This disclosure relates to a pouring nozzle which is specially constructed for use in combination with a container spout after the container has been opened. The pouring nozzle serves to seal the opened container spout and is extendable from within a container to a locked and sealed projecting position to facilitate the dispensing of the contents of the container.

12 Claims, 8 Drawing Figures
CONTAINER SPOUT AND POURING NOZZLE

Generally this invention relates to containers that are intended to contain a liquid to be poured out at once or in several operations, and the invention more specifically relates to containers intended for engine crankcase oil with a content corresponding generally to the requirements of an automotive engine, normally two liters for smaller engines and five quarts for larger engines.

BACKGROUND OF THE INVENTION

These specially constructed containers are in the form of cans having a metallic spout soldered on at the time of manufacture of the can, with the spout being normally closed by a screwed-on removable closing element. The presence of this spout makes pallet storage of these cans after manufacture both tricky and difficult.

The spout projects above the upper peripheral edge or seam of the can so that when a first group of cans is placed on pallet in side-by-side relation, followed by the placement of an intermediate plate over the first cans for the support of a second similar group of cans and other similar groups of cans are placed in succession above the plate, each intermediate plate bears only the cans of the group below with the intermediate plate resting on the spouts of these cans.

The undesirable consequence of this arrangement is double. On the other hand, the almost punctate stress to which the intermediate plate is subject for each can is relatively high so that the plates have to be especially strong with the result that they are of a thickness which is excessive on the whole, and on the other hand, the can package built up under these conditions always has a relatively precarious balance.

On the other hand, the relatively great axial length of these spouts facilitates the controlled pouring out of the contents of the cans which, in the case of oil cans, is especially appreciated by the users who make a practice of filling up the oil of their automobiles at frequent intervals.

In the past it has been suggested that these soldered metallic spouts be replaced by plastic spouts set in place elastically in an opening of the can after the filling thereof, such spouts normally being closed by a diaphragm that can be removed by tearing. This arrangement has the advantage of making easier the direct pallet stacking of the cans after manufacture because they are then without the objectionable upwardly projecting spout. On the other hand, the very short axial length of these plastic spouts makes pouring out of the contents a tricky operation.

It is, moreover, to be emphasized that the ordinary metallic spout does not have an axial length that is sufficient to yield entire satisfaction in this respect, particularly in view of the more and more complicated arrangements of modern automobiles which makes access to the crankcase opening more and more difficult.

SUMMARY OF THE INVENTION

The present invention, in general, is intended to overcome the aforementioned drawbacks.

The invention is related more specifically to the use, either all at once, or in several installments, as the user requires, of oil cans that can be readily stacked on pallets and which are at the same time provided with dispensing means which facilitate the use of such cans.

The invention proposes equipping cans with plastic spouts joined after filling of the can, and further providing a removable nozzle which can be adapted to such a spout after it is opened.

The removable nozzle of the invention is characterized in that it is in the form of a cylindrical tube closed at the upper end thereof by an end closure and furnished with at least one lateria passage for fluid, and in that preferably it is furnished on the exterior surface of the tube, adjacent each of its extremities, with annular sealing means.

A further feature of this invention is the provision of a plastic spout which is provided at at least one level with annular sealing means that match those of the nozzle.

The lower and open end of the nozzle tube isprovided with a retaining lip, and by elastic deformation of the nozzle open end, the nozzle can be introduced into the associated spout after the diaphragm thereof has been removed.

The nozzle then can occupy two positions: one in which it is completely retracted into the container and tightly closes the spout, and the other in which it projects completely beyond the can advantageously a distance as substantially greater than that of ordinary spouts, so that the use of such a can is greatly facilitated.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings:

IN THE DRAWINGS

FIG. 1 is a perspective view of a can equipped with a spout according to the invention.

FIG. 2 is a fragmentary plan view on an enlarged scale of the can in he area generally indicated by the arrow II in FIG. 1.

FIG. 3 is a fragmentary vertical sectional view taken along the line III—III of FIG. 2 and shows more specifically the details of the spout.

FIG. 4 is an axial sectional view taken through a pouring nozzle and formed in accordance with this invention.

FIG. 5 is a fragmentary sectional view showing the nozzle in place in this spout in an extended operative position.

FIG. 6 is a view similar to FIG. 5 with the nozzle in its retracted position.

FIG. 7 is an enlarged fragmentary sectional view showing in greater details the relationship of the upper part of the nozzle and the adjacent part of the spout.

