Dec. 9, 1952 R. T. ADDLESBURGER 2,620,486

FLUSH TANK DEODORIZER

Filed March 11, 1948 2 SHEETS—SHEET 1

FIG. 1.

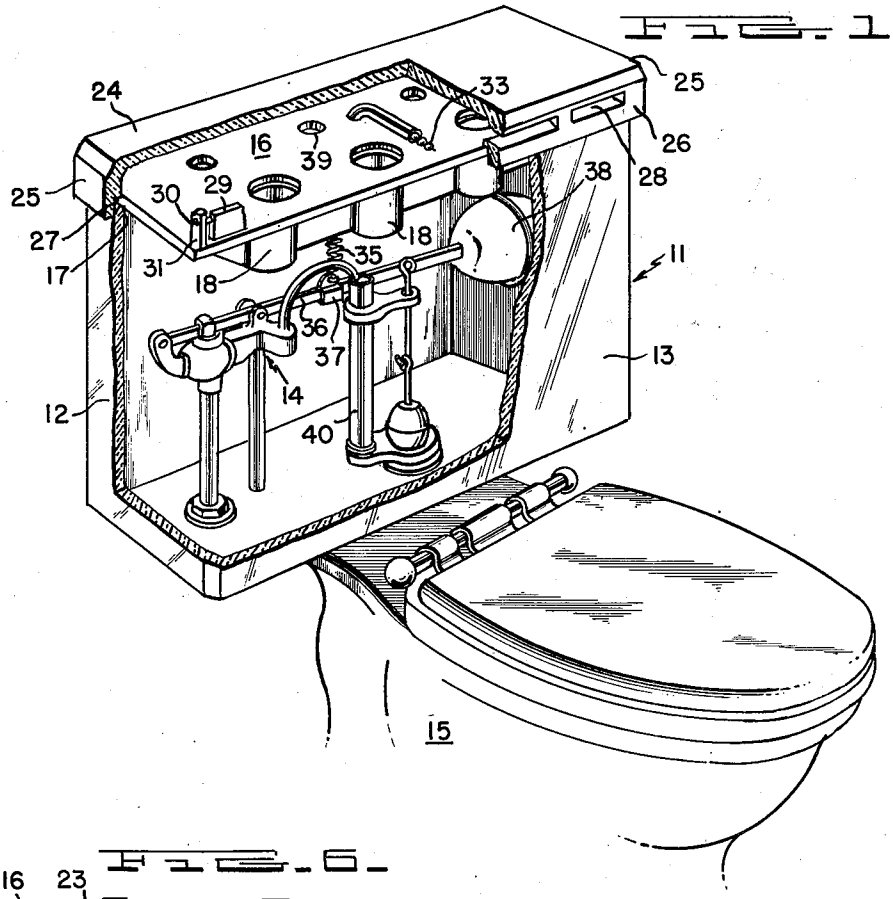


FIG. 6.

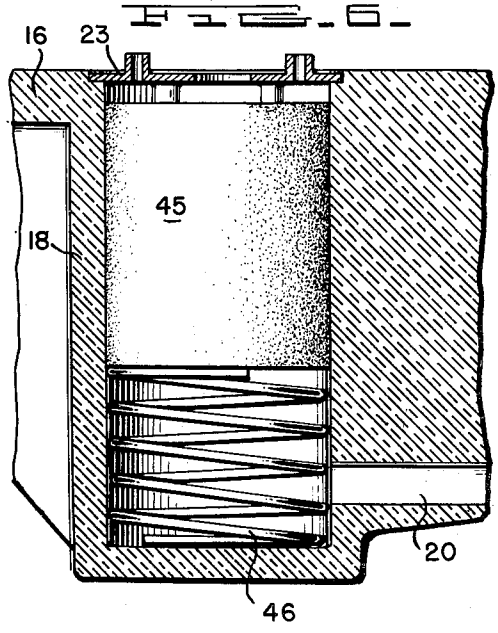
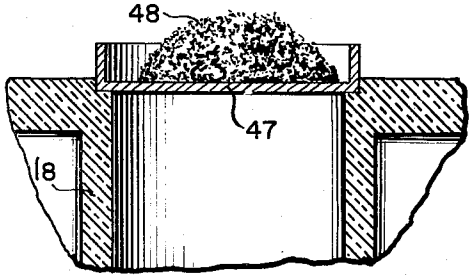


FIG. 7.



