

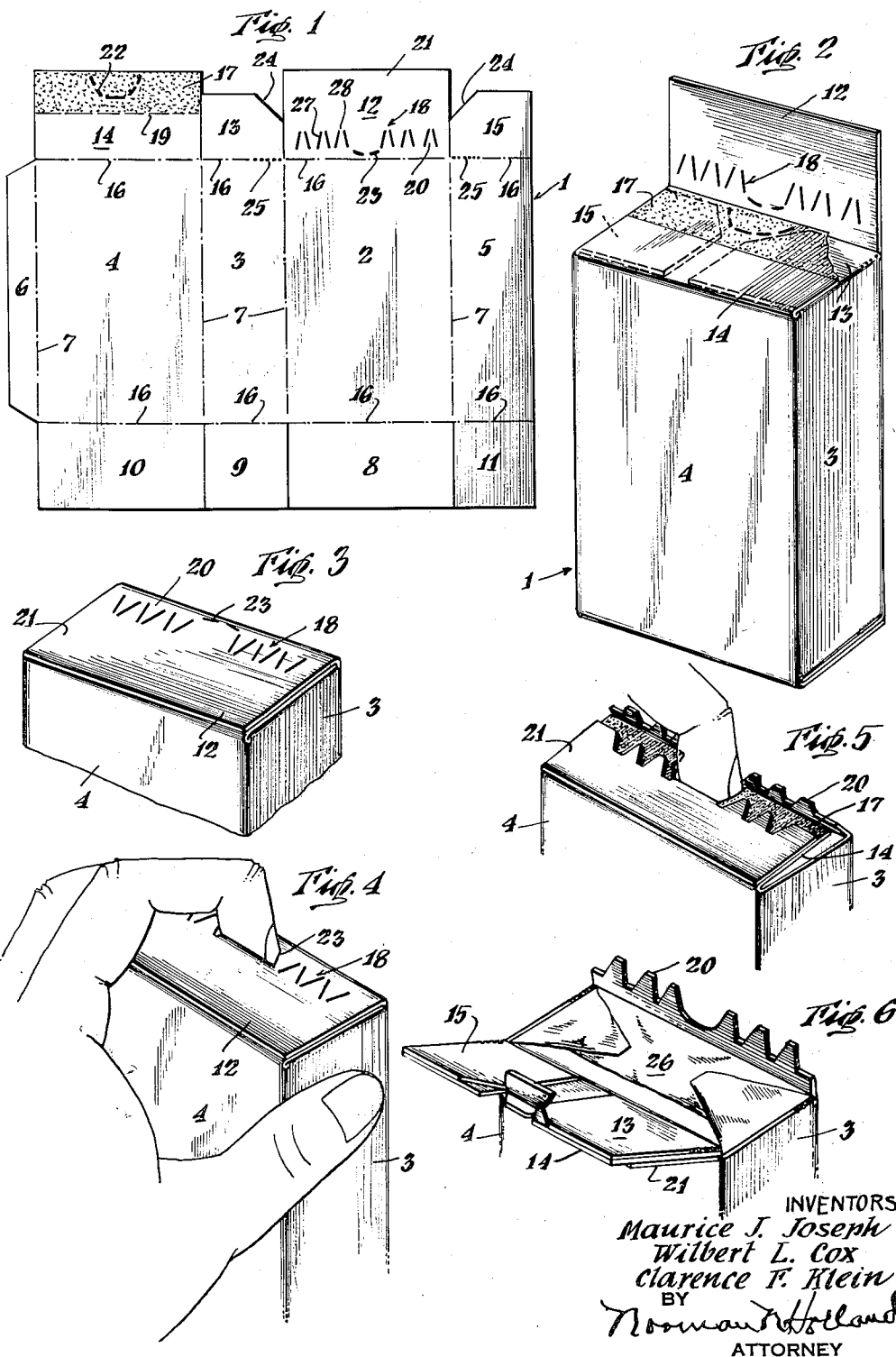
Feb. 7, 1961

M. J. JOSEPH ET AL

2,970,743

CARTON

Filed Jan. 27, 1956



1

2,970,743

CARTON

Maurice J. Joseph, Massapequa Park, Wilbert L. Cox, Riverdale, and Clarence F. Klein, Hartsdale, N.Y., assignors, by mesne assignments, to The Lord Baltimore Press, Incorporated, New York, N.Y., a corporation of Maryland

Filed Jan. 27, 1956, Ser. No. 561,895

2 Claims. (Cl. 229—51)

The present invention relates to cartons and more particularly to a quick-opening carton adapted especially for a single-use container.

Several types of quick-opening cartons are known for use with single-use containers such as cake mix cartons or the like where the user prefers a carton in which easy access is provided to the inner container or contents and where the carton is not normally reclosed. These known types of cartons have each had at least one of the following disadvantages.

