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AIR OPERATED LIQUID TRANSFER SYSTEM

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Fig. 1.

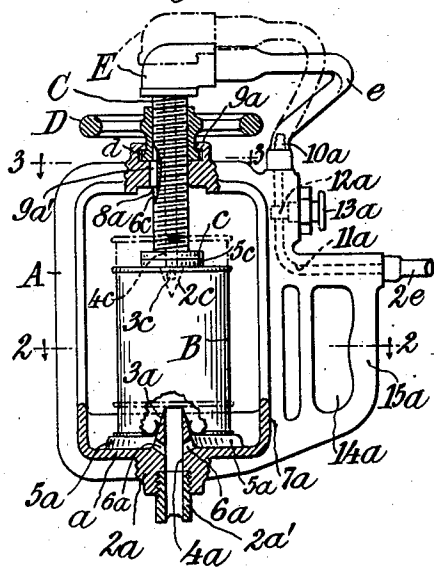


Fig. 4.

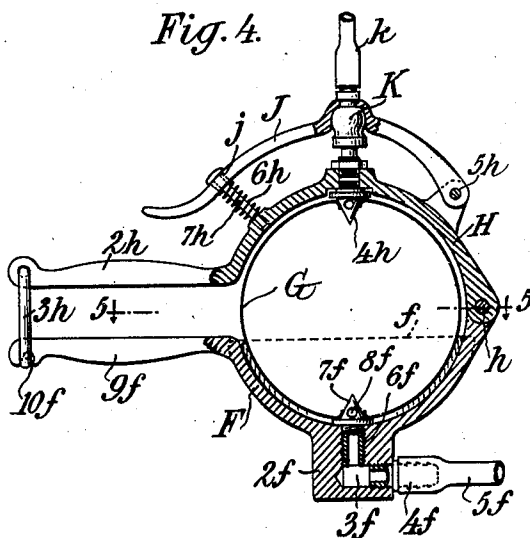


Fig. 2.

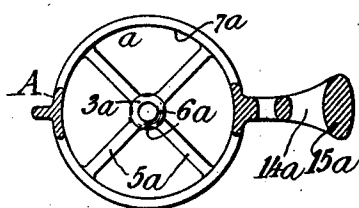


Fig. 5.

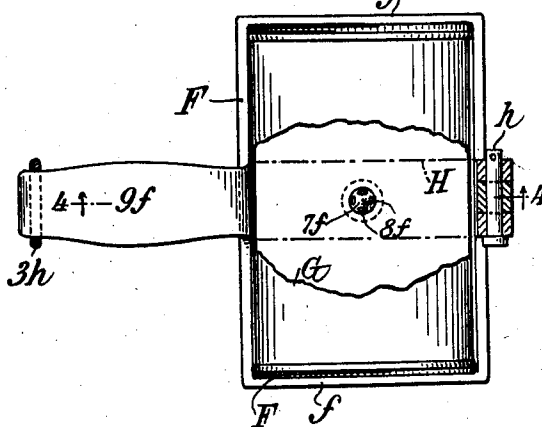
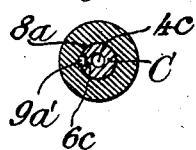


Fig. 3.



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AIR OPERATED LIQUID TRANSFER
SYSTEM

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Application April 7, 1934, Serial No. 719,609

6 Claims. (Cl. 221-23)

The present invention relates to means and the method of transferring canned liquids, and more particularly to the transfer of lubricating oil from sealed cans to lubricant reservoirs or other containers.

The practice of sealing lubricating oils for motor cars and other apparatus in sealed cans so as to assure the purchaser getting what he asks for is rapidly meeting with public favor. To obtain oil from such cans one end thereof is usually punctured or perforated, the oil drained therefrom and the can then discarded, the puncture made therein being usually of such character as to render re-filling of the can impracticable.

An object of my present invention is to provide means for facilitating and expediting the discharge of oil and other liquids from hermetically sealed cans and simultaneously rendering the can non-refillable and non-reusable. A further object is to provide portable means for accomplishing the transfer of a desired brand or grade of oil from a sealed container directly to a lubricant reservoir of an automobile or other device and thereby avoid multiple handling and insure against substitution of the product desired.

The foregoing and other objects of my invention I accomplish by providing a portable carrier having a discharge passage leading therefrom, means for puncturing the can to permit the discharge of its contents through said discharge passage and means for promoting said discharge by fluid pressure acting upon the can contents. The invention, which is herein disclosed in two preferred embodiments, will be better understood from the detailed description thereof which follows, when considered in conjunction with the accompanying drawing, wherein:

Figure 1 is a front elevation with parts broken away, showing one embodiment of my invention.

