March 29, 1966 R. E. JACKE 3,243,098

LINED RECLOSABLE CONTAINER HAVING OPENING AND RECLOSING MEANS

Filed Oct. 21, 1958 2 Sheets-Sheet 1

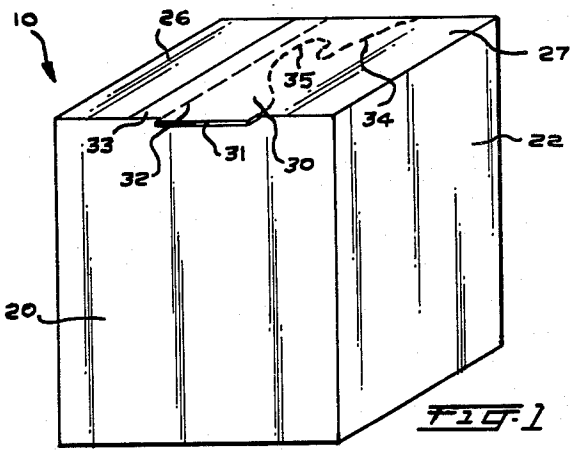



FIG. 1

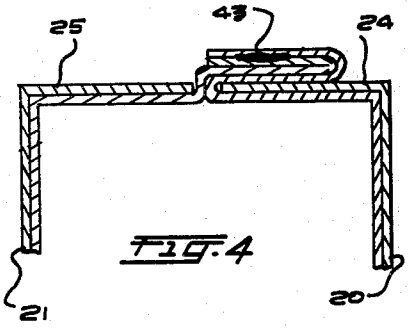



FIG. 4

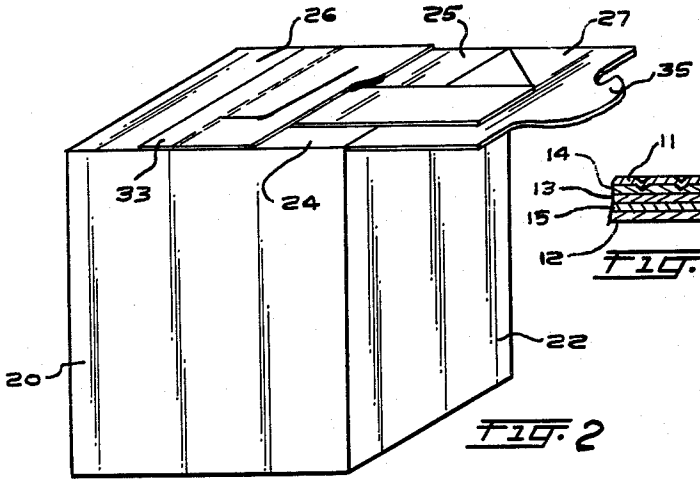



FIG. 2




FIG. 5

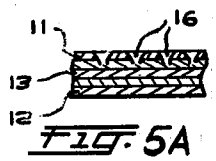



FIG. 5A

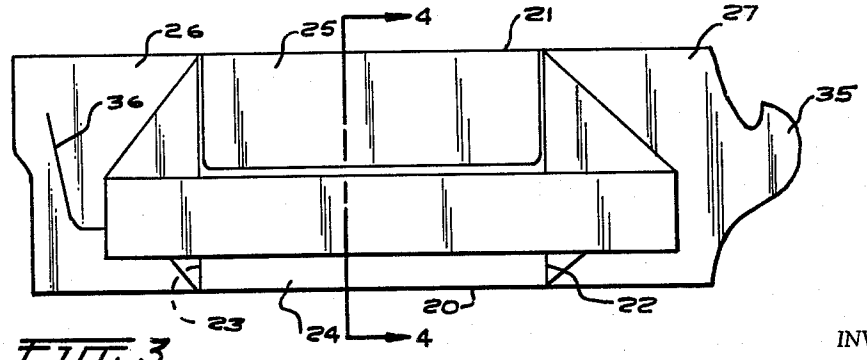



FIG. 3

INVENTOR

RAYMOND E. JACKE

BY Glenn & Jackson

ATTORNEYS

March 29, 1966 R. E. JACKE 3,243,098

LINED RECLOSABLE CONTAINER HAVING OPENING AND RECLOSING MEANS

Filed Oct. 21, 1958 2 Sheets-Sheet 2

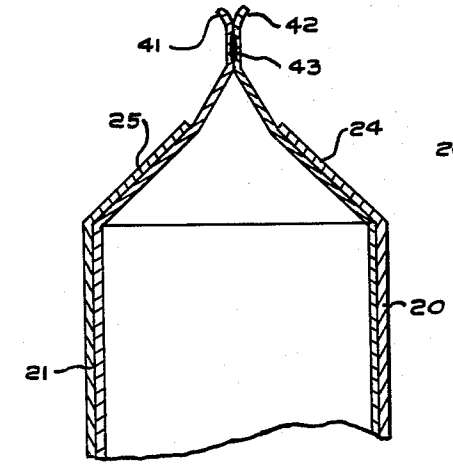



Fig. 6

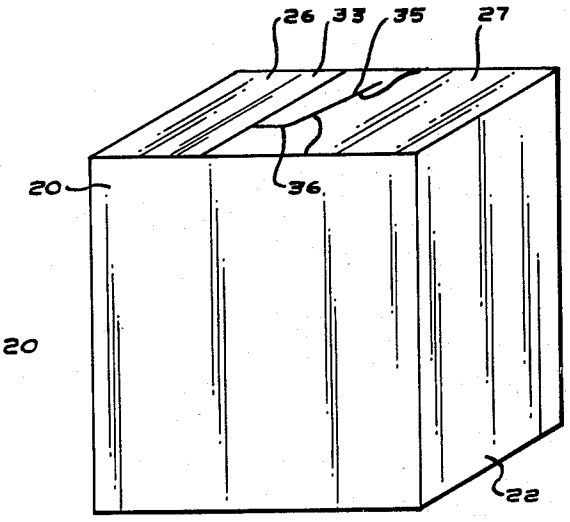



Fig. 8

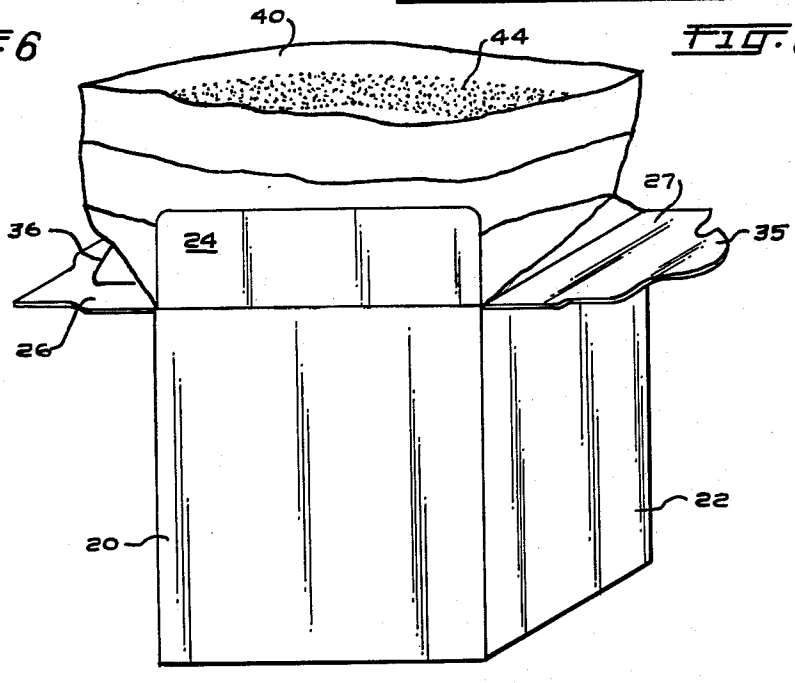



Fig. 7

INVENTOR

RAYMOND E. JACKE

BY Glenn & Jackson

ATTORNEYS

United States Patent Office

3,243,098

Patented Mar. 29, 1966



3,243,098

# LINED RECLOSABLE CONTAINER HAVING OPENING AND RECLOSING MEANS

Raymond E. Jacke, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed Oct. 21, 1958, Ser. No. 768,609
10 Claims. (Cl. 229—51)

This invention relates to an improved lined reclosable container of the type which may be initially assembled, filled and sealed on high-speed packaging machinery and then may be opened at the convenience of the user and reclosed, if desired for the purpose of resealing the container. In particular, it relates to containers of this type wherein an efficient opening and reclosing means is required and whose functioning will in no way detract from the other capabilities of the lined container and will not prevent substantial releasing of the liner of that container.

