LIQUID ODORANT FEEDER ASSEMBLY

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

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This invention is directed to improvements in dispensing from sealed containers and especially concentrated odorant material for gas lines.

The concentrated odorant material is generally received in sealed containers and it is an object of the invention to provide controlled perforation of the sealed container and controlled dispensing of the odorant by apparatus that avoids any spillage and unwanted escape of the odorant material.

A further object of the invention is to provide for controlled venting of the sealed container wherein the pressure is neutralized as between the top of the sealed container and the gas line connection into which the material is being dispensed.

A further object of the invention is to provide an easily assembled and disassembled pair of end frames, an encircling protective open ended shell to receive the sealed container therein and seal it against leakage but yet provide for external readily operable perforating means at each end of the sealed container.

A still further object of the invention is to provide in such apparatus valve means for controlling the dispensing and sight glass means to observe the amount being dispensed.

Still further objects and the entire scope of applicability of the present invention will become apparent from the detailed description given hereafter. It should be understood, however, that the detailed description and specific example is given by way of illustration only and, while indicating a preferred embodiment of the invention, it is not given by way of limitation, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from the detailed description.

For a more complete understanding of the nature and scope of the invention reference is had to the following drawings, description and claims, in which:

FIG. 1 is a vertical side elevation partially in section of the dispensing apparatus with sealed container of concentrated odorant liquid installed;

FIG. 2 is a top plan view of the apparatus;

FIG. 3 is a bottom plan view of the dispensing apparatus;

FIG. 4 is an enlarged cross sectional view along line 4-4 of FIG. 3;

FIG. 5 is a side elevational view of the top perforator; and

FIG. 6 is an end view of the bottom of the top perforator.

Throughout the description like reference numbers refer to similar parts.

The apparatus is generally indicated at 10 and is designed to use therewith a sealed container 11, such as a tin can, which may be readily handled by hand and manipulated. A pair of end members 12 and 13 of generally the same configuration are applied with suitable peripheral gaskets 14 and 15, seating in grooves 14a in end member 12 and 15a in end member 13, to the ends of the container 11 and surrounding the container 11 in spaced relation is a suitable open ended steel sleeve or housing 16 which is sealed as at groove 18a in end 12 and groove 19a in end 13 through peripheral gaskets 18 and 19 applied to the respective grooves in ends 12 and 13. These gaskets here illustrated are of the O-ring type. End member 12 may be termed the top and end member 13 may be termed the bottom. These ends are formed with spaced apart ears 12e for top 12 and 13e for bottom 13 as shown in FIGS. 2 and 3. These ears 12e and 13e have apertures therethrough to receive threaded end tie rods 20 having a nut 20a threadedly received at one end and a thumb screw 20b suitably received on the other end. These provide for quick assembly and disassembly.

Each of the end members is formed with stepped reduced portions such that the bottom end 12b and 12a on the top so as to receive in suitable grooves the gaskets 15 and 19 on the bottom and 14 and 18 on the top.

The bottom end 13 is formed with an internally threaded depending collar 21 on the lower part. In the top part of the bottom end 13 is recess portion 22. A coupling member 39 having a sight glass therein is used to attach the apparatus to an upstanding branch of a gas line to be odorized. Extending through the bottom end is a nozzle generally indicated 23, see FIG. 4, which has an orifice 23a therein and is threadedly received at 23b within a threaded recess 24 extending into the bottom member 13. This nozzle 23 has a side opening 23c therein which communicates with a needle valve aperture 25 extending horizontally out to the periphery of the bottom member 13 and connecting with this is a vertically extending passage 26 which communicates with the recess portion 22 in the top portion of the bottom end 13. A suitable needle valve 25b is received within the aperture 25 and it screws into the threads 25a therein and has an O-ring seals 25c.

In order to control the dispensing from the sealed container 11 there is further provided a bottom perforator generally indicated at 27 which is provided with a frustoconical matching recess portion 13c in bottom member 13. This perforator 27 has a cylindrical stem 27b, an O-ring seal 27c, a compression spring 27d and a securing pin 27d' extending transversely through the stem to hold in the spring. The perforator 27 has a projecting pointed punch 27e which in operating position just clears the bottom of the container 11. In order to perforate the container the perforator 27 is struck a blow and the punch 27e pierces the bottom of the container 11 so that odorant therein seeps out through the perforation after the punch has returned to its normal position under influence of the spring 27d. The odorant then passes through the space at the top of the container 11 and the adjacent top surface of the bottom member 13 and reaches the cavity 22. From the cavity 22 it flows through passage 26 into chamber 25 and under the control of the needle valve 25b onto the orifice member 23. A sight glass 30 in a form of a nipple coupling is threadedly received within the depending portion 21. This sight glass member 30 has a transparent liner 31 therein secured by pressing and cementing with annular grooves 31a adjacent each end. The sleeve 30 has oppositely positioned apertures 30a and 30b' therein in communication with the plastic internal sleeve so that any dispersed odorant can be observed as it drops down from the orifice opening 23a in the orifice member 23 thereabove.

