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[56] **References Cited**
UNITED STATES PATENTS

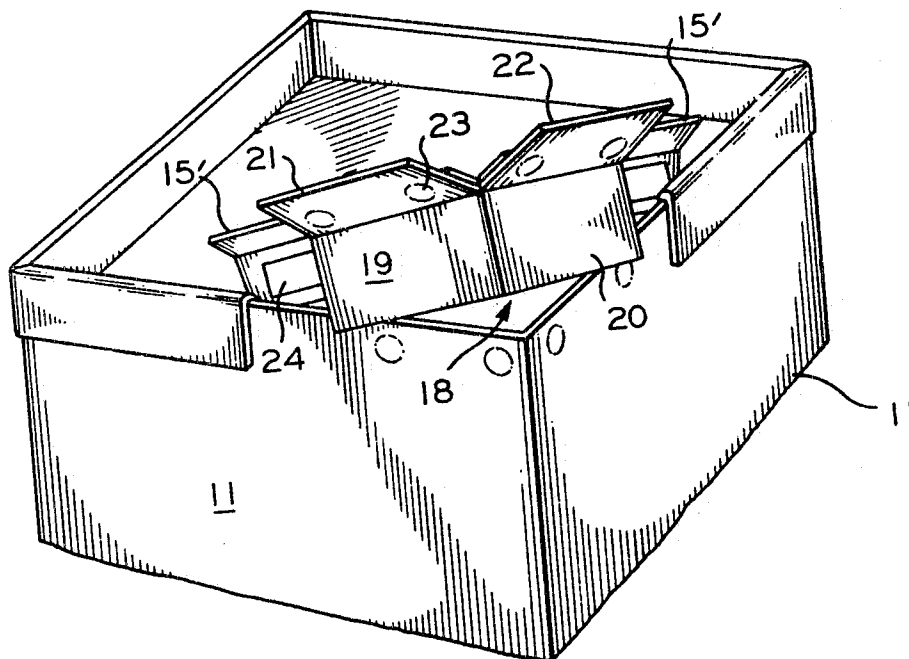
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2,302,083	11/1942	Wilcox	229/7X
2,323,505	7/1943	Wilcox	229/7
2,470,984	5/1949	Horning et al.	229/5.5
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2,754,045	7/1956	Kodat.....	229/7
3,195,795	7/1965	Wilcox	229/7

Primary Examiner—Davis T. Moorhead
Attorney—Young and Quigg

[54] **SEALING STRUCTURE FOR CONTAINERS**
8 Claims, 6 Drawing Figs.

[52] U.S. Cl..... **229/7**
 [51] Int. Cl..... **B65d 43/00,**
B65d 83/00
 [50] Field of Search..... **229/5.5**

ABSTRACT: A container is formed of a tubular body and a top closure member. One section of the closure member is provided with a sealing member which includes an inverted channel member that initially is partially inserted inside the body, but which can be extended over the body to reclose the container.



