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SANITARY BULK LIQUID DISPENSING CONTAINER WITH SEALED TUBE ENCLOSING COMPARTMENT AND CONTINUOUS BASE FLANGE

Filed May 19, 1952

FIG. 1

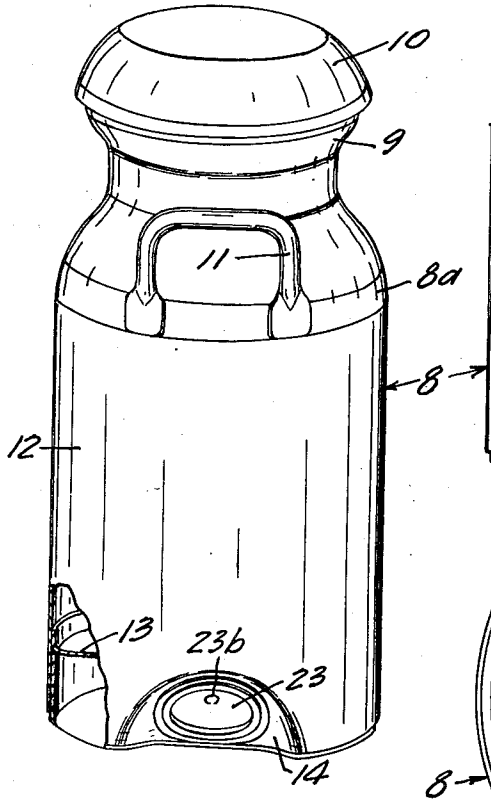


FIG. 2

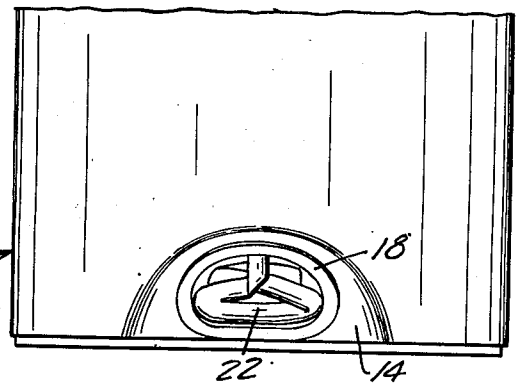


FIG. 3

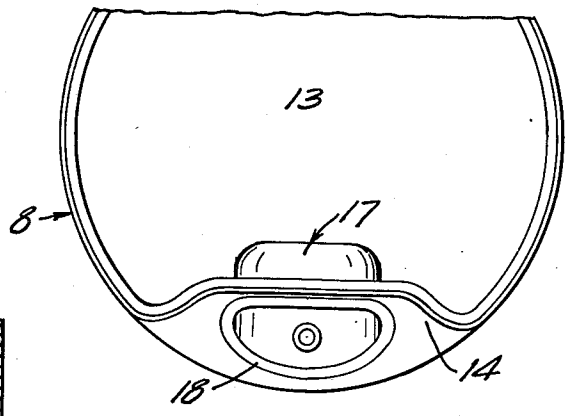


FIG. 5

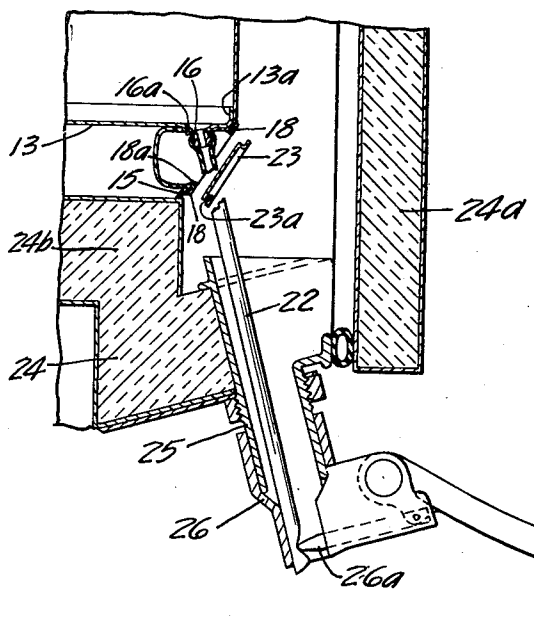
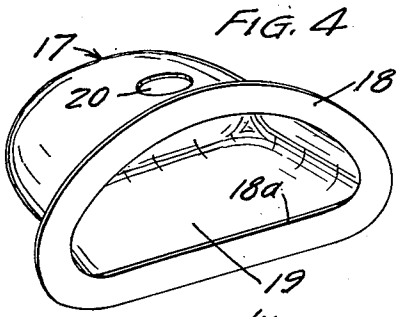