The upper end or top 12 is provided with a top perforator member 32 which is of like construction to per-
3. A device for dispensing odorant fluid from a sealed container into a gas line system comprising in combination for use with such a sealed container, a bottom end member and top portion thereof, said bottom end member to lie adjacent the periphery of each end of said sealed container sealing said bottom end member to the sealed container, an open ended protective housing extending between said top and bottom end members and lying outside of said means for equalization of pressure or rate of venting is obtained by operation of the top perforator 32 and manipulation of the perforator 32 to position 32a with respect to the drilling 32c.

When it is desired to replace the container or can 11 with a new can it is merely necessary to unscrew the apparatus at 21 and to remove the whole assembly. Then by setting this on a suitable frame the thumb nuts 20b are removed, the top 12 taken off, empty can 11 is replaced and a new can is replaced. The gaskets can be easily checked by inspection and then the top 12b is replace and the thumb nuts 20b are reinstalled. The apparatus is then placed into place on a sight glass coupling 30 and then the bottom perforator 27 is actuated. However, it may be desirable to assemble the apparatus, invert same on the outlet 33, then manipulate the perforator 27 followed by capsing and attaching the collar 21 to the sight glass nipple 30.

2. A device for dispensing odorant fluid from a sealed container according to claim 1 wherein a control valve and passage means is positioned in said bottom end member for cooperation with said orifice to control the amount of odorant fluid passing through said orifice.

3. A device for dispensing odorant fluid from an initially sealed container into a gas line system comprising in combination for use with such a sealed container, a torque member 32a therein which extends for about 180° about the tapered portion. A suitable handle 32b controls the positioning in rotation.

This groove 32a in the top perforator 32 is for use with a pressure neutralizing tube generally indicated at 33. This tube extends adjacent to container 11 within the encircling protective container 16 and is received within an aperture 34 in the lower member 13. A suitable cross passageway 35 extends radially in lower member 13 from aperture 34 on into the interior upper portion of collar 21 so as to vent or equalize the pressure between the branch line and the top vented portion of the can 11, as will be explained.

The upper end of the tube 33 terminates at 33a in spaced relation below the bottom of the top member 12 which has a vertical recess 36 therein connecting with a radially extending passageway 37 in top member 12 to communicate with the arcuate portion 32a of the top perforator 32. The arcuate portion 32a of the top perforator is in communication with a vertical passageway 32c in the perforator that terminates adjacent the top of the container 11. As soon as the perforator 32 is struck a blow or punch 32b into the interior upper portion of the can to form a hole therethrough, then the pressure within the top of can 11 is communicated therewith through the vertical drilling 32c in the perforator 32, arcuate passage 32a, passage 35 and passages 37, 36, 33, 34, 35 and into the interior of collar 21.

In operation, the bottom perforator 27 may be used and a certain amount of flow will occur under the control of the needle valve 25b. For further control, venting or equalization of pressure or rate of venting is obtained by operation of the top perforator 32 and manipulation of the perforator 32 to position 32a with respect to the drilling 32c.

When it is desired to replace the container or can 11 with a new can it is merely necessary to unscrew the apparatus at 21 and to remove the whole assembly. Then by setting this on a suitable frame the thumb nuts 20b are removed, the top 12 taken off, empty can 11 is replaced and a new can is replaced. The gaskets can be easily checked by inspection and then the top 12 is replaced and the thumb nuts 20b are reinstalled. The apparatus is then placed into place on a sight glass coupling 30 and then the bottom perforator 27 is actuated. However, it may be desirable to assemble the apparatus, invert same on the outlet 33, then manipulate the perforator 27 followed by capsing and attaching the collar 21 to the sight glass nipple 30.

Through this apparatus an easily installed odorant can of the sealed type is replaceable and at all times the fluid therefrom is controlled and no escape is permitted. The cylindrical steel container 16 provides a further feature to prevent the escape of material from the can 11.

What is claimed is:

1. A device for dispensing odorant fluid from a sealed container into a gas line system comprising in combination for use with such a sealed container, bottom and top end members and lying outside of said means for equalization of pressure or rate of venting is obtained by operation of the top perforator 32 and manipulation of the perforator 32 to position 32a with respect to the drilling 32c.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,193,147

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July 6, 1965

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 69, after "said", second occurrence, insert -- end --; column 4, line 23, after "said", first occurrence, strike out "top perforation made by said".

Signed and sealed this 21st day of December 1965.

(SEAL)

Attest:

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