In my copending application, Serial No. 751,040 filed July 25, 1958, Lined Container for Liquids and Liner Therefor With Method for Rapidly Assembling the Same, now abandoned, one useful and improved form of container for which the present invention is well suited, is disclosed. Such a container includes a liner securely bonded thereto and comprising a metallic surface in contact with the contents of the container and with the liner hermetically sealed after the container is filled. As will be understood, containers of this nature are well adapted for packaging of liquid comestibles such as milk, fruit juice or the like or for non-liquid products such as cottage cheese, ice cream or the like, or for other flowable or non-flowable commodities. In most cases, however, such common factors as sanitation, leak-proofness, ease of opening and reclosing, low initial cost, attractive appearance and adaptability to being processed on conventional machinery, are of significance, regardless of the particular contents of the package. It, therefore, is a purpose of the present invention to provide a container which has characteristics consistent with the above enumerated factors.

One object is to provide a metallic lined hermetically sealed container having an opening and reclosing means including a tear strip in the container top, the tearing of which, does not disturb the integrity of the container liner.

Another object is to provide a metallic lined hermetically sealed container having an opening and reclosing means formed in the container top, the presence of which does not require modification of the container assembling, filling and sealing steps as would be practiced in the absence of such an opening and reclosing means.

Another object is to provide an improved combination of a container structure having a tear strip in its top portion, a sealed liner within the container, and a means in the top portion for holding the container reclosed following the breaking of the seal of the liner, the cooperating parts permitting, if desired, a substantial resealing of the liner following the breaking of the original seal thereof.

A further object is to provide a comparatively rigid lined container having a tear strip in its top portion with an opening and reclosing means associated therewith, such means serving to preserve the shape of the container and the integrity of the liner when the container is reclosed after removal of a portion of its contents.

Other objects and advantages will become apparent when the following description is considered in conjunction with the accompanying drawings, showing a presently preferred form of lined container having an efficient opening and reclosing means and fabricated by a high speed method for assembling the same.



In the drawings, FIG. 1 is a perspective view of a filled and sealed unopened container.

FIG. 2 is a perspective view of the container of FIG. 1 following the removal of the tear strip and with the overlapping top side flap extended horizontally.

FIG. 3 is a plan view of the top of the container of FIG. 1 with both top side flaps extended horizontally.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 3 and to a greatly enlarged scale and showing the folding of the liner along the top seam.

FIG. 5 is a sectional view through the liner to an enlarged scale and showing the liner with an unperforated metallic surface.

FIG. 5A is a view similar to FIG. 5 and showing the liner at a point where metal-to-metal sealing is employed.

FIG. 6 is a view similar to FIG. 4 and showing the liner raised in preparation for breaking the sealed condition of the container.

FIG. 7 is a persepctive view of the opened container with the seal broken and preparatory to dispensing the container contents and

FIG. 8 is a perspective view of the reclosed container.

Referring first to FIG. 1, the completed container package generally represented at **10** and having any conventional parallelepiped form with flat bottom, top and side-wall portions formed of a paperboard material or the like into a comparatively rigid, box-like shape, may be encased in any suitable overwrap (not shown) or may be devoid of an overwrap whenever desired. If an overwrap is employed, no separate tear means therefor is required, as will later appear. Such a package may be formed by any suitable method whereby a liner with the characteristics, later to be described is incorporated therein, but I prefer to employ the method of container fabrication disclosed in my above mentioned application.

