14** through valve **16** and outlet pipe **29** into the interior of tank **11** in a conventional manner. Simultaneously occurring with this flow is the flowing of water through a small afterfill pipe which is generally connected to valve boss **31** and leads over the top **32** of over-flow pipe **33**.

In the present invention, however, afterfill pipe segment **34** is coupled to and disposed between auxiliary flow valve boss **31** and conduit **35**, termed herein as "inlet conduit **35**," which couples to orifice boss **36**, the latter providing an inlet orifice **37** for container housing **38** of container **39**. See FIGURES 2 and 3A. Container **39**, in addition to including container housing **38**, also is provided with a lid **40** releasably secured to the housing **38** in a friction fit. The interior **41** of container housing **38** includes side-wall elongate supports **42** and **43** which support the side screen portion **44** of screen **45** mounted inside the container **39**. Screen **45**, see FIGURES 2 and 3A, may take the form as expressly shown in FIGURE 3A with reference to portion **44** thereof; the screen is simply "bent" transversely to assume the configuration shown in FIGURE 3A. Support legs **46** of screen **45** support the screen means (i.e. **45**) above base **57**.

In FIGURES 2 and 3A it will be seen that a perforated plate **51**, having spray perforations **52**, is cemented or otherwise disposed into place over an upper longitudinal corner **53** of the container **39**. This plate **51** constitutes a passageway delineating structure defining passageway **54** and into which the inlet orifice **37** communicates. At the extremity of this passageway is a by-pass nossel **55** providing a by-pass orifice **56** communicating with passageway **54**. Connected to base **57** of the container **39** is an outlet boss **58** providing outlet orifice **59** sending from the container and through mounting member **60** to the over-flow pipe **33**. Thus, the container housing

contains both inlet and outlet orifices 37 and 59, with the inlet water being sprayed through spraying orifices 52 over chemical granules 61, this in order that a portion of granules may be dissolved with each flushing of the tank and the granules composition-containing water flowing through outlet orifice 59 into the overflow pipe 33 of the tank. Now, in order to preserve the useful life of the granules, to assure that they do not dissolve too fast into the overflow water, there should be and is herein provided a shunting via formed passageway 54 and by-pass orifice 56, of a portion of the overflow water around and out of contact with the granules and directly into outlet orifice 59 via container outlet portion O. In essence, then, there is a shunting of flow from the flow path defined by passageway 54 and spray perforations 52 by means of by-pass orifice 56 to cause some of the overflow water to take the flow path defined by passageway 54 and by-pass orifice 56 around and out of contact with the granules and directly into outlet portion O, the latter emptying into outlet orifice 59. Hence, only a small portion of the water is used for spraying directly over granules 61. The majority of the water is conducted through passsageway 54 and through by-pass orifice 56 to proceed directly out of the orifice 59. Water sprayed, via perforations 52, onto the chemicals within the container, of course, advance through screen portion 44 to join the water coming from orifice 56 to proceed out orifice 59.

In operation the structure as shown in FIGURE 1 is completely shut off, float or flush valve 16 (and 26) is closed, and no water is conducted from the inlet pipe 14 into the tank structure. When and after the toilet is flushed, however, the bulb 19 on valve level 18 drops downwardly so as to admit water into the tank through outlet pipe 29 and also into the overflow pipe 33 by the route comprising pipe segment 34, conduit 35, container 39, through mounting member 60 and through the overflow pipe 33, to lead in a goose-neck configured path, and through the outlet orifice 28 of the outlet conduit of the toilet and into the toilet bowl. It is to be observed that valve 16 will remain open in a conventional manner even after the flush valve 26 is seated; hence, the tank continues to fill and the necessary overflow water to prevent syphoning and fill the bowl proceeds until the proper level of water is maintained in the bowl. It is noted that this water will contain a portion of the chemical ingredients of pellets or granules 61 and these may be chemically so chosen in a conventional manner that the ring in the toilet bowl is dissolved from the side thereof, line is removed, and so forth, so that the toilet bowl remains clean. If desired, the granules or pellets 61 may be contained in a gauze or other type of water-pervious sack 66 so that the same may be withdrawn conveniently. The granules or pellets 61 may be perfumed or otherwise have various scents so that if the housewife desires to change scents in her bathroom, she need only replace the bag 66 with a substitute bag containing differently scented pellets.

FIGURE 6A illustrates further details of a mounting member 60 which may be employed in mounting the container 39 to the overflow pipe 33. Member 60 is shown to include a communicating passageway 69, an optionally used conduit boss 70, a removable plug P' for boss 70, and a hollow insert portion 71 communicating with passageway 69 and providing for an insert into the overflow part 33 of portion 71 such that the lip 72 of mounting member 60 engages in the uppermost edge of the pipe. For proper keying of mounting, the peripheral boss 58 in FIGURE 3A may be rectangular so as to keyingly fit into communicative passageways 69 of the mount.

