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2,760,712

CARTON

Filed July 8, 1953

2 Sheets-Sheet 1

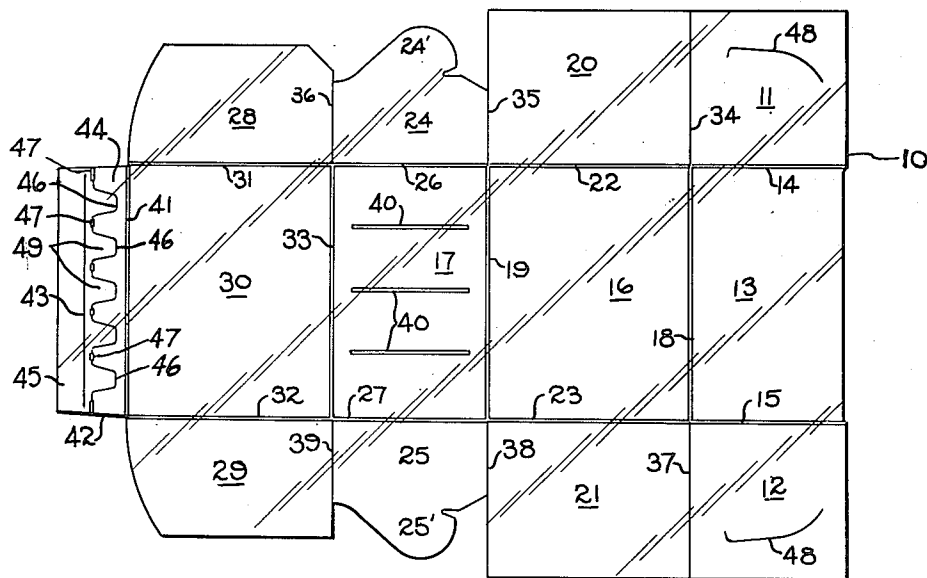


Fig. 1

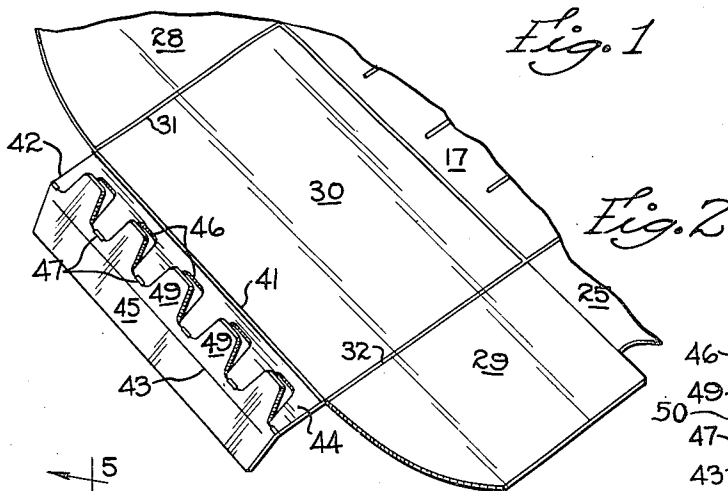


Fig. 2

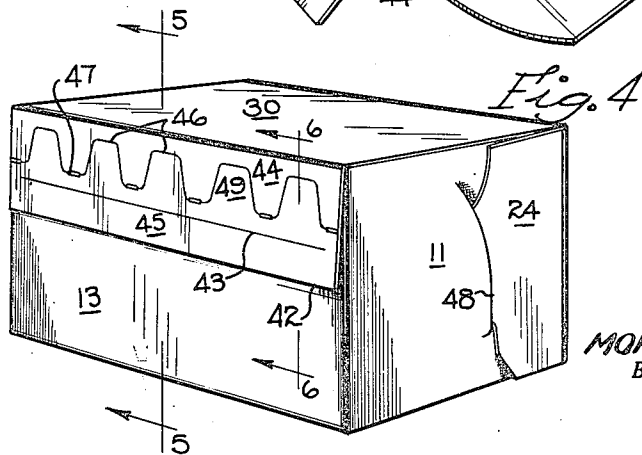


