United States Patent

Wolfe

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[54] CARTON WITH LOCKING MEANS FOR RECLOSABLE COVER

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[52] **U.S. Cl.** **229/45,** 229/36, 206/45.31

[51] **Int. Cl.**.....**B65d 45/00,** B65d 5/66

[58] **Field of Search** .....229/45, 44; 206/45.31, 36, 206/44 CB

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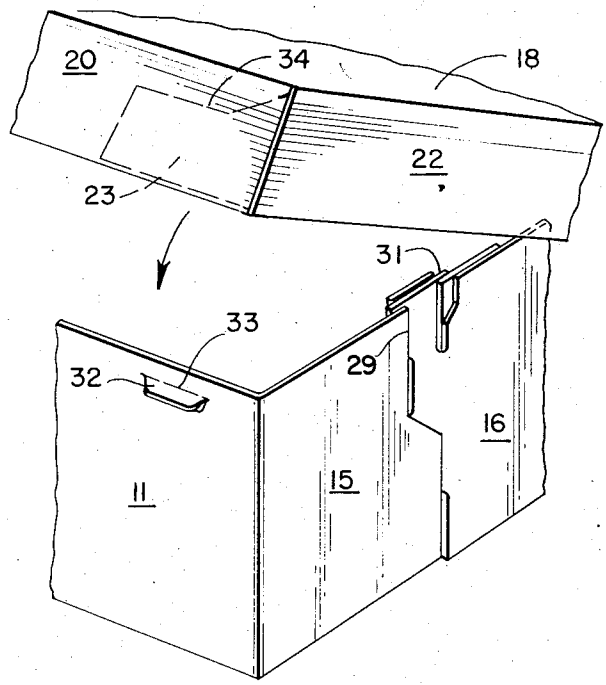
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[57] **ABSTRACT**

A carton formed from a single blank of foldable paperboard or the like having a reclosable cover which is hinged to the upper edge of the rear wall panel of the carton proper or tray portion and provided with front and end apron panels, which, when the cover is closed, respectively overlap the front and end wall panels of the carton. Locking tabs cut from the front wall panel are hingedly connected to said panel along their upper edges, and their lower edges normally tend to protrude slightly outwardly from the face of said panel. Glue flaps, which secure the cover apron end panels to the inside of the cover front apron panel at the forward corners of the cover when the carton is erected, are provided with cut-out areas positioned for receiving and engaging the protruding edges of the locking tabs when the cover is in closed position. For gaining access to the closed carton, an upward pressure on the front apron panel of the cover causes an inward and upward force on the locking tabs, causing them to snap or cam out of the cut-outs of the glue flaps to release the locking engagement.