In the embodiment shown in FIGURES 1–3 the outlet orifice 76 will be plugged by plug 75. However, this second outlet orifice 76 is to be opened by the removal of plug 75, and the insertion of a plug 77 into boss 58, as shown in FIGURE 8A, completes the adaptation of the equipment in a manner as illustrated in FIGURE 4.

In FIGURE 4 the outlet conduit 80 is coupled between boss 76 and boss 70 of member 60. Afterfill pipe segment 34 is coupled between the valve 16, as before, and conduit 35 leading to container 39.

The structure shown in FIGURE 4 illustrates the condition where, instead of being mounted to overflow pipe 33, the container 39 is mounted directly to the side of tank 11. In such event there will be provided a pair of keyhole slots 81, see FIGURE 8A, which receive mounting brackets 82 of inverted J configuration, the latter including slot buttons 83 cooperatively inserted into keyhole slots 81. See also FIGURE 8B. The same structure may also be used wherein, instead of the mounting member 60, a simple mount 84, is used. Mount 84 is shown in FIGURE 7A and includes a conduit portion 85 provided with a slotted base 86. Clip 87 includes an integral, circular head 88 which is rotatively received at slot 89 so that, for alignment purposes, the clip 87 may be oriented in a position suitable for the clamping to overflow pipe 33 as seen in FIGURE 5A. The construction of the base 86 is seen in FIGURES 7A–7C.

Since the orifice 84' is small and the pressure low, the water coming from the container 39 descends easily into the overflow pipe 33, and this whether the FIGURE 5A construction is used or whether the structures shown in FIGURES 4 and 5B are employed. The fragmentary details in FIGURE 5B simply illustrates that outlet conduit 80 shown in FIGURE 5A may be enlarged to constitute plastic conduit 80' so that the member 84 of FIGURES 5A, 5B, and 7A–7C may be employed to secure the hose to the overflow structure 33'; in the latter event the container 39 is mounted directly to the tank 11 and is not disposed centrally thereof as in the case of the other figures. In the case of FIGURES 6A and 6B cutouts C, when supplied, merely aid in the manufacturing of the part and do not serve to deter the proper functioning of conduction of the overflow liquid from boss 70 down into and through insert portion 71, into overflow pipe 33.

It will be seen from the drawings that a number of different types of toilet styles may be accommodated in the use of the present invention. A plug may or may not be used for conduit boss 70, see plug P' in FIGURE 6A, where the structure is mounted to the overflow pipe in a manner as indicated in FIGURE 1. In the case of the embodiment shown in FIGURE 4 the conduit boss 70 will be unplugged and outlet conduit 80 connected as indicated so that water may proceed through conduit 80 and member 60 into overflow pipe 33. In the case of the embodiment shown in FIGURES 5A and 5B the member 60 will be deleted and member 84 in FIGURES 7A–7C substituted therefor, with connection being made as illustrated in FIGURES 5A and 5B.

Whichever of the embodiments is applied for the particular toilet style used, it is seen in the invention that remarkable versatility is attained by mounting the container 39 in any one of several ways, this depending on the toilet style used, so that a portion of by-pass water from afterfill pipe segment 34 may be employed to dissolve certain chemicals so as to perform a variety of purposes, e.g. cleaning the toilet bowl and supplying a selected scent thereto.

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects, and, therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of this invention.

We claim:

1. In a toilet tank including an inlet pipe for supplying incoming water, a shut-off valve connected to said inlet pipe and including an outlet afterfill pipe, a float operatively connected to said shut-off valve, said tank including an outlet orifice leading to a toilet bowl, a valve seat

disposed on the inlet side of said outlet orifice, an overflow-pipe communicating directly with said toilet bowl around said valve seat and having an upper end disposed above the water level of said tank; an improvement comprising a container mounted within said tank above the normal water level for the reception of chemical granules, said container having a bottom wall and upstanding side walls, a screen operatively disposed within said container and having an upstanding side screen portion dividing the interior of said container into a chemical granule receiving portion and a container outlet portion, an inlet orifice in one of said upstanding side walls, means connecting said inlet orifice to said afterfill pipe for water communication therewith, a conduit supported within said container connected at one end to said inlet orifice for conducting the flow of water from said afterfill pipe and opening at its opposite end into said container outlet portion for emptying water therein, said conduit having a longitudinal portion between its ends traversing above said chemical granule receiving portion, said longitudinal portion having a plurality of spray orifices along the length thereof for spraying a portion of the water flowing through said conduit onto said chemical granule receiving portion, an outlet orifice in one of said walls and disposed below said inlet orifice, said outlet orifice communicating with said container outlet portion, and means connecting said container outlet orifice to said upper end of the overflow pipe for water communication therewith, whereby said water sprayed onto said chemical granule receiving portion flows through said screen into said container outlet portion where it joins the water emptying into said container outlet portion from said conduit open end for outflow through said outlet orifice to said overflow pipe.

2. The improvement of claim 1 wherein said screen is elevated above the bottom wall to dispose the chemical granule receiving portion out of contact with said bottom wall.

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