May 5, 1964 T. M. PACE 3,131,851

PAPERBOARD CARTON

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FIG. 1

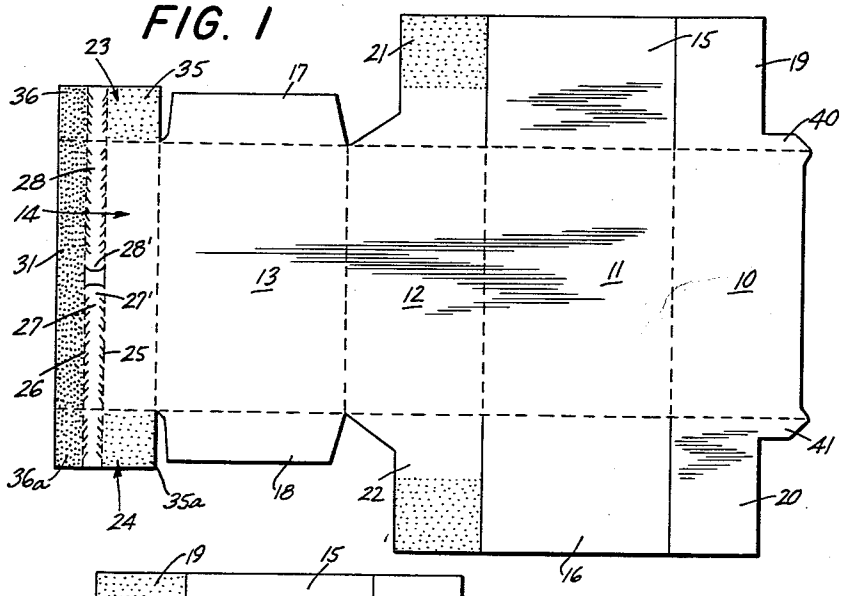


FIG. 2

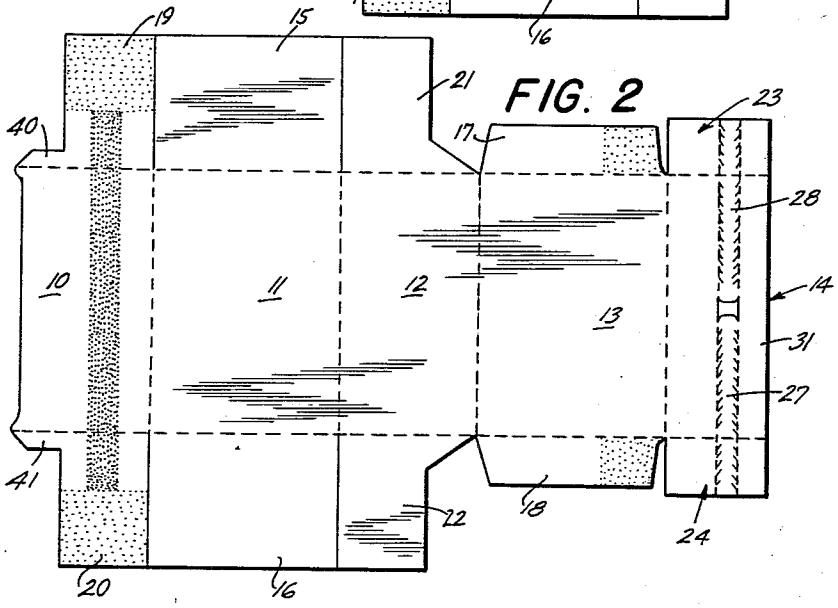
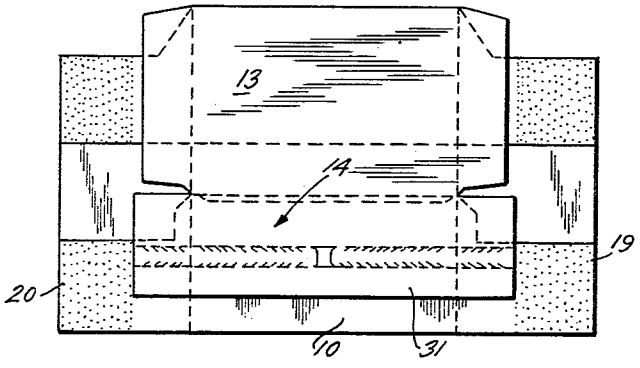