7 Claims, 6 Drawing Figures



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SHEET 1 OF 2

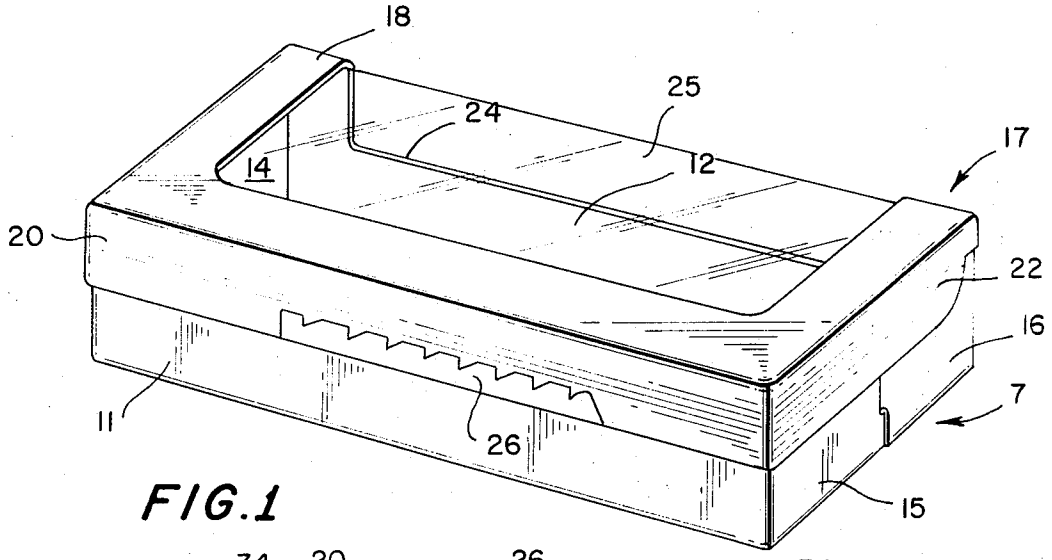


FIG. 1

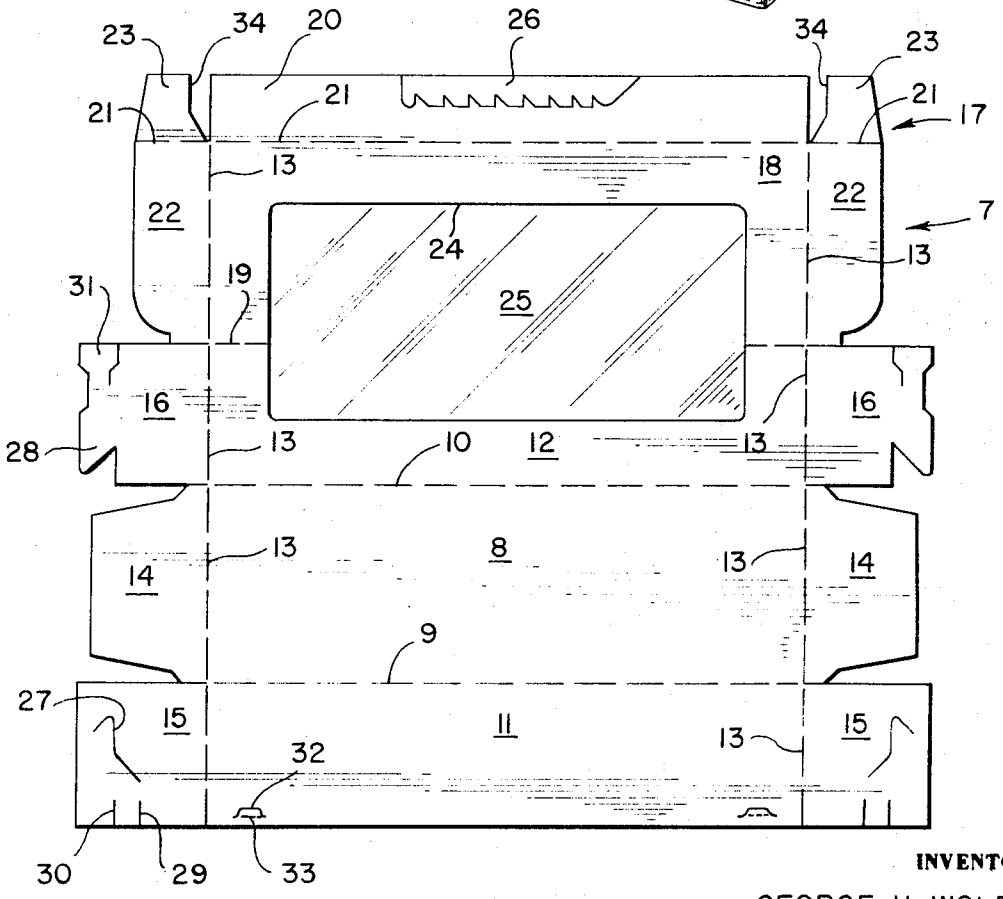


FIG. 2

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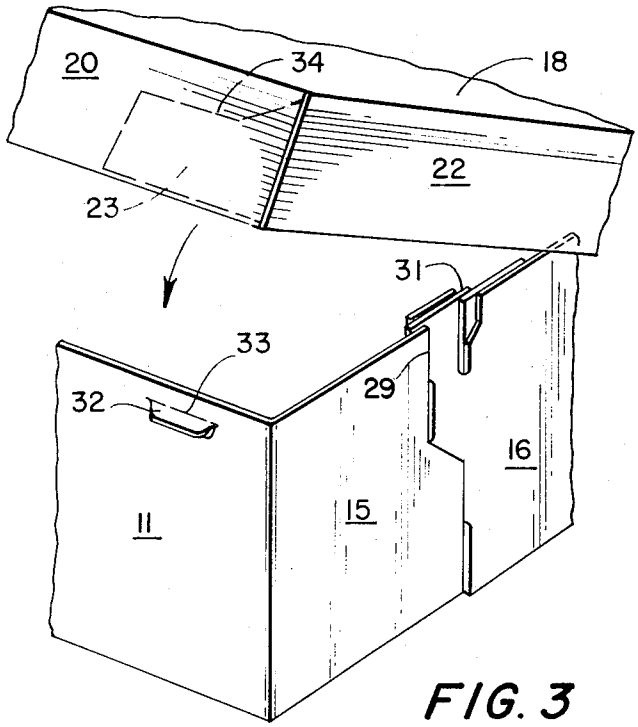


