United States Patent

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[54] CONTAINER STRUCTURES
2 Claims, 3 Drawing Figs.

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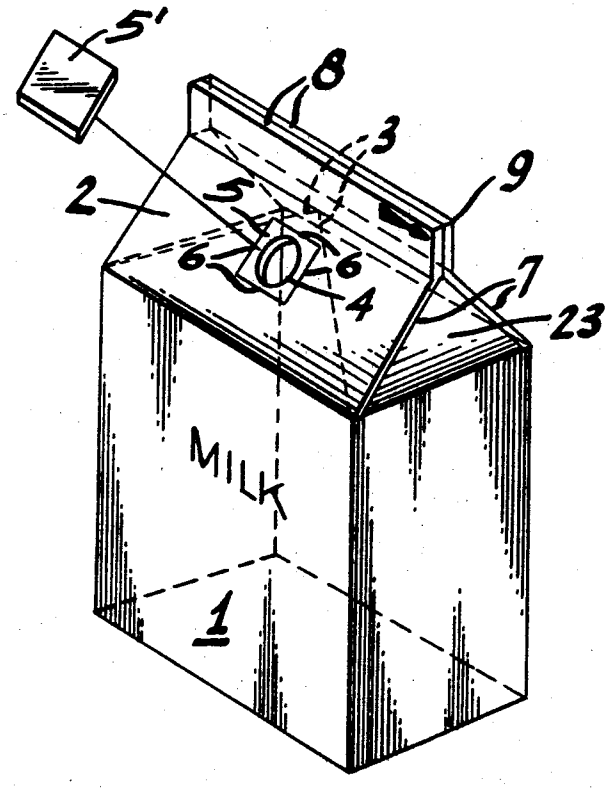
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Primary Examiner—Donald F. Norton

ABSTRACT: A straw puncturable dispensing opening which includes a thin sheet of material which is sealed to the outside surface of a surmounting closure of a liquid container around the dispensing opening thereby making possible an easy visible inspection of the condition of the seal.



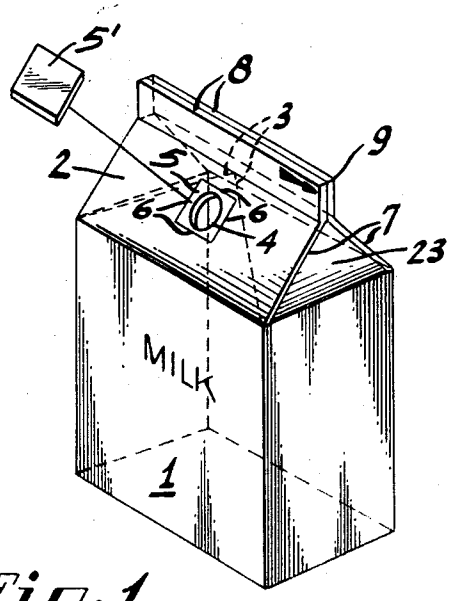


Fig. 1.

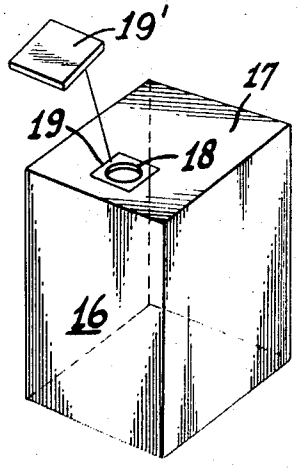


Fig. 2.

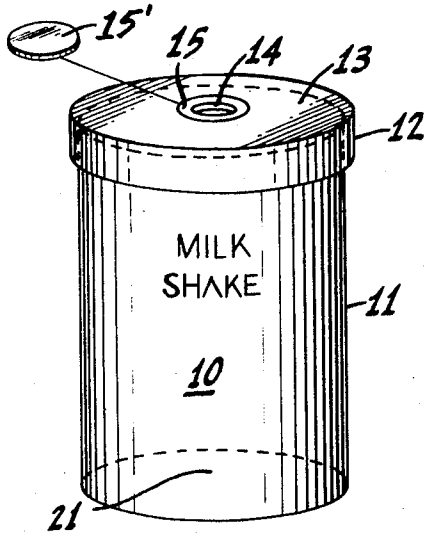


Fig. 3.

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CONTAINER STRUCTURES

This invention relates to container structures and more particularly to liquid container structures wherein a straw is used for the withdrawal of the liquid contained therein.

