Aug. 14, 1928. 1,680,815

G. P. SORENSEN

AIR VENT AND PRESSURE FITTING FOR LIQUID CONTAINERS

Filed Oct. 29, 1923

Fig 1.

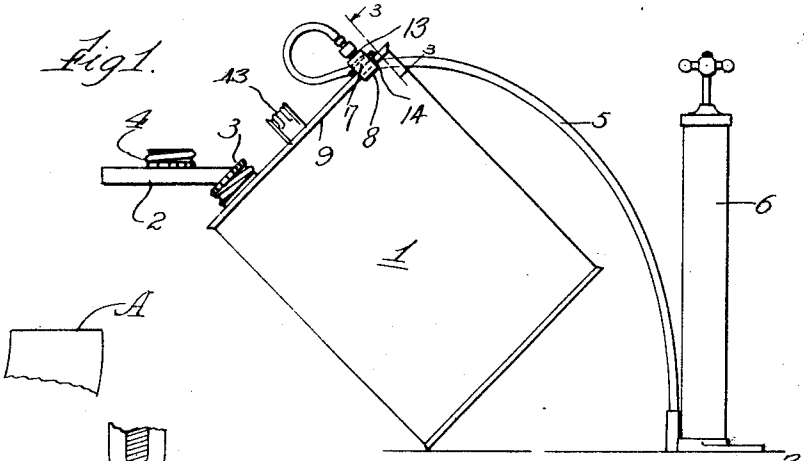


Fig 2

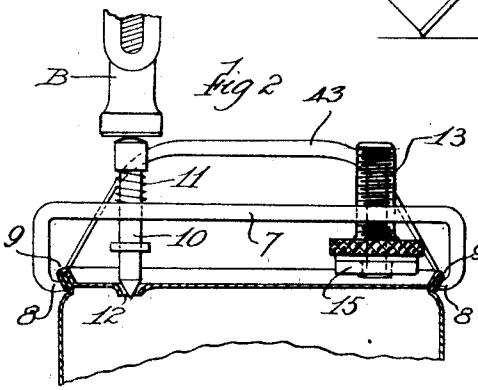


Fig. 3.

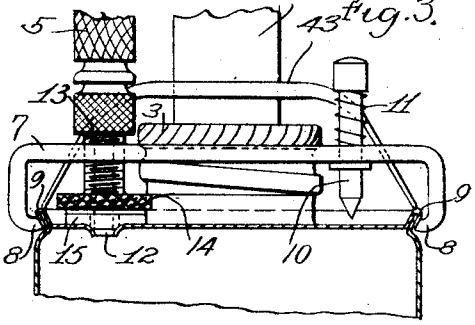


Fig 4.

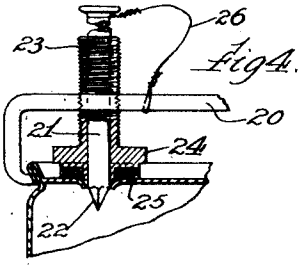


Fig 5.

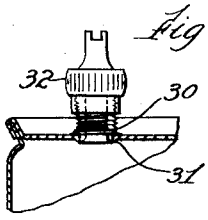
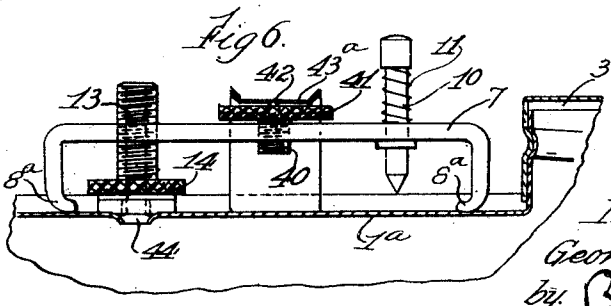


Fig 6.



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UNITED STATES PATENT OFFICE.