FIG. 3

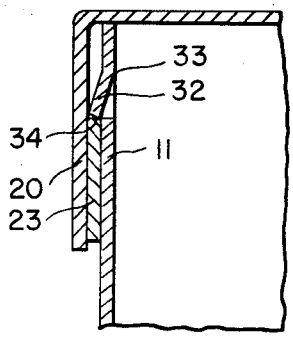
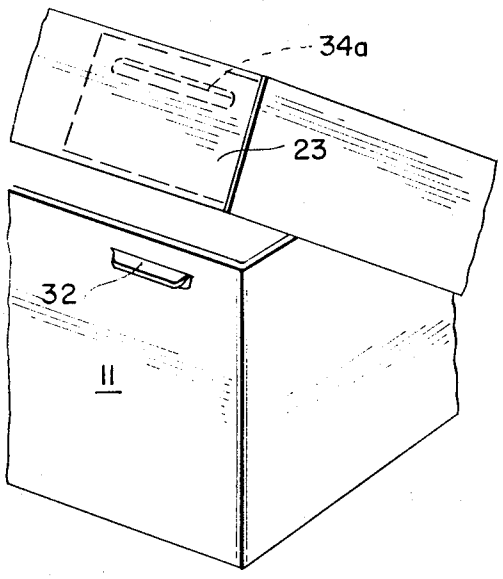


FIG. 4

FIG. 5



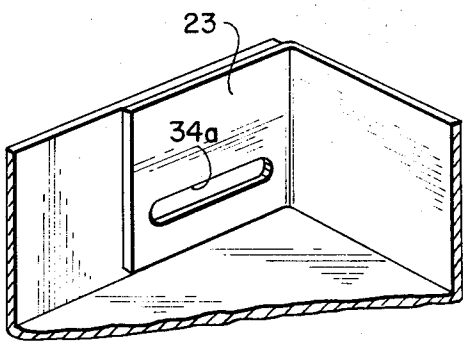


FIG. 6

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CARTON WITH LOCKING MEANS FOR RECLOSABLE COVER

BACKGROUND OF THE INVENTION

The present invention relates to paperboard cartons having reclosable hinged covers of the type used for packaging edible products, such as donuts, where the cover is frequently opened and reclosed in gaining access to the carton. With cartons of this type, especially those for packaging food items such as donuts, after the cover is initially opened, unless some means is provided for temporarily locking the cover in closed position, unintentional opening frequently occurs which results in a loss of product moisture and also the accidental spilling of the carton contents.

It is therefore desirable to provide locking means for the cover which facilitate its easy opening and reclosing as products are removed from the carton and to securely relock the cover numerous times without tearing the same.

SUMMARY OF THE INVENTION

Accordingly, it is a principal object of the invention to provide a carton of this character having locking tabs or detents cut from the front wall panel of the tray portion of the carton and hingedly connected thereto along their upper edges for engagement with cut-out areas of the end glue flaps of the cover portion apron panels, which secure the cover end apron panels to the inside of the cover front apron panel at the forward corners of the cover when the carton cover is closed.

Another object of the invention is to provide a cover locking means which requires no additional blank areas in the overall carton blank.

A still further object of the invention is to provide a carton and locking means as above described which can be formed on conventional manufacturing equipment, requiring only minor alterations.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring to the drawings in which numerals of like character designate similar parts throughout the several views:

FIG. **1** is a perspective view showing the erected carton according to one form of the invention with the cover in closed position;

FIG. **2** is a plan view of a single piece of paperboard or the like cut to form a blank for the carton;

FIG. **3** is a fragmentary end view in perspective showing the relationship of the locking tab to the cover glue flap with the cover in partially raised position;

FIG. **4** is a sectional view showing the locking tab in engagement with the cut-out of the glue flap when the cover is closed;

FIG. **5** is a perspective view similar to FIG. **3**, showing a modified form of locking means; and

FIG. **6** is an internal view of the modified glue flap of FIG. **5**.

