April 10, 1945. W. B. JOHNSON 2,373,118

CONTAINER VENT

Filed Sept. 30, 1941

Fig. 1

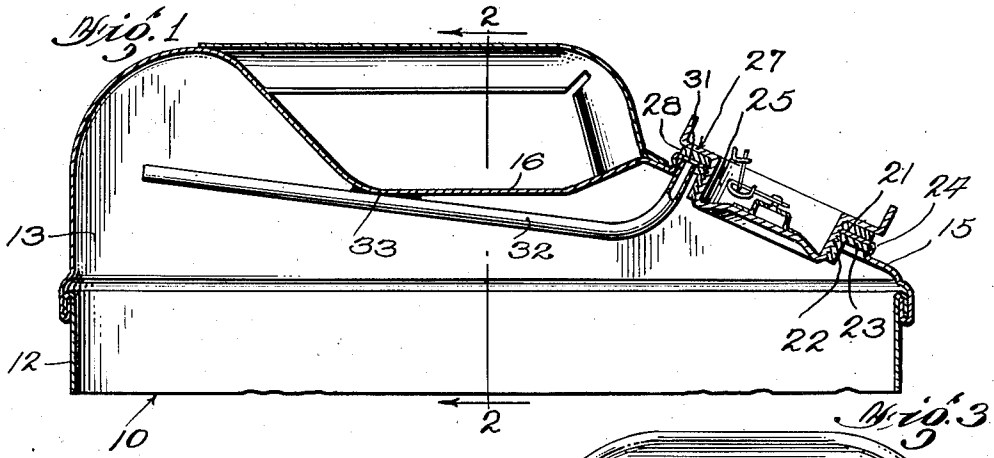


Fig. 3

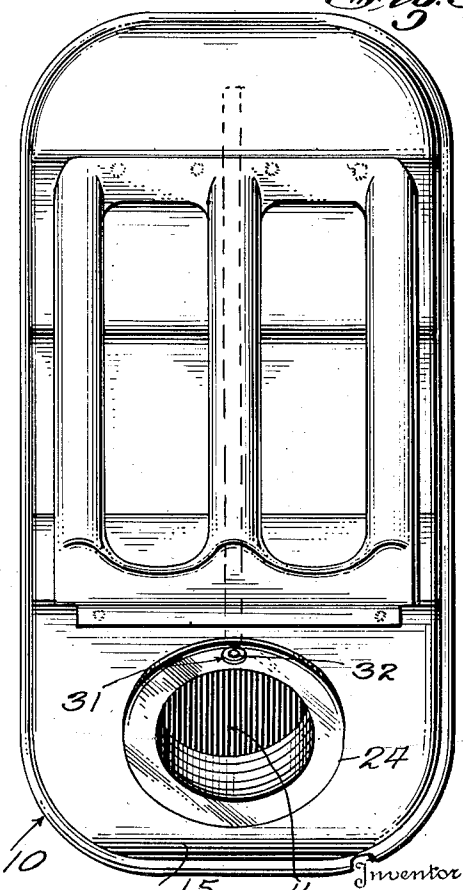
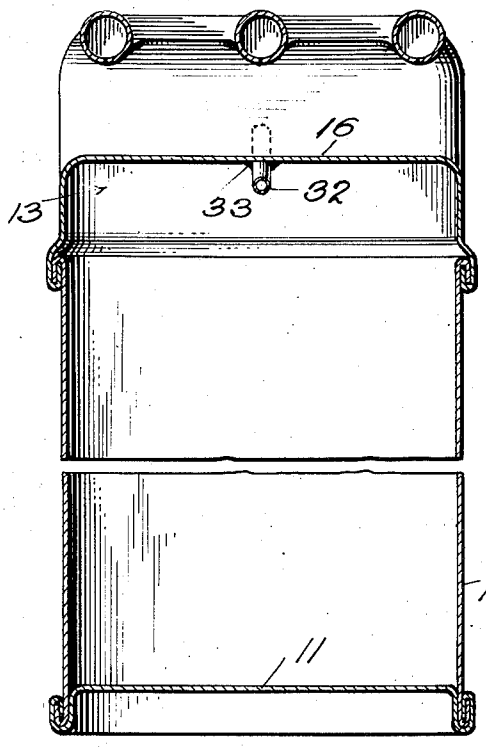


Fig. 2



Inventor

William B. Johnson

By

Attorney

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UNITED STATES PATENT OFFICE

2,373,118

CONTAINER VENT

William B. Johnson, United States Army

Application September 30, 1941, Serial No. 412,972

2 Claims. (Cl. 220—86)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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

The present invention relates to a vented sheet metal container for liquids, and more particularly to the specific type of vent described herein and disclosed in the drawing.