GEORGE P. SORENSEN, OF CHICAGO, ILLINOIS.

AIR VENT AND PRESSURE FITTING FOR LIQUID CONTAINERS.

Application filed October 29, 1923. Serial No. 671,331.

The purpose of this invention is to provide an improvement in portable containers carrying thick or viscous liquids such as heavy oil, the improved construction being designed to facilitate pouring the contents from the receptacle. It consists of certain features and elements in combination with the receptacle as herein shown and described and as indicated by the claims.

In the drawings:—

Figure 1 is a side elevation of the receptacle fitted with an air vent and attached to an air pump to facilitate the emptying of the receptacle in accordance with this invention.

Figure 2 is a transverse detail section of the receptacle showing in elevation a yoke fitting carrying a punch and a vent nipple.

Figure 3 is a transverse detail section taken substantially on line 3—3 on Figure 1, showing the yoke and nipple in position ready for use after the vent has been made in the top of the container.

Figure 4 is a detail section showing a modified arrangement of the punch.

Figure 5 is a detail section showing a permanently applied vent nipple.

Figure 6 is a detail section showing the application of the yoke device to the receptacle by clamping it against the handle.

The receptacle, 1, shown in the drawings may be understood as the usual type of tin can used for marketing various liquids such as oil, syrup, molasses, paint and the like and the present invention is particularly adapted for use where the material is quite viscous or so thick that it will not readily permit air to bubble through it,—transmission oil for automobiles being of this nature. In such cases when a single discharge outlet is provided in the top of the can, 1, it is found difficult to pour the contents because it tends to clog the outlet and prevent the entrance of air which would relieve the partial vacuum otherwise formed when the can is tipped for pouring. My invention therefore provides a second opening in the top wall in the nature of an air vent laterally removed from the discharge opening by some distance so as to give access to the atmosphere above the level of the liquid in the can when the latter is tilted for pouring. A handle or bail, 43, is secured to the top wall of the receptacle in a usual manner. Figure 1 shows a combination spout and closure cap comprising a spout tube, 2, extending from a threaded base, 3, to fit the flanged discharge opening and carrying a closure cap, 4, to replace the fitting, 3, when the spout is not in use. I find it convenient not only to provide an air vent but to actually force air into the container, 1, as through a flexible hose, 5, extending from a portable air pump, 6, shown in Figure 1.

For fitting up an ordinary commercial can with my improvement I provide a metal yoke, 7, having downwardly extending and inturned end portions, 8, formed to hook under the slightly flared rim flange, 9, of the can as shown in Figure 2 for holding the yoke in place on the can. Some types of cans have a relatively large top area which necessitates the holding of the yoke on the top of the can in a slightly different manner, as illustrated in Figure 6, and which will be hereinafter described. In the yoke a punch, 10, is guided for movement toward the top wall of the can and is provided with a retracting spring, 11, disposed between its head and the yoke, 7, so that by use of a hammer as at B the punch may be driven through the top wall forming an aperture, 12, and will be withdrawn immediately by its spring, 11. Near the other end of the yoke, 7, in a threaded aperture therein, I provide a threaded nipple, 13, whose axis is at the same distance from the mid-point of the yoke as that of the punch, 10. Thus by reversing the yoke end for end as shown in Figure 3 I bring the nipple, 13, into registration with the opening, 12, and by grasping its enlarged portion or head, 14, I can adjust the nipple toward the top of the can. By interposing one or more packing washers, 15, between the head, 14, and the top wall, I am thus able to form a substantially air-tight joint with the receptacle. When the can is not in use the nipple, 13, may be closed with an ordinary screw cap such as that shown in Figure 5 at 32.

With the device applied as shown at Figure 3 the pouring of the liquid is greatly facilitated by connecting to the threaded nipple, 13, an ordinary tire pump, 6, and introducing a small amount of air not necessarily under any considerable pressure but in ample quantity to assist the flow of the heavy liquid from the spout, 2, into the filler opening at A or wherever directed.

