United States Patent

Meyers

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[54] REDUCIBLE, RECLOSABLE CARTON

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[52] **U.S. Cl.** .....**229/51 TC**, 229/51 TS

[51] **Int. Cl.** **B65d 17/00**

[58] **Field of Search** .229/51 TS, 51 TC, 51 SC, 44 R, 229/44 CB

[56] **References Cited**

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[57] **ABSTRACT**

A reducible, reclosable carton blank which includes a tear-out portion extending across the top section of the front and side panels. After removal of this portion, the carton is reclosable at substantially reduced height, the top section of the rear panel now forming the new top wall and the original top wall now extending downward in overlapping relation to the front wall. The particular conformation of the tear-out portion results in a pair of male locking studs at the top wall front corners, which co-act with a pair of double, parallel slits running across the score lines between the front panel and two side panels. The slits form a push-in-step type of female locking slot.

8 Claims, 5 Drawing Figures

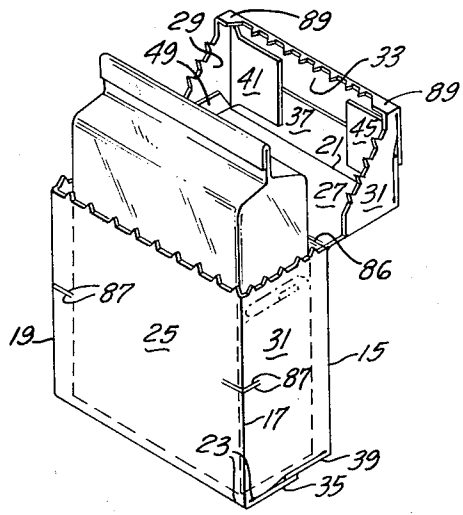


FIG. 1

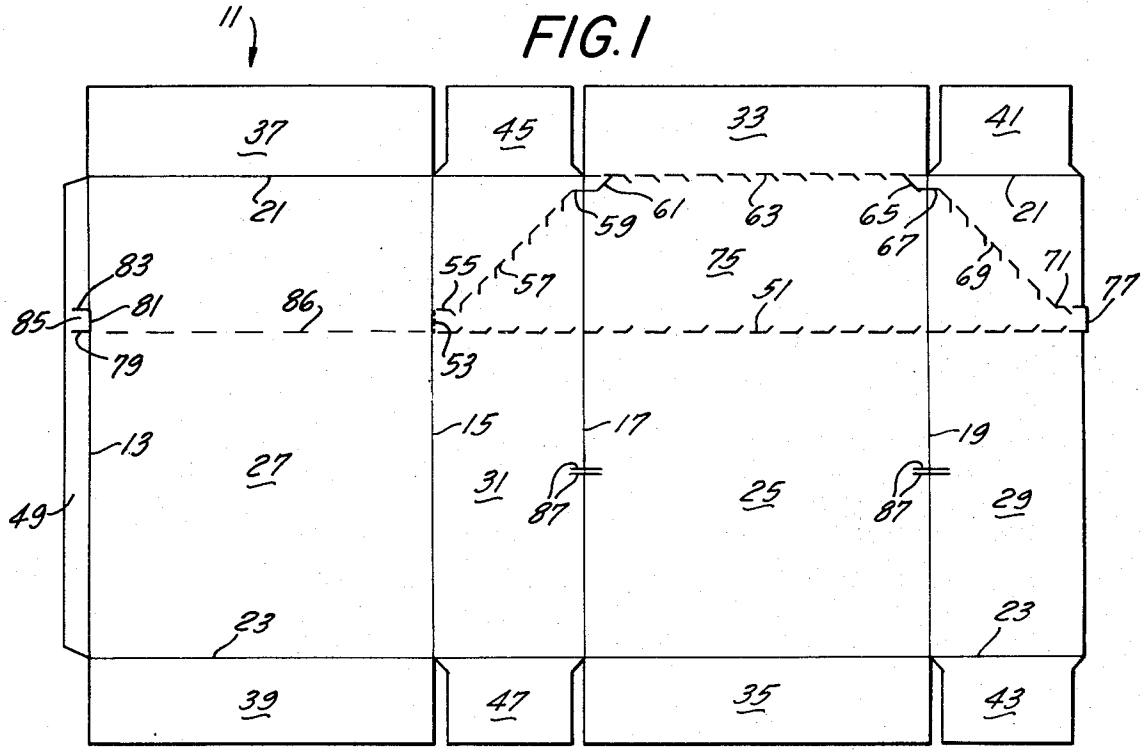


FIG. 2

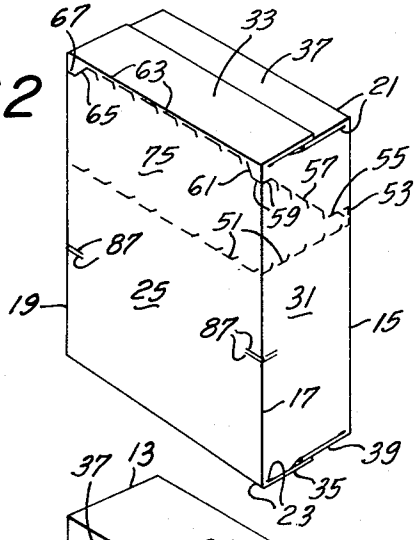


FIG. 3

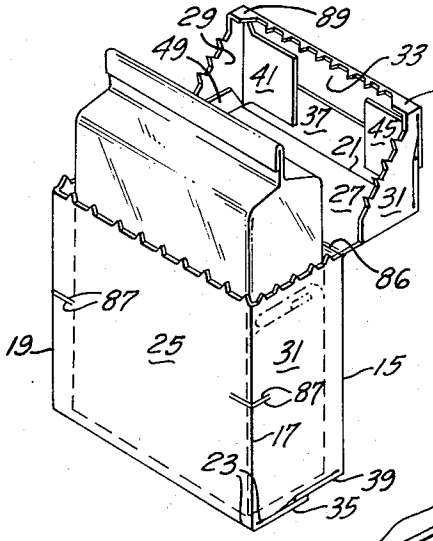


FIG. 4

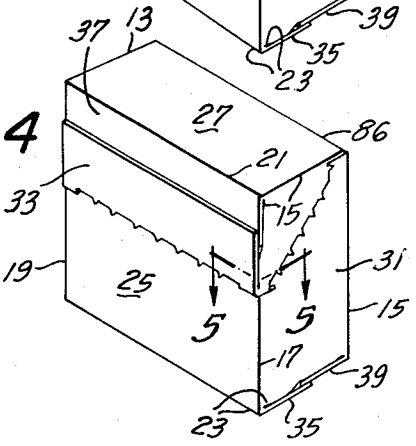
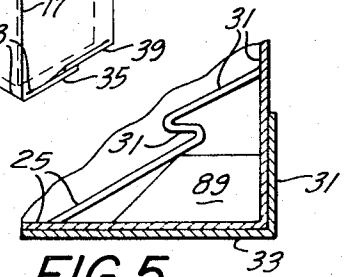


FIG. 5



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REDUCIBLE, RECLOSABLE CARTON

BACKGROUND OF THE INVENTION

The instant invention relates to a reducible, reclosable carton blank, and more particularly to a reducible, reclosable carton blank having a tear-out portion which, upon erection of the carton and removal of the tear-out portion, leaves behind a pair of male locking studs at the top wall front corners, which co-act with a pair of push-in-step type female locking slots.