FIG. 8 is an axial sectional view similar to FIG. 4 but on a smaller scale of a modified form of nozzle.

The drawings show the application of the invention to a metallic can 10 which is rectangular in configuration and is of the type generally used for the storage of oils for motor engine crank cases, such cans frequently having, but not limited to a content of two liters. It is to be understood that the contents of the can could also be on the order of one gallon or two gallons.

The can 10 is provided with an upper end 11 having an opening 12 therein defined by an inwardly directed flange or sleeve portion 13, and after filling of the can
3,752,369

3

10, this opening is closed by a plastic, elastically deformable spout generally identified by the numeral 14. The spout 14 includes a peripherally outwardly directed bearing collar 15 at the outer end thereof which is axially spaced from an outer projection or shoulder 16. Between the collar 15 and the shoulder 16 the spout 14 has an outer cylindrical portion in which the flange 13 is seated when the spout 14 is driven through the opening 12, the flange 13 having an interlocked and sealed engagement with the spout 14.

Once in place, the spout 14 does not project above the upper level of the peripheral edge 18 of the can 10, which edge 18 is defined by the conventional double seam by which the end 11 is joined to the body 19 of the can 10. This, naturally, facilitates storage of cans such equipped on pallets.

The spout 14 has a dispensing opening therethrough which is initially closed by a diaphragm or tear film 20 which has secured thereto a circular tab 21 to facilitate the removal thereof.

The spout is further furnished in the interior thereof with annular sealing means whose function will appear below and which, in the illustrated form of the invention, are disposed at two different levels, axially staggered on either side of the diaphragm 26. Above the diaphragm 20 there is an annular means of fitting which, in the illustrated example, is in the form of a circular groove 22 which lies generally in the plane of the collar 15. Below the diaphragm 20 there are a plurality of small angular projections which may be in the form of annular corrugations 23. These corrugations are carried by a shoulder or projection 24 which projects radially inwardly into the interior of the spout 14 and reduces the internal diameter thereof. It may be considered that the shoulder 24 defines a throat of the spout 14.

In accordance with this invention there is provided a separately formed pouring nozzle generally identified by the numeral 25 and which is illustrated separate and apart from the can 10 in FIG. 4. The pouring nozzle 25 includes a cylindrical tube 26, the exterior diameter of which is the same to an appreciable extent as the inside diameter of the shoulder 24. The upper end of the tube 26 is closed by an end closure in the form of a base 27, which base projects radially outwardly of the tube 26.

The opposite or lower end of the tube 26 is open.

The radially extending base 27 forms a collar 28 which has at its periphery an annular projection or keeper 29 which matches the groove 22 formed in the spout 14. In addition, the base 27 has means for grasping the same in the form of a handle or bail 30.

Near its open end, the tube 26 has formed on the exterior surface thereof a projection in the form of a plurality of minute ribs or annular corrugations 32. These corrugations 32 match the corrugations 23. The tube 26 ends at the open end in a retaining lip 33 extending circumferentially around the exterior thereof.

The interior of the tube 26 is divided into two passages 34A, 34B by a partition 35 with each of the two passages 34A, 34B opening to the exterior of the tube adjacent the base 27 in the form of lateral fluid passages 36A, 36B, respectively. According to the form of the embodiment shown in FIGS. 4 through 6, the passages 36A, 36B are disposed one above the other and immediately below the base 27.

It is to be understood that when the can 10 is opened by removing the diaphragm 20, the can be used as it is, especially in the case where the contents of the can are to be poured out at one time. However, to facilitate this pouring, especially when it must be done in several stages, it is preferable to utilize the pouring nozzle 25. It is to be understood that the retaining lip 33 and the open end of the tube 26 are sufficiently resilient to permit the tube 26 to be forced down through the open spout 14 to a position wherein the retaining lip 33 is disposed entirely below the spout 14. The tube 26 is then pulled up until, as is shown in FIG. 5, the retaining lip 33 engages the lower end of the spout 14 at which time the corrugations 23, 32 come into mutual interlocking and sealing engagement. It is to be understood that the corrugations 23, 32 insure the desired sealing of the nozzle 25 with respect to the spout 14 while the lip 33 insures the retention of the nozzle within the spout when the can 10 is tilted to allow pouring out of the contents thereof.

During the pouring of the contents of the can, passage 36A permits the evacuation of the oil, whereas passage 36B insures entrance of air into the can to replace the dispensed oil, thereby providing for smoothness of evacuation.

