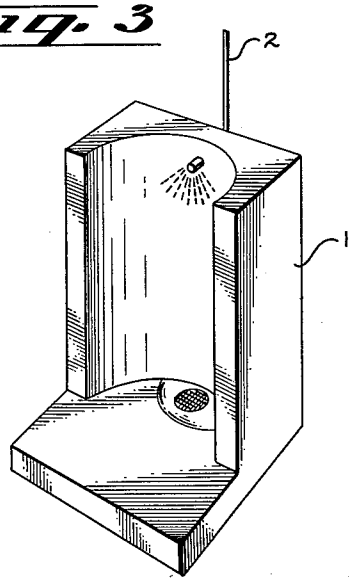
Oct. 3, 1961 P. C. TILLMAN 3,002,197

DISPENSING MECHANISM FOR LIQUID DEODORANTS

Filed Dec. 14, 1959

Fig. 3



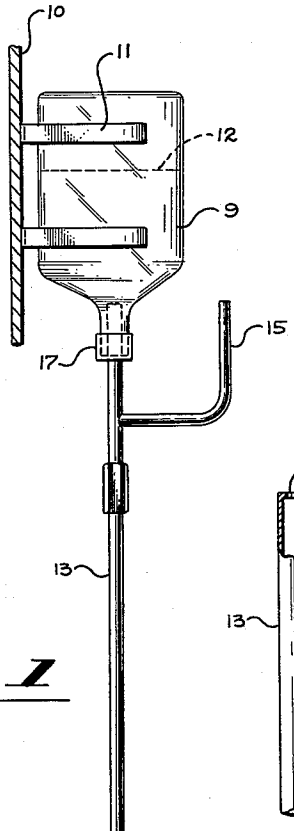


Fig. 1

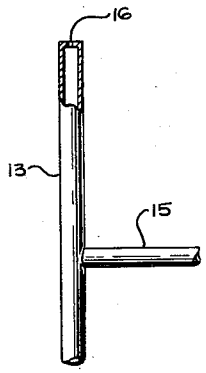
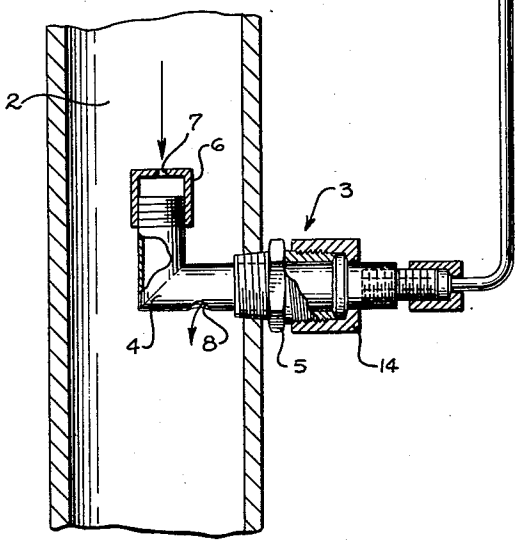


Fig. 2



PAUL C. TILLMAN
INVENTOR

BY H. A. Buckman

ATTORNEY

United States Patent Office

3,002,197

Patented Oct. 3, 1961

3,002,197

DISPENSING MECHANISM FOR LIQUID DEODORANTS

Paul C. Tillman, Los Angeles, Calif., assignor to Wayne H. Baker, Los Angeles, Calif.

Filed Dec. 14, 1959, Ser. No. 859,442

3 Claims. (Cl. 4—225)

This invention relates to a dispensing mechanism for liquid deodorants, and is used particularly on toilets and urinals for the purpose of dispensing a small quantity of liquid deodorant into the toilet or urinal at the end of each flushing period.

An object of my invention is to dispense a small quantity of liquid deodorant into the flush pipe, chamber, or receptacle of a toilet or urinal, the liquid deodorant being dispensed automatically and activated by the flush water in motion.

Still another object of my invention is to provide a novel dispensing mechanism of the character stated, which will dispense a small quantity of liquid deodorant at the end of each flushing period or flow to obtain maximum efficiency from the deodorant. Also the deodorant will be dispensed in the required quantity independent of the quantity of the flush water.

Still another object of my invention is to provide a novel dispensing mechanism of the character stated, which is simple in construction and easy to manufacture, which has no moving mechanical parts, which is easy to install, and which will function correctly over long periods of time.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing:

FIGURE 1 is a side elevation of my dispensing mechanism with parts broken away to show interior construction.

FIGURE 2 is a fragmentary side elevation of the deodorant supply pipe with parts broken away to show interior construction.

FIGURE 3 is a perspective view of the urinal upon which my dispensing mechanism may be placed.

