DEVICE FOR STERILIZING AND DEODORIZING TOILET BOWLS
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DEVICE FOR STERILIZING AND DEODORIZING TOILET BOWLS

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The invention relates generally to a dispensing device and more particularly to a device which may employ a pressure container for dispensing of deodorizing and disinfecting material in toilet bowls.

The invention has among its objects the production of a dispensing device which is exceedingly simple in construction, inexpensive to manufacture and which is very efficient in operation.

Another object of the invention is the production of such a device which may be readily installed by unskilled persons without the use of tools, in the flushing water reservoir of the toilet and thus substantially entirely concealed except for a small inconspicuous actuating member or lever.

A further object of the invention is the production of such a device which may employ a replaceable pressure type container for the material to be dispensed, whereby all mechanical dispensing means may be eliminated and merely a simple actuating member employed to control the discharge valve of the container.

A further object of the invention is the production of such a device which is so designed that the actuating member may extend over the edge of the reservoir and the cover replaced on the latter so that the actuating member extends from the interior of the reservoir to the exterior thereof but without requiring any special holes or openings therefor.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

In the drawings, wherein like reference characters indicate like or corresponding parts:

FIG. 1 is a transverse sectional view of a flushing water reservoir for a toilet or the like, illustrating the installation of the present invention thereon;

FIG. 2 is a top plan view of the invention; and

FIG. 3 is a view taken approximately on the line 3—3 of FIG. 2.

The invention contemplates the use of a pressurized container for the materials to be dispensed in combination with a supporting bracket thereon which may be readily attached to the toilet, as for example, to the reservoir or tank thereof, whereby the container is positioned within the tank with the actuating means for discharging the material from the container preferably extending to the exterior of the tank where it is readily accessible.

 Provision is made for discharging the dispensed materials through the overflow pipe or tube of the reservoir, whereby they may be injected directly into the flow of water from the tank upon actuation of the valve thereon.

 Referring to the drawings, the reference numeral 1 refers generally to a reservoir or tank for the storage of flushing water for the toilet bowl, such tank having a front wall 2, rear wall 3, bottom wall 4 and end walls 5, only one of which is illustrated in FIG. 1, the open upper end of the tank being adapted to be closed by a removable cover member 6. For the purposes of illustration, the tank may be provided with the usual type discharge conduit 7, flush valve member 8 and overflow pipe or tube 9.

 The valve member 8 may also be provided with the usual lift 10 operatively connecting the valve member 8 through a link 11 to an actuating arm 12, operatively connected to a manually actuable handle, not shown, which may extend through the front wall 2 of the reservoir.

 To complete the usual type of flush tank structure, a suitable inlet valve structure, not shown, would be employed which may be actuated by a float 13 which is operatively connected thereto through a stem or rod 14 so that when the level of the liquid is lowered, the corresponding movement of the float will open the valve and refill the tank.

 Referring particularly to FIGS. 2 and 3, the reference numeral 15 indicates generally a container or can for the deodorizing and disinfecting materials to be dispensed, such container being of generally standard construction wherein the materials are placed under pressure and adapted to be released through a discharge opening 16, illustrated as being positioned in a movable stem 17 which forms the actuating valve member for the container. This construction is a common one in which the discharge valve is actuated by tilting the stem member 17 as indicated in dotted lines in FIG. 3, thereby discharging the materials through the discharge opening 16. As illustrated in FIGS. 1 and 3, the container is adapted to be supported in a bracket indicated generally by the numeral 18 which is illustrated as comprising a vertically extending portion 19 terminating at its lower end in a horizontally extending portion 21 upon which the container 15 may be seated, the extreme free end of the portion 21 being provided with a reversely formed hook-like portion 22 adapted to engage the lower rim or bead 23 of the can 15, thereby firmly engaging the can, with the offset 24 preventing vertical displacement thereof.