Fig. 4

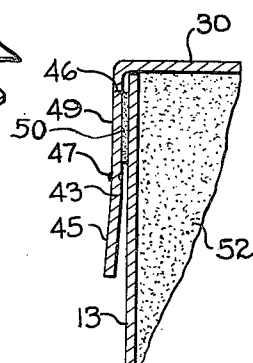


Fig. 6

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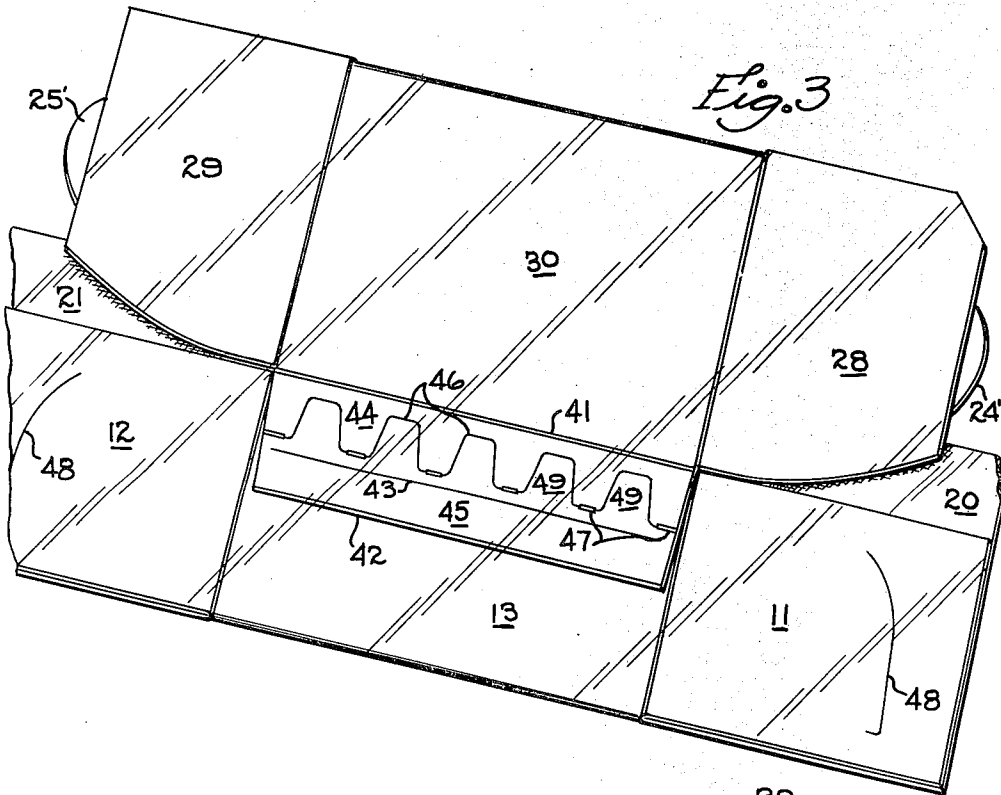
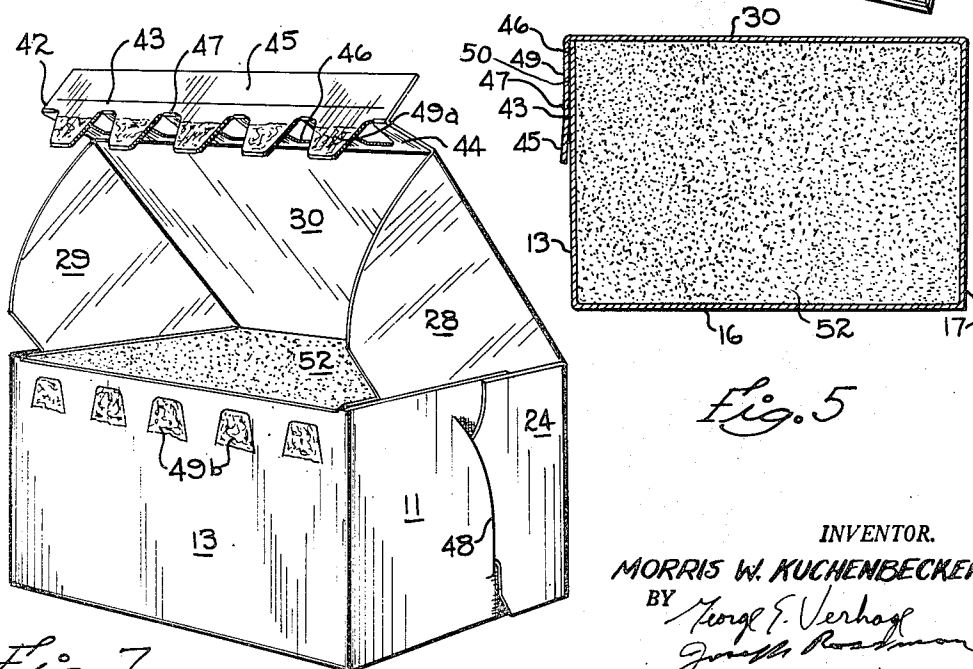
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CARTON