DETAILED DESCRIPTION OF THE INVENTION

In the drawings, referring first to FIG. **2**, the numeral **7** designates the blank proper cut to form the carton of the present invention. The blank comprises a bottom panel **8** for the tray portion of the carton which is connected along longitudinally extending parallel hinge

lines **9** and **10** to front and rear tray wall panels **11** and **12**, respectively. The bottom panel **8** is connected at hinge lines **13** to end flaps **14**, which, as will later appear, coact with end tray panels **15** and **16** of the front and rear wall panels **11** and **12**, respectively, to form the end walls of the carton tray when the latter is erected. The end tray panels **15** and **16** are hingedly connected to the ends of panels **11** and **12** along continuations of the fold line **13** previously referred to, which connect the end flaps **14** to the bottom panel.

The cover for the carton tray is generally indicated by the numeral **17** and comprises a top panel **18** which is hingedly connected to the rear tray panel **12** along hinge line **19** which runs parallel with the hinge lines **9** and **10** previously referred to. Along the forward edge of the top panel **18** a front apron panel **20** is hingedly connected along hinge line **21**, and each end of this top panel is provided with an end apron panel **22** which is hingedly connected along a further extension of hinge line **13**, each of the end apron panels **22** being provided adjacent the front apron panel **20** with glue flaps **23** hingedly connected along extensions of hinge line **21**, whereby, when the carton is erected, the end panels **22** may be secured to the inner surface of the front apron panel **20** at the corners thereof to retain the cover in assembled position.

In the form of the invention here illustrated, a window is formed by opening **24** in adjacent portions of the rear and top panels **12** and **18**, respectively, which may be covered with a transparent sheet **25** glued at its extremities to the panels in well known manner. Also, any known type of tear strip **26** may be provided on the front apron panel **20** for releasibly securing the cover in closed position when it is initially packed.

Various conventional means for locking the tray end flaps **15** and **16** in overlying relation with respect to the bottom end flaps **14** may be employed. In the form of the invention here illustrated, each front wall end panel **15** is provided with an irregular cut line **27** which, when the end panel is folded inwardly, engages with a locking tab **28** on the corresponding rear panel end flap **16** which overlaps the end panel **15**. Also, each end panel **15** is provided along its free top edge with two parallel cut lines **29** and **30** extending perpendicular to said free top edge for interlocking with a substantially T-shaped tab **31** cut in the corresponding end panel **16** of the rear tray panel **12**. The operation of this feature will be referred to later on.

The essence of the present invention resides in the means for releasibly locking the carton cover in closed position. As seen in FIGS. **2**, **3** and **4**, adjacent the upper longitudinal edge of the front tray wall panel **11**, locking tabs **32** are cut along one edge from the panel **11** and remain hingedly connected thereto at their bases by perforated lines **33**. The free edges of the locking tabs may be cut in crescent shape or simply with converging ends as shown to provide what might be termed "detents". In the manufacture of this blank, any suitable means may be added to the machine to pre-open the cuts forming the tabs and partially fold them outwardly along their perforated hinge lines **33**, so that when the carton is finally assembled, the free edges of the tabs **32** are projected outwardly from the front face of the front panel **11**, as shown in FIGS. **3** and **4**.

The keeper elements for coacting with the locking tabs or detents **32** are provided by forming the glue flaps **23**, which are hinged along hinge line **21**, with cut-out areas **34**, which, when the carton cover is erected and the cover closed, are aligned to receive the protruding edges of the locking tabs **32**, as shown in FIGS. **3** and **4**. Here, it will be seen that the protruding free edge of locking tab **32** engages the adjacent boundary of the glue flap cut-out area **34**.

In erecting the blank shown in FIG. **2** to the form shown in FIG. **1**, the front and rear wall panels **11** and **12** of the tray portion are respectively folded upwardly with respect to the bottom panel **8**, along their hinge lines **9** and **10**. The end flaps **14** of the bottom wall **8** are folded upwardly along hinge **13**, and the front panel end flaps **15** are folded to overlie flaps **14**, after which the rear end panels **16** are folded to overlie end flaps **15**, as shown in FIG. **3**. The locking cut-outs and cut lines of the end panels **15** and **16**, which actually form no part of the present invention, are then interlocked as shown in FIG. **3** to retain the end walls in assembled position.

Also, as shown in FIGS. **3** and **4**, the top cover panel **18** is folded along its hinge line **19**, and the cover end apron panels **22** are folded along their hinge lines **13**. The glue flaps **23** are folded along their hinge lines **21** so that when the front apron panel **20** is folded along its hinge line **21**, it will overlie the glue flaps **23** which are then secured by suitable adhesive to the inner face of the front apron panel **20**.

