

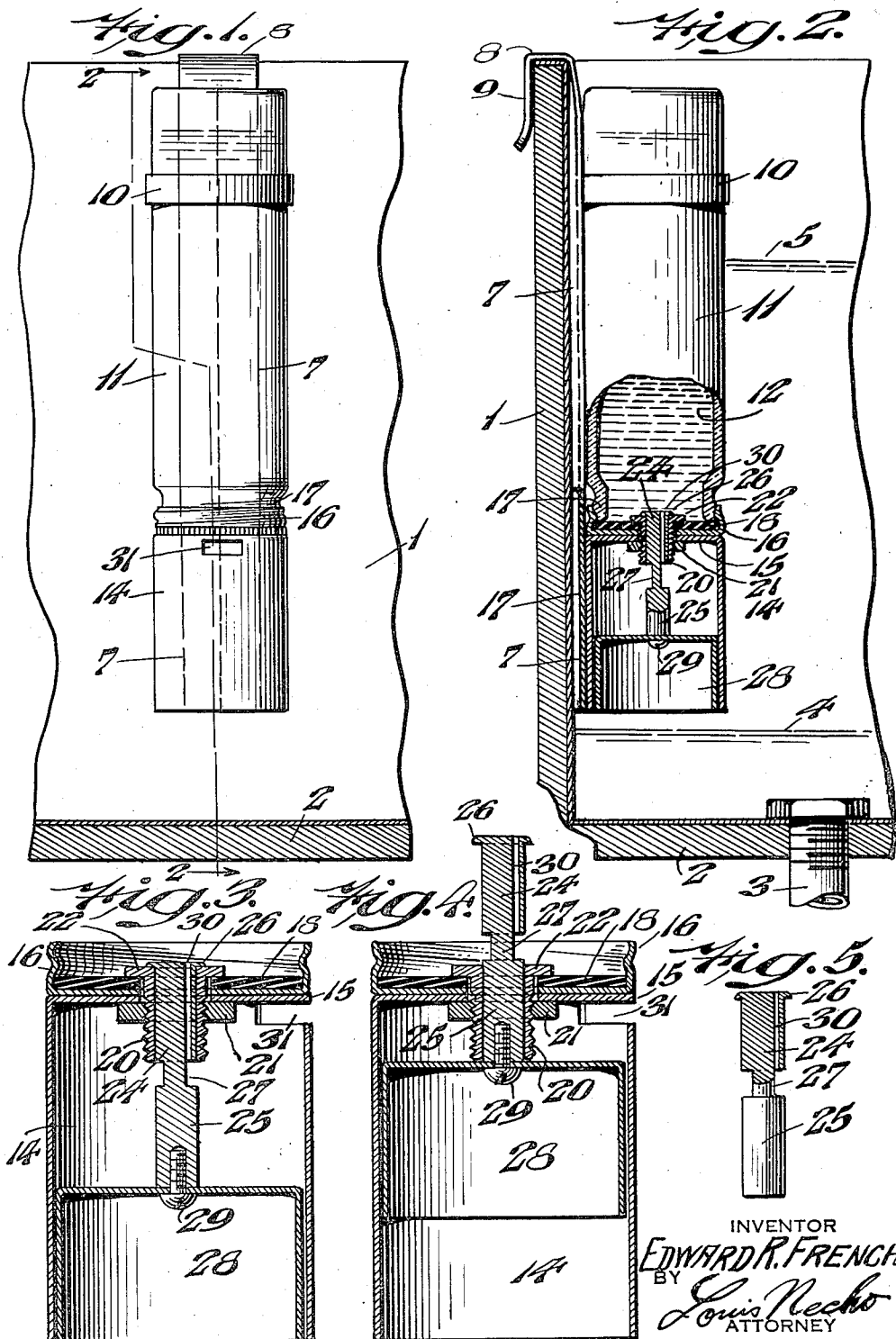
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DISPENSING DEVICE

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## UNITED STATES PATENT OFFICE

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## DISPENSING DEVICE

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My invention relates to a new and useful dispensing device and it relates more particularly to a dispensing device adapted for use in connection with flush tanks of toilet bowls to the end that the toilet bowl is, at all times, kept sterile, and for the purpose of serving as a solvent and deodorant.

My invention further relates to a device of this character, which can be produced at a very low cost, and one which consists of an extremely simplified construction the parts of which are not subject to any appreciable wear or disorder when in use.