FIG. 3



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PAPERBOARD CARTON

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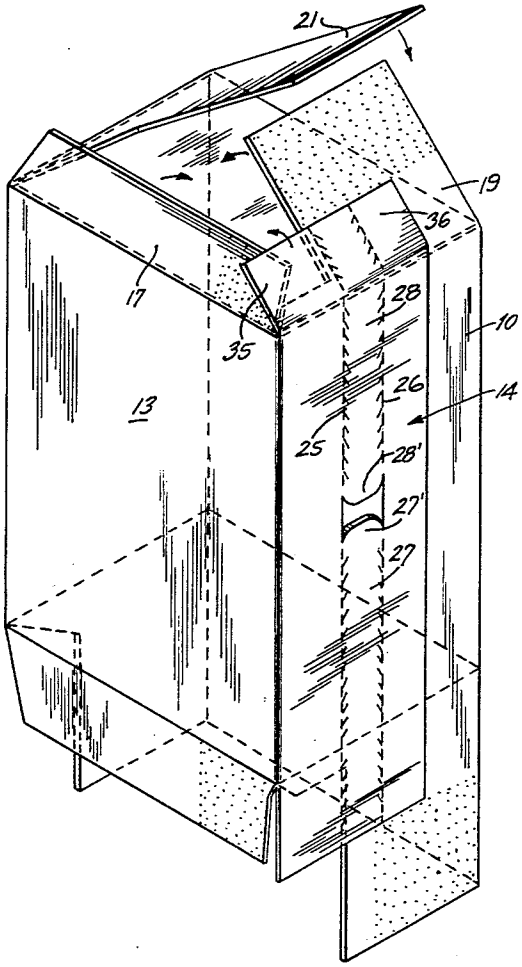
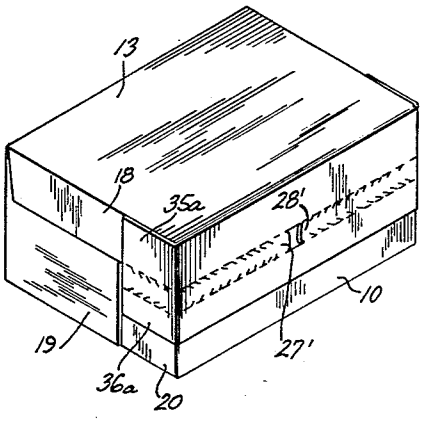


FIG. 4

FIG. 5



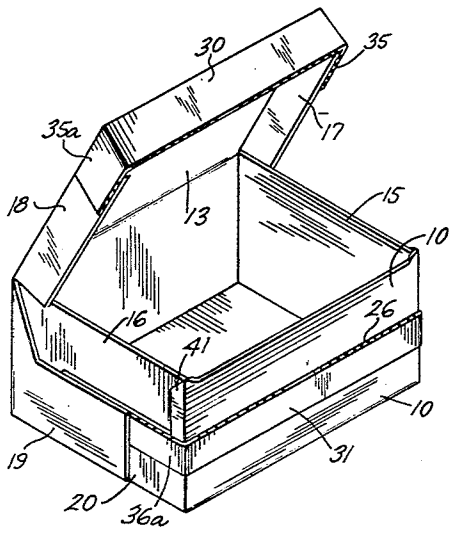


FIG. 6

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PAPERBOARD CARTON

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1 Claim. (Cl. 229—51)

This invention relates to improved collapsible cartons formed of paperboard or the like semi-rigid sheet material.

Cartons embodying the invention are particularly adapted, among other possible uses, for the packaging of comestibles such as blocks of icecream and in cases such as where the manufacturer of the cartons makes it a practice to ship large numbers thereof in collapsed condition to packers of the commodities, the cartons being of such form that the packers may readily set them up and pack them by the use of available packing machinery with little or no change, and then seal them for shipment to the ultimate customer.