When the erected carton is filled with its product, the cover **17** is initially sealed by adhering the conventional tear strip **26** to the outer face of the front wall panel **11** of the carton so as to guard the contents against deterioration. In opening the carton, the tear strip **26** is removed, but the cover **17** remains in closed position due to the locking engagement of locking tabs **32** with the edge of the cut-out of the glue flap **23**, as in FIG. **4**. In order to release this latter locking device, upward pressure is applied to the front apron panel **20** of the cover, which, due to the engagement of the free edges of the locking tabs **32** with the keeper cut-outs **34** of the glue flaps **23**, results in an upward and inward force on the locking tabs. This force causes the hinged locking tabs to snap out of their keeper cut-outs with a cam-like action which releases them from their locked condition. The cover can then be readily opened by hinging on its hinge line **19**, and when it is reclosed, the locking tabs **32** re-engage the cut-outs of the glue flaps **23**. Thus, the cover can be opened and closed numerous times and still retain the freshness of the contained product.

As seen in FIGS. **5** and **6**, instead of providing a cut-out area such as **34** along the edge of glue tab **23**, this glue tab may be provided within its boundaries with an elongated cut-out slot **34***a*. As in the previously described form of the invention, this slot **34***a* is aligned to receive the protruding edge of the locking tab or detent **32** when the cover is in closed position so as to lock the cover. Here, also, the lock is releasible by applying upward pressure on the front apron panel of the cover, which causes the release of the locking tabs from their respective keeper slots **34***a*.

It will thus be seen that the present invention provides a readily operable locking means for hinged carton covers, which is particularly important in cartons of the type for containing food products which require frequent opening and closing in removing products from the carton. Also, one of the important features of the present invention resides in the fact that the entire carton, cover and coacting locking elements are formed from a single blank without requiring additional blank areas. In other words, the locking tabs are cut from the usual front wall of the carton, and the cut-out keeper areas for receiving the locking tabs or detents are provided entirely within the usual glue flaps **23**.

From the foregoing, it is believed that the invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details disclosed without departing from the spirit of the invention.

I claim:

1. In a carton of paperboard or the like including a tray portion having hinged front, rear and end walls and a cover portion having at least front and end hinged apron panels adapted to overlap the front and end walls of said tray portion when the cover portion is closed, said end apron panels being connected to said front apron panel by hinged glue flaps integral with one of said apron panels and overlapping the inner face of a right angularly adjacent apron panel, means for releasibly locking said cover portion in closed position, comprising at least one locking tab having one free edge cut from one wall of said tray portion and connected thereto at its base along a hinge line forming the upper edge of said locking tab and spaced from the upper edge of said one wall, said locking tab projecting outwardly from said hinge line at a small angle to protrude said free edge outwardly with respect to the outer face of said one tray wall, a cut-out area formed in one of said hinged cover apron panels, which, when said cover is closed, is aligned to receive the protruding free edge of said locking tab, acting as a keeper therefor, said locking tab being releasible from said cut-out area by applying upward pressure on the cover panel having said cut-out area, causing the locking tab to snap out of said cut-out area.

2. In a carton of paperboard or the like including a tray portion having hinged front, rear and end walls and a cover portion having at least front and end hinged apron panels adapted to overlap the front and end walls of said tray portion when the cover portion is closed, said end apron panels being connected to said front apron panel by hinged glue flaps integral with one of said apron panels and overlapping the inner face of a right angularly adjacent apron panel, means for releasibly locking said cover portion in closed position, comprising at least one locking tab having one free edge cut from one wall of said tray portion and connected thereto at its base along a hinge line forming the upper edge of said locking tab and spaced from the upper edge of said one wall, said locking tab projecting outwardly from said hinge line at a small angle to protrude said free edge outwardly with respect to the outer face of said one tray wall, at least one of said glue flaps having a cut-out area, which, when said cover is closed, is aligned to receive the protruding free edge of said locking tab, acting as a keeper therefor, said locking tab being releasible from said cut-out area by applying upward pressure on the cover apron panel to

which said glue flap is adhered, causing the locking tab to snap out of said cut-out area.

3. The invention as claimed in claim 1, wherein all of said hinged members are formed in a single blank.

4. The invention as claimed in claim 2, wherein said glue flaps are hinged to said end apron panels and glued to said front apron panel.

5. The invention as claimed in claim 2, wherein said cut-out areas are formed in the upper edges of said glue flaps.

6. The invention as claimed in claim 2, wherein said cut-out areas are in the form of slots cut in said glue flaps.

7. The invention as claimed in claim 2, wherein said cover portion is hingedly connected to said tray portion along the rear wall of the latter.

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