After use, the nozzle 25 is telescoped into the can 10 down through the spout 14 to the position shown in FIG. 6. In this position, the rib or keeper 29 engages within the constriction or groove 22 of the spout 14 with the base 27 seating on a shoulder 37 within the spout 14, the shoulder 37 being in part defined by the removal of the diaphragm 20. It is to be understood that the base 27 both due to its engagement with the shoulder 37 and the engagement of the projection 29 into the annular groove 22 assures the proper closing of the spout 14 and the sealing of the can. In the course of entry of the tube 26 into the spout 14, oil which may be present on the outer part of the pouring nozzle 25 is scraped off by the ribs or corrugations 23. This oil is returned to the inside of the can 10 through the lateral passage 36A after being collected within an enlargement 50 of the interior of the spout 14. It is to be understood that at any time the nozzle 25 can be reextended. This is accomplished by merely pouring it out utilizing the handle or bail 30.

A modified form of nozzle is illustrated in FIG. 8. In this form of the invention, the lateral passage 36A is disposed near the base 27 whereas the air passage 34B, which is spaced therefrom, opens laterally outwardly through the tube 26 in a passage 36B which is axially spaced from the base 27 and is generally diametrically opposite to the position of the oil passage 36A.

It is to be understood that for the purposes of this invention, the projecting rib 29 on the base 27 and the annular groove 22 in the spout 14 could be interchanged.

Although only a preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that various modifications of the spout and nozzle may be accomplished without departing from the spirit and scope of the invention, as defined by the appended claims.
with a container spout in a dispensing position and a container spout closing position, a container spout telescopically receiving said tube, said container spout having axially outer means for engagement with said tube interlocking means in a recessed position of said tube and axially inner means for engagement with said tube interlocking means in a projecting dispensing position of said tube, said container spout having an internal throat intermediate said inner and outer means, and said throat having a cross section substantially corresponding to the cross section of said tube and closely fitting said tube while permitting sliding movement of said tube through said container spout.

2. The pouring nozzle of claim 1 wherein said container spout is internally enlarged above said throat and said enlargement is aligned with said lateral fluid passage in the container spout closing position of said tube for the return of a product from the exterior of said tube following a dispensing operation.

3. The pouring nozzle of claim 1 wherein said container spout is of a resilient construction.

4. The pouring nozzle of claim 1 wherein said container spout has an axially outward facing shoulder above said throat, and said upper end closure extends laterally beyond said tube and defines peripheral collar means for seating on said shoulder in the container closing position of said tube.

5. The pouring nozzle of claim 1 wherein said interlocking means of said tube includes a peripheral shoulder on the exterior of said tube adjacent the lower end of said tube, and said shoulder has a cross section substantially corresponding to the cross section of said throat at a lower end thereof.

6. In a container for dispensing a liquid including an aperture in an end closure adapted to receive a pouring nozzle in extended and recessed positions a one-piece container spout for the container comprising: means on its outer surface for securing the container spout in the aperture, a throat extending generally axially therethrough, a diaphragm sealing off the throat and adapted to be broken in order to receive a pouring nozzle, first means for sealingly engaging complementary means on the pouring nozzle in its extended position, said first means being disposed in the throat on the side of the diaphragm adapted to face the interior of the container, and second means for sealingly engaging complementary means on the pouring spout in said recessed position, said means being disposed on the side of the diaphragm adapted to face outwardly from the container.

7. A container spout according to claim 6 wherein said first means for sealingly engaging comprises a plurality of adjacent annular corrugations.

8. A container spout according to claim 7 wherein said second means for sealingly engaging comprises a groove adapted to receive an annular projection on the exterior of the pouring nozzle in its recessed position.

9. A container spout according to claim 8 wherein the diaphragm has means for facilitating its opening.

10. A container spout according to claim 6 wherein the portion of the throat on the side of the diaphragm adapted to face the interior of the can is of a reduced cross section and adapted to remove liquid from the pouring nozzle when said pouring nozzle is being returned to its recessed position.

11. A container spout according to claim 8 further comprising an external shoulder extending peripherally and adapted to rest on the outer surface of the end closure.

12. A container spout according to claim 10 wherein the one-piece container spout is of resilient construction.

* * * * *
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,752,369 Dated August 14, 1973

Inventor(s) MICHEL ROBERT

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the Information Sheet, item 73, kindly correct the spelling of the assignee's name to read

J. J. CARNAUD & FORGES DE BASSE-INDRE, S.A.

Signed and sealed this 2nd day of July 1974.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR. C. MARSHALL DANN
Attesting Officer Commissioner of Patents