FIG. 4



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SANITARY BULK LIQUID DISPENSING CONTAINER WITH SEALED TUBE ENCLOSING COMPARTMENT AND CONTINUOUS BASE FLANGE

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Application May 19, 1952, Serial No. 288,692

7 Claims. (Cl. 222—184)

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This invention relates generally to a bulk liquid container particularly constructed for use with sanitary dispensing apparatus and is an improvement over the co-pending application filed January 18, 1952, Serial No. 267,107, and entitled Bulk Milk Transporting and Dispensing Apparatus. The general structure of the dispensing apparatus and a bulk container therefor is disclosed in Norris Patent No. 2,377,261, issued May 29, 1945, and in the allowed patent application entitled Liquid Dispensing Cabinet, Serial No. 199,762, filed December 8, 1950, now Patent No. 2,601,319.

The provision of bulk containers constructed for use with sanitary dispensing apparatus and housed in refrigerated cabinets has been found to be highly efficient and has met with wide acceptance for use where large numbers of people are to be served. The elimination of small containers, such as milk bottles, while maintaining at least, if not greater, sanitary standards, and the elimination of the filling of the small containers have all contributed to the provision of substantial economies in the dispensing of individual servings to a large number of customers.

The use of a flexible "single use" throw-away dispensing tube for discharging the liquid from a large container through a suitable control valve mechanism such as a pinch-cock valve mounted at the bottom of a refrigerated cabinet within which the container is housed, has provided milk dispensing apparatus which met the requirements for health and sanitation in the various states of this country and in most of the metropolitan areas thereof. Since the tubes are constructed to prevent re-use thereof after the seal is broken, the inside of the tube portion is assured of complete sanitation, even though in the prior structures referred to, with the exception of the co-pending application, Serial No. 267,107, filed January 18, 1952, the exterior of the tube may be subject to contamination through exposure to contact by other objects in transportation even though protected within the general periphery of the base flange of the container.

It is an object of the present invention to provide a bulk liquid container of novel and improved design and particularly adapted for use with refrigerated sanitary dispensing apparatus and having a complete and integral shell element forming a compartment within which the flexible sealed dispensing tube is completely enclosed and which is adapted to be sealingly closed by a removable closure member to positively prevent contamination of the outer portion of the dispensing tube.

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It is another object to provide a bulk liquid dispensing container having a continuous unbroken heavy base flange with an inwardly depressed portion having an aperture formed therein and having an integrally formed shell or cup member pressed through said aperture and receiving a rigid discharge nipple communicating with the bottom of the inside of the container, said shell or cup member being adapted to receive an elongated flexible discharge tube having its upper end mounted on the discharge nipple and sealed at its lower end in a manner to prevent re-use thereof after said seal has been broken and adapted to be completely enclosed within the compartment formed by said shell or cup member when a removable closure is pressed within the opening of said shell.

More specifically, it is an object of the present invention to provide a relatively simple yet highly efficient bulk liquid container of the class described which takes the form of a conventional milk can structure from the general overall construction standpoint but, through a relatively slight reformation of the base flange of the milk can, the same is adapted to receive an integrally formed compartment forming cup which when closed by a removable cap completely encloses and seals a flexible dispensing tube and protects the same from contamination. The base flange is depressed inwardly and provided with a cup receiving aperture therein, said cup receiving aperture having an attachment flange formed around the outer periphery thereof and adapted to abut the portion of said depressed flange portion surrounding said aperture and lying in a single plane to facilitate mounting of a sealing closure cap therein, said depressed portion affording protection for said sealing cap to prevent damage thereto during transportation of the container and insuring a positively sealed enclosure for the flexible dispensing tube until assembly within the refrigerated dispensing apparatus.

