

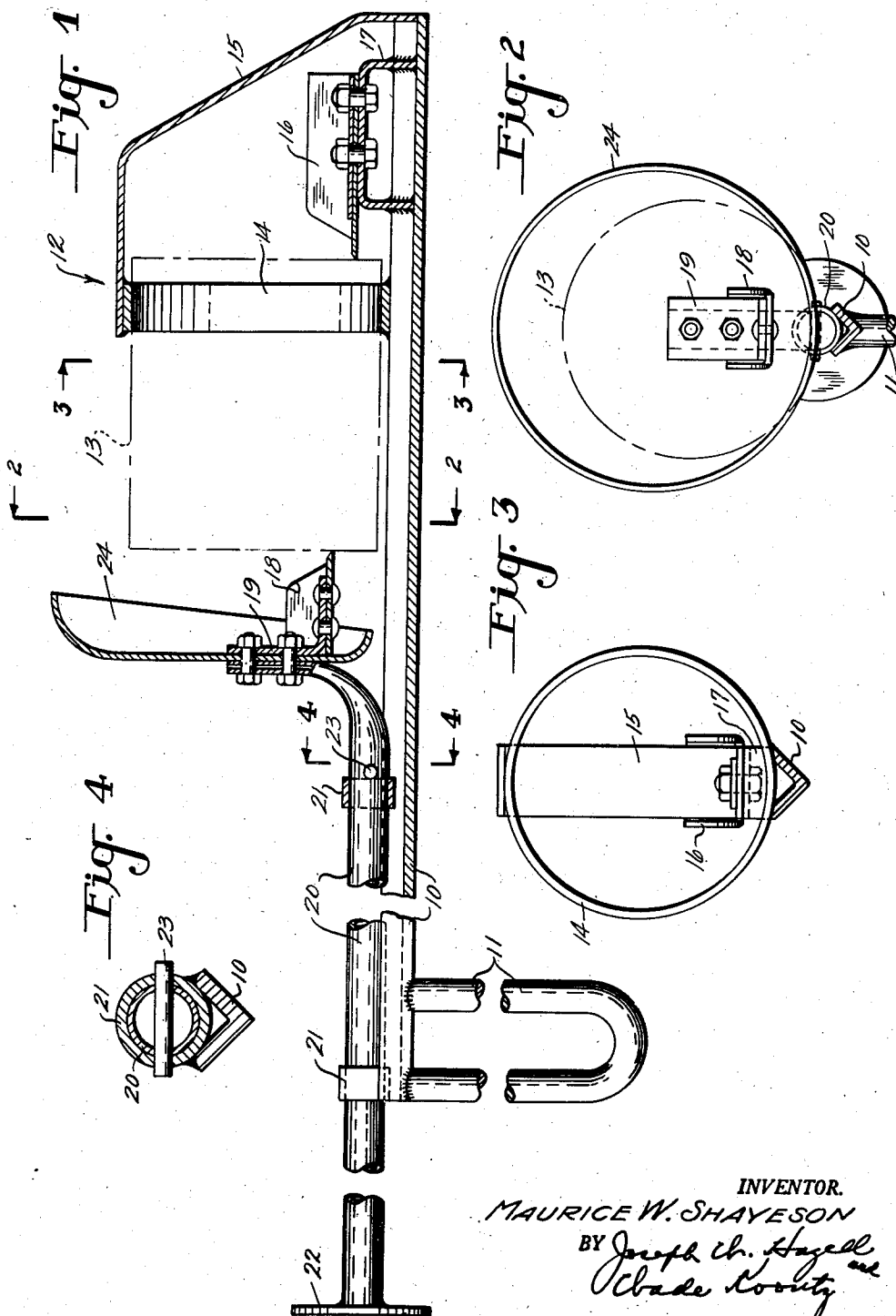
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HOLDER AND OPENER FOR CONTAINERS OF ADDITIVE LIQUID

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## UNITED STATES PATENT OFFICE

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HOLDER AND OPENER FOR CONTAINERS OF  
ADDITIVE LIQUID

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to a novel device for holding and opening a container of hazardous liquid to be added to liquid in a tank and the like.

One of the main objects of this invention is to provide a holder and opener for a container of hazardous material, such as ethylene dibromide, by which holder the container can be introduced through the liquid-supply opening of the tank, and the container can then be opened while immersed in the liquid in the tank, so as to avoid splashing liquid by the act of emptying the container and prevent injuring the hands of the operator.

A further object of this invention is to provide such an opener of liquid containers which includes relatively long-handle means arranged to permit emptying the container in the tank, and also having shield means over the cutters to prevent upward splashing of the hazardous liquid, whereby to forestall any possibility of skin contact or causing of vapors by the opening and liquid-discharging operation.

Another object of this invention is to provide a device whereby to support and open the container at a substantial distance from the hands, and thus permit emptying and washing the container by submerging and raising it in the liquid without further touching or handling the container.

Another object of this invention is to provide such a holder and opener of containers which will make both the discharge and the vent openings of a substantial size in the container of hazardous material, so as to quickly empty the container and also render it useless for any further use, and thus reduce the possibility of poisoning from its contents.

These and various other objects and advantages are attained with this invention as will become apparent from the following description taken in connection with the accompanying drawing wherein this invention is shown in its preferred form, it being evident that other arrangements and forms of construction may be resorted to for carrying out the objects and purposes of this invention.