In view of the significance of the liner in the combination of structure, an explanation of its construction is desirable prior to describing the container and reference therefore, is made to FIGS. 4, 5, 5A, and 6. In general, the liner is of the type disclosed in my copending application, Ser. No. 638,016, filed February 4, 1957, now Patent No. 2,998,178, Lined Container for Liquids and Liner Therefor and preferably comprises a laminated structure having on one side a thin layer **11** of metallic foil, preferably aluminum, and on the other side a somewhat thicker layer **12** of a porous material such as tissue paper. A centrally located layer **13** of a material impervious to heated wax and comprising for example, flexible paper or plastic film, is suitably disposed between layers **11** and **12**. On the sides of the central layer **13**, two spaced layers **14** and **15** of a heat sealing composition such as a microcrystalline wax are provided, thus forming the liner into a five-layered or laminated structure. Accordingly, when heat is applied to the liner by any suitable means, the wax layers tend to flow, but due to the presence of the wax impervious layer, the direction of flow or migration is controlled and takes place in an outward direction. Moreover, application of pressure also assists in causing wax to flow even when no heat is employed, a feature of which the present invention takes advantage.

The wax which migrates through tissue layer **12** is intended essentially to adhere to the inner surfaces of the container elements, although part of such wax is employed for double sealing of certain seams of the liner as described in my above first mentioned application. Migration of wax through the tissue paper presents no problem, but for sealing of the confronting surfaces of the metallic layer **11** of the liner, means must be provided for permitting passage of the wax through an otherwise impervious metallic layer. I, therefore, provide lightly punctured banks of perforations in that layer at the re-

quired locations for sealing by passing thereover an abrading means, such as a rouletting wheel, or roller cover with emery cloth, or equivalent means, while under sufficient pressure to form a series of spaced pin holes (FIG. 5A) of sufficient size to permit the wax to exude therethrough for sealing purposes.

A typical container employing the invention may be formed from a cardboard blank having a front wall portion **20**, a rear wall portion **21** and side wall portions **22** and **23**. Hinged to the upper edges of the front and rear walls are top flap members **24** and **25** respectively. These flap members have a combined length, as best seen in FIG. 4, which is less than the distance between the front and rear walls of the assembled container. Hinged to side wall **23** at its upper edge is a flap **26** herein defined as an underlying flap, which in assembled container relation, however, folds over the top flap members **24** and **25**. Flap **26** cooperates essentially with a flap **27** hinged to the top edge of side wall **22** and herein defined as an overlapping flap. The flaps **26** and **27** may be of either equal or unequal lengths, but in any case, have a combined length substantially greater than the distances between side walls **22** and **23**. In general, I prefer to make flap **27** longer than flap **26**.

Referring now to FIG. 1, as an important feature of the invention, I provide as an integral part of the overlapping flap **27** a tear strip **30** extending completely across the transverse dimension of the flap and having a slightly protruding edge **31** extending from the front side of the container. This tear strip is bounded on one edge by a weakened tear line **32** disposed inboard of the extreme edge of the flap and forming a panel section **33** of that flap between the edge and the tear line **32**. On another edge the tear strip is bounded by a weakened tear line **34** of irregular configuration providing a distinctly formed hook shaped reclosing tab **35** integral with the top flap **27** when the tear strip is removed as by peeling back the same by grasping it at its protruding edge **31**. Within the underlying flap **26**, a suitable slit **36** is provided for reception of the hook shaped reclosing tab **35** during reclosing of the container. The tab **35** hooks into the slit **36** and the tab and slit are so constructed as to substantially eliminate either transverse or longitudinal sliding of one with respect to the other when they are engaged. Thus upon engagement of the same a rigid tip portion of the container is established serving to preserve the box-like shape and to reduce stress upon the resealed liner during handling of the partially filled container. When no overwrap is employed with the container **10**, the undersurface of panel section **33** may have thereon a suitable adhesive so that the top of the container may be fully closed by the adherence of the flaps **26** and **27** along that panel section during the original closing of the container.

When, however, any overwrap is employed, the tear strip construction as described serves to rupture that overwrap in a neat manner during initial opening thus preserving the general appearance of the package without undue mutilation of the overwrap. For example, detaching of the tear strip **31** first cuts the overwrap along lines substantially identical wtih tear lines **32** and **34** and since the flap **27** is now accessible, the lifting of the same as indicated in FIG. 2, then cuts the overwrap neatly along the right-hand edges of the walls **20** and **21**. Likewise, the subsequent lifting of flap **26** cuts the overwrap neatly along the left-hand edges of the walls **20** and **21**.