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5 Claims. (Cl. 229—51)

This invention relates to cartons, and particularly to cartons of a type commonly used for the packaging of ice cream and other food products. These cartons are usually made from a single paperboard blank, and when used in the packaging of ice cream are referred to as "linerless" cartons, from the fact that they are substantially leakproof to the contained product without the use of a liner of impermeable material within the carton.

Although when used for the packaging of ice cream and the like these cartons must be very substantially leakproof, it is essential that they be so formed that they may be readily opened, either for spooning or dipping of the product, or for exposing the entire contents of the cartons for slicing or similar dispensing. The opening of such cartons should be easy and rapid, requiring no great force or ingenuity. Due to the highly competitive nature of this field of commercial operation, any features of construction tending to improve these qualities are of the highest order of importance.

Since these cartons are manufactured and sold in tremendous quantities, as a matter of economics it is essential that the carton require the lowest possible amount of carton material, such as paperboard, and of labor, in its manufacture. It is desirable that the carton be constructed so that it may be shipped in a flat or collapsed condition in order to keep the cost of shipping and storage as low as possible.

My invention provides a carton which presents these features to a high degree and further provides a neat and attractive package when filled with the product to be contained, such as ice cream. The objects and decided advantages of my invention will be readily apparent from the following description and the accompanying drawings, in which:

Figure 1 is a plan view of the blank from which my carton is formed,

Figure 2 is a perspective view, partially cut away, showing an initial stage in the formation of the carton from the blank of Figure 1,

Figure 3 is perspective view, slightly cut away, showing my carton in its collapsed form as it is shipped by the carton manufacturer to the manufacturer of the product to be packaged,

Figure 4 is a perspective view showing the assembled and filled carton,

Figure 5 is a cross-sectional view of the filled carton, taken along the lines 5—5 of Figure 4,

Figure 6 is a cross-sectional view, partially cut away, taken along the lines 6—6 of Figure 4, and

Figure 7 is a perspective view showing the carton partially opened to present its contents.

Referring first to Figure 1, it is seen that my carton is formed from a unitary blank 10 of paperboard or like material, the blank being divided by a plurality of cut and score lines into a number of panels or walls and flaps or tabs. End flaps 11 and 12 are hingedly connected to the end edges of a front wall 13 along score lines 14 and 15, respectively. Bottom wall 16, is hinged to

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front wall 13 along score line 18 and has a rear wall 17 hinged thereto along score line 19. End flaps 20 and 21 are hingedly connected to the end edges of bottom wall 16 along score lines 22 and 23, respectively.

