Aug. 21, 1962 L. F. NORRIS 3,050,216

CHAMBERED MILK CAN WITH THERMO-PLASTIC INSERTABLE COVER PLATE

Filed Dec. 14, 1959

FIG. 1

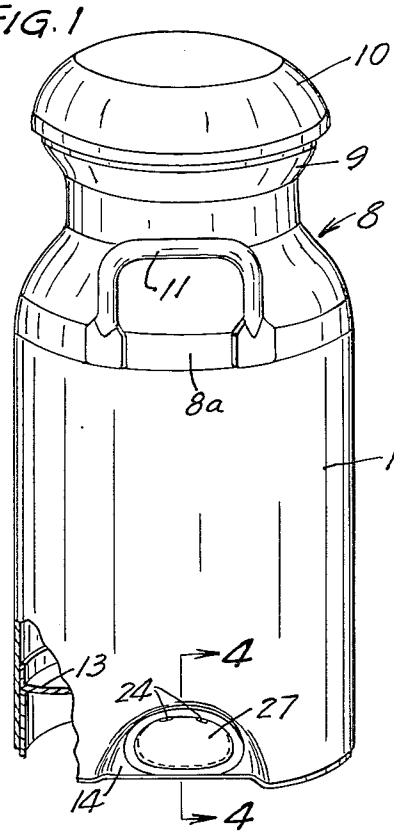


FIG. 2

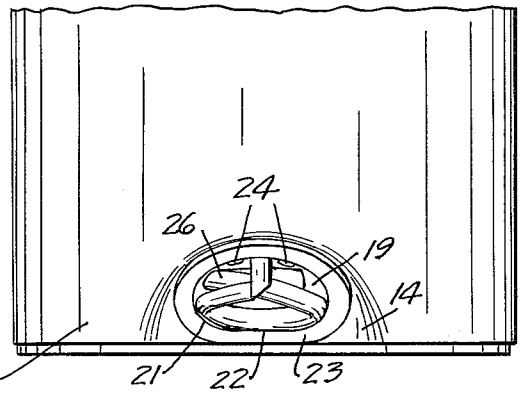


FIG. 4

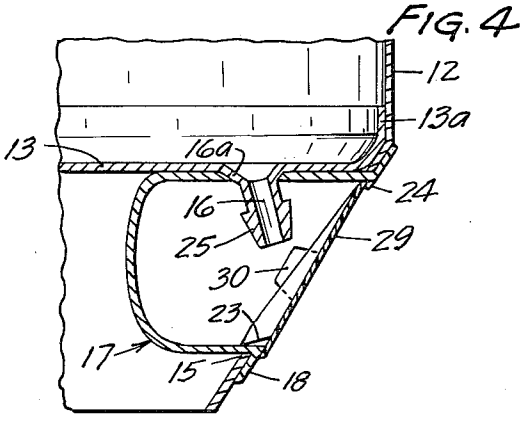


FIG. 3

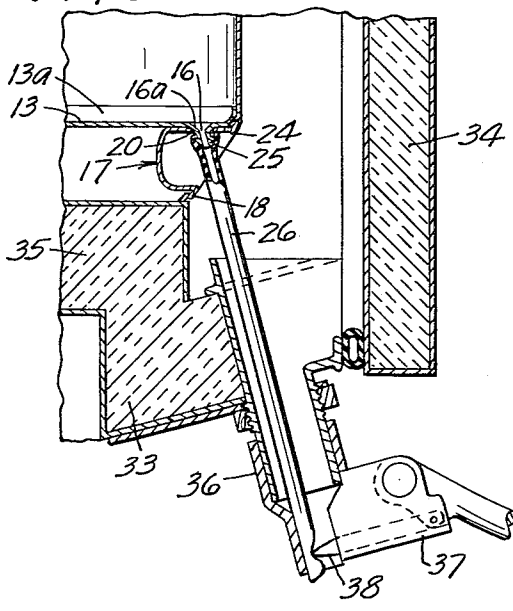
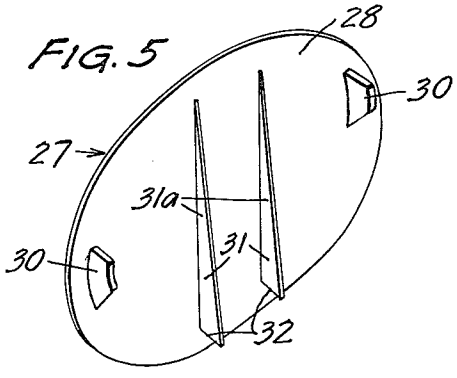


FIG. 5



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CHAMBERED MILK CAN WITH THERMO-PLASTIC INSERTABLE COVER PLATE

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8 Claims. (Cl. 222—184)

This invention relates to bulk liquid containers and more specifically to a bulk liquid container of the type having a tube enclosing compartment and having a disposable plastic cover for closing the tube enclosing compartment.