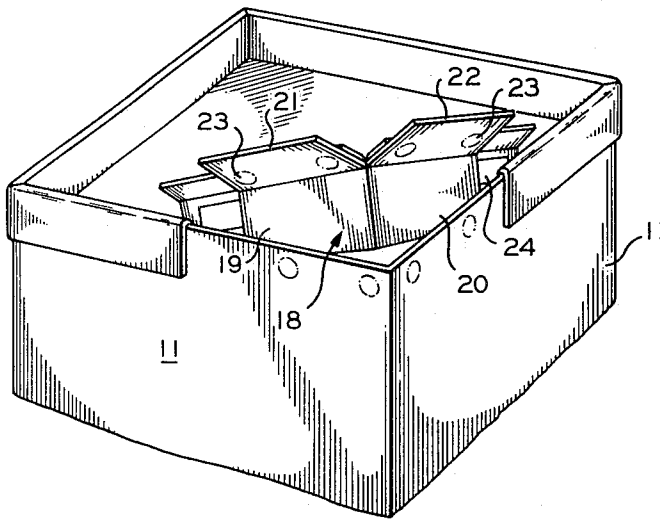


FIG. 3

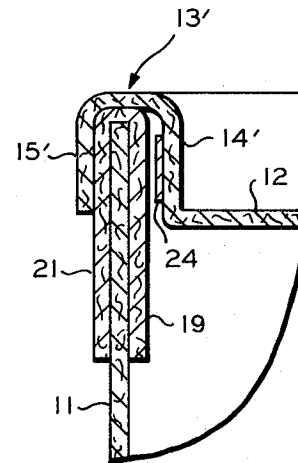


FIG. 2

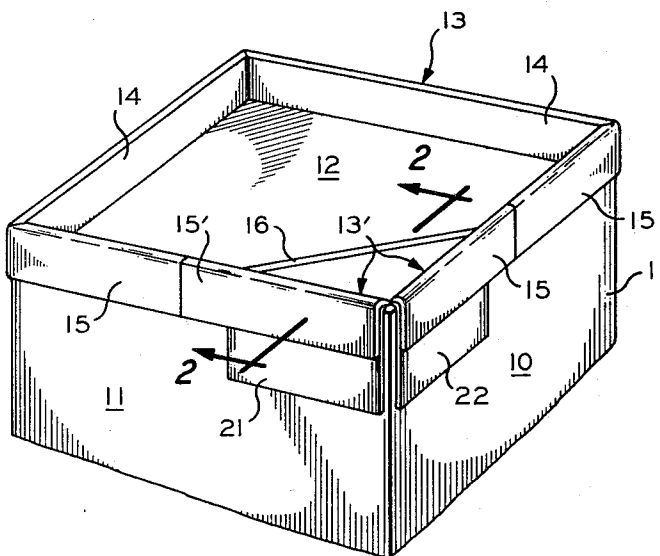


FIG. 1

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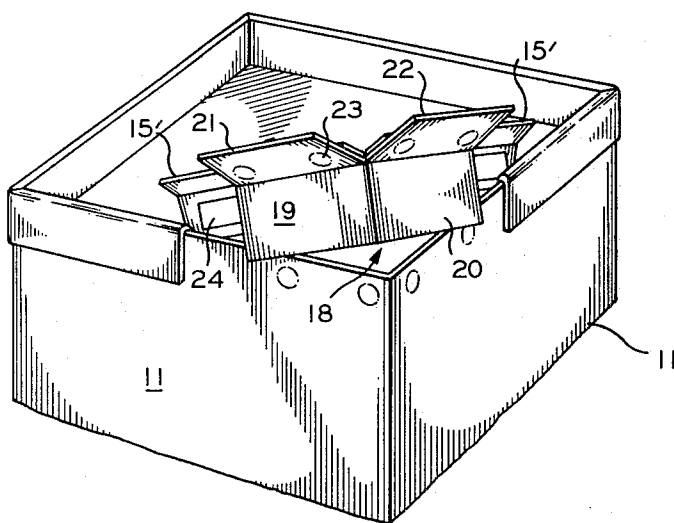


FIG. 4

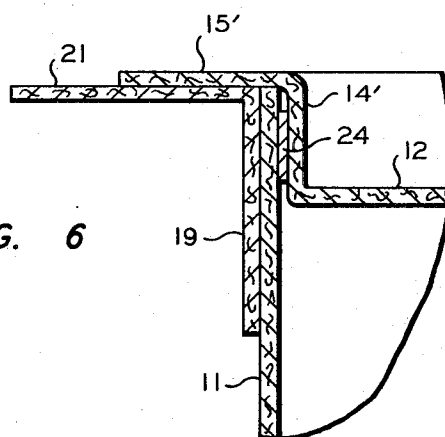


FIG. 6

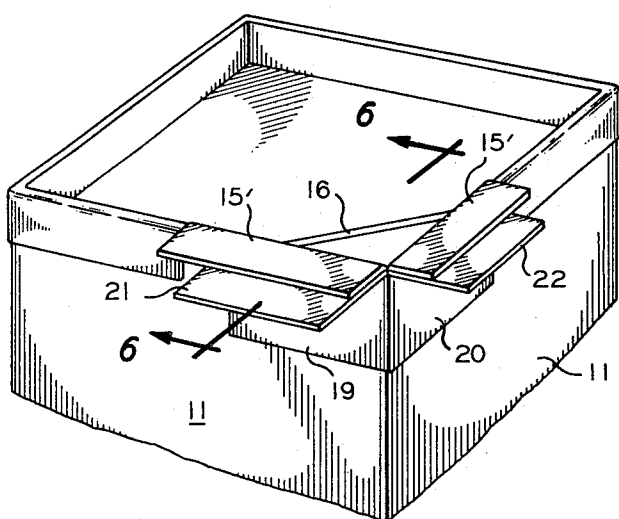


FIG. 5

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SEALING STRUCTURE FOR CONTAINERS

It is common practice in the dairy industry to package liquids in fiberboard containers which are coated with thermoplastic resins. These containers are relatively inexpensive to manufacture and are convenient to use. They are usually of square cross section so that they can be stored in a minimum amount of space. Containers of this type are described in U.S. Pat. Nos. 2,470,984, 2,471,017 and 3,195,795, for example.