Referring more particularly to the drawing, the usual urinal or toilet **1** is provided with a water supply or flush pipe **2**. This pipe is normally empty until the flush valve (not shown) is opened, and thereafter the pipe is filled with flowing water. The amount of water flowing through this pipe will vary with different installations and pressures, but the amount of deodorant should remain constant irrespective of the quantity of flushing water. My dispensing mechanism **3** consists of an elbow **4** which is fixedly mounted in the flush pipe **2** by means of a screw fitting **5** which threads into the wall of the pipe **2**. A cap **6** screws onto the upper end of the elbow **4** and this cap is provided with a small intake hole **7** through which a quantity of water flows when the toilet or urinal is flushed. An outlet or drain port **8** is provided at the lower end of the elbow **4** and permits the deodorant to drain into the pipe **2** at the end of the flushing period, as will be subsequently described. A jar or container **9** is attached to the wall **10** by means of brackets **11** and is mounted adjacent to the flush pipe **2**. The liquid deodorant partially fills the jar or container **9** and the upper end **12** of the jar is partially evacuated, and thus atmospheric pressure will hold the liquid in the container **9** until the vacuum at **12** is partially relieved by the addition of a small bubble of air. A deodorant supply pipe **13** extends from the bottom of the container **9** to the elbow **4** and is attached to the elbow by means of a pressure fitting **14**. A vent pipe **15**, having a small

orifice at its open end, extends into the pipe **13** below the container **9**. This vent pipe is for the purpose of relieving any vacuum in the pipe **13**, as will be subsequently described. A small metering orifice **16** is provided in the upper end of the pipe **13** and within the container **9**. The purpose of this small metering orifice is to reduce the quantity of liquid which will be fed into the pipe **13** each time a bubble of air passes through the liquid and thence into the partial vacuum **12**, thus reducing the deodorant feed to the small amount which is normally required. The pipe **13** is held on the lower end of the container **9** by means of a cap **17** which fits onto the lower end of the container, as shown.

In operation

When the flush water travels downwardly through the pipe **2** a small amount of this water will enter through the hole **7** and thence into the elbow **4** and also into the pipe **13** for a distance less than where the vent pipe **15** enters the pipe **13**. The velocity of the flushing water will trap a bubble of air ahead of it since the pipe **13** is filled with air prior to the flushing step and will force that air upwardly in the pipe **13**, and will move the air bubble in the pipe **13** ahead of the column of water which rises therein, due to the pressure of the flushing water. A small amount of this air will be vented out through the vent pipe **15** and the remainder will pass through the metering orifice **16** and thence through the deodorant liquid in the container **9**, and will pass into the partial vacuum area **12**. The partial vacuum at **12**, being now partially relieved, will permit a small quantity of liquid to pass through the metering vent **16** and will flow downwardly through the supply pipe **13** towards the elbow **4**. As long as the flush water is flowing through the pipe **2** the deodorant will be held in the supply pipe **13** away from the elbow **4** due to the column of water in said pipe. However, as soon as the flushing ceases the deodorant liquid can flow downwardly through the pipe **13** following the water column therein, and thence into the elbow **4** and out through the drain port **8**. The deodorant then flows down through the flush pipe **2** and into the toilet or urinal. Since the flushing water has already passed out the small quantity of deodorant is more effective and will not be diluted. Any vacuum in the supply pipe **13** will be relieved by the vent **15** which permits air to flow into this pipe.

Having described my invention, I claim:

1. A dispensing mechanism for liquid deodorants for toilets and urinals including a flush pipe, an elbow fixedly mounted in said flush pipe, said elbow having a small hole at the upper end thereof, and an outlet port at the lower end thereof, a deodorant container, a pipe extending from the deodorant container to said elbow, means attaching the pipe to the elbow, and a vent pipe extending into said supply pipe, the vent pipe being positioned adjacent the deodorant container.

2. A dispensing mechanism for liquid deodorants for toilets and urinals including a flush pipe, an elbow fixedly mounted in said flush pipe, said elbow having a small hole at the upper end thereof, and an outlet port at the lower end thereof, a deodorant container, a pipe extending from the deodorant container to said elbow, means attaching the pipe to the elbow, and a vent pipe extending into said supply pipe, the vent pipe being positioned adjacent the deodorant container, said deodorant supply pipe extending into the deodorant container, and said supply pipe having a small metering orifice therein, said metering orifice being positioned within the deodorant container.

3. A dispensing mechanism for liquid deodorants for toilets and urinals including a flush pipe, an elbow fixedly mounted in said flush pipe, one arm of the elbow ex-

tending upwardly in the flush pipe in a direction opposite to the flow of water in the flush pipe, said elbow having a small hole at the upper end thereof through which water enters the elbow, and an outlet port at the lower end of said elbow, a deodorant container, a pipe extending downwardly from the deodorant container to said elbow, means attaching the pipe to the elbow, an angularly shaped vent pipe, one end of the vent pipe extending into said supply pipe, the vent pipe being positioned immediately below the deodorant container, said deodorant supply pipe extending into the deodorant container, said supply pipe having a small metering orifice therein within the deodorant container.

References Cited in the file of this patent

UNITED STATES PATENTS

1,116,753	Stomler	Nov. 10, 1914
1,447,289	Farnham	Mar. 6, 1923