Considering now FIG. 3 in which both flaps **27** and **26** are fully extended during an initial opening of the container, the disposition of the sealed inner liner will become apparent. It will be understood that the visible portion of that liner comprises the paper layer **12** thereof and that during the previous filling and sealing of the container heat and pressure had been applied to select portions of the liner. For example, in a preferred procedure the liner surface **12** in contact with the top flaps **24** and **25** is sealed to the under surfaces thereof as seen in FIG. 4



and the triangular portions of the liner in contact with flaps **26** and **27** are likewise sealed to those flaps, these steps taking place prior to the folding of the liner seam shown in that figure.

Moreover, as described in my application, Serial No. 751,040, the liner is sealed to itself along a bottom seam and along a side seam extending along one of the wall portions as well as along the top seam and if desired a side expansion pleat of the liner may be provided to accommodate bulging stresses. It will also be particularly noted from FIG. 3 that the extreme ends of the folded seam at the top of the container terminate inboard of the slit **36** in flap **26** and of the tear line **34**, which defines the tab **35** in flap **27**. Furthermore, a generous area of the liner is provided for the top seam and sufficient to permit the user to raise the top flaps **24**, **25** through a substantial angle during the unfolding of that top seam as noted in FIG. 6. While the liner is shown as being folded over the side top flap **24**, it could equally well be folded over the flap **25**, but in any event it preferably is folded so that the unsealed edges **41** and **42** lie at the top of the folded seam and are readily available for lifting into opening position. Also by so folding the top seam a better protection is secured against a resealed seam being unintentionally stretched open as a partially filled container is being handled. As will be noted in FIG. 4 the edges of the cooperating side top flaps **24** and **25** form a snug fit with the two plies of the diner interposed therebetween and minimize any tendency for the container contents to splash or pass outwardly into the folded seam.

With the foregoing description in mind the sealing functions of the perforations **16** in the confronting metal layers of the liner as employed with the seam at the top of the container, will now be evident. Rather than extend the band of perforations **16** of the edge of the metallic layers of the liner, I locate the same inwardly of that edge as best seen in FIGS. 6 and 7 leaving an unsealed metal to metal strip **40** at the edge of the liner seam. In so doing, I further employ a sufficient amount of liner material to form the generous fold above the top flap **24**. It will be understood that this fold of the liner is made following the sealing of the container and without employing sufficient heat or pressure to cause the folded liner surfaces **12** to adhere to each other. Thus when the flaps **26** and **27** are opened as in FIG. 3, the user may easily pull upwardly the folded seam to the position indicated in FIG. 6.

At this time the unbonded outer edges **41** and **42** of the seam may be separated as by use of the fingers and the sealed portion of the seam as indicated generally at **43** may be pulled apart, the opened container now assuming the configuration seen in FIG. 7.

It will be appreciated, moreover, that due to the presence of the apertures **16** in the metal surface **11** of the liner, these apertures being disposed in the bend generally indicated at **44**, a small amount of cold wax will be exposed on the surface of the opened container after the edges **41** and **42** of the liner are separated. Thus, since the opening of the sealed container has taken place without requiring mutilation of the liner, this wax may be reemployed to give a substantial resealing of the liner prior to reclosing of the container.

Following opening of the container as thus described, a portion of its contents may be dispensed as by tilting of the container. Thereafter, pushing of top flaps **24** and **25** toward each other to the position of FIG. 6 brings the seam edges **41** and **42** adjacent each other. The user may then squeeze the liner surfaces together along band **44** and the previously exuded cold wax then becomes available to form a substantial reseal of the liner along the original seam. The seam may then be refolded to the position of FIG. 3, the flap **26** bent inwardly and the flap **27** bent into overlapping relation to flap **26**. The tab **35** then is inserted in slit **36** and a completely re-

closed container is provided for the remainder of the contents thereof.