Figure 4 shows a slight modification of the invention in which I dispense with the permanently guided punch member, 10, and

provide simply a nail, 21, whose point, 22, serves to perforate the top wall of the can and for which the bore of the nipple, 23, serves as an adequate guide. A packing washer, 25, corresponding to the washer, 15, is shown clamped between the head, 24, of the nipple, 23, and the top wall of the can, this adjustment being tightened if the punching operation should stretch the wall of the can slightly away from the yoke bar, 20. Preferably in marketing the device the nail is attached loosely to the bar, 20, by means of a wire, 26, but after the perforating operation the nail may be thrown away.

In Figure 5 I have illustrated a permanently attached nipple, 30, preferably soldered at 31 in the top wall of the can and provided with a closure cap 32, this being the preferred form of vent fitting when the vent is applied in the process of manufacturing the can itself.

Figure 6 shows a method of attaching a vent nipple, 13, to a can, 1^a, having a bail or handle, 43^a, extending over its top wall. Figure 6 also illustrates the method of attaching the yoke, 7, to the top of a can whose top area is relatively large and which will not permit the engagement of the flanged edges as in Figures 2 and 3. In this case the ends, 8^a of the yoke bar, 7, rest upon said top wall and the port is initially positioned by means of a set screw, 40, threaded into the bar, 7, at its mid-point with its knurled head, 41, accessible at both sides of the handle, 43^a, and with its pointed center, 42, impinging against the under side of said handle and preferably indenting it. This will permit the punch, 10, to be first used for making the vent aperture at 44 and will then insure that when the bar, 7, is reversed end for end and the center point, 42, is again engaged with the indentation in the handle, 43^a, the vent fitting, 13, will register with the aperture, 44.

It will be understood that the yoke, together with the punch and nipple is applicable for use with cans in either the manner illustrated in Figures 1, 2 and 3, or in Figure 6 without alteration. For purposes of manufacture, the yoke may always be provided with the set screw, 40, so that it may be readily affixed to either type of can.

I claim:—

1. In combination with a portable receptacle the top wall of which is provided with a discharge opening near the outer edge thereof and an air vent laterally spaced from said discharge opening, a yoke provided with means for engaging the receptacle and a threaded nipple carried by threads in the yoke for adjustment toward and from the top wall of the receptacle in registration with the vent.

2. In the combination defined in claim 1, said nipple having a head at its lower end and a packing washer interposed between said head and the top wall of the receptacle.

3. In combination with a portable receptacle the top wall of which is provided with a discharge opening adjacent the outer edge thereof, a yoke shiftable into any one of a plurality of positions on the top of said receptacle, a threaded nipple carried in the yoke for adjustment toward and from the top wall of the receptacle and a punch guided in said yoke for movement toward said top wall for forming a vent aperture therein with which aperture the nipple may be adjusted to connect.

4. In the combination defined in claim 3, said punch having a head at its upper end and a spring coiled about the punch between its head and the yoke for retracting it after perforation of the top wall.

5. In the combination defined in claim 3, said punch and nipple being disposed equidistant from the mid-point of the yoke whereby after perforation of the top wall by the punch the yoke may be reversed end for end to bring the nipple into registration with the vent aperture formed in said wall.

6. In combination with a portable receptacle having a discharge opening at the top and a handle extending over its top wall, together with an air vent formed in said top wall, a bar having down-turned end portions adapted to rest on said top wall with the bar extending under said handle, a threaded nipple carried in the bar for adjustment toward and from said top wall in registration with the air vent and means for securing said bar firmly between said top wall and the handle.

7. In the combination defined in claim 6, said securing means comprising a set screw carried in the bar adjustable upwardly therefrom to impinge against the handle.

In testimony whereof, I have hereunto set my hand, this 25th day of October, 1923.

GEORGE P. SORENSEN.