The cartons involving the invention are provided with improved tear-strip means which may easily and quickly be removed by the customer to release the cover for the carton, permitting the cover to be swung open to gain access to the contents, the cover having depending flanges on three edges so that it will be reelatively firm and in such form that it may conveniently be reclosed, all without otherwise tearing or injuring the carton. The construction is such also that after the tear-strip is removed, then one or both ends may be easily pulled open to permit the contents to be slid out endwise.

Further in accordance with the invention, the construction is such that the cover has what will be herein referred to as a front cover flange depending from the front edge of the cover and being divisible longitudinally, that is horizontally, into at least three parts separable along lines of perforations to provide an intermediate part which embodies the removable tear-strip means above referred to. After removing such tear-strip means, the front cover flange is left with an upper part providing a remaining depending front flange on the cover and a third part which remains permanently adhered to the front of the carton. Furthermore, this front cover flange is provided at both of its ends, in accordance with the invention, with flaps adapted to be folded back and adhered respectively to the end closure portions of the carton and the removable tear-strip parts extend not only along the front of the carton but around on such folded-back flaps so that when the tear-strip means is removed, the cover is left with not only a depending flange on its front edge, but with depending flanges on the two ends of the cover and portions of the folded-back flaps remain adhered to the depending flanges at the ends of the cover so as to provide firm front corners for the cover structure after the tear-strip means has been stripped away so as fully to release the cover, whereby it may be swung open.

Preferably the tear-strip means is so formed as to be removable in two parts, a pull-tab for each part respectively being positioned conveniently near the middle of the front of the carton and so that upon pulling such tabs respectively in opposite directions, the two tear-strip portions may be separately and completely removed and completely releasing the cover for opening. These tear-strip portions also are preferably each formed by two rows of perforations of such shapes that while the tear-strips may be readily stripped away by pulling in one direction, that is from the middle of the front of the carton toward the ends, yet the tear-strips cannot without breaking be stripped away by pulling on them in an opposite direction.

Further in accordance with the invention, the end walls of the carton are formed of flaps integral respectively with all the other panels of the carton and are so shaped and are of such areas as to provide in each case one complete inner end wall and two superposed flap portions, preferably heat-sealed together, and which cover those portions of the ends of the carton below the flanges on the ends of the cover. As furnished to the packers, the cartons in collapsed condition may preferably have their front cover flanges permanently adhered to the front walls of the cartons and so that the cartons may be delivered in collapsed condition with only the flaps which form the end walls remaining to be adhered in appropriate relation after the body of the carton is set up to "square" form. And the end closure flaps which are superposed as above referred to, as well as a part of the end flaps on the cover flange portion, are provided with heat-sensitive adhesive areas such that the ends of the carton may be quickly and easily closed after filling the cartons and heat-sealed without substantial change to the equipment available for that purpose, but still leaving the end closure flaps in such condition that they may readily be pulled open by the customer in case he desires to remove the contents endwise. Yet if the customer prefers simply to open and possibly reclose the cover, this may be done upon stripping away the tear-strip portions while leaving the carton otherwise in full useful condition, free of any likelihood of leakage.

Various further and more specific objects, features and advantages of the invention will appear from the description given below, taken in connection with the accompanying drawings, illustrating by way of example a preferred form of the invention.

In the drawings:

FIG. 1 is a plan view showing the inside surfaces of a blank for making a carton in accordance with the invention, the closely stippled areas thereon indicating places where permanent adhesive is to be applied at the time the blank is manufactured into a carton of collapsed form and the other stippled areas with more scattered stippling, indicating places where heat-sensitive adhesive may be applied for adhering the end closure portions after the carton is filled by the packer;

FIG. 2 is a view like FIG. 1, but showing the exterior surface of the carton blank;

FIG. 3 is a view showing the carton in collapsed form as shipped to packers and with the end closure portions still open;

FIG. 4 is a view showing a carton embodying the invention after it has been set up to "square form" but with the closure portions at one end only partially moved to closed positions and the other end closure portions being shown in open condition;

FIG. 5 is a perspective view of the finished, closed and sealed carton; and

FIG. 6 is a similar view but showing the cover swung open after a tear-strip means has been removed.