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FLUSH TANK DEODORIZER

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FIG. 2

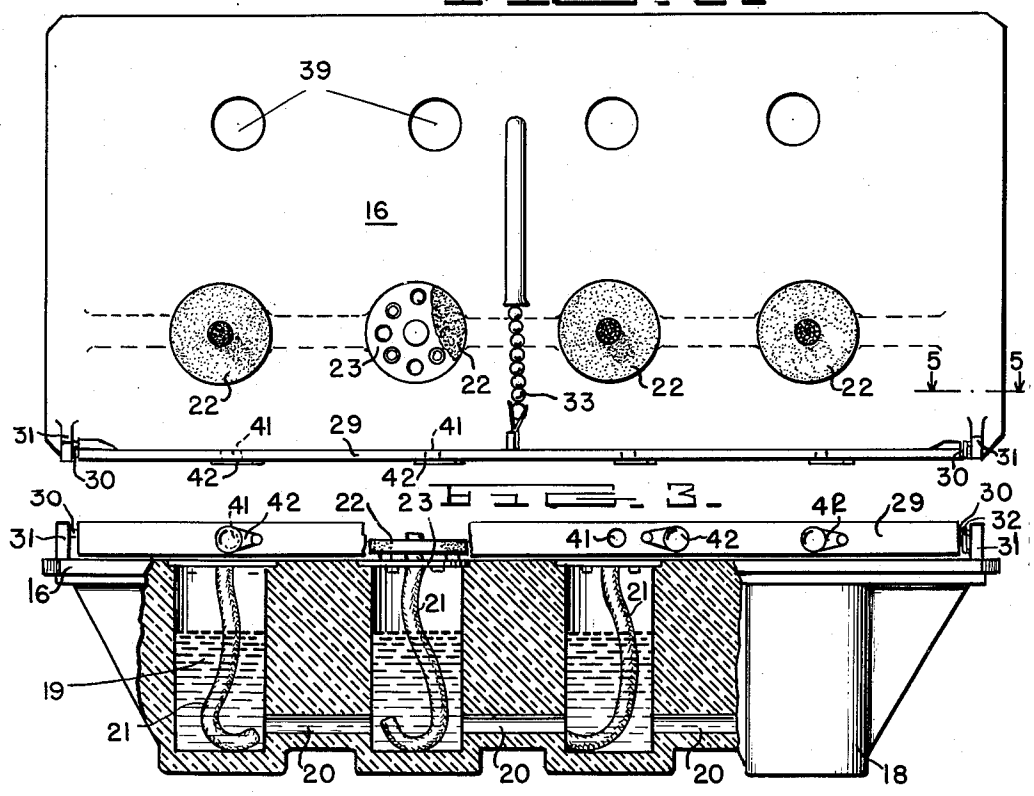


FIG. 3

FIG. 4

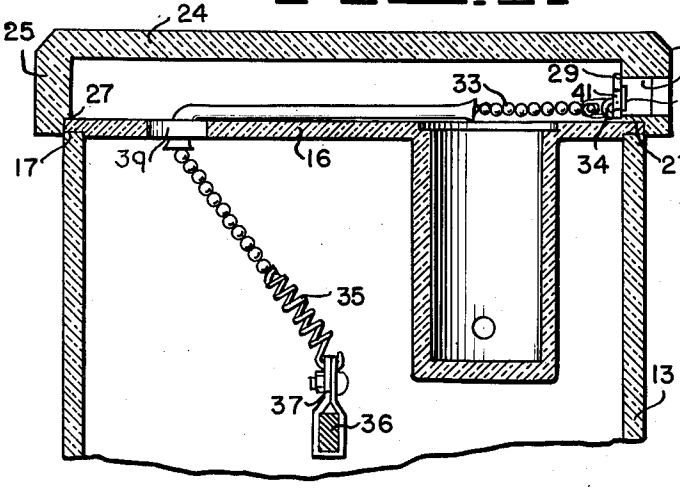
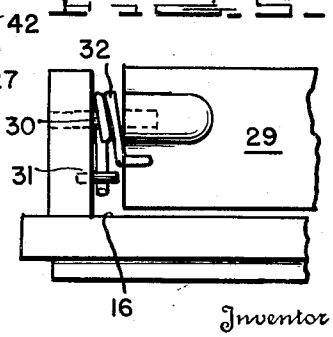


FIG. 5



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FLUSH TANK DEODORIZER

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10 Claims. (Cl. 4—227)

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This invention relates to a flush tank deodorizer and particularly concerns a deodorizer for use in a private home.