My invention still further relates to a device of this character, which is adapted for easy and immediate installation by any unskilled person to render the device easily applicable and universally acceptable.

Other features of novelty and advantage will be more clearly understood from the following specification and the accompanying drawing, in which,

Fig. 1 represents a fragmentary view, in front elevation, showing my dispensing device applied to the back wall of a flush tank of a toilet.

Fig. 2 represents a section on line 2—2 of Fig. 1.

Fig. 3 represents a fragmentary section, on an enlarged scale, showing details of assembly and of the valve construction in one position thereof.

Fig. 4 represents a view similar to Fig. 3, showing the valve in another position thereof.

Fig. 5 represents a view, partly in section and partly in elevation, of the valve element shown detached.

Referring to the drawing in which like reference characters indicate like parts, 1 designates the back wall of a flush tank of a toilet bowl. 2 designates the bottom of the tank from which extends the pipe 3 leading to the toilet bowl proper, not shown. 4 and 5 designate, roughly, the levels at which the water in the flush tank normally stands, when the toilet bowl is flushed and when the flush tank is full between flushings, respectively.

My dispensing device consists, generally, of the bracket 7, which is made sufficiently light, consistent with the necessary strength, and which is preferably made of a bendable or pliable form-retaining metal so that the upper end thereof may be bent around to engage the upper edge of the back wall of the flush tank, as shown at 8 and 9. To the upper portion of the bracket 7 is secured a retaining ring, or similar support 10, which guides the bottle, or other container 11, for holding the solvent, disinfectant, deodorant

12. 14 designates the support for the bottle 11, and, in this instance, I prefer to make it in the form of an inverted cup and to the inverted bottom 15 of which I secure the bottle or container cap 16 to which the mouth of the bottle is threaded, as at 17, there being a gasket 18 to effect a liquid tight connection. The container 11, and the cap 16 thereof, are standard items, so that any container 11 from which the cap has been removed can be threaded into the standard cap 16 which is rigidly but detachably secured to the inverted bottom 15 of the supporting element 14 by the bushing 20 which passes downwardly through an aperture in the gasket 18, the cap 16 and inverted bottom 15, the bottom end of which is threadedly engaged by the retaining nut 21. The bushing 20 has a flange 22 which is tightened against the gasket 18 to make a liquid tight connection. Through the bushing 20 I insert the valve, shown generally in Fig. 5, which consists of the upper and lower body portions 24 and 25, the upper flange 26, and the central-reduced, or recessed portion 27. The upper flange 26 prevents the valve element from dropping through the aperture in the bushing 20, and to the bottom portion 25 is secured the float 28, which is preferably in the form of an inverted cup, by means of the screw 29, it being understood from Figs. 3 and 4 that the float 28 is free to move vertically within the supporting element 14. 30 designates an air-vent in the upper body portion 24 of the valve, and 31 designates an air-vent in the upper portion of the inverted cup supporting element 14.

In order to install the device, as seen in Fig. 2, it is merely necessary to remove the cover of the flush tank, which is not shown, and to position the device as shown in Fig. 2, and then bend the upper end of the bracket 7 around the upper edge of the back wall 1, as shown at 8 and 9. When the water in the flush tank is at its higher level 5, or at any point above the top of the supporting element 14, the float 28 is in its upper position, as shown in Fig. 4, and the reduced or recessed portion 27 of the valve is pushed up to a point above the gasket 18 and into the liquid 12 in the container 11. The liquid 12 occupies the reduced or recessed portion 27, but the lower portion of the valve completely closes the opening of the bushing 20 and none of the liquid 12 can drop into the flush tank. When the toilet bowl is flushed, and the water level therein falls to the point 4, or any point below the lower edge of the supporting element 14, the float 28 automatically drops from the position

shown in Fig. 4 to the position shown in Fig. 3, and the few drops of the liquid 12, contained in the recess 27, now drop into the liquid in the flush tank to be used for the next flushing. When the float 28 is in its lower position, the upper portion 24 of the valve closes the outlet of the bushing 20 and prevents any liquid 12, other than the drops contained in the recess 27, from falling into the water in the flush tank. As the water again rises in the flush tank, the float 28 again assumes the position shown in Fig. 4 in which the recess 27 is again charged with the liquid 12. In order to insure the free movement of the float 28, within the supporting element 14, I provide the vent-hole 31 to prevent the air from being compressed therein and preventing the complete rise of the float 28. Similarly, in order to admit a small amount of air into the container 11 to replace the amount of liquid withdrawn from the container, with each dropping of the float 28 I have provided the vent 30, the bottom end of which will be open to the air when the float 28 is in its lower position, as shown in Figs. 2 and 3.