Referring to the drawings in further detail, as shown in FIGS. 1 and 2, the initial carton blank may comprise a single integral sheet with a succession of panels positioned side-by-side and separated by fold lines as indicated by the dotted lines, such panels comprising a front panel **10**, bottom panel **11**, back panel **12**, and cover panel **13**, and also a front cover flange panel indicated generally at **14**. Each of these panels is provided at each end with flaps for collectively forming the end closure means for the carton. The flaps **15** and **16**, at the ends of the bottom panel, are adapted to be folded up vertically, as indicated in FIG. 6, to form inner end walls of areas substantially covering the whole end areas of the contents of the carton. The flaps **17** and **18** on the cover panel are adapted to be fold-

ed over to form depending flanges at the ends of the carton cover, also as shown in FIG. 6. The flaps **19**, **20** and **21**, **22** on the respective ends of the back and front panels are adapted to be folded over at the ends of the carton in superposed relation and these carry areas of heat-sensitive adhesive for sealing same together in such relationship, as also shown for example at the end of the carton appearing in FIG. 6. These flaps, it will be noted, are of a width such that when folded over in said superposed relation, they will serve to cover that part of the area of the end of the carton which is below the end cover flange **18**.

The front cover flange panel indicated generally at **14**, has flap portions thereon at each end, as indicated generally at **23**, **24**, and this panel, including the flaps thereon, is divisible longitudinally (or horizontally in the completed normal position of the carton) into three portions which are separable along lines of perforations as indicated at **25**, **26**, to provide an intermediate part comprising a pair of end-to-end tear-strips **27**, **28**. The upper of the three parts of the front cover flange in the finished carton serves, as best indicated in FIG. 6, as a permanent depending flange **30** for the front edge of the cover. The third part of the front cover flange, indicated by the numeral **31**, is located in the finished carton below the region of the tear-strip and is adapted to be permanently adhered to the front panel of the carton. That is, when the carton is shipped from the manufacturer to the packer in collapsed condition, as shown in FIG. 3, the area **31** will normally be permanently adhered to the front panel **10**.

It will be noted from FIG. 1 that the tear-strip means divides the flaps on the front cover flange panel into three parts, with the intermediate part comprising the tear-strip means and with parts as at **35**, **35***a*, which are adapted to be folded back and heat-sealed to the front ends of the flanges **17** and **18** on the cover panel. The remaining parts of the flaps **23**, **24**, viz. the parts indicated at **36**, **36***a* are permanently adhered by the carton manufacturer to the front portions of flaps **19** and **20**.

Thus when the tear strip means are removed, the parts of the front cover flange panel which are to remain so as to constitute flange portions on the cover, will be separated from the parts **31**, **36**, **36***a* which remain adhered to the body of the carton, as will be apparent from FIG. 6.

The two tear-strip portions **27**, **28**, as shown, are provided respectively with pull-tabs at **27'**, **28'** located closely adjacent each other at the mid-portion of the front of the carton. Further as best shown in FIG. 4, the lines of perforations **25**, **26**, are accompanied by small slits at the end of each perforation slit, which small slits are directed angularly inwardly of the tear-strips and toward their respective pull-tabs. This results in a construction in which the tear-strips may be grasped by their pull-tabs and readily pulled apart from the carton by pulling each strip respectively toward the ends of the carton until the strips are completely removed, if desired, not only from the front of the carton but also around the front corners to the ends of the flap portions **23**, **24**. However, if an attempt should be made in any way to pull the tear-strips respectively in the reverse directions, then because of the arrangement of the diagonal slits, the strips will tend to tear apart rather than become released. Thus with the pull-tabs located in a protected position at the mid-portion of the front of the carton, they will not tend to be pulled to release the strips accidentally, as might be the case if the pull-tabs were at the corners of the carton at exposed positions with conventional types of perforations.