An object of the present invention is to provide a novel bulk liquid container for use with refrigerated sanitary dispensing apparatus and including a tube enclosing compartment closed by a novel disposable plastic closure member having means for positioning and retaining the same in sealing relation with the compartment.

Another object of this invention is the provision in a bulk liquid container, of the type used with refrigerated dispensing apparatus and including an integral tube enclosing compartment, with a disposable plastic closure member for sealingly closing the compartment and being formed of frangible material to permit ready breaking thereof.

A more specific object of this invention is to provide a novel disposable plastic closure cap for closing a tube enclosing compartment of a bulk liquid container and in which the closure cap includes means for assuring proper positioning thereof in sealing relation with the compartment to thereby prevent contamination of the compartment.

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 the present invention;

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

FIG. 3 is a vertical sectional view showing the lower portion of the bulk liquid container in operative position within a dispensing cabinet;

FIG. 4 is an enlarged vertical section taken on line 4—4 of FIG. 1 and looking in the direction of the arrows; and

FIG. 5 is an enlarged perspective view of the novel closure cap member.

Referring now to the drawings and more specifically to FIG. 1, it will be seen that one embodiment of this invention may include a container such as a milk can 8 having a relatively large upper mouth portion 9 which is closed by a conventional top cover 10. Container 8 is also provided with conventional carrying handles 11, only one of which is shown in FIG. 1. Container 8 is in the form of a cylinder and includes circumferential walls 12 which extend downwardly from the handle band 8a to the bottom of the container. The bottom 13 of container 8 is provided with an upstanding peripheral flange 13a and the bottom 13 is inserted into the cylinder 12 forming the circumferential walls and is positioned a substantial distance from the lower end of the circumferential walls as best seen in FIG. 1. A reinforcing bottom band is then pressed into the lower marginal portion of the cylindrical circumferential walls 12 below the container bottom 13 and is secured in place by any suitable means. Container bottom 13 is then securely fixed to the inner circumferential surfaces of cylindrical walls 12 as by electrically welding the upstanding flanged portion 13a thereto. A pressure well is produced which molds the peripheral flange 13a and adjacent inner circumferential surface of cylindrical wall portions together and permits a subsequent buffing operation to produce a completely smooth joint therebetween.

A recess is then formed in the base flange or skirt of the container by deforming a portion thereof a substantial distance inwardly to provide a depression having a shell-receiving opening formed therein and the portion surrounding the opening or aperture lying in an inclined plane sloping downwardly and inwardly towards the container center. The depression designated by reference numeral 14 and the portion of the base flange surrounding the aperture is designated by the reference numeral 15 as best seen in FIG. 3.

Referring now to FIG. 3, it will be seen that the container bottom 13 is provided with an aperture 16 and a slightly downwardly depressed portion 16a surrounding the aperture to define a small collector basin. A shell or cup member 17 is inserted into the aperture formed in the depression 14 of the base flange and is provided with a peripheral flange 18 surrounding the mouth opening 19 thereof. Shell member 17 is also provided with an aperture 20 in the top portion thereof and which is adapted to surround the depressed portion 16a formed in the container bottom 13 and is slightly larger than the aperture 16 formed at the bottom of the depressed portion 16a.

Peripheral flange 18 as best seen in FIG. 3, lies in an inwardly inclined plane and is constructed to abut in close fitting relationship the planar portion 15 surrounding the aperture or depressed portion 14 as the base portion of the container 8. Peripheral flange 18 is spot welded to the underlying portion 15 of the base flange and the container bottom 13 is also spot welded to the adjacent upper portion of shell member 17 in closely spaced relation to the opening 16 therein.

Referring now to FIGS. 2 and 3, it will be seen that mouth opening 19 includes a peripheral edge 21 with the lower portion thereof being flattened or straight as at 22. This straight edge portion 22 of peripheral edge 21 has an upwardly projecting retaining lip 23 extending upwardly from the inner edge of flange 18. The upper portion of peripheral edge 21 is provided with a pair of depending tab elements 24 which extend towards and are disposed in opposed relation to lip 23. The function of lip 23 and tabs 24 will be described hereinbelow.