Some of these cartons are relatively easily opened; however, in their closed state they do not present a tight container which is sealed against product loss and insects. Others of these cartons have an opening means which is partially started by ordinary handling and storing procedures such as, for example, the stacking of the cartons for display in stores. These stacks apply downward pressures on the lower cartons in the stacks and thereby cause them to buckle and to partially open. Other known types of quick-opening packages are unduly complicated and expensive and are not adapted for manufacture and filling on the common types of packaging machinery.

Accordingly, an object of the present invention is to provide a quick-opening package or carton which is easily and completely opened to expose the contents for ready removal.

Another object of the present invention is to provide a quick-opening carton which is tightly sealed on existing filling and sealing machinery and in its closed condition to exclude insects and air and to prevent any loss of the contents of the carton.

Another object of the present invention is to provide a quick-opening package which is easily manufactured on the commonly used cutting, folding, and gluing machines.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein:

Fig. 1 is a plan view of the blank from which the container is formed;

Fig. 2 is a perspective view of the container of the invention partially glued and folded;

Fig. 3 is a fragmentary perspective view of the upper portion of the container in its closed condition;

Fig. 4 is a fragmentary perspective view of the upper portion of the carton during the initial opening step;

Fig. 5 is a fragmentary perspective view corresponding to Fig. 4 showing a subsequent step in the opening process; and

Fig. 6 is a fragmentary perspective view of the upper portion of the opened container.

2

Fig. 1 shows the carton blank 1 having front and back panels 2 and 4, respectively, and side panels 3 and 5 with a glue flap 6 on back panel 4 adapted to be glued to the side panel 5 to form the tubular center portion of the container. Score lines 7 are provided between two panels and the flap to provide weakened fold lines. Panels 2, 3, 4, and 5 are provided respectively with bottom closure flaps 8, 9, 10, and 11 and top closure flaps 12, 13, 14, and 15. All such flaps are defined from the panels by score lines 16 whereby the flaps may be readily folded to an overlapping position to close the carton.

In the preferred embodiment of the carton, the top flap 14 has a printed-over portion 17 adjacent its outer edge which cooperates with a perforated score line 18 on top flap 12 to provide an easy opening arrangement as will be more fully described below. The printed-over portion 17 may be advantageously applied to the carton blank 1 simultaneously with the regular printing of the panels and flaps as the carton is decorated and labeled. To glue the carton blank 1 into a carton, flap 6 is first fastened to the side panel 5 to form a tubular center portion. The bottom flaps 8, 9, 10, and 11 are overlapped and glued to form a suitable bottom for the carton in the well-known manner.

After being filled, the top of the carton is closed by first folding the flaps 13 and 15 down across the container opening. Top flap 14 is next folded on top of side flaps 13 and 15 and is glued thereto as seen in Fig. 2. The sealing of the carton is completed by folding the top flap 12 against the flap 14 and by gluing it thereto.

In the gluing of the top flap 12 in the preferred embodiment of the carton, glue is applied to the entire outer surface of flap 14 by regular carton handling machinery. Adhesives do not adhere tightly to the printed-over portion 17 so that this portion is only weakly fastened to top flap 12. This relatively weak adhesion between the top flaps 12 and the printed-over portion 17 of the top flap 14 cooperates with the perforated score line 18 on the top flap 12 to provide an easy opening combination, as will now be described with respect to Figs. 3 through 6.

The perforated score line 18 is positioned so that it approximately overlies the inner edge 19 of printed-over portion 17 of top flap 14. When the carton is closed as seen in Fig. 3, the perforated score line 18 thus divides the flap 12 into a relatively narrow portion 20 overlying the printed-over portion 17 and a relatively wide portion 21 overlying the remainder of the flap 14.

The initial step in opening the carton is accomplished by the user's pressing downwardly on the carton top near the center of perforated score line 18 as seen in Fig. 4 to commence the separation of flap 12 along perforated score line 18 and at the same time to sever whatever partial adhesion exists between the printed-over portion 17 of flap 14 and the portion 20 of flap 12. The initial opening is facilitated in the preferred embodiment by overlying finger-tip shaped perforations 22 in flap 14 and 23 in flap 12 formed in the center portion of the perforated score line 18. Flaps 13 and 15 have trimmed corners 24 and spaced inner edges to further facilitate the entry of the user's finger. After the user has thus inserted his finger, a slight upward pressure tending to swing flap 14 upwardly about its score line 16 completely severs the perforated score line 18 and completes the separation of the portion 20 of flap 12 from the printed-over portion 17 of flap 14 as shown in Fig. 5. Fastened flaps 13, 14, and 15 and portion 21 of flap 12 now are easily swung open as indicated in Fig. 6. To facilitate the tearing of the score lines 16 at the edge of flaps 13 and 15, a portion adjacent flap 12 is perforated as indicated at 25. Portion 20 of flap 12 may now be folded clear of the carton top opening,

exposing the contents, such as inner container 26, which may be easily removed or torn open.