Fig. 2 is a section taken substantially along the plane of the line 2-2 of Fig. 1, the can being omitted.

Fig. 3 is a section taken substantially along the plane of the line 3-3 of Fig. 1.

Fig. 4 is a section taken substantially along the plane of the line 4-4 of Fig. 5, showing another embodiment of my invention.

Fig. 5 is a section taken substantially along the plane of the line 5-5 of Fig. 4.

Referring first to Figs. 1 to 3 of the drawing, let A indicate a portable carrier of substantially rectangular form having a substantially circular base *a* provided with a downwardly-extending central projection *2a* and an upwardly-extending, truncated, conical projection *3a* adapted to func-

tion as a can-puncturing means, there being an axial opening *4a* extending through said projections. The base on its upper face may be formed with radial ribs *5a* upon which an end of a can B may seat after being forced down over the projection *3a*, and leading from the spaces between the ribs *5a* are ducts *6a* which connect with the axial passage *4a*. If desired, the base *a* may be provided with an upwardly-extending enclosing wall or skirt portion *7a*. The lower end of the opening *4a* may be counter-bored and screw-threaded and may have connected thereto a pipe or hose *2a'*, which, at its free end, may carry a nozzle (not shown).

The top of the carrier is formed centrally thereof with an opening *8a* through which is guided a threaded plunger C, which, at its lower end, carries a plunger head *c* having on its under face a central conical projection *2c* having a transverse opening *3c* therethrough which communicates with an axial opening *4c* extending through the plunger. The under face of the plunger head *c* surrounding the conical projection *2c* may be provided with a disk of packing material *5c* for providing an air-tight seal with the top of the can B.

Screw-threadedly mounted upon the plunger C above the carrier A is a hand wheel D having a hub formed with a flange *d* which loosely seats in a recess provided by an overhanging flange *9a* at the top of the carrier whereby to provide a swivel mounting for the hand wheel D on the carrier. To prevent rotation of the plunger head *c* as it moves upwardly and downwardly due to rotation of the hand wheel D, any suitable means such as a rib *9a'* extending into the opening *8a* of the carrier for cooperation with a longitudinal groove *6c* in the plunger may be provided, as best shown in Fig. 3.

The upper end of the plunger C has connected thereto a coupling E carried by a flexible hose *e* leading from a source of compressed air or the like. For the sake of convenience, instead of this hose being directly connected to the source of fluid pressure supply, it is connected to a nipple *10a* on the carrier, and the carrier has a duct *11a* extending therethrough, in which duct there is mounted a normally closed check valve *12a* adapted to be opened by pressing inwardly upon a button *13a*. The device being a portable one, it is preferable that the valve operating button be conveniently accessible to the hand of an operator which supports the device, and I have accordingly shown the carrier as provided with an offset portion having an elongate opening *14a*

therein to provide a gripping handle 15a, which is disposed directly below the valve operating button 13a so as to facilitate engagement thereof by the thumb of the operator.

5 In use, a can B from which the contents are to be discharged is held over the projection 3a and the hand wheel D rotated to move the plunger c downwardly so that the perforating projection 2c thereon will penetrate the top of the can, and
10 continued rotation of the wheel will force the can down over the perforating projection 3a to clamp the can between the plunger head and the carrier base a. As soon as the can bottom is punctured the contents of the can will begin
15 to flow through the openings 4a and 6a and may be checked by a suitable valve (not shown) placed in the discharge pipe 2a', or said clamping action may be made to take place after the discharge nozzle is in engagement in the lubricant reservoir to be charged. After the can is properly
20 clamped the valve 12a is opened by finger pressure upon the button 13a, whereupon air under pressure will be charged to the interior of the can through the hose e and ducts 4c and 3c. The
25 air pressure will function to force the contents from the can and insure complete evacuation thereof. After the can contents have been discharged, rotation of the hand wheel D in the opposite direction will elevate the plunger head c, whereupon the punctured can can be withdrawn
30 from the carrier and discarded.