In many instances products are packaged in quantities such that the product container is not emptied all at one time. It is important after the initial opening and partial use of the product that the container can be reclosed to protect the remainder of the product. Furthermore, it is advantageous to be able to easily reduce the size of the carton after a predetermined amount of the product has been used. Reduction in the container size is important in terms of handling ease as well as increasing available storage space.

There are reducible, reclosable cartons available today which satisfy the above criteria, but none of them provide a simple means of locking the reduced carton in a closed position. In the instant invention there is included a reclosure locking feature which requires only that the carton top be placed in closed position; no further, special locking steps are necessary.

SUMMARY OF THE INVENTION

The instant invention provides an improvement in a blank suitably cut and scored, and capable of being erected into a reducible, reclosable carton. The blank comprises a front panel, an inner side panel, an outer side panel, each side panel hingedly connected to the front panel, a rear panel hingedly connected to the inner side panel, a glue flap hingedly connected to the exterior edge portion of the rear panel capable of underlying and adhering to the exterior edge portion of the outer side panel, a top and a bottom end flap hingedly connected to the rear panel, a top and a bottom end flap hingedly connected to the front panel, the top end flaps being of width sufficient, when the carton is erected, to at least partially overlap each other, and two pairs of top and bottom dust flaps, each of the pairs hingedly connected to each of the side panels.