Although the printed-over portion 17 of flap 14 prevents a tight adhesion between portion 17 and flap 12, a relatively light bond is formed which tends to at least provide a seal between flaps 12 and 14 and around the perforated score line 18 to close any apertures therein and to keep the sealed package insectproof, spillproof, and relatively airtight. It is also characteristic of the bond between the glue and the printed-over portion that the light adhesion which does exist resists compression better than a shearing force so that vertical forces such as those caused by the stacking of packages do not destroy the bond, whereas relatively light, shear forces such as those caused by the flap lifting action shown in Fig. 5 easily detach printed-over portion 17 and portion 20 of flap 12.

The printed-over portion may be coated with the regular printing ink used to decorate other portions of the carton, or the regular carton varnish coat may be used for the coating. It is also clear that other means of making a relatively weak bond between portions of flaps 12 and 14 may be used, such as spot gluing or other methods of leaving unglued portions.

In the preferred embodiment, the perforated score line 18 has a saw-tooth shape. The perforated score line 18 of Fig. 1 has angularly disposed perforated portions 27 spaced from each other at their ends by solid material 28. It has been found that this perforation, which, for convenience, is termed a saw-tooth perforation herein, is easily torn by the above-described opening action and that at the same time it resists downward, vertically directed forces to a greater degree than straight line perforations. Thus, the cartons 1 may be stacked and otherwise handled without a premature tearing open of the cartons along the perforated top. Cartons may have straight-line perforations in place of the perforated score line 18 where it is desired and where the possibility of premature opening is not an important factor.

It will be seen that the present invention provides an improved easy-opening carton which may be manufactured and filled on conventional package handling machinery. The carton blank requires only additional perforated score lines and a printed-over flap in its preferred embodiment. Thus, only one or two nicked knives need be added to a die for the formation of the blank and the printing-over of the flap may be done as part of the regular carton decoration and labeling. The gluing and folding of the carton may be done on conventional machinery as the container gluing and loading follows the conventional flap gluing and folding sequences. The sealed carton may be opened by a simple tearing operation by the user without knives, shears, or other tools and without tear tapes or other auxiliary aids. The opening is simple so that only a minimum amount of directions need be given on the container.

Although easy and completely opened by a simple tearing action, the carton resists inadvertent or accidental opening and may be handled by the regular carton handling methods. In particular, the carton is capa-

ble of being handled and stacked for display without a partial opening of the perforations which assist in providing the easy-opening feature. The carton is also tightly sealed before being opened so that it is spillproof, insect resistant, and relatively airtight.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, we claim:

1. In an easy opening tight sealing top closure for a carton having an inner top flap articulated to one side of the carton, an outer top flap articulated to the opposite side of the carton and folded over said inner top flap, the free edge margin of said outer top flap being tightly adhered to said inner top flap, the portion of the outer top flap between said tightly adhered portion and its articulated edge being relatively weakly attached to said inner top flap, and a tear line being provided across said outer top flap, the improvement which comprises positioning the tear line entirely within a zone of appreciable width and confined to the weakly attached portion of said outer top flap along the entire length of said line and generally parallel to and spaced from the articulated edge of said outer top flap, said tear line having perforated portions at an angle to the length of said zone in a sawtooth arrangement with imperforate portions of the line between adjacent ends of the perforated portions being spaced apart on parallel lines defining the margins of said zone whereby the tear line has a high resistance to accidental rupture due to vertical forces on the top closure such as the weight of a superposed carton in a stack, and said relatively weak attachment between said flaps comprising a printed layer on one flap and a facing layer of adhesive on the other flap whereby a weak bond is obtained and adhesive penetrates the perforations in the tear line in sealing relation thereto.

2. The top closure as claimed in claim 1 which further comprises a finger-tip shaped perforation at the free edge of said inner top flap formed completely within the weakly attached portion.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |                 |                |
|-----------|-----------------|----------------|
| 1,606,439 | Metzger         | Nov. 9, 1926   |
| 1,985,590 | Weiss           | Dec. 25, 1934  |
| 2,122,480 | Lowey           | July 5, 1938   |
| 2,124,868 | Davidson        | July 26, 1938  |
| 2,133,946 | Bloomer         | Oct. 25, 1938  |
| 2,162,556 | Lagaard         | June 13, 1939  |
| 2,215,705 | Lenz            | Sept. 24, 1940 |
| 2,249,244 | Guyer           | July 15, 1941  |
| 2,390,412 | Axberg          | Dec. 4, 1945   |
| 2,675,165 | Roshkind et al. | Apr. 13, 1954  |

##### FOREIGN PATENTS

|         |             |              |
|---------|-------------|--------------|
| 196,035 | Switzerland | May 16, 1938 |
|---------|-------------|--------------|