In the prior art it has been quite common practice to provide liquid containers with different types of vents in order that the liquid being poured from the container may flow out in a smooth stream, uninterrupted by bubbles of air entering the container, but so far as is known to this applicant these devices, as used in the prior art, have been objectionable in that they have ordinarily either obstructed the pouring opening, required special sealing means for the vent, or have been so constructed as to leave the vent open at all times. Of these, the former have been inconvenient to use, and the latter, in the case of inflammable liquids, results in a dangerous condition if the containers are stored or handled in proximity to open flame.

These difficulties and deficiencies of the prior art structures are overcome in the present invention by providing a container with a screw threaded pouring opening adapted to be sealed by a closure plug having an external flange and arranging the vent in such a manner that it is entirely outside of and independent of the pouring opening, but is closely adjacent so that the vent port is sealed by the flange of the closure plug at the same time that the flange or plug seals the pouring opening.

With reference now more particularly to the drawing,

Fig. 1 is a fragmental sectional view of a sheet metal liquid container taken substantially on the central plane of the container and showing a present preferred embodiment of the filling opening and associated vent constructed in accordance with the teachings of this disclosure.

Fig. 2 is a detail sectional view of the container taken substantially on the plane of the line 2—2 in Fig. 1.

Fig. 3 is a plan view of the container top.

The container 10 may be of any typical construction but, as shown in the drawing, it comprises a generally rectangular container, including a bottom 11 and side walls 12 covered with a top section 13. The top section 13 is of irregular configuration by which certain important advantages are accomplished, but inasmuch as the detailed configuration of the top forms no essential part of the present invention and such features are fully described and claimed in my copending application, Serial No. 412,975, filed September 30, 1941, the configuration of the top will not be further described in this application except to point out that the pouring opening is located on an inclined portion 15 of the top structure so that the pouring opening will be slightly below the upper surface 16 of the container top. The pouring opening 21 is surrounded by an annular raised portion or embossment constituting a flat sealing surface 20 and is reinforced by a threaded sleeve 22 having a flange 23 locked to the metal of the container top 13 by an annular crimp 24. This pouring opening 21 is arranged to be sealed by a closure plug 25 having a screw threaded portion 26, arranged to be threaded into the sleeve 22 and including a sealing flange 27 provided with a gasket 28 surrounding the pouring opening 21 to seal the opening.

It has been found that a very satisfactory type of vent may be provided for this structure by drilling a vent port 31 in the sealing surface 20 and interconnecting the vent port with a remote portion of the container by a small vent tube 32. The vent port 31 in the sealing surface is closely adjacent the pouring opening 21, but independent of it. The vent tube 32 is arranged to extend across the top of the container and upwardly to a point remote from the filling opening 21 and above the opening 21. The tube 32 may be secured in position in any convenient manner as, for example, by the spot-weld 33.

In operation, it will be apparent that when the closure plug 25 is removed from the pouring opening 21, the gasket 28 will be carried with the closure plug and lifted from the sealing surface 20 and thus, as the container is opened, the port 31 is also opened to the atmosphere. Similarly, when the plug is replaced, the port 31 will be sealed simultaneously with the sealing of the opening 21. With this construction it is possible to pour the liquid contents rapidly from the container in a smooth, uninterrupted stream, since the entire area of the pouring opening 21 may be used to discharge the liquid and adequate air will be admitted through the vent port 31 and tube 32. Inasmuch as the vent is entirely independent of the pouring opening, there will be no opportunity for objectionable bubbling in the liquid which might otherwise occur and cause an uneven liquid flow.

Having thus described my invention, what I

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

1. A closed metal container for liquids, including a top section having a lower wall portion and an upper wall portion, the lower wall portion provided with a filler opening, an embossment surrounding the opening and forming a gasket seat, a closure plug for the filler opening, said opening having a diameter corresponding to that of the closure, a flange on the plug adapted to cooperate with the gasket seat, a gasket interposed between the closure flange and gasket seat and normally carried by the closure, said gasket seat provided with a vent port adapted to be closed by the closure flange and gasket, a vent tube mounted in the container, one end of said tube extending into the embossment and in communication with the vent port, and the other end of the tube terminating in a horizontal plane above the upper edge of the filler opening.

2. A closed metal container for liquids, including a top section having a lower wall portion and an upper wall portion, the lower wall portion provided with a filler opening, an embossment surrounding the opening and forming a gasket seat, a sleeve mounted on the interior of the embossment, a flange on the sleeve engaging and reinforcing said gasket seat, a closure plug for the filler opening, said opening having a diameter corresponding to that of the closure, a flange on said plug adapted to cooperate with the gasket seat, a gasket interposed between the closure flange and gasket seat, said gasket seat and reinforcing flange provided with a vent port adapted to be sealed by the closure flange and gasket, a vent tube mounted in the container, one end of said tube extending into the interior of the embossment and in communication with the vent port, and the other end of the tube terminating in a horizontal plane above the upper edge of the filler opening.

WILLIAM B. JOHNSON.