The present invention is an improvement in the attachment for flush tanks disclosed in Patent No. 2,331,589, granted October 12, 1943. While this prior invention is satisfactory for many installations, it has become desirable to increase the efficiency of the flush tank deodorizer by confining the deodorant to the flush tank and toilet thereby conserving the high grade deodorants frequently used in a home.

It is a major object of this invention to provide a flush tank deodorizer which will confine the deodorant to the tank and toilet bowl thereby reducing the escape of deodorant and reducing the aroma in the room in which the deodorizer is located.

It is an important object of the invention to conserve the deodorant for the tank by effectively using it only when the tank is flushed.

It is a specific object of the invention to provide a flush tank deodorizer which may readily be attached to conventional tanks without altering the tank or the flushing mechanism and which will confine the deodorant to the tank by providing a door for admitting air to the deodorant chamber only when the tank is flushed, the door being closed to confine the evaporated deodorant to the flush tank and the toilet bowl during idle periods between flushing operations.

Other objects and advantages of the invention will become apparent from the following specification taken in connection with the accompanying drawings wherein:

Figure 1 is a perspective view of a toilet with the walls of the flush tank broken away to show a deodorizing attachment embodying the invention in its preferred form;

Fig. 2 is a plan view of the deodorizing attachment shown in Fig. 1;

Fig. 3 is a front elevation of the deodorizing attachment shown in Fig. 1, with some portions in section for purposes of clearness;

Fig. 4 is a partial transverse section of the flush tank shown in Fig. 1;

Fig. 5 is a fragmentary view showing the door hinge on an enlarged scale;

Fig. 6 is a partial sectional view showing a modified form of deodorant receptacle particularly useful with solid deodorant blocks; and

Fig. 7 is a partial sectional view of a deodorizing attachment showing the deodorant receptacle which may be used with a deodorant in crystal form.

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In its preferred form the invention includes a shelf which may be fitted to the top of a conventional flush tank, with a tank top covering the shelf to form a substantially air-tight deodorant chamber, the top having an aperture formed in one end providing a communicating passage between the deodorant chamber and the atmosphere outside of the tank. One or more openings are formed in the shelf to provide a communicating passage between the chamber and the flush tank. The shelf has a deodorant receptacle between the opening and the aperture, and a door normally closing the aperture which may be opened when the tank is flushed to permit the passage of air over the deodorant in the receptacle into the chamber and through the openings into the tank.

For a more particular description of the invention reference may be had to Figure 1 of the drawings, which shows a conventional flush tank 11 having side walls 12, 12, and a front wall 13. This flush tank is provided with a conventional flush mechanism 14 for discharging liquid from the tank into toilet bowl 15. Supported on the top edges of the walls 12 and 13 is a shelf 16, which preferably forms a substantially air-tight seal, at 17, around the edges of all walls of the tank. The shelf 16 is provided with a series of deodorant receptacles 18, 18, along the front portion of the shelf and which, preferably, are suspended below the level of the shelf to contain a liquid deodorant 19 (Fig. 3). Conduits 20, 20, connecting adjacent receptacles 18, 18, serve to maintain the same liquid level of deodorant in all receptacles. Each receptacle is provided with a wick 21 having a mushroom surface 22 supported by a perforated plate 23 so the wick extends into the liquid 19.

A top 24 covers the shelf and has side and rear walls 25, 25, and a front wall 26, which preferably form a substantially air-tight seal, at 27, around the periphery of the shelf 16. The front wall 26 is provided with an elongated aperture 28 extending across the entire wall to form a communicating passage between the external atmosphere and the deodorant chamber defined by the shelf 16 and the top 24.