Since the resealing of the seam may be expected to result in a weaker seal, having been performed by hand rather than by mechanical sealing apparatus, it is especially important that the top portion of the resealed condition retain its generally rigid reinforced nature. Accordingly, when the tab and slit are engaged as seen in FIG. 8, they serve not only to preserve the shape of the box-like container, but also to relieve the relatively weak resealed seam from undue stress. In fact, if such a container partially filled with a liquid, such as milk, is inadvertently placed on its side or inverted, the reinforcing of the seam by this tab and slit arrangement generally is adequate to prevent the seam from spreading apart and thus prevents leakage.

While I have shown a particular embodiment of the invention, it will be understood, of course, that I do not wish to be limited thereto and I, therefore, contemplate by the appended claims to cover any modifications as fall within the true spirit and scope of my invention.

What is claimed is:

1. In combination, a lined reclosable container having a comparatively rigid box-like body portion including walls joined to an openable top portion comprising an overlapping flap, and an underlying flap, a multilayer liner affixed to the inner walls of said body portion and including a metallic layer in contact with the container contents, an adhesive paper layer in contact with said walls and a wax layer intermediate said other layers, said liner being folded and sealed to itself along a metal-to-metal seam positioned along the container top portion under said flaps and movable upwardly into an unfolding position upon separation of said flaps, the sealed portion of said seam being spaced from the extreme edge of said liner thereby to provide an unsealed strip suitable for separation of its contacting metallic surfaces without mutilation of said liner during opening of said container, and said overlapping flap including a tear strip integrally formed therein and said underlying flap including an opening, said tear strip during its removal from said container being arranged to tear along an irregular line and to form an irregular shaped reclosing tab on said overlapping flap, said tab being receivable in said opening to reclose said container.

2. In combination, a lined reclosable container having a comparatively rigid box-like body portion including a front wall portion having a first top flap joined thereto, a rear wall portion having a second top flap joined thereto, a side wall portion having an underlying top flap joined thereto, and a side wall portion having an overlapping top flap joined thereto, said first and second top flaps having a combined length less than the distance between said front and rear wall portions, a multi-layer liner affixed to the inner walls of said body portion and including a metallic layer in contact with the container contents, an adhesive paper layer in contact with said walls and said side top flaps, and a wax layer intermediate said other layers, said liner being folded and sealed to itself along a metal-to-metal seam positioned along the container top portion under said overlapping and underlying flaps and between said first and second flaps and movable upwardly into an unfolding position upon separation of said overlapping and underlying flaps, the sealed portion of said seam being spaced from the extreme edge of said liner thereby to provide an unsealed strip suitable for separation of its contacting metallic surfaces without mutilation of said liner during opening of said container, and said overlapping flap including a tear strip integrally formed therein and said underlying flap including an opening, said tear strip during its removal from said container being arranged to tear along an irregular line and to form an irregular shaped reclosing tab on said overlapping flap, said tab being receivable in said opening to reclose said container.



3. In combination, a reclosable container having a comparatively rigid box-like body portion including walls joined to an openable top portion comprising an overlapping flap, and an underlying flap, and reclosing means on said overlapping flap for engaging with said underlying flap during reclosing of said container into its original position, said means serving to preserve the shape of the box-like container, said overlapping flap including a tear strip integrally formed therein and extending completely across said overlapping flap, said underlying flap including an opening, said tear strip having a pair of opposed side edges extending completely across said overlapping flap and detachably secured to said overlapping flap, one of said side edges defining an irregularly shaped reclosing tab on said overlapping flap, the other side edge defining a section of said overlapping flap that is spaced from said reclosing tab when said tear strip is removed from said container, said tab when engaged in said opening forming said reclosing means.

4. In combination, a lined reclosable container having a comparatively rigid box-like body portion including a front wall portion having a first top flap joined thereto, a rear wall portion having a second top flap joined thereto, a side wall portion having an underlying top flap joined thereto, and a side wall portion having an overlapping top flap joined thereto, said first and second top flaps having a combined length less than the distance between said front and rear wall portions, a liner in said container, said liner being folded and sealed to itself along a seam positioned along the container top portion under said overlapping and underlying flaps and between said first and second flaps and movable upwardly into an unfolding position upon separation of said overlapping and underlying flaps, the sealed portion of said seam being spaced from the extreme edge of said liner thereby to provide an unsealed strip suitable for separation of its contacting surfaces without mutilation of said liner during opening of said container, and said overlapping flap including a tear strip integrally formed therein and said underlying flap including an opening, said tear strip during its removal from said container being arranged to tear along an irregular line and to form an irregular shaped reclosing tab on said overlapping flap, said tab being received in said opening to reclose said container.