In accordance with the present invention, a container of the general type described in the above-identified patents is provided which is particularly adapted for use in packaging particulate materials such as soap powder. This container has a closure member which can readily be opened, and which can subsequently be closed if the entire contents are not used at one time. The closure member is formed of an inverted channel member which initially encloses a portion of the top of the container body. After being opened, the channel member can be displaced outwardly so that the inner wall thereof encloses the body of the container to form a relatively tight seal.

In the drawing:

FIG. 1 is a perspective view of the upper portion of a container having the closure member sealed to the body.

FIG. 2 is a cross-sectional view taken along line 2-2 in FIG. 1.

FIG. 3 illustrates the closure member in a partially opened position.

FIG. 4 illustrates the closure member in a partially closed position.

FIG. 5 illustrates the closure member in a closed position for resealing.

FIG. 6 is a cross-sectional view taken along line 6-6 in FIG. 5.

Referring now to the drawing in detail and to FIGS. 1 and 2 in particular, there is shown the upper portion of the container which is formed of a tubular body 10. This body is formed of a plurality of sidewall panels 11 which can be folded to form the tubular body. The body is conveniently formed from a rectangular blank which is provided with score lines for folding, such as illustrated in FIG. 7 of U.S. Pat. No. 2,470,984, for example. The edges of the blank are sealed along one of the sidewalls or at an edge of the container. It is preferred that the tubular body member be of generally rectangular cross section because such a configuration is easy to construct and stores in a minimum amount of space; however, other configurations such as elliptical or circular can be employed in accordance with this invention.

In forming the container, the rectangular blank is initially folded and sealed to provide body member 10. A suitable bottom closure is then attached. This bottom closure can correspond to element 11 of U.S. Pat. No. 2,471,017, for example. The container is then filled with the material to be packaged, and the top closure is finally applied.

The top closure conforms generally to the shape of body member 10 and comprises a flat plate 12 having an inverted channel 13 about its periphery. Channel 13 is formed of an inner wall 14 and an outer wall 15. Channel 12 fits over the top and is secured to the sidewalls of body 10 to form a sealed container. The body and the closure can advantageously be formed of a paperboard having a thermoplastic coating thereon. The thermoplastic coating results in a container which is impervious to liquids and facilitates the attachment of the closure member. Closure 12 can readily be secured to body member 10 by inserting a mandrel inside channel 13 and applying a heated sealing bar to walls 15. The resulting heat and pressure serve to melt the thermoplastic coating to form a tight seal between the two elements.

The top closure is of modified construction at one corner to provide a sealing member which permits the container to be opened and subsequently closed. A score line 16 extends across one corner of the flat portion 12 of the top closure to permit the corner of the closure to be bent back. A corner portion of the top closure is provided with two inverted channels 13' having respective inner and outer sidewalls 14' and 15'. A second inverted channel 18 is positioned inside channel

13' to enclose the upper edge of side panels 11 when the container is sealed. Channel 18 is formed of two inner wall sections 19 and 20 and two outer wall sections 21 and 22. Inner wall sections 19 and 20 are joined at a fold line, whereas outer wall sections 21 and 22 are separate or joined by a perforated line.

Channel 18 is formed of a material which is reasonably rigid, such as fiberboard, plastic or metal. The surfaces of channels 19, 20, 21 and 22 which engage side panels 11 are formed of a material, or provided with a coating of a material, which does not adhere to the thermoplastic coating on side panels 11. However, the inner surfaces of walls 21 and 22 are provided with one or more regions 23 which are permitted to seal to the side panels 11 when the closure is attached. This provides at least a partial seal between the side panels and channel 18. Regions 23 can be formed of an adhesive or a coating of thermoplastic material, for example. A strip of material 24 is secured to the outer surface of walls 14' to prevent these walls from sealing to channel 18 when the closure is attached. Strip 24 can be formed of a metal foil, for example, to serve this purpose. The heated pressure bar employed to secure closure to the body is designed such that the inner edges of walls 15' are lightly sealed to side panels 11. This permits walls 15' to be torn from the side panels when the closure is opened.

