This invention relates generally to sanitary devices and particularly to a dispenser for disinfectants.

The main object of this invention is to construct a dispenser of the class described whereby a measured quantity of sanitary, cleansing or deodorizing liquid will be automatically deposited in the trap of a toilet bowl during each flushing operation.

The second object is to construct a device of the class described especially adapted for use with toilets having no water reservoirs but being equally adaptable for fixtures employing reservoirs.

The third object is to construct a device of the class described which will be easy to install and which will require no alteration in the common form of existing equipment.

The fourth object is to construct a device of the class described wherein the flushing action of the toilet will actuate the device thereby protecting it against an abnormal operation of the flushing lever.

These and other objects are accomplished in the manner set forth in the following specification as illustrated in the accompanying drawings, in which:

Fig. 1 is a vertical section through the device showing the metering valve in a discharging position.

Fig. 2 is a view similar to Fig. 1 but showing the metering valve in a loading position.

Fig. 3 is a horizontal section taken along the line 3-3 in Fig. 1.

Fig. 4 is a plan of the device with the cover removed.

Fig. 5 is a side elevation showing the device installed in conjunction with the ordinary so-called "straight shot" fixture, a portion of which is broken away to show the interior thereof.

Fig. 6 is a side elevation of the piston element showing the removable inserts, taken along the line 6-6 in Fig. 7.

Fig. 7 is a horizontal section taken along the line 7-7 in Fig. 6.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown the usual form of bowl 10 above which is mounted the cylindrical container 11 having a false bottom 12 into which is threaded the upper end of the metering cylinder 14 whose lower end 15 is closed except for a central opening 16 into which projects the tubular airpipe 17 whose lower end 18 extends around the rim of the toilet bowl 10 so that its forward end 19 opens upwardly to receive the force of the air displaced by the flushing operation.

The pipe 17 passes freely through the opening 20 in the bottom 21 of the container 11.

Slidably mounted in the metering cylinder 14 is the piston 22 whose lower end 23 is somewhat concave and is adapted to seat in the angular groove 24 formed around the airpipe 17. The piston 22 has an upwardly extending shank 25 on whose upper end is formed a head 26 whose shoulder 27 seats upon the upper end 28 of the cylinder 14 when the lower end 23 seats in the groove 24. A vent tube 29 is mounted in the head 26 and communicates with the metering space 30.

A port 31 is formed in the side of the metering cylinder 14 at a point just above the upper edge 32 of the piston 22 when in its lowermost position. The port 31 is connected by the somewhat enlarged elbow 33 to the downturned disinfectant tube 34 whose lower end 35 extends into the bowl 10.

In Figs. 6 and 7 is shown the use of a pair of removable inserts 36 whose function is to merely occupy a portion of the metering space 30 and reduce the amount of the fluid dispensed at a given operation.

It is desirable to provide the cover 36 with an air vent 39 and to securely fasten same in position by means of the screws 40 and lock 41.

The operation of this device is as follows:

Assuming the parts to be in the position shown in Fig. 1, it will be seen that flushing of the bowl 10 increases the static pressure in the airpipe 17 causing the piston 22 to rise to the position shown in Fig. 2 until the upper end of the vent tube 29 strikes against the under side of the cover 36. When the static pressure in the bowl 10 drops, the piston 22 moves to the position shown in Fig. 1, trapping a quantity of disinfectant 37 within the space 30. This liquid flows by gravity into the elbow 33 from whence it drops through the tube 34 into the bowl 10.

It can be seen from the foregoing that not only are measured quantities of liquid delivered to the bowl 10, but the number of such quantities is restricted with relation to time. For example, a repeated or frequent operation of the flushing mechanism would not cause a waste of disinfectant materials inasmuch as somewhat definite amount of time is required for the delivery of each metered quantity of disinfectant. Therefore, if the operation were repeated before a given quantity could be delivered, it merely
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reduces the amount of disinfectant metered by the device.

While I have referred mainly to the use of this device in connection with fixtures in which a tank is not employed, it would obviously work as well with the tank type illustrated in my United States Patent No. 2,243,454.

We claim:

1. A device of the class described having in combination a container having an outlet there-in, a metering valve adapted to discharge measured quantities of liquid through said outlet, a pneumatic means for actuating said valve from the air pressure built up by the flushing action of the toilet fixture and a pneumatically flushed pipe connected with said outlet for carrying metered quantities of liquid to the toilet bowl.

2. The combination of a container for liquid disinfectants, a metering cylinder communicating with the bottom of said container and having a lateral outlet communicating with the toilet bowl, a pneumatic means for flushing said outlet, a metering piston mounted in said cylinder adapted to release a measured quantity of fluid through said outlet, and an airpipe communicating between said cylinder and the toilet bowl whereby said valve may be actuated by increases in the static pressure within said bowl.

3. In a device of the class described the combination of a container for liquid disinfectants having an outlet opening therein, a slideable metering valve for controlling the amount of liquid released through said opening, a piston for actuating said valve, a pneumatic connection between said piston and the toilet bowl, a tube for conducting liquid from said outlet, means for pneumatically flushing said tube and means for temporarily storing liquids as released by said valve.

4. A device of the class described consisting of a container having an opening in the bottom thereof, a false bottom in said container having a cylindrical metering valve mounted therein, a piston mounted in said valve, an airpipe connecting the under side of the valve cylinder to a toilet bowl, a side outlet connection between said cylinder and the toilet bowl for conveying disinfectant and means for pneumatically flushing said side outlet connection, a piston in said cylinder forming a part of said metering valve, said piston having a metering spaced formed around same, said piston having seating surfaces formed on the upper and lower ends thereof adapted to seal both ends of said valve against leakage.

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