A discharge tube attachment nipple 25 is fixed in opening 16 as by welding to the portion of container bottom 13 surrounding opening 16 and the upper end of nipple 25 is disposed adjacent the bottom of recess portion 16a. Referring again to FIG. 3 and FIG. 4, it will be seen that nipple 25 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 26. The lower end of nipple 25 has a bayonet enlargement formed therearound which, of course, serves to securely hold the upper end of flexible tube 26 thereon. It is also pointed out that prior to the mounting of flexible tube 26 on nipple 25, the entire container 10 is tinned in the conventional manner and the tinning material forms a smooth coating on the surfaces of all the parts so that the interior of shell member 17 is smoothly contoured to thereby permit easy and complete cleaning thereof.

When container 8 is prepared for use, it is first sterilized and a discharge tube 26 is mounted on the nipple 25 and the lower end of the discharge tube is sealed by a plug member which is secured therein. Referring now to FIG. 3, it will be seen that container 8 is arranged for the operation of dispensing liquid therefrom and requires the plugged end of discharge tube 26 to be severed which, of

course, destroys the tube for subsequent use. After the discharge tube **26** is mounted on nipple **25**, container **8** is then filled with liquid such as milk and the flexible tube **26** is folded and inserted into the compartment defined by the shell member **17** as best seen in FIG. 2.

A uniquely constructed closure cap member generally designated as **27** is provided for closing mouth opening **19** in sealing relationship to thereby prevent contamination of the interior or compartment defined by shell member **17**. Cap member **27** is formed as by molding of a resilient but rigid frangible thermo-plastic material to permit ready breaking thereof when it is desirable to place the container **8** in an operative liquid dispensing condition.

Cap member **27** is substantially flat and has an inner face **28** and an outer face **29**.

Referring now to FIG. 5, it will be seen that cap member **27** is provided with a pair of laterally spaced guide members **30** affixed to inner face **28** and which engage inner opposed surface portions of shell member **17**. It will be seen that cap member **27** is of a shape and size to have marginal portions thereof engaging the peripheral edge **21** of mouth opening **19** in sealing relation when the cap member is disposed in mouth closing position.

A pair of spaced apart lip engaging elements **31** are affixed to the inner face **28** of cap member **27** and have lower edges **32** which are inclined with respect to the inner face and cooperatively engage lip **23** of peripheral flange **21** when the cap is in mouth-closing relation. Lip engaging elements extend transversely of the inner face **28** of cap member **27** to thereby define reinforcing portions **31***a* which serve to impart rigidity to the cap member. Since the cap member **27** is somewhat resilient, the reinforcing portions impart sufficient rigidity thereto which facilitiates breaking of the cap member.

When the cap member is positioned in mouth closing relation, the upper portion thereof is positioned inside tabs **24** while guide members **30** engage inner opposed surfaces of shell member **17** and thereby serve to properly position the cap member against the peripheral edge of the mouth opening. The lower portion of the cap member is then urged inwardly and lip engaging elements **31** are cammed or snapped behind and retained by lips **23**. Thus the interlocking relation of lip engaging elements **31** with lips **23** and interlocking relation of the upper portion of the cap member and tabs cooperatively retain the cap member in mouth closing relation. The marginal portions of the cap member **27** are therefore urged into sealing relation with the peripheral edge **21** of mouth opening **19** so that the interior of shell member **17** along with discharge tube **26** are sealed from the outside thus preventing contamination thereof. Since the cap member **27** is formed of a frangible material, it can be readily broken or ruptured thus requiring no tools for removal thereof.

When container **8** is put into a refrigerated cabinet such as cabinet **33** shown in FIG. 3, the closure door **34** of the cabinet **33** is opened and the container is positioned within the cabinet with the base flange **31** supported on the bottom **35** thereof. Cap member **27** is then removed to unseal the compartment formed within shell **17** to permit the tube **26** to be removed from the compartment and inserted downwardly through a tubular valve mounting member **36**. Tubular valve mounting member **36** is provided with a valve **37** having a pinch-cock **38** which closes the tube **26** by pinching the same. The lower end of the tube is then cut off and the tube, of course, is destroyed for subsequent use. Removal of the cap member **27** may be accomplished by breaking the same since the reinforcing portions **31***a* impart rigidity to the resilient frangible material to permit ready breaking thereof. Of course, cap **27** may also be removed without breaking the member but since the cap is disposable and is formed of frangible material, breaking thereof is the preferred manner of removal.