It will thus be seen that my novel device consists of a very inexpensive construction which permits the use of many standard or stock items which, due to being capable of mass production, are extremely inexpensive, and that the bracket 7 consists of a simple stamping to which the supporting element 14 is suitably secured by spot-welding, or otherwise.

After the contents of the bottle 11 are exhausted, and it is necessary to refill the dispensing device, it is merely necessary to withdraw the same from the flush tank and to invert it over a container 11 from which the conventional cap has been removed and after the mouth of the container 11 has been threaded into the cap 16 while the container 11 is in its upright position, the device is then inverted and the device is positioned as shown in Figs. 1 and 2.

With respect to the liquid 12 I wish to point out that the same consists of a composition having solvent and deodorant components, thereby greatly decreasing the frequency with which the toilet bowl must be cleaned, as well as keeping the toilet bowl sterile and deodorized.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is,

1. A dispensing device for the flush tank of a toilet bowl comprising a bracket adapted to engage a wall of said flush tank, an inverted cup-shaped support secured to the lower portion of said bracket in close proximity to the bottom of said flush tank and having an opening in the top thereof, a standard threaded receptacle closure carried by said support and having an opening therein registering with the opening in said support, a standard inverted receptacle having a correspondingly threaded mouth adapted to engage said closure, an inverted cup-shaped float vertically movable within said support and guided thereby, and a valve carried by said float and movable through said openings in said support and said closure into and out of said inverted receptacle to discharge a predetermined amount of the contents of said receptacle into said flush tank with the rise and fall of the water therein, there being a vent near the top of said inverted cup-shaped support.

2. A dispensing device for the flush tank of a toilet bowl comprising a bracket adapted to engage a wall of said flush tank, an inverted cup-shaped support secured to the lower portion of said bracket in close proximity to the bottom of said flush tank and having an opening in the top thereof, a standard threaded receptacle closure carried by said support and having an opening therein registering with the opening in said support, a standard inverted receptacle having a correspondingly threaded mouth adapted to engage said closure, an inverted cup-shaped float vertically movable within said support and guided thereby, and a valve carried by said float and movable through said openings in said support and said closure into and out of said inverted receptacle to discharge a predetermined amount of the contents of said receptacle into said flush tank with the rise and fall of the water therein, there being an air vent in the form of a through opening formed in said valve.

3. A dispensing device for the flush tank of a toilet bowl comprising a bracket adapted to engage a wall of said flush tank, an inverted cup-shaped support secured to the lower portion of said bracket in close proximity to the bottom of said flush tank and having an opening in the top thereof, a standard threaded receptacle closure carried by said support and having an opening therein registering with the opening in said support, a standard inverted receptacle having a correspondingly threaded mouth adapted to engage said closure, an inverted cup-shaped float vertically movable within said support and guided thereby, and a valve carried by said float and movable through said openings in said support and said closure into and out of said inverted receptacle to discharge a predetermined amount of the contents of said receptacle into said flush tank with the rise and fall of the water therein, said valve comprising solid upper and lower portions each of which is adapted to close said opening, and an intermediate notch in the body of said valve adapted to receive a predetermined quantity of the contents of said receptacle when said valve is in its uppermost position and to discharge such contents into the flush tank when said valve is in its lowermost position, there being an air vent in the form of a through opening in the body portion of said valve above said notch for transmitting a predetermined amount of air into said receptacle.

4. A dispensing device for the flush tank of a toilet bowl comprising a bracket adapted to engage a wall of said flush tank, a support secured to the lower portion of said bracket in close proximity to the bottom of said flush tank and having an opening in the top thereof, a standard threaded receptacle closure carried by said support and having an opening therein registering with the opening in said support, a standard inverted receptacle having a correspondingly threaded mouth adapted to engage said closure, an inverted cup-shaped float vertically movable within said support and guided thereby, and a valve carried by said float and movable through said openings in said support and said closure into and out of said inverted receptacle to discharge a predetermined amount of the contents of said receptacle into said flush tank with the rise and fall of the water therein, there being a vent near the top of said inverted cup-shaped support.

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