These and other objects and advantages of this invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views, and in which:

Fig. 1 is a perspective view of a bulk liquid container embodying this invention;

Fig. 2 is a fragmentary front elevational view of the container shown in Fig. 1 with the sealing closure cap removed and showing the elongated flexible tube contained within the protective chamber formed by the enclosing shell or cup;

Fig. 3 is a fragmentary bottom plan view of the structure shown in Fig. 2 with the flexible tube removed from the discharge nipple of the container;

Fig. 4 is a perspective view of the compartment forming tube enclosing shell or cup per se; and

Fig. 5 is a vertical sectional view showing the lower portion of the bulk liquid container shown in Figs. 1 through 3 in operative position within a dispensing cabinet such as the one disclosed and claimed in the allowed patent application entitled Liquid Dispensing Cabinet, Serial No. 199,762, filed December 8, 1950.

As illustrated in the accompanying drawings, an embodiment of this invention is shown. A container such as a milk can 8 having the relatively large upper mouth portion 9 closed by a conventional top cover 10 and provided with carrying handles 11 is illustrated. The side walls of the container 8 are designated by the numeral 12 and are in the form of a continuous cylindrical member extending downwardly from the handle band 8a to the bottom of the container. The bottom of the can having an upstanding peripheral flange 13a is designated by the numeral 13 and is inserted into the cylinder 12 forming the container side walls and is spaced a substantial distance above the lower end of said side walls. A reinforcing bottom band is then pressed into the lower marginal bottom portion of the cylindrical side walls below the container bottom 13 and is secured to said lower cylindrical side portion by any suitable means. The can or container bottom 13 is then securely fixed to the side walls 12 as by electrically welding the upstanding flange portion 13a to the adjacent inside portions of said cylinder 12. A pressure weld is produced which molds the flange and adjacent side wall portions together and permits a subsequent buffing operation to produce a completely smooth joint therebetween. A recess is then formed in the reinforced base flange or skirt of the container 8 by deforming a portion thereof a substantial distance inwardly to provide a depression having a shell-receiving opening formed therein and the portion surrounding said opening lying in an inclined plane sloping downwardly and inwardly toward the container center. The depression is designated as an entirety by the numeral 14 and the portion of the base flange surrounding said aperture is designated by the numeral 15, as best shown in Fig. 5. The top of said aperture is substantially adjacent the lower portion of the can bottom 13 which, in the form shown, is substantially flat.

Said can bottom 13 has an aperture 16 formed therein and a slightly downwardly depressed portion 16a surrounding said aperture 16 to form a small collector basin. After the lower portion of the can has been assembled to this stage, a cup or shell member, designated by the numeral 17 and best shown per se in Fig. 4, is inserted into the aperture formed in the depressed portion 14 of the base flange. The shell or cup member 17 has a peripheral flange 18 surrounding the open mouth portion 19 thereof and an aperture 20 is formed in the top portion in rearwardly spaced relation to the upper portion of flange 18 and is adapted to surround the depressed portion 16a formed in the can bottom 13 and is slightly larger than the aperture 16 formed at the bottom of said depressed portion 16a. The flange 18 lies in an inwardly inclined plane and is constructed to abut in close fitting

relationship the planar portion 15 surrounding the aperture in the depressed portion 14 in the base portion of the container 8 when said shell or cup 17 is inserted through said aperture. The flange 18 is spot-welded to the underlying portion 15 of the base flange and the can bottom 13 is spot welded to the adjacent upper portion of the cup 17 in closely spaced relation to the opening 16 therein.

A discharge tube attachment nipple 21 is fixed in opening 16 as by being welded to the portion of the can bottom 13 surrounding said opening and the upper end of said nipple 21 is disposed adjacent the bottom of the recessed portion 16a. Said nipple is inclined slightly from the vertical with its lower end disposed outwardly from its upper end and is adapted to receive in sealed relation thereon a flexible discharge tube 22 of substantial length for purposes to be hereinafter brought out. In the form shown, the lower end of the nipple 21 has a bayonet enlargement formed therearound to securely hold the upper end of said flexible tube thereon. Of course, before the mounting of such a tube on said nipple and after complete assembly thereof, the entire container is "tinned" in the conventional manner and the tinning material forms a smooth coating on the surfaces of all the parts, and webs across between the base portion of the nipple 21 and the portion of the cup 17 surrounding aperture 20 and nipple 21 to provide a smoothly contoured interior for the compartment defined within said cup or shell 17 to permit easy and complete cleaning of said compartment. The cup 17 is integrally formed from a single piece of drawn steel which also integrally forms the flange 18 surrounding the mouth or opening 19 therein.