It will be seen from the foregoing description that I have provided a novel bulk liquid container having a depressed portion in the lower flange thereof in which a shell member is mounted for completely enclosing a flexible tube communicating with the interior of the container. It will also be seen from the preceding paragraphs that the tube enclosing shell member defines a smoothly contoured compartment to permit ready cleaning and sterilizing thereof and which is sealingly closed by a novel disposable closure cap member in a manner to preclude or greatly minimize contamination of the interior of the compartment. It will also be noted that the novel closure cap is formed of frangible plastic material to permit ready breaking thereof and is arranged and constructed to cooperatively engage the shell member to insure proper seating of the cap member in sealing relation with the shell member. It will further be noted that the novel disposable closure cap includes retaining means arranged and constructed to be interlocked to the tube enclosing shell member whereby the closure cap is positively retained in mouth sealing relation with respect to the shell member.

Thus it will be seen that the tube-enclosing shell of the bulk liquid container is sealingly closed by a uniquely constructed closure member which may be readily applied by a simple operation and which may be readily removed by breaking of the same.

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 consists of the matter shown and described herein and set forth in the appended claims.

What is claimed is:

1. A bulk liquid container having a bottom 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 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 compartment wherein a hollow discharge nipple is adapted to be positioned, said shell member having a mouth formed therein for providing access to said compartment, said mouth opening of said shell having a peripheral edge, means for closing the mouth opening of said shell in sealing relation comprising a disposable closure cap formed of plastic material and having an inner face, guide means extending from said inner face and engaging the inner surface portions of said compartment to thereby position marginal portions of the cap in sealing relation against the peripheral edge of said mouth, and retaining means for retaining said cap in mouth closing relation including interlocking elements on said cap and on the peripheral edge of said mouth opening respectively.

2. The structure as refined in claim 1 wherein said closure cap is formed of frangible plastic material to permit ready breaking thereof.

3. The structure as defined in claim 1 wherein said interlocking elements include an outwardly extending lip formed along a portion of the peripheral edge of said mouth opening and a lip engaging element affixed to the inner face of said closure cap.

4. A bulk liquid container having a bottom 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 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 compartment wherein a hollow discharge nipple is adapted to be positioned, said shell member having a mouth formed therein for providing access to said compartment, said mouth opening of said shell having a peripheral edge including a straight edge portion having an outwardly extending lip formed therealong, said peripheral edge of said mouth opening having a tab formed

thereon and extending toward said lip, means for closing said mouth opening comprising a disposable closure cap formed of plastic material and having marginal portions thereof engaging the peripheral edge of said mouth in sealing relation, said cap having an outer face engaged in overlying relation by said tab and having an inner face, and a lip engaging element affixed to the inner face of said cap and projecting inwardly therefrom, and said lip-engaging element being cooperatively engaged and retained by said outwardly extending lip.

5. The structure as defined in claim 4 and reinforcing means on the inner face of said cap imparting rigidity thereto.

6. The structure as defined in claim 4 and guide means secured to the inner face of said cap and engaging inner surface portions of said compartment to thereby position marginal portions of the cap in sealing relation against the peripheral edge of the mouth.

7. The structure as defined in claim 4 wherein said cap member is formed of frangible plastic material to permit ready breaking thereof.

8. 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 the base flange surrounding said aperture, said shell member forming a completeley 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, a flexible discharge tube closed at the free end thereof mixed to said nipple, said mouth opening of said shell comprising a disposable closure cap formed of plastic material and having marginal portions engaging the peripheral edge of said mouth opening in sealing relation, said cap member having guide means cooperatively engaging said shell member for positioning said cap member in mouth closing relation, and retaining means for retaining said cap in mouth closing relation and including interlocking elements on said cap and on the peripheral edge of said mouth opening respectively.

References Cited in the file of this patent

UNITED STATES PATENTS

2,683,556 Norris et al. ---------- July 13, 1954

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,050,216 August 21, 1962

Lannie F. Norris

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 6, line 5, for "completeley" read -- completely --; line 10, for "mixed" read -- fixed --.

Signed and sealed this 27th day of November 1962.

(SEAL)
Attest:
ESTON G. JOHNSON
[illegible]
Attesting Officer

DAVID L. LADD
Commissioner of Patents