In order to prevent the passage of air through the aperture 28 (Fig. 4) during idle periods of the tank, a door 29 has its ends hinged, at 30, to uprights 31, 31, projecting upwardly from each end of the front of the shelf 16. One of the hinges 30 is provided with a suitable spring 32 to normally hold the door 29 against the front wall 26 to close the aperture 28. When the tank is

flushed, it is, of course, necessary to permit the entrance of air into the tank as the liquid is discharged. For this purpose, one end of a flexible chain 33 is connected at 34 to the door 29. The other end of the chain 33 is connected to a tension spring 35, which, in turn, is connected by a suitable clamp 37 to a movable part 36 of the flush mechanism. The spring 35 in effect provides an extensible connection, permitting movement of the flush mechanism without damaging the door. Thus, when the flush mechanism is operated, the liquid in the flush tank is discharged and the ball float 38 is lowered so it pulls through the spring 35 and chain 33 to open the door 29. Air enters through the aperture 28 into the deodorant chamber between the shelf 16 and the top 24 and passes over the deodorant saturated pads 22. To permit air to pass from the chamber above the shelf into the flush tank openings 39, 39, may be formed in the shelf 16 to provide a communicating passage between the deodorant chamber and the tank.

Inasmuch as the deodorant receptacles 18 are arranged between the aperture 28 and the openings 39, the air passes over the deodorant and evaporates a portion of it before entering the tank. After the tank is flushed and refilled, the door 29 will be closed so the deodorant chamber is substantially closed to the external atmosphere and the deodorant aroma is confined within the flush tank so it will not escape into the room in which the tank is located. However, as the flush tank is usually connected to the toilet bowl by an overflow pipe 40, the evaporated deodorant, being somewhat heavier than air, may slowly, but continuously, enter the bowl. Thus, a constant supply of deodorant is made available to the bowl. As the evaporated deodorant is confined to the flush tank and the toilet bowl, it is not wasted by escaping into the room during the idle periods between flushing operations. Thus, the efficiency of the deodorant is materially increased by confining the deodorant to the flush tank and the toilet bowl. To permit small quantities of air to enter the deodorant chamber between flushing operations, small vents 41, 41, are formed in the door 29. These vents may be provided with adjustable covers 42, 42, any number of which may be opened so a small amount of air will pass into the deodorant chamber.

While the invention is shown in Fig. 1 as used with a liquid deodorant, a solid deodorant may be used without modifying the receptacle 18 in the shelf 16. As shown in Fig. 6, a solid deodorant block 45 may be placed on a compression spring 46 in the bottom of receptacle 18. The spring 46 retains the top of the block 45 against the perforated plate 23 in the top of the receptacle so air from the aperture 28 will pass over the deodorant 45 to the opening 39 and into the tank.

In case it is desired to use a deodorant in crystal form, a small receptacle 47 (Fig. 7) may be placed on the shelf instead of the perforated plate 23. As the crystal deodorant 48 in the receptacle 47 is positioned between the aperture 28 and the openings 39, air entering the deodorant chamber will evaporate a portion of the deodorant as it passes through the openings 39 into the tank. If a small block of deodorant is used, it may be placed in container 47 or on top of the plate 23.

From the foregoing description it will be apparent that the present invention provides a flush tank deodorizer which may be attached to the conventional flush tank in a home. As the deodorant is normally confined within the flush tank and the toilet bowl, greater efficiency is obtained, resulting in a reduction in the quantity of deodorant required. Inasmuch as air is caused to pass over the deodorant when the tank is flushed, a quantity of the deodorant is evaporated during the flushing operation when it is most needed. At other times only a small amount of deodorant is evaporated because the only flow of air is through small vents 41 and down the overflow pipe 40 into the bowl. This results in a material economy in the use of expensive high grade deodorants usually provided for home purposes.

What is claimed is:

1. A flush tank deodorizer comprising a shelf at the top of a flush tank, a top covering said shelf to form a deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of the tank, an openable door normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, and means operated by the flushing mechanism of the tank for opening said door .