 Secured by soldering, welding or other suitable means, to the upright portion 19 and extending inversely therefrom is a generally circularly shaped band 24 having its extreme free end portions bent outwardly as indicated at 25, the band or arm 24 having sufficient resiliency to permit the can 15 to be engaged with the hook 22 and then snapped into the position illustrated in the drawings, the band 24 firmly retaining the can on the bracket.

 As illustrated in FIG. 1, the upper end of the member 19 is formed to provide an inverted hook-like portion indicated generally by the numeral 26, having a top wall 27 and a downwardly extending portion 28 which extends generally parallel to the member 19 and preferably provided with a slight flare at its extreme end as indicated at 29.

 Carried by the bracket 18 is a valve actuating arm or member indicated generally by the numeral 31, which is pivoted by suitable means such as rivet 32, to the top wall 27 of the bracket 19, so that the member 31 is pivotal about an axis which extends generalliy parallel to the axis of the can 15. The inner end of the member 31 is bent to form a downwardly extending portion 33 which terminates in a generally arcuate-shaped portion 34 engageable with the valve actuating stem 17 of the container 15. The opposite end of the member 31 extends downwardly from the bracket 18 as indicated at 35 in FIG. 1 and then outwardly as indicated at 36, the free end terminating in a generally vertically extending handle portion 37. Thus by applying pressure to the handle portion 37 in the direction of the arrow as illustrated in FIG. 2, the portion 34 of the member 31 will engage the actuating valve stem 17 of the container, tilting the same sufficiently to open the valve and permit a discharge of the materials contained therein.

 The device is completed by a conduit 38 for the material to be discharged, that illustrated having a relatively rigid portion 39 which terminates at its free end in a transversely extending portion 41 and is operatively connected to the discharge opening 16 of the container by means of a section or portion 42 which is relatively flexible and adapted to be engaged with the valve stem 17 to make operative connection with the container. The connection between the portion 42 of the conduit and the valve stem 17 may be a friction fit or if desired, the
3 conduit may be provided at its extreme free end with a slight enlargement or projection which may be snapped into engagement with the valve stem 17.

The device may be readily installed on a tank such as the tank 1 illustrated in FIG. 1. Following the removal of the cover 6, the bracket 18 to which the can 15 has been attached is inserted into the tank as illustrated in FIG. 1 and the hook portion 26 of the bracket engaged with the top edge portion of the tank at the point along such edge where it is desired to have the actuating handle 37 positioned. Thus the device could be positioned either along the front wall 2 as illustrated or along either of the end walls, provided that the position selected did not interfere with the operation of the float 13 or any other part of the operating mechanism of the structure. The conduit 38 may then be inserted into the overflow pipe 9, the transversely extending end portion 41 positioned adjacent the discharge pipe 7 of the tank, following which the free end of the flexible portion 42 may be engaged with the valve stem 17, completing the installation. The cover is then replaced, preferably inserting a sufficient number of suitable spacer members 43 along the top edge of the tank 1 to compensate for the top portion 27 of the bracket 18, the actuating arm or member 31 and rivet 32, to insure a level seating of the cover 6 on the tank 1 and at the same time permit free movement of the lever 34.

In the actuating lever 31 is pivoted, by the application of pressure to the handle portion 37, in the direction of the arrow as illustrated in FIG. 2, thereby tilting the valve stem 17, to open the discharge valve and permit liquid to pass through the discharge opening 16 into the conduit 38 and be discharged from the lower end 41 thereof.

I have found that exceptionally good action is obtained by first actuating the flush valve and discharging and deodorizing and dissolving materials into the water stream substantially in the middle of the flush so that the water will carry such materials into and circulate the same around the toilet bowl.

It will be appreciated that a pressure container filled with suitable materials will provide an adequate supply over a relatively long period of time, only a small amount being required to achieve the desired result and upon exhausting the supply, a new container may be readily installed, merely by removing the cover and replacing the empty can with a new one.

While I have referred to deodorizing and dissolving materials, it will be appreciated that the composite materials employed may comprise deodorizing materials, disinfecting or antisepticizing materials, as well as bowel cleaning materials and the like, depending upon the particular requirements.