As shown in FIGS. 1, 2 and 6, the front panel at its ends may be formed with small extensions as at **40**, **41** adapted to be located at the upper portions of the front panel in the finished carton and to be folded back, as indicated in FIG. 6, into engagement with the inner end closure wall portions **15** and **16**, thereby to prevent leakage or spillage at the front upper corners of the carton when the cover is opened.

A tear-strip means in the form described has further substantial advantages, particularly in view of the fact that the strip extends through the flaps at the ends of the front cover flange means. This enables the front flange portions of the cover to be securely held in place, including the reinforced corners, until the tear-strips are removed, whereupon all of the flange portions of the cover and including the reinforced corner portion, are separable, but still leaving a firm flanged cover and leaving the remainder of the carton in good useful condition and such that the cover may be reclosed. The provision of a pair of tear-strips with their pull-tabs located at the mid-portion of the front of the carton, makes it possible for such tabs to be located at a most convenient area for ready grasping even by persons previously unfamiliar with the construction of the carton and without searching for pull-tabs at the ends or elsewhere. Also the provision of two separate tear-strips may even permit the customer, if he desires, to remove one tear-strip and open one end of the carton without substantial difficulty, while leaving the other end closed in case it is desired for example to slide a cake of ice cream partially out endwise for cutting into layers.

The provision of the flaps **15** and **16** upstanding vertically from the bottom panel, makes it possible to close the entire end areas within the carton after it is filled and to insulate the contents against such heat as may be applied to heat seal the overlying outer closure flap portions in place. The fact that the greater part of the areas of the latter extend only up to the level of the lower edge of the cover end flaps, makes it possible, after the cover is raised, to insert the fingers between the inner and outer wall portions of the end closures for rapidly pulling open the end of the carton if desired.

Although a certain particular embodiment of the invention is herein disclosed for purposes of explanation, further modifications thereof, after study of this specification, will be apparent to those skilled in the art to which the invention pertains. Reference should accordingly be had to the appended claim in determining the scope of the invention.

What is claimed and desired to be secured by Letters Patent is:

A carton blank having a series of panels joined side-by-side at fold lines and comprising successively front, bottom, back, and cover panels and a front cover flange panel; each of said panels being provided at each end with flaps for collectively forming the end closure means for the carton, the flaps on the bottom panel being adapted to be folded into vertical positions and being of areas substantially to cover the end areas within the carton, the flaps on the cover panel being relatively narrow with respect to the carton height and adapted to be folded over to form depending flanges at the ends of the carton cover, the flaps on the ends of the front panels being of length no greater than the width of the carton and the flaps on the ends of the back panels being of length less than the width of the carton and said flaps on the respective ends of the back and front panels being adapted to be folded over at the ends of the carton in superposed relation, with the flaps on the ends of the back panel outermost, and carrying adhesive for sealing same together in such relation and same being at locations and of areas for covering substantially only those portions of the ends of the carton which are below the end flanges of the cover; the front cover flange panel including the flaps thereon being divisible longitudinally into at least three parts, separable along a pair of spaced lines of perforations extending from the free side edge of one of said last-mentioned flaps along said front cover panel to the free side edge of the other of said last-mentioned flaps to provide an intermediate removable tear-strip part, an upper part for providing remaining depending cover flange means after the tear-strip part is removed, and the third part being adapted for adhesion to the front panel and to remain after removal of the tear-strip part,

said tear-strip part comprising two tear strips which respectively have pull tabs adjacent the midportion of the front of the carton and said tabs being adapted to be pulled separately and independently in opposite directions, respectively, for removing the two tear strips; and the flaps at the ends of the front cover flange panel being of length on the setup carton to be folded rearwardly in superposed relation to the front portions of the ends of the carton without overlapping the flaps on the back panel and that portion of said latter flaps above the tear-strip part, bearing adhesive for retaining same to the cover end flanges whereby the end of the carton may be readily opened without opening the cover.

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