With present liquid containers, where it is desired to withdraw the liquid contents by using a straw, it is always necessary to of container of paperboard has an overall surface of the thermoplastic material. This type of container container by whatever means is provided thereon for pouring out the contents into another container such as a glass, and then inserting a straw in the opening which is primarily intended and adapted for pouring out the contents. The arrangements in most present liquid containers of the quart pint or half-pint size for opening and pouring out the contents is either a pull tab which has an attached portion which is pulled out leaving a hole, or a surmounting closure on the container which is of the gable top type and which houses a pouring lip which is unfolded out to pour out the liquid contents. Both of these known arrangements necessitate a pulling and holding by the fingers in the immediate vicinity of the opening to ready the container for pouring. Any motion of fingers perhaps of soiled hands in the immediate vicinity of the opening is undesirable from the sanitation aspect since particles therefrom may be passed through the opening and thereby contaminate the liquid contents of the container. From a sanitary viewpoint in another respect, the above-described arrangements leave a lot to be desired when used with a straw, since the opening area of the above openings for pouring are much larger than the cross sectional area of a straw, so that after these containers are opened, much space is left around the inserted straw through which airborne contaminants may enter the container and liquid therein. The liquid containers of the above types for orange juice, milk, etc. which are found in all cafeteria and food stores which are used for individual consumption are arranged for pouring out the liquids therefrom whereas when it is a requirement that these containers (generally of the pint or half-pint size) have means therein permitting passage of a straw thereinto for withdrawing the contents therefrom, a simpler and cheaper arrangement of the container is possible.

The object of this invention is to provide outlet means for a liquid container which is adapted especially for use by a straw for the withdrawal of liquids therefrom.

A further object of this invention is to provide a liquid container adapted for use with a straw which is especially sanitary since not requiring a substantial amount of fingering or handling around the opening area through which the straw is passed or permitting entry of airborne contaminants after opening and insertion of the straw.

It is yet another object of this invention to provide means in a container which permits fast entry of a straw therein for the withdrawal of liquid therefrom.

It is also another object of this invention to provide a simple, inexpensive and easy to use, arrangement in a container for passage of a straw into the container.

In accordance with a preferred embodiment of the invention a container for liquids is surmounted by closure means which closure means has an aperture therein. The aperture is covered by a thin sheet of plasticlike material which is pierceable by a straw. The periphery of the thin sheet of plasticlike material is sealed to the outside or top of the closure means taught and in liquidtight relation.

Other objects, features, applications and advantages of the present invention will become manifest to those versed in the art upon making reference to the detailed description which follows and the accompanying sheet of drawings which show different embodiments of the present invention.

In the drawings:

FIG. 1 is a view in perspective of an embodiment of the invention in a container of the gable top closure type.

FIG. 2 is a view in perspective of a further embodiment of the invention in a boxlike type container of the type having a top panel affixed thereto.

FIG. 3 is a view in perspective of yet another embodiment of the invention in a container having a removable top cover as closure means therefor.

Referring to FIG. 1 there is shown a dispensing container 1 surmounted by a sealed closure housing a pouring lip. This type of containers of paperboard has an overall surface of the thermoplastic material. This type of container having a gable top closure is opened by lifting out the corner folds 7 at the end of the container having the arrow and the pouring lip is unfolded and forced out when it is desired to pour out the contents of the container 1 into a glass or other receptacle. In accordance with this embodiment of the invention, a roof panel 2 has an aperture 4 which is a circular hole punched therethrough. This aperture 4 is made slightly larger in diameter than the diameter of the straw which is to be passed therethrough for withdrawal of the liquid contents of the container. Most paper straws and plastic straws in common use at the present time have a diameter of slightly less than 0.25 inches, so that the aperture 4 should be enough larger to permit the straw when passed through to completely clear the hole and can be large enough to permit the straw to be wiggled around the bottom of the container to withdraw all of the contents. The aperture 4 should be located approximately in the center of the front or rear roof panel 2 so as not to interfere with the folded in side roof panels 23 which extend in under the roof panels 2 as far as shown by the hidden lines 3. Across and covering the hole 4 is a piece of plasticlike material 5 whose periphery must extend far enough beyond the aperture 4 to allow the edges 6 of this covering 5 to be sealed to the roof panel 2 around the aperture 4 securely so that when a straw is pushed perpendicularly against the covering 5 above the hole, the covering 5 will rupture thereby permitting the straw to pass through the aperture 4 and into the container 1 so that the liquid contents thereof may be withdrawn through the straw. The aperture 4 is about 0.25 inch for a straw of e.g. 0.23 inch in diameter and a circular piece of clear transparent plasticlike material such as "Handi-Wrap" (made by the Dow Chemical Company of Midland, Mich.) having a thickness of somewhat less than 0.001 inch and having a diameter of 0.75 inch is centered on the circular aperture 4 and sealed down under its edges or perimeter 6 by "Elmers Glue-all" (not shown in the drawing since it drys clear) which is a registered trademark for a glue like substance manufactured by Borden Company, New York. With this structural arrangement, it was found possible to grasp a straw having a diameter of 0.23 inch near the end thereof and centering the end of it on the aperture, push the straw perpendicularly through the roof panel 2 first through the cover 5 and then through the aperture 4 into the container. While a particular clear plasticlike material was used successfully in the arrangement just described, other kinds of materials could be used which meet the requirement that they permit easy rupture or piercing through by a straw. The above arrangement worked satisfactorily when paper straws were used, however of course if plastic straws are used there is less chance of bending or otherwise destroying the straw during the puncture and insertion process. Of course if it were desired to use a thicker or stronger covering material (to prevent accidental rupture due to a pressure inside other than atmospheric pressure), a specially designed straw with a sharp edge or of stronger material (such as glass) would have to be used. Other adhesive material could also of course be used, the one discussed being given only by way of example. If a nontransparent material is used for cover 5 then a circle should be printed on the cover above the aperture so as to provide a guide for pushing the straw through the aperture 4. Although a paper straw satisfactorily pierced the above-described cover, the stronger plastic straws now readily available would permit the use of a stronger cover 5. Although they could readily be used very satisfactorily with the cover 5 described. Of course the advantage of a stronger cover is that there is less likelihood of accidental rupture of the sealed cover 5 due to a difference of pressure which might in some cases arise between the inside and outside of the container due