5. A container having an open end and having an underlying flap and an overlapping flap for closing said open end, said underlying flap having an opening therein, said overlapping flap having a removable tear-away portion that extends completely across said overlapping flap and defines a reclosing tab on said overlapping flap when said tear-away portion is removed from said container to initially open said container, said reclosing tab being receivable in said opening in said underlying flap to reclose said open end of said container, said removable tear-away portion having a pair of opposed side edges respectively detachably secured to said overlapping flap and extending completely across said overlapping flap, said opposed side edges being spaced from each other by said tear-away portion throughout the entire width of said overlapping flap, one of said side edges defining said reclosing tab on said overlapping flap, the other side edge defining a section of said overlapping flap that is spaced from said reclosing tab when said tear-away portion is removed from said container.

6. A container as set forth in claim 5, wherein said tear-away portion of said overlapping flap comprises a tear strip extending throughout the width of said overlapping flap.

7. A container as set forth in claim 5, wherein said overlapping flap has one end thereof hinged to a wall of said container and another end thereof secured to said underlying flap, and said tear-away portion comprises a tear strip extending throughout the width of said

overlapping flap and being disposed between said ends thereof.

**8.** A container as set forth in claim **5** wherein said tear-away portion has an end projecting beyond a side wall of said container to be readily grasped to remove said tear-away portion from said container.

**9.** In combination, a reclosable container having a comparatively rigid box-like body portion including walls joined to an openable top portion comprising an overlapping flap, and an underlying flap, and reclosing means on said overlapping flap for engaging with said underlying flap during reclosing of said container into its original position, said means serving to preserve the shape of the box-like container, said overlapping flap including a tear strip integrally formed therein and extending completely across said overlapping flap, said underlying flap including an opening, said tear strip during its removal from said container being arranged to tear along an irregular line that extends completely across said overlapping flap and to form an irregular shaped reclosing tab on said overlapping flap, said tab when engaged in said opening forming said reclosing means, said tear strip forming a hook-shaped tab which hooks into said opening to substantially eliminate either transverse or longitudinal sliding of one flap with respect to the other flap.

**10.** In combination, a reclosable container having a comparatively rigid box-like body portion including walls joined to an openable top portion comprising an overlapping flap, and an underlying portion, and reclosing means on said overlapping flap for engaging with said underlying portion during reclosing of said container into its original position, said means serving to preserve



the shape of the box-like container, said overlapping flap including a tear strip integrally formed therein and extending completely across said overlapping flap, said underlying portion including an opening, said tear strip having a pair of opposed side edges extending completely across said overlapping flap and detachably secured to said overlapping flap, one of said side edges defining an irregularly shaped reclosing tab on said overlapping flap, the other side edge defining a section of said overlapping flap that is spaced from said reclosing tab when said tear strip is removed from said container, said tab when engaged in said opening forming said reclosing means.


**References Cited by the Examiner**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,234,483 | 7/1917 | Luke. | |
| 1,961,556 | 6/1934 | Fallows | 229—51 |
| 1,980,851 | 11/1934 | Crawford | 229—51 |
| 1,985,590 | 12/1934 | Weiss | 229—51 |
| 2,152,323 | 3/1939 | Moore | 229—3.5 |
| 2,170,378 | 8/1939 | Orstrom | 229—14 |
| 2,214,172 | 9/1940 | Moore. | |
| 2,216,527 | 10/1940 | Weiss | 229—14 |
| 2,267,320 | 12/1941 | Berch | 93—6 |
| 2,292,653 | 8/1942 | Palmer | 229—14 |
| 2,335,913 | 12/1943 | Buttery | 229—14 |
| 2,337,730 | 12/1943 | Berch | 229—14 X |



GEORGE O. RALSTON, *Primary Examiner.*

EARLE J. DRUMMOND, FRANKLIN T. GARRETT, *Examiners.*

D. T. MOORHEAD, *Assistant Examiner.*