The improvement comprises a tear-out portion extending across the front and side panels defined by tear lines beginning at the exterior edge portion of the outer side panel below the top of the outer side panel a distance about equal to the width of one of the side panels and continuing in a direction parallel to the juncture of the side panels and dust flaps across the outer side panel, front panel and inner side panel to the juncture of the inner side panel with the rear panel, continuing substantially upwardly therefrom along the inner side panel to a point located near a left front juncture of the inner side panel, the top dust flap connected thereto, the front panel, and the top end flap connected thereto, but spaced from a first score line dividing the inner side panel and front panel, continuing therefrom along the inner side panel to a point along the first score line but spaced below the left front juncture, continuing therefrom along the front panel to a point located near the left front juncture but spaced from the first score line and from a second line dividing the front panel and the top end flap connected thereto, continuing therefrom along the front panel to a point located on the second dividing line but spaced from the left front juncture, continuing therefrom along the second dividing line and terminating at the exterior edge portion of the outer side panel in a manner such that the tear-out portion is symmetrical about a line bisecting the front panel and the pair of end flaps connected thereto, whereby a pair of male locking studs may be formed across the front and side panels upon erection of the carton and removal of the tear-out portion; and push-in-step locking means formed by a pair of double, parallel slits located across each of the score lines dividing the front panel from the side panels, capable of receiving the male locking studs when the carton is erected and the tear-out portion is removed, said slits being positioned below the second dividing line a distance about equal to twice the width of one of the side panels.

The carton is opened by removing the tear-out portion. When the contents of the carton have been decreased sufficiently, reclosure of the carton is possible at its reduced height. The remaining top wall is pulled downward and the upper section of the rear panel forms the new top wall. Reclosure is accomplished by simply pulling down the new top wall until the male studs engage the push-in-step locking slot.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a plan view of an integral blank suitably cut and scored to form a reducible, reclosable carton.

FIG. 2 is a perspective view of the blank of FIG. 1 completely erected and glued to form a carton.

FIG. 3 is a perspective view of the erected carton after the tear-out portion has been removed.

FIG. 4 is a perspective view of the erected carton in its reduced and reclosed form.

FIG. 5 is a sectional view taken on the horizontal plane indicated by the line 5—5 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In describing the preferred embodiment of the present invention, reference is made now to the drawings, especially FIG. 1. The carton is made of a single, foldable blank 11 of flexible material such as paperboard. The blank 11 is divided by score lines 13, 15, 17, 19, 21 and 23 into hingedly connected panels and flaps including front panel 25, rear panel 27, outer side panel 29, inner side panel 31, top end flat 33, bottom end flat 35, top end flap 37, bottom end flap 39, top dust flat 41, bottom dust flap 43, top dust flap 45, bottom dust flap 47, and glue flap 49. Tear lines 51, 53, 55, 57, 59, 61, 63, 65, 67, 69 and 71, shown as a herring bone zipper strip, define a tear-out portion 75 having an extension on the exterior edge portion of the outer side panel 29 defining a pull tab 77. The function of the tear lines will be described more fully hereinafter.

Double cut score lines 79, 81 and 83 define the pull tab portion 85 located on the glue flap 49. A score line 86, which is a continuation of tear line 51, extends across the rear panel 27.

Two pairs of parallel slits 87 are located on score lines 17 and 19 below the tear-out portion 75 a distance equal to the width of the side panel 29. These slits 87

create the push-in-step locking means which are discussed more fully hereinafter. The width of the tear-out portion **75** is also equal to the width of the side panel **29**.

The blank shown in FIG. **1** is formed into a glued carton shell by folding rear panel **27** and attached glue flap **49** inwardly about score line **15** to overlie the inner side panel **31** and a portion of the front panel **25**, applying adhesive to the exposed outer surface of the glue flap **49**, and then folding the outer side panel **29** inwardly about score line **19** to overlie a portion of the front panel **25**. In the overlying position, the inner surface of the exterior edge portion of the outer side panel **29** becomes adhered to the adhesive bearing glue flap **49**. In such condition, the shell may be economically shipped to the product packager for set up, filling and closing.

FIG. **2** depicts the closed and completed carton. When the carton shell is squared, the panels **27, 31, 25** and **29** are positioned consecutively at right angles to each other. Usually one end is closed and sealed, the carton filled and then the opposite end is closed and sealed. The bottom end is closed by consecutively infolding the bottom dust flaps **43** and **47**, applying adhesive to the outer surface of one of the bottom end flaps, **35** or **39**, infolding the adhesive bearing end flap about its connecting score line **23** and infolding the other bottom end flap and adhering it to the underlying, adhesive-bearing, bottom end flap. The particular order of infolding the bottom end flaps **35** and **39** is immaterial.

In closing the squared carton shell, the top dust flaps **41** and **45** are folded inwardly about the score line **21** to lie in a common plane. Next, one of the top end flaps **33** or **37** is infolded about its connecting score line **21** to overlie the top dust flaps **41** and **45**. The exposed surface of the infolded top end flap is coated with adhesive and the closure is completed by infolding the other top end flap and adhering it to the underlying top end flap.

The carton is opened by grasping the pull tap **77** and pulling away from the carton outer side panel **29**. The pull tab portion **85** of glue flap **49** detaches itself from the glue flap **49** along double cut score lines **79, 81** and **83**. Further pulling breaks the tear lines **51, 53, 55, 57, 59, 61, 63, 65 67, 69** and **71** causing detachment of the tear-out portion **75** from front panel **25**, thus providing a dispensing opening.