When it is desired to open the container, the user grips the lower edges of walls 21 and 22, which extend below channel 18 to form lifting tabs, and raises these walls to tear walls 15' from side panels 11. The corner of the closure is then bent back to the position illustrated in FIG. 3. The corner of the closure actually is bent back even further than the position illustrated in order to assume a fully opened position. The contents can then be removed by tipping the carton and pouring from the corner.

When it is desired to reclose the container after the partial usage, channel 18 is lifted and pulled outwardly so that walls 19 and 20 extend over side panels 11, as illustrated in FIG. 4. Channel 18 is then moved downwardly to the position illustrated in FIGS. 5 and 6. Walls 19 and 20 thus enclose side panels 11, and walls 14' of channels 13' are immediately adjacent the inner surfaces of the two side panels 11 which form the corner of the container adjacent the opening. This forms a relatively tight seal to prevent spillage of solids if the carton should be tipped. When it is desired to open the carton once again, walls 21 and 22 of channel 18 can be raised.

In the embodiment of this invention thus far described, the body and the closure are formed of paperboard having a thermoplastic coating thereon. While the use of such material is desirable because it provides a liquid impermeable container body and facilitates construction, it is not necessary that this particular material be used. In addition, closure 12 can be secured to body 10 by any convenient means, such as by the use of staples or other fastening devices, for example. In some applications, the closure member can be held initially in the position illustrated in FIG. 1 by the use of a removable tape which extends over walls 21 and 22 of channel 18. The particular sealing means employed depends to a large extent on the nature of the product being stored. If granular materials such as soap powder are being packaged, it is not necessary to have as tight a seal as if liquids are being packaged.

While this invention has been described in conjunction with presently preferred embodiments, it should be evident that it is not limited thereto.

I claim:

1. A container comprising a generally rectangular tubular body member and a closure member secured to said body member, said closure member comprising:

a first inverted channel member enclosing the top of said body member and extending substantially the entire distance around the top of said body member, said first channel member being sealed to said body member except in the region of one corner, and a generally flat plate secured to the inside of said first channel member and extending across the top of said body member; and

a second inverted channel member enclosing the top of said body member in the region of said corner, said second channel member being enclosed by said first channel, the outer wall of said second channel member being secured to the outer wall of said first channel member and the inner wall of said second channel member being separate from said first channel member so that the inner wall of said second channel member is free to be inserted inside said body member and to be displaced outwardly over the corner of said body member.

2. The container of claim 1 wherein the outer wall of said second channel member extends below the outer wall of said first channel member to form a lifting tab.

3. The container of claim 1 wherein the outer wall of said second channel member is releaseably secured to said body member when the container is initially filled and closed.

4. The container of claim 1 wherein said body member and said first channel member are formed of fiberboard having a thermoplastic coating thereon, and further comprising a strip of material positioned between the inner walls of said first and second channel members to prevent said first and second channel members from being sealed together.

5. The container of claim 1 wherein said flat plate is provided with a score line across said corner to permit said plate to be bent along said line.

6. A container comprising a tubular body member, a closure member extending across the top of said body member and being sealed thereto along a substantial portion of said body member, and a sealing member secured to said closure member in the region that the closure member is not sealed to said body member, said sealing member being of such configuration as to permit at least a portion thereof to be (1) inserted within said body member when the container is filled, (2) lifted from within said body member when the container is opened, and (3) displaced outwardly over the edge of the top of said body member to reclose the container.

7. The container of claim 6 wherein said sealing member includes a tab which extends outside said body member when said portion of said sealing member is inserted within said body member, said tab serving to lift said portion of said sealing member when the container is opened.

8. The container of claim 7 wherein said closure member comprises a first inverted channel member which encloses the top of said body member and a generally flat plate secured to the inside of said channel member and wherein said sealing member comprises a second inverted channel member, and means securing said second inverted channel to said flat plate to permit said second inverted channel to occupy the recited positions.

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