End flaps 24 and 25, which at their remote ends are formed to provide tongue portions 24' and 25', are hinged to the end edges of rear wall 17 along score lines 26 and 27, respectively. A top wall or cover 30 is hingedly connected to rear wall 17 along score line 33, and has end flaps 28 and 29 hinged thereto along score lines 31 and 32, respectively. The various end flaps are separated from each other by cut lines 34, 35, 36, 37, 38 and 39. The walls may be scored to provide additional stiffness, and also to provide cutting markers for slicing the contained product, as illustrated by spaced score lines 40 in rear wall 17.

A closure flap or tab 42, commonly referred to as a "tear flap," is hingedly connected to the outer edge of cover 30 along score line 41. Flap 42 is divided by longitudinal score or cut score line 43 into inner and outer panels 44 and 45. A series of U-shaped cut lines 46, cut completely through inner panel 44 and extending toward cover 30, are made in inner panel 44. The ends of these U-shaped cut lines are connected by score lines 47, which also extend through to the end edges of inner panel 44. These hinge connections at 47 might equally well be in the form of perforation or cut score lines. It will be observed that this construction to a considerable degree divides inner panel 44 into two parts of irregular shape, one part lying inwardly of the U-shaped cuts 46 and score lines 47 and the other part lying outwardly thereof, and that score lines 47 will tend to serve as a hinge line connecting these two parts.

With additional reference to Figure 4, end flaps 11 and 12 have internal cut lines or slits 48 which cooperate with tongue portions 24' and 25' to provide carton end-closing means. These means are of a conventional type, well-known in the art, and need not be further explained.

Referring to Figure 2, a convenient first step in the assembly of my carton by the carton manufacturer is to apply a downward pressure to outer panel 45 of closure flap 42, to cause hinging action along score lines 47. The hinging action occurs along lines 47, rather than along score line 43, due to the fact that the amount of connecting carton material along the former lines is very substantially less than that along score line 43 which divides closure flap 42 into outer panel 45 and inner panel 44. This is readily apparent from Figure 1. This hinging action causes the tongue-like portions 49, lying outwardly of U-shaped cut lines 46, to lift upwardly, that is, to lift above the plane of the inner part of inner panel 44, and to continue to lie in the plane of outer panel 45, as seen in Figure 2. The blank may then be moved either upwardly or downwardly (in the plane of the drawing as shown in Figure 1) and an adhesive 50 (see particularly Figures 5 and 6) applied to the upper surface of tongues 49 by a glue wheel adapted to contact only the thus-lifted tongues. This operation may be carried out by conventional automatic machinery.

After the adhesive 50 has been applied to the upper surfaces of tongues 49, front wall 13 may be folded upwardly and inwardly (Figure 1) to overlie bottom wall 16. Cover 30 is then folded upwardly and inwardly to overlie rear wall 17, with closure flap 42 overlying the outer surface of the front wall 13 adjacent the free edge thereof. Pressure may then be applied to closure flap 42 to cause adhesion of tongues 49 to the outer surface of front wall 13. Since the adhesive was conveniently applied only to tongues 49, it will be only those tongues which adhere to the front wall 13.

The resulting flat or collapsed carton is illustrated in

Figure 3, and it is in this condition that the carton is shipped by the carton manufacturer to the packer of the article to be contained within the erected carton. Shipment in this collapsed form results in a very considerable saving in transportation and storage costs.

By machines of well-known manufacture, my carton may be set up and filled with the product to be packaged, and presented to the purchaser and ultimate consumer of the packaged product in the attractive form illustrated in Figure 4.

Referring particularly to Figures 4 to 7, it is seen that outer panel 45 of tear flap 42 provides a ready pull flap for opening the carton, since the outer panel is not adhered to front wall 13 of the carton. Although not essential, score line 43 in tear flap 42 provides a line of weakness to define the outer grasping panel 45, which readily facilitates opening the carton.