In the drawing:

Fig. 1 is a sectional view, partly broken away, showing this invention in its preferred form of construction.

Figs. 2 and 3 are cross-sectional views, taken on lines 2—2 and 3—3 of Fig. 1, respectively.

Fig. 4 is an enlarged cross-sectional view, taken on line 4—4 of Fig. 1.

The drawing illustrates an improved container holding and opening device which presents my invention in its preferred form of construction. This device comprises a relatively long supporting member 10 which is provided with means 11 at its upper end whereby to support the device; and said member 10 is shown in the form of an anglebar, while the means 11 thereon is shown in the form of a hand-grip or loop readily grasped by the hand. The member 10 has means 12 mounted at its lower end for holding a container 13 therein, and this means is conveniently provided in the form of a cage including a band 14 secured to the lower part of member 10 and adapted to embrace the container 13, and a strap 15 which has its ends secured to the lower end of member 10 and to the outer part of the band 14 to brace the band.

The means provided for piercing the container and forming discharge and vent openings therein comprises a cutter 16 secured by a bracket 17 to the lower part of member 10, and a cutter 18 mounted by a bracket 19 on an operating member 20. Said cutters are of substantial size so as to cut relatively large discharge and vent openings in the bottom and in the top of the container.

The operating member 20 is in the shape of a rod and is mounted in brackets 21 on the supporting member 10, so as to be slidably movable on said member, and it has a head or plate 22 on its upper end for manually operating it and forcing the cutters 16 and 18 into the container to cut the discharge and the vent holes therein. A stop pin 23 on rod 20 limits its upward movement on the supporting member 10.

A cap or shield 24 is mounted on the lower part of the operating member 20, being positioned over the cutters and over a container held therebetween to guard against splashing of the liquid or of its coming in contact with the hands. This arrangement minimizes the danger of injurious contact of the additive hazardous liquid with the skin or inhalation of dangerous vapors during emptying of the container, and this shield is especially protective if the container is accidentally opened before it is immersed in the liquid in the tank.

By the use of these large cutters, large openings are produced in the container, thereby permitting rapid emptying thereof and also permitting washing of the container by submerging and rais-

ing it several times before withdrawing; and this will also render the container useless for any further purposes, and will thus reduce the possibility of poisoning from the contents thereof.

I claim:

1. A device comprising relatively long supporting means having means at the lower end adapted to carry a container of liquid, means for piercing both discharge and vent openings in the container, and means manually operable at the upper end of said supporting means for actuating said piercing means, whereby to provide for immersing and opening the container within the liquid in a tank and add the contents of the container thereto while held at a substantial distance from the hands of the operator.

2. A device comprising relatively long supporting means having means at its lower end for carrying a sealed container of liquid and having means at its upper end whereby to hold the device, means for piercing a discharge opening at the bottom part and a vent opening at the top part of the container, and means associated with said supporting means and being operable by hand adjacent said upper holding means, whereby to open the container while holding it immersed under the liquid in a tank and prevent the liquid splashing or touching the hands.

3. A container holding and opening device comprising a relatively long supporting member having at its lower end means for holding a container and also means for cutting a discharge opening in the container, means at the upper end of said member whereby to support the device, manually operated means associated with said member and having means thereon for cutting a vent opening in the container, and shield means over the cutting means, so that the container can be inserted through the intake port of a tank and opened while immersed in the liquid therein and obviate splashing the liquid and injuring the hands or vapors arising by the opening operation.

4. A device for holding and opening a container of hazardous liquid, said device comprising a supporting bar having a handle at the upper end and having means at the lower end for holding the container and also means for cutting an

opening in the bottom thereof, an operating rod movable longitudinally of said bar and having means at its lower end for cutting a vent in the top part of the container, and handle means at the top of said rod for actuating it, whereby the container can be held and opened while immersed in the hazardous liquid and prevent the latter from splashing or contacting the hands of the operator.

5. A device for holding and opening a sealed container of hazardous liquid, said device comprising a relatively long handle bar having a hand-grip at the upper end and a container-holding cage and a cutter at the lower end, a rod slidably mounted on the bar and having cutting means at its lower end to cut a vent at the top of the container, a shield mounted above said top cutting means to prevent splashing and vapors arising from the container to the operator, and handle means on the top part of the rod to actuate it manually, whereby the container can be entered in a tank and opened while immersed under the liquid therein.

6. The subject matter set forth in claim 5, wherein both the cutting means are of substantial size to cut relatively large openings in the top and in the bottom of the container, to avoid re-use of the container, and the bar and the rod are relatively long, arranged to enable rapid emptying and also washing the container by submerging and raising it in the liquid.

7. A device for holding and cutting holes in a can of liquid, said device comprising a bar having a handle at its upper end and having adjacent its lower end a cage to hold the can and also a cutter positioned to have the bottom of the can rest thereon, an operating rod mounted on said bar to be movable longitudinally thereon and having a handle at its upper end, and a cutter at the lower end of said rod to cut a hole in the top of the can, so that by operation of said two handles, one can force the top cutter down to cut a hole in the top of the can and then move the can downwardly in the cage and thereby force the can onto the bottom cutter to cut a hole in the bottom of the can.

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