May 2, 1939. P. H. RICHERT 2,156,869

APPARATUS FOR DISPENSING METHYL BROMIDE

Filed Dec. 17, 1937

FIG. 2

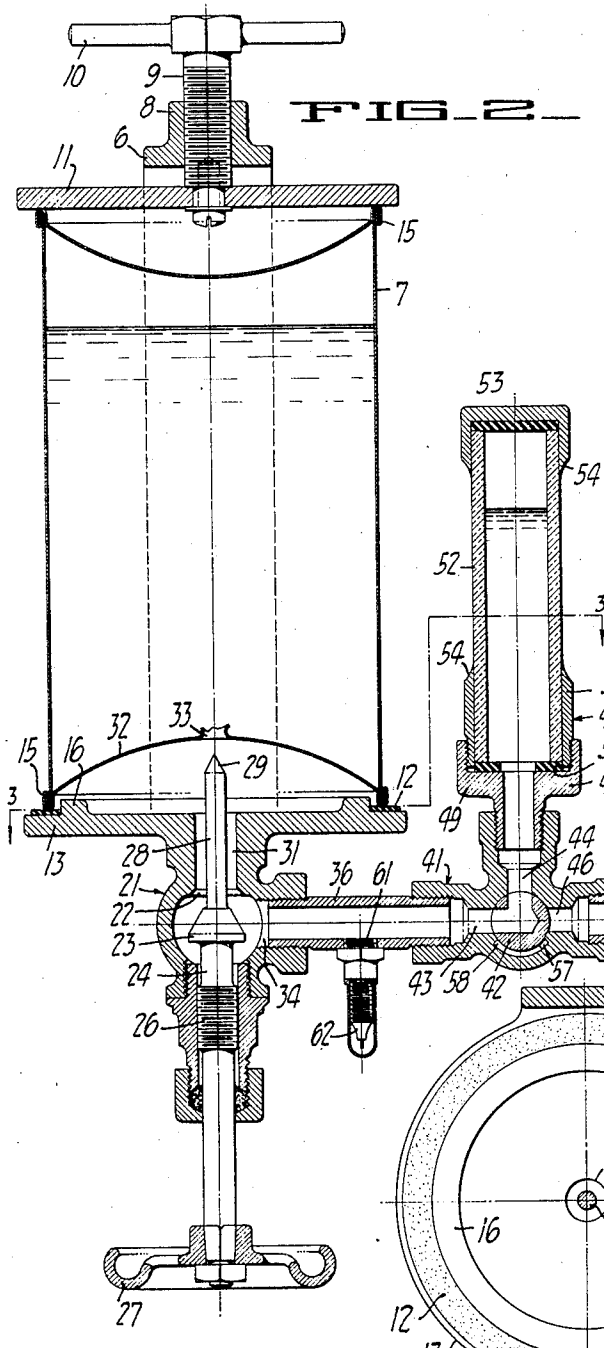



FIG. 1

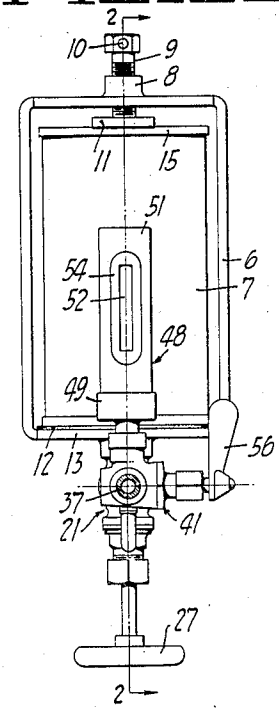
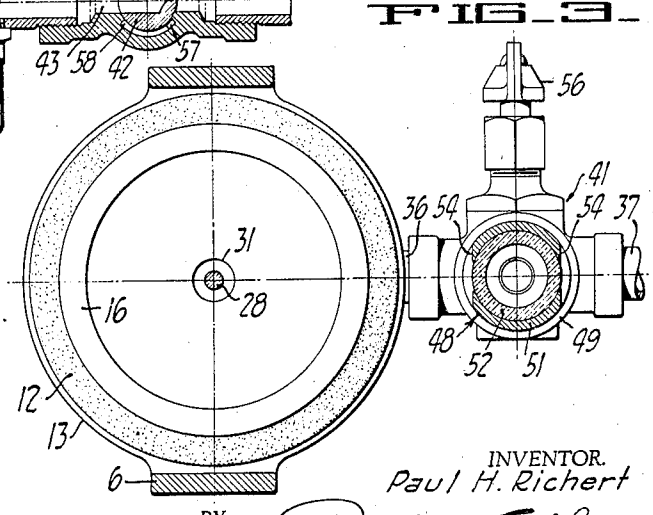