After the can has been sterilized, a tube 22 is mounted on the nipple 21 and the lower end of said tube is sealed by a plug member secured therein which must be severed therefrom to put the tube into operation for dispensing liquid therethrough, thus destroying the tube for subsequent use in similar apparatus to that which will be hereinafter described and which is shown in Fig. 5. The container 8 is then filled with liquid such as milk after the flexible tube has been completely folded and inserted into the compartment formed within the shell or cup 17, as best shown in Fig. 2. After the tube 22 has been folded within the shell 17, the mouth 19 of said shell is closed by any suitable sealing means such as the closure cap 23 which is removably inserted therein. The lower portion of the opening or mouth 19 is flattened as best shown in Figs. 2 and 4 and has an upwardly projecting retaining lip extending upwardly from the inner end of flange 18 and designated by the numeral 18a. The cap 23 of course has a cooperative groove 23a formed in the lower portion thereof and is of course of a peripheral shape to be sealingly received in said opening or mouth 19. The curved peripheral portion of the shell or cup 17 surrounding said opening or mouth 19 disposed above the bottom relatively straight portion is smoothly contoured to sealingly receive said cap member 23. The fit of said cap member within the mouth 19 is sufficiently snug to require considerable force to remove the same therefrom and thus forms a completely sealed tube enclosing compartment within the shell 17 to prevent contamination of the outside as well as the inside of said tube. As is evident from Figure 5, this entire shell and compartment including the closure cap is contained within the

peripheral confines of the container side wall with no outwardly extending projections whatever. Any suitable means for facilitating removal of the closure cap 23 may be provided such as the arcuate indentation formed in the main body portion of the cap member, as best shown in Fig. 1, and extending in a substantially circular arc less than the circumference of a complete circle, said indentation being of a depth less than the thickness of the material from which said cap is manufactured to permit a completely sealed chamber to be formed within said cup or shell 17 when said cap is in closure position within the mouth 19 of the shell. The arcuate indentation forms a weakness groove, designated by the numeral 23*b*, whereby a tool such as that disclosed in my previously identified co-pending application, Serial No. 267,107, and shown in Fig. 5 thereof, could be used to break through said cap and bend in the punch-out portion defined by the weakness groove thereof after breaking said material around said weakness groove and forming a removal aperture through said cap.

When the container 8 is to be put into a refrigerated cabinet, such as the cabinet 24 shown in Fig. 5 and which is similar to that disclosed and claimed in my previously identified allowed application, Serial No. 199,762, the closure door 24*a* of the cabinet is opened and the container is lifted into the cabinet with the base flange thereof supported on the bottom 24*b* thereof. The closure cap 23 is removed to unseal the compartment formed within shell 17 for the first time since the filling of the container and permit the tube 22 to be removed from said compartment also for the first time since the container was filled and inserted downwardly through the tubular valve mounting member 25 similar to the mounting member disclosed and claimed in my co-pending allowed application, Serial No. 199,762, now Patent No. 2,601,319, and on which a valve 26 having a pinch-cock 26*a* is mounted and after said valve has closed the tube by pinching the same, as shown in Fig. 5, the lower sealed end of said tube is cut off and thus the tube will be permanently destroyed for further use in similar dispensing cabinet and valve apparatus.

It will be seen from the foregoing description that a bulk liquid container has been provided which, by re-forming the lower portion thereof to produce a depressed portion therein and mounting a flanged cup or shell in said depressed portion to receive the discharge nipple from the container bottom and completely enclose a flexible tube connected with said nipple when the same has been folded therein and a sealing cap has been sealingly pressed into the open mouth portion at the front of said shell or cup member 17, provides completely sanitary protection for the outside surface of said tube and positively prevents contamination thereof. The container has a continuous unbroken heavy base flange for forming a positive support around the entire periphery thereof and through the attachment of only two parts, first an integrally drawn shell member and, second a removable closure provides a completely sealed compartment within which the flexible tube and discharge nipple are completely enclosed in sealed relation therein. The compartment 19 is smoothly contoured on the entire inside surface thereof and is extremely easily cleaned and sterilized, thus obviating the necessity of insuring complete sterilization of the bottom portion of the can disposed within the base flange thereof. Both the closure cap 23 and the flexible dispensing tube 22 are discarded after each use and new elements must be provided for each refilling of the container.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of this invention which, generally stated, consists in the matter shown and described herein and set forth in the appended claims.