to change in temperature for example of a particular liquid contents within the container. When it has been decided as to what kind of straw is going to be used then the diameter of the aperture 4 is made larger than the diameter of the aperture to provide clearance for passing the straw through the aperture 4. A piece of material for a cover 5 is then selected which can be pierced readily by the straw without breaking or damaging the particular type of straw selected. An adhesive is selected which will attach and seal the cover 5 to the container wall 2.

Referring to FIG. 2 there is shown a boxlike container 16 having a flat top panel 17 and having no opening for removing liquid from the container 16 other than the simple aperture 18 with covering 19 which is pierced with a straw for the withdrawal of the liquid contents. The cover 19 is arranged over the aperture in the same manner as cover 5 was arranged over aperture 4 as was explained above in connection with the description of FIG. 1. Where straws are to be used exclusively with, for example, half-pint size or pint size containers containing a beverage such as milk or orange juice but not soda or a beverage required to be kept under pressure, then a simple, inexpensive, paperboard type boxlike arrangement such as shown in FIG. 2 may be used which has the cover 19 and aperture 18 therein through which a straw is pushed to withdraw the liquid contents thereof. The narrow aperture 18 which is only slightly larger than the straw passed therethrough does not permit the contents to come in contact with the outside air which might otherwise carry and pass contaminants to the liquid contents in the container.

Referring to FIG. 3 there is shown a milkshake container 10 having a removable plastic cover 13. An aperture 14 and cover 15 is arranged in a similar manner as the aperture 4 and cover 5 of the container 1 already discussed in connection with FIG. 1. The aperture 14 may be larger than the aperture 4 since for milkshakes a larger straw is used and such straw will of course have to pass through the aperture 14.

Extra covers 5', 19', 15' with adhesive backing may be provided for temporarily resealing the containers described if only part of the liquid contents has been withdrawn and it is desired to prevent contamination by air entering the aperture during temporary storage. Several types of containers incorporating the present invention has been given as examples, however it should be understood that modifications of various types of containers in accordance with the principles of the present invention will readily occur to those skilled in the art.

What I claim is:

1. A tubular container for liquids which is surmounted by closure means, said closure means having an aperture therein, said aperture being covered by a thin sheet of material pierceable by a straw, the periphery of said thin sheet of material extending beyond the periphery of said aperture and being sealed to the outside surface of said closure means, and including a further sheet of material for resealing said container after piercing of said thin sheet of material, said further sheet of material having an adhesive backing thereon, said further sheet of material also pierceable by a straw.

2. A tubular container for liquids which is surmounted by closure means, said closure means having an aperture therein, said aperture being covered by a thin sheet of material pierceable by a straw, the periphery of said thin sheet of material extending beyond the periphery of said aperture and being sealed to the outside surface of said closure means, and wherein said aperture is slightly larger in cross section than said straw which is used to pierce said thin sheet of material, said thin sheet of material being sealed to the outside surface of said closure means in liquidtight relation and so that said thin sheet of material is maintained taught across said aperture, said tubular container being rectangular in cross section and having four sidewall panels, said closure means being a gable top closure housing a pouring lip including front and rear roof closure panels extending upwardly towards each other from opposite sidewall panels of said tubular container, said aperture being located approximately in the center of one of said roof closure panels.