FIG. 3




INVENTOR.
Paul H. Richert

BY Robert H. Eckhoff

ATTORNEY.

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## APPARATUS FOR DISPENSING METHYL BROMIDE

Paul H. Richert, Fresno, Calif., assignor, by mesne assignments, to The Dow Chemical Company, Midland, Mich., a corporation of Michigan

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2 Claims. (Cl. 221—23)

This invention relates to a dispenser for a volatile fluid as methyl bromide. This material has recently come in to use as a fumigant. At ordinary temperatures it only exists in a liquid state if kept under pressure, because its boiling point is 4.5° C.

Methyl bromide is quite potent as a fumigant and rodenticide, and it is in general the object of the present invention to provide a novel dispensing apparatus therefore.

Methyl bromide is usually made from methyl alcohol and bromine. Comparatively, it is an expensive material, selling for a price in the neighborhood of $1.00 per pound. Another object of the present invention is to provide a novel apparatus permitting accurate dosages of the material to be dispensed, simply and with ease, so that the cost of application be low.

Another object of the present invention is to provide a dispensing apparatus for methyl bromide wherein the vapor pressure of the methyl bromide is utilized in the dispensing.

The invention includes other objects and features of advantage, some of which, together with the foregoing, will appear hereinafter wherein the present preferred form of apparatus of this invention is disclosed.

In the drawing accompanying and forming a part hereof, Figure 1 is a side elevational view illustrating the apparatus of the present invention.

Figure 2 is a view taken along the line 2—2 of Figure 1 illustrating construction of the device.

Figure 3 is a section taken on line 3—3 of Figure 2.

In accordance with this invention I provide a suitable frame 6 within which is positioned a container 7 for the fluid to be dispensed, methyl bromide. The frame 6 includes a boss 8 into which is threaded a screw-threaded member 9 having a handle 10. Plate 11 extends across the bottom of the container 7. This plate is carried by member 9. Upon rotation of handle 10 plate 11 forces the container against washer 12 on plate 13 at the opposite end of the frame.

Container 7 is conveniently in the form of a can made of tinned sheet iron, the can rims 15 at the ends of the can engaging plate 11 and washer 12. Washer 12 is made of Duprene or other material suitable to the fluid to be dispensed. This washer is supported by plate 13 about centering ring 16 which fits within the cooperating rim 15 of container 7.

In accordance with this invention means are provided for releasing the contents of the receptacle 7 in such a manner that the volatile fluid contained therein under a high pressure is controlled. To this end a valve body 21 is mounted upon plate 13. This body includes a valve seat 22 cooperating with a valve member 23, on valve stem 24. The valve body cooperates with threaded portion 26 in the valve stem so that the valve member 23 can be moved toward and away from seat 22 when the valve stem is turned by means of handle 27. The valve stem 24 includes a projection 28 having a conical end 29 thereon, the projection 28 extending through inlet 31 to the valve body in plate 13.