2. A flush tank deodorizer comprising a shelf at the top of a flush tank, a top covering said shelf to form a deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of the tank, a door normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, and a flexible member extending through the shelf and connected to said door and to the flush mechanism in the tank, said flexible member being actuated by the flushing mechanism for opening said door to permit the passage of air through said chamber into the tank.

3. A flush tank deodorizer comprising a shelf at the top of the flush tank, a top covering said shelf to form a deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of the tank, a door normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, a deodorant receptacle on said shelf between said aperture and said opening, and means connected to said door and actuated by operation of flushing mechanism in the tank for opening said door when the tank is flushed.

4. A flush tank deodorizer comprising a shelf at the top of the flush tank, a top covering said shelf to form a deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of the tank, a door normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, a deodorant receptacle on said shelf between said aperture and said opening, and a flexible member extending through said shelf and connected to said door and to the flush mechanism in the tank, said flexible member being actuated by operation of the flush mechanism for opening said door upon operation of the flush mechanism.

5. A flush tank deodorizer comprising a shelf at the top of a flush tank, a top covering said

shelf to form a substantially air-tight deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of the tank, a door normally closing said aperture, an opening formed in said shelf providing a communicating passage between said chamber and the tank, a deodorant receptacle on said shelf between said aperture and said opening, a vent in said door spaced from said receptacle, and means for opening said door, said means being actuated by flushing mechanism in the tank to open said door when the tank is flushed to permit the passage of air over said receptacle and into the tank.

6. A deodorant attachment for a flush tank comprising a shelf adapted to rest on the top of the flush tank, a top covering said shelf and having depending walls to form a substantially air-tight deodorant chamber, said top being formed with an aperture in one of said walls providing a communicating passage between the chamber and the atmosphere outside the tank, an openable door normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, a deodorant receptacle on said shelf between said aperture and said opening, and means on said door for connection to flushing mechanism in the tank to open said door when the tank is flushed to permit the passage of air over said receptacle and through said chamber into the tank.

7. A flush tank deodorizer comprising a shelf at the top of a flush tank, a top covering said shelf to form a deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of said tank, a door normally closing said aperture, and an opening in said shelf forming a communicating passage between the chamber and the tank, said door being mounted on said shelf for movement into the chamber as the water falls when the tank is flushed, to open the aperture thereby permitting the passage of air through the chamber into the tank.

8. A flush tank deodorizer comprising a shelf at the top of a flush tank, a top covering said shelf to form a deodorant chamber, an aperture formed in said top providing a communicating passage between the chamber and the atmosphere outside of the tank, a pivotally mounted door normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, and a deodorant receptacle on said shelf between said aperture and said opening, said door being movable on its pivotal mounting into the chamber as the water falls when the tank is flushed, to

open said aperture thereby permitting the passage of air through said aperture over said receptacle and through said opening into the tank.

9. A deodorant attachment for a flush tank comprising a shelf adapted to rest on the top of the flush tank, a top covering said shelf and having depending walls to form a substantially air-tight deodorant chamber, said top being formed with an aperture in one of said walls providing a communicating passage between the chamber and the atmosphere outside the tank, a door movably mounted on said shelf and normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, a deodorant receptacle on said shelf between said aperture and said opening for containing a liquid deodorant, a perforated plate at the top of said receptacle, and a wick supported by said plate extending into said receptacle, said door being movable into the chamber as the water falls when the tank is flushed thereby permitting the passage of air over said wick and through said chamber into the tank.

10. A deodorant attachment for a flush tank comprising a shelf adapted to rest on the top of the flush tank, a top covering said shelf having depending walls to form a substantially air-tight deodorant chamber, said top being formed with an aperture in one of said walls providing a communicating passage between the chamber and the atmosphere outside the tank, a door hinged on said shelf and normally closing said aperture, an opening formed in said shelf providing a communicating passage between the chamber and the tank, a deodorant receptacle on said shelf between said aperture and said opening, a perforated plate at the top of said receptacle, and a compression spring in the bottom of said receptacle for forcing a solid deodorant block upwardly against said plate, said door being movable into the chamber as the water falls when the tank is flushed thereby permitting the passage of air over said plate and through said chamber into the tank.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
2,325,897	Waltman	Aug. 3, 1943
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