It will be noted that the entire installation may be readily accomplished without the use of any tools, or changes in the existing tank structure, etc., all of the various components of the device being merely applied to the existing tank structure and mechanism.

While I have illustrated the device as being manually actuated through its own actuating member, under certain circumstances it may be desirable to design the actuating lever 31 so that the bracket and container may be so positioned in the tank that actuation of the flush valve handle member will also engage the actuating member of the device to discharge a quantity of materials into the water line each time the flush valve is actuated. However, in most instances it is believed that it will be unnecessary to actuate the device every time the flush valve is actuated, and efficient results may be obtained with improved economy by the use of a manually actuated valve.

It will be noted from the above description that I have provided a very efficient yet simple device which is substantially entirely concealed in the flush tank, easily installed, and provided with a pressure container which may be readily replaced when exhausted.

Having thus described my invention, it will be obvious to those skilled in the art from the disclosure herein given that various immaterial changes may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, arrangement, construction and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a deodorant and antisepticizing device for toilet fixtures utilizing a flushing water reservoir having a discharge valve, an overflow tube and a cover member, the combination of a pressure container for the deodorant and antisepticizing material having a discharge opening and an actuating valve member, a supporting bracket for said container having an inverted hook portion constructed to detachably engage the upper edge of the reservoir and support said container thereon, a valve actuating arm pivotally carried by the hook of the hook portion of said bracket, said arm being constructed to extend between the upper edge of said bracket, said arm being constructed to extend between the upper edge of the reservoir and the cover therefore, the inner end of said arm terminating in a downwardly extending portion engageable with the valve member of said container, the outer end of said arm extending transversely to the main portion of the device, the opposite end of said conduit having a flexible portion detachably engageable with the discharge valve of said container for operatively connecting the conduit thereto, and spacing means constructed to engage the upper edge of the reservoir to space the cover from each upper edge of a distance substantially equal to the combined thickness of the material of said hook portion and said valve actuating arm.

2. In a deodorant and antisepticizing device for toilet fixtures utilizing a flushing water reservoir having a discharge valve, an overflow tube and a cover member, the combination of a pressure container for the deodorant and antisepticizing material having a discharge opening and an actuating valve member, a supporting bracket for said container having an inverted hook portion constructed to detachably engage the upper edge of the reservoir and support the container therein, a valve actuating arm pivotally carried by the hook portion of said bracket, said arm being constructed to extend between the upper edge of the reservoir and the cover therefor, the inner end of said arm terminating in a downwardly extending portion engageable with the valve member of said container, the outer end of said arm extending downwardly and outwardly and terminating in a manually engageable handle, a hollow fluid conduit having a relatively rigid section of a length to extend into said overflow tube with the free end of the conduit positioned adjacent the outlet of said overflow tube and extending transversely to the main portion of the device, the opposite end of said conduit having a flexible portion detachably engageable with the discharge valve of said container for operatively connecting the conduit thereto, and spacing means constructed to engage the upper edge of the reservoir to space the cover from each upper edge of a distance substantially equal to the combined thickness of the material of said hook portion and said valve actuating arm.

3. In a deodorant and antisepticizing device for toilet fixtures utilizing a flushing water reservoir having a discharge valve, an overflow tube and a cover member, the combination of a pressure container for the deodorant and antisepticizing material having a discharge opening and an actuating valve member, a supporting bracket for said container having an inverted hook portion constructed to detachably engage the upper edge of the reservoir and support the container therein, a valve actuating arm pivotally carried by the hook portion of said bracket, said arm being constructed to extend between the upper edge of the reservoir and the cover therefor, the inner end of said arm terminating in a downwardly extending portion engageable with the valve member of said container, the
outer end of said arm extending downwardly and outwardly and terminating in a manually engageable handle, a hollow fluid conduit detachably engageable with the discharge valve of said container and of a length to effect discharge of material therein into liquid in such a reservoir, and spacing means constructed to engage the cover member of such reservoir and sufficiently space such cover member from the adjacent upper edge of the reservoir to permit manual operation of said handle and actuating arm.