The length of projection 28 is so determined that when valve seat 22 is engaged by valve member 23 point 29 will pierce end closure 32 of container 7, making a small aperture 33 therein, and releasing the contents of the can, which are under pressure, into the inlet 31 of the valve body. The valve body includes an outlet 34 connected to a conduit 36 which normally extends to an atmospheric release indicated in Figure 2 by the broken end of the pipe 37.

If the contents of the can are released merely by moving valve member 23 toward and away from valve seat 22, the total emission of methyl bromide from the container cannot be quickly and simply determined and overdosing as well as underdosing may result. To facilitate measurement I provide a two-way valve indicated at 41. This valve includes a valve plug 42 suitably apertured to connect inlet passage 43 in the valve body with passage 44 or to connect passage 44 with outlet passage 46 which in turn connects to the outlet 37 of conduit 36. Mounted upon the valve body and in communication with passage 44 is a measuring vessel generally indicated at 48. This vessel includes a base 49 screwed into the valve body. A metal guard 51 is also mounted upon the base 49 and within this guard is positioned a glass tube 52. This glass tube is sealed at each end of the guard by Duprene washers 53 to make a fluid-tight connection. The guard is relieved as at 54 so that an operator can observe the presence of fluid in the glass tube.

In operation, an operator turns handle 27, assuming an unopened container to be in position in the frame 6, whereby the end is punctured and the methyl bromide is released into the inlet 31. Upon raising valve member 23 away from seat 22 the methyl bromide is forced by its vapor pressure into conduit 36 and into inlet conduit 43 in the valve body 41. If the two-way valve plug 42 is turned by its handle 56 to that position in

which it appears in Figure 2, then the methyl bromide flows into the measuring chamber. Movement of the valve plug between its two positions is limited by pin 57 which travels in groove 58 in the valve body. When the measuring chamber is filled with methyl bromide, movement of the valve plug in a clockwise direction in Figure 2, whereby passages 44 and 46 are connected, releases the charge of methyl bromide in the measuring vessel through outlet 37. Upon exhausting the measuring vessel, atmospheric pressure is admitted into vessel 52 so that this provides a low pressure source in the apparatus, permitting subsequent filling because of the methyl bromide in container 7 being usually at a pressure in excess of atmospheric. This operation permits of a relatively satisfactory and accurate dosage of methyl bromide to be dispensed readily, an operator merely having to operate the valve plug by its handle 56. The measuring chamber shown can be replaced by another of a different size.

While ordinarily atmospheric temperature is sufficient to create enough vapor pressure of methyl bromide in container 7 to cause emission of the methyl bromide therefrom, in some instances, particularly when working in low temperature regions, or in ice houses, for example, the methyl bromide will be close to its boiling point and will not vaporize to an extent sufficient to create a high pressure. Under these circumstances it may be desirable to place the methyl bromide under pressure, and to this end I provide an inlet 61 having an air valve 62 so that by attaching a suitable pump, extra gas pressure can be provided.

I claim:

1. A dispensing device of the character described comprising a closed frame having an aperture therein to admit and receive a container, means at one end of said frame for engaging said container and forcing said container toward the opposite end of said frame, a gasket between said container and said opposite end, a valve carried by said opposite end and including a valve seat, and a valve stem carrying an end projecting beyond said seat and puncturing a container to form its own aperture in said cointainer when said container is positioned in said frame and when said valve is on its seat, said stem moving out of said container upon opening of said valve and moving into said aperture in said container upon closing of said valve.

2. A dispensing device of the character described, a plate, a gasket on said plate, said gasket having an aperture therein, means for retaining a container against said gasket in a sealing engagement with said gasket, a valve body carried by said plate and including a valve seat, and a valve stem carrying an end projecting beyond said seat and passed through said apertured gasket to puncture a container to form its own aperture in said container when said container is retained against said gasket and when said valve is on its seat, said stem moving out of said container upon opening of said valve and moving into said aperture in said container upon closing of said valve.

PAUL H. RICHERT.