What is claimed is:

1. In a bulk liquid container having a bottom and adapted for use with sanitary dispensing apparatus, a peripheral base flange formed around the lower portion of the container and having an inwardly disposed depression formed therein, said depression having an aperture therethrough, a tube enclosing shell member mounted in said aperture formed in said depression and connected in fixed relation to said base flange surrounding said aperture, said shell member forming a completely closed compartment except for a sealable mouth opening, a hollow discharge nipple sealingly connected with the bottom of said container in communication therewith and depending into said compartment and sealed relative to said shell member, said mouth opening of said shell having a substantially straight edge portion, an outwardly extending lip portion formed along said straight edge portion, and a closure cap of a size and shape to be sealingly received within said mouth opening and having a recess formed in the straight edge portion thereof to cooperatively receive and retain said outwardly extending lip therein.

2. The structure set forth in claim 1 and the straight edge portion of said mouth and said lip as well as the straight edge portion of said closure cap being formed along the lower edge portion of said base flange.

3. In a bulk liquid container for use with a sanitary pinch valve dispensing apparatus, a container bottom with an upstanding rigid container side wall fixed thereto, said side wall having a recess formed therein by deformation of the material thereof to produce an inclined depressed portion extending downwardly and inwardly relative to said container to form a shell mounting portion and provided with a shell-receiving opening extending therethrough, a tube-enclosing shell mounted in said opening and having the mouth portion thereof coextensive with the downwardly inclined depressed portion and securely fixed to the container side wall, and a hollow nipple mounted within said shell and communicating with the inside of the container and disposed in generally downwardly directed position within the confines of said shell, the lower edge of said depressed portion being disposed a sufficient distance inwardly from the peripheral contour of the container to permit a flexible tube connected to said nipple to be disposed in straight line generally downwardly directed dispensing position.

4. In a bulk liquid container for use with a sanitary pinch valve dispensing apparatus, a container bottom with upstanding rigid container side walls fixed thereto, said side wall having a recess formed therein to produce an inclined depressed portion lying in an inclined plane extending downwardly and inwardly relative to said container and provided with an opening therethrough to form an inclined mounting

portion surrounding said opening, a tube-enclosing shell mounted in said opening and having an open outer end forming the mouth portion thereof with an inclined attachment flange surrounding the said open mouth portion and lying in a plane substantially coextensive with the plane of said depressed portion to engage with and abut against the mounting portion of said depressed portion and securely fixed thereto, a hollow nipple mounted within said shell and communicating with the inside of said container and disposed in downwardly and outwardly inclined relation within the confines of said shell, and a flexible tube connected with said nipple and adapted to be completely received for storing within said shell when compressed and the respective angles of inclination of the mouth of said shell and said nipple cooperating to permit said tube to be extended in substantially straight line downwardly inclined discharge position.

5. The structure set forth in claim 4 and a closure cap having the outer portion thereof lying in the plane of said shell-mounting flange and removably sealed across the mouth of said shell to sealingly enclose said tube within the shell.

6. In a bulk liquid container for use with a sanitary pinch valve dispensing apparatus, rigid upstanding container side walls with a container bottom fixed in sealed relation thereto in spaced relation above the lower edge of said side walls to provide a base flange portion extending downwardly a substantial distance below the container bottom, one side of said base flange being deformed inwardly to form a recessed portion therein and produce an inclined depressed portion extending inwardly from the periphery of

the side wall of the container to provide a mounting portion and having a shell-receiving opening therethrough, a tube-enclosing shell mounted in said opening with the mouth portion thereof fixed to the mounting portion surrounding said opening and having an inwardly extending top portion disposed adjacent the lower side of the container bottom, said inwardly extending top portion having a nipple-receiving aperture formed therethrough, a hollow nipple fixed to said container bottom and communicating with the inside of the container and extending through the aperture in the inwardly extending upper portion of said shell, means positively sealing the outer periphery of said nipple to the upper inwardly extending portion of said shell to form an easily cleaned positively sealable tube-storing compartment within said shell, a highly flexible discharge tube closed at the free end thereof fixed to said nipple, and a closure removably mounted in the mouth of said shell to provide a completely sealed tube confining compartment for sanitary storage of the compressed flexible tube therewithin.

7. The structure set forth in claim 6 and said container bottom having an inwardly depressed portion adjacent the inner end of said nipple to form a collector basin collecting and draining all of the liquid from said container.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,377,261	Norris	May 29, 1945
2,549,207	Kestenbaum	Apr. 17, 1951
2,601,319	Norris	June 24, 1952