In the embodiment of my invention shown in Figs. 4 and 5, the can, instead of being clamped between its ends, is adapted to be clamped around
35 its sides and punctured at spaced points to render the can non-refillable or non-reusable. According to this embodiment of my invention I provide an elongate trough-like carrier F of arcuate cross-section having end walls f. Substantially centrally of the carrier F on its convex side it is
40 formed with a depending lug or projection 2f having a duct 3f therethrough, in the outer end of which may be fitted a hose nipple or coupling member 4f to which is connected a hose 5f, and to the other end, which extends into the concave
45 side of the carrier, is fitted a hollow plug 6f provided with a conical head 7f having a transverse opening 8f therethrough in communication with the duct 3f. The conical head 7f provides a spur
50 for puncturing the side of a can G when the latter is forced over said spur. To facilitate the clamping of a can in the carrier, the latter has pivotally connected thereto at h a clamping arm
55 H of arcuate form adapted to engage around the wall of a cylindrical can, the free end of said clamping arm terminating in an outwardly-extending hand-gripping portion 2h. The carrier F is provided with a similar and complementary
60 hand-gripping portion 9f, the said gripping portions being provided with latching means consisting of a pivoted link 3h carried by the portion 2h adapted to engage over the portion 9f and seat in a recess 10f therein. Preferably the sum of the lengths of the arcuate components of the
65 carrier F and the clamping arm H is less than the circumference of the can to be clamped therebetween so as to permit the application of clamping pressure to said can.

Carried by the clamping arm H is a second
70 can-puncturing means 4h of similar construction to the can-puncturing means 1f, the said member 4h having a nipple portion extending through and beyond the outer face of the clamping arm H. Also carried by the clamping arm H and
75 pivotally connected thereto at the point 5h is an

arcuate member J disposed in substantially concentric relation to said clamping arm and adapted for limited movement toward and away from said clamping member. Normally the member J is urged and held at its limit of movement away
5 from the arm H through the medium of a coil spring 6h disposed around a pin 7h carried by the clamping arm and extending through a slot j in the member J, the pin 7h having a head which limits the outward movement of the member J.
10 Carried by the member J intermediate its ends and disposed for cooperation with the outer end of the puncturing means 4h is an air chuck K of conventional construction having a valve therein (not shown) which is normally held seat-
15 ed by the air pressure supplied thereto through the hose k. The air chuck, which is normally held out of engagement with the outer end of the puncturing means 4h, is adapted to be brought
20 into such engagement by downward pressure on the free end of the member J, whereupon the valve in said chuck will be unseated and an airtight seal will be made with the end of the puncturing means 4h to permit compressed air to flow
25 therethrough. It will thus be seen that in order to discharge the contents from a can G it is first set in the trough-like carrier F, the clamping arm H is moved to engage around the can, which act
30 functions to clamp the can to the carrier, and substantially simultaneously puncture the cans by both puncturing means 1f and 4h. To hold said can in clamped condition and relieve the operator from applying manual pressure thereto
35 continuously, the clip 3h may be engaged around the gripping handle to seat in the recess 10f therein. The member J is then pressed inwardly toward the carrier member to admit air under pressure to the interior of the can above the surface of the liquid therein to promote the rapid
40 and effective discharge of the liquid contents from the can. When the can has been emptied, the clamping arm is unlatched and released, whereupon the punctured can may be withdrawn and discarded.

From the foregoing detailed descriptions it will
45 be apparent that I have provided a novel and efficient portable means for transferring the liquid contents from a can to a receiving reservoir and for simultaneously rendering the can non-refillable or reusable. It will also be appreciated
50 that while I have shown and described two embodiments of my invention, I do not wish to be limited to the details of construction disclosed since it will be apparent to those skilled in the art that such details may be modified without
55 departing from the spirit of the invention.

What I claim is:

1. A means for transferring liquid from a sealed container comprising a portable can support having a discharge passage leading therefrom, means
60 having a passage therethrough in communication with the discharge passage for puncturing a can, means provided with secondary can-puncturing means; manually operable means for substantially simultaneously puncturing a can with
65 both can-puncturing means, said secondary can-puncturing means having a passage therethrough adapted for connection with a source of fluid pressure, a fluid conduit connected to said secondary can-puncturing means and a manually
70 controlled valve in said fluid conduit.

2. A means for transferring liquid from a sealed can comprising a can support having a can-puncturing means in its base and a discharge passage leading therefrom, movable means carried by said
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support adapted to engage a can and clamp it against said base, said movable means having a second can-puncturing means adapted to puncture a can at a point remote from the first puncturing means, said secondary can-puncturing means having a passage therethrough and a fluid pressure conduit having a valve therein, connected to said second puncturing means.

3. A device according to claim 2 wherein the valve is controllable independently of the can clamping means.

4. A device according to claim 2 wherein the

can-supporting means is adapted to support a can upon one of its ends.

5. A device according to claim 2 wherein the can-supporting means is adapted to support a can upon one of its ends and wherein the can-clamping means is a movable plunger.

6. A device according to claim 2 wherein the can-supporting base is adapted to support a can on its side and the clamping means are adapted to engage the remote side of the can.

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