FIG. **3** illustrates the opened carton with the tear-out portion removed. It is the unique design of the tear-out panel **75** which enables the remaining carton to possess a pair of male locking studs **89** located across the front panel **25** and side panels **29** and **31**. The mere removal of the tear-out portion **75** creates the pair of male locking studs **89**.

After the contents of the carton have been reduced to a level below score line **86**, the carton can conveniently be reduced in size and reclosed to protect the remaining contents, as illustrated in FIG. **4**. The top portion of the rear panel **27** now forms the new top wall of the carton and the original top wall comprising the pair of top end flaps **33** and **37** now extends downward in overlapping relation to the remaining front panel **25**. Locking the reduced carton in a closed position is achieved by pulling down the new top wall until the male studs **89** engage the push-in-step locking means formed by the two pairs of parallel slits **87**.

FIG. **5** illustrates the engagement of one of the male locking studs **89** with the push-in-step locking means. The key feature is the piercing by the stud **89** of the front panel **25**.

The course of the tear lines **51, 53, 55, 57, 59, 61, 63, 65, 67, 69** and **71** shown in FIG. **1** is preferred. However, much variation in these lines is possible, as long as some type of male locking stud is created at the juncture of the inner side panel **31**, top dust flap **45**, front panel **25** and top end flat **33**, and at the juncture of the outer side panel **21**, top dust flat **41**, front panel **25** and top end flat **33**. It is permissible for the two tear lines **55** and **57** to be one line, and for tear line **53** to be eliminated, so that only one tear line would lead from tear line **51** to tear line **59**. Also, tear line **59** could be two differently oriented lines dividied by score line **17**. Similarly, tear line **61** could be angled differently than shown in FIG. **1**.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction and arrangement of the parts of the article without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

What is claimed is:

1. In a blank, suitably cut and scored, capable of being erected into a reducible, reclosable carton, comprising a front panel, an inner and an outer side panel each hingedly connected to said front panel, a rear panel hingedly connected to the inner side panel, a glue flap hingedly connected to the exterior edge portion of said rear panel capable of underlying and adhering to the exterior edge portion of the outer side panel, a top and a bottom end flap hingedly connected to said rear panel, a top and a bottom end flap hingedly connected to said front panel, said top end flaps being of width sufficient, when the carton is erected, to at least partially overlap each other, and said bottom end flaps being of width sufficient, when the carton is erected, to at least partially overlap each other, and two pairs of top and bottom dust flaps, each of said pairs hingedly connected to each of said side panels, the improvement comprising:

a tear-out portion extending across the front and side panels defined by tear line courses,

the first course beginning at the exterior edge portion of the outer side panel below the top of said outer side panel a distance about equal to the width of one of said side panels and continuing in a direction parallel to the juncture of the side panels and dust flaps across said outer side panel, said front panel and said inner side panel to the juncture of said inner side panel with said rear panel,

the second course continuing substantially upwardly therefrom along said inner side panel to a point located near a left front juncture of said inner side panel, the top dust flap connected thereto, said front panel, and the top end flap connected thereto, but spaced from a first score line dividing said inner side panel and said front panel,

the third course continuing therefrom along said inner side panel to a point along said first score line but spaced below said left front juncture,

the fourth course continuing therefrom along said front panel to a point located near said left front juncture but spaced from said first score line and from a second line dividing the front panel and the top end flap connected thereto,

the fifth course continuing therefrom along said front panel to a point located on said second dividing line but spaced from said left front juncture,

the sixth course continuing therefrom along said second dividing line and terminating at said exterior edge portion of said outer side panel in a manner such that said tear-out portion is symmetrical about a line bisecting the front panel and the pair of end flaps connected thereto, whereby a pair of male locking studs may be formed across the front and side panels upon erection of the carton and removal of the tear-out portion; and

push-in-step locking means formed by a pair of double, parallel slits located across each of the score lines dividing the front panel from said side panels, capable of receiving the male locking studs when the carton is erected and the tear-out portion is removed, said slits being positioned below said second dividing line a distance about equal to twice the width of one of the side panels.

2. The combination of claim **1** further including a pull tab connected to the tear-out panel at the exterior edge portion of said outer side panel.

3. The combination of claim **2** wherein the second course continues for a short distance along the score line dividing the rear panel from the inner side panel, and then proceeds in a direction parallel to the first course of tear-out portion.

4. The combination of claim **3** wherein the third and fourth courses are along the same line, said line being parallel to the first course.

5. The combination of claim **4** wherein the fifth course angles toward the outer side panel.

6. The combination of claim **5** wherein the tear lines comprise a herring bone zipper strip.

7. An erected, completed carton made from the blank of claim **6**.

8. An erected, completed carton made from the blank of claim **1**.

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