With particular reference to Figures 5, 6 and 7, it is seen that when outer panel 45 of tear flap 42 is grasped and pulled upwardly, the connection between tear flap 42 and front wall 13 provided by the adhesion of tongues 49 to the front wall will be broken. This break ordinarily occurs through a splitting loose of an outer fibrous layer from the inner surfaces of tongues 49, since the adhesive 50 in most instances provides a stronger bond than that inherent in the surface of the carton material, for instance paperboard. This tearing or stripping action proceeds from inwardly of tongues 49, that is, from adjacent score line 43, toward the free ends of these tongues. Since these free ends of tongues 49 end in a cut line 46, when the tearing has proceeded to the boundary provided by U-shaped cut lines 46 the adhesive connection between tear flap 42 and front wall 13 is completely severed, and the carton cover 30 may be lifted as shown in Figure 7 to expose the contents for spooning, dipping or the like.

Although the adhesive connection between tear flap 42 and front wall 13 is quite sufficient to maintain the closed condition of the carton under any reasonable conditions of usage, this connection is yet slight enough to permit easy opening by the method just described. It will also be apparent from the above description that due to the termination of the splitting action of tongues 49 at the boundary lines defined by U-shaped cut lines 46, there will be no fibrous "tails" or continued stripping into the surface of cover 30. And if the stripping action takes place in the outer surface of front wall 13, again there will be no continuation of this stripping into the interior surface of front wall 13, because any stripping action will terminate immediately upon reaching the free edge of the front wall.

If desired, my carton may in the alternative be opened by releasing the end flaps at one end of the carton in the conventional manner.

As mentioned previously, due to the tremendous quantity in which cartons of this sort are used, a cost saving of even a very small amount on an individual carton multiplies into a very considerable sum, and may easily mean the difference between the commercial success and failure of a particular carton. An obvious point at which savings can be obtained, and one to which considerable effort is continually devoted, is in the amount of carton material, such as paperboard, required to make a satisfactory carton. Referring particularly to Figures 1, 5, 6 and 7, it will be apparent that I have provided a tear flap, a feature which is generally considered necessary, which demands a minimum of paperboard for satisfactory operation. In addition to the paperboard required to construct the mere periphery of the carton as

shown in Figure 5, my tear flap requires only a length equal to the width of tear flap 42, and this width is composed of only a single-ply glue area, represented by tongues 49, plus a grasping portion represented by outer panel 45. Thus, there is no unnecessary multiplication of plies, indeed no multiplication of plies whatsoever, nor is there any board used in my tear flap beyond that necessary to serve the two requirements of a connecting means and a grasping means.

It will be obvious that modifications might be made in the details of my invention as I have illustrated and described it, without departing from the spirit of my invention. It is therefore to be understood that no limitations upon my invention are intended, except as set forth in the following claims.

I claim:

1. A carton formed from a unitary blank cut and scored and foldable into carton form, the carton so formed including front, bottom, rear and end walls and a cover hinged to the rear wall, the cover of the carton having an integral extending closure flap, the inner portion of the closure flap adjacent the cover having a series of disconnected U-shaped cut lines therethrough defining a series of substantially spaced-apart tongue-like portions directed toward said cover, the inner surface of said tongue-like portions being adhered to the outer surface of the front wall of the carton, the outer portion of said closure flap providing a free, unadhered grasping portion, the carton being opened by pulling said grasping portion and thereby splitting away a fibrous surface portion of the carton adjacent the adherence connection.

2. A carton according to claim 1, wherein the grasping portion of said closure flap is defined from said inner portion by a score line providing a hinge connection between said portions.

3. A carton according to claim 2, wherein the adjacent ends of said disconnected U-shaped cut lines are joined by perforation lines to provide a hinge connection which is relatively weak as compared to said first-mentioned hinge connection.

4. A carton according to claim 1, wherein the adjacent ends of said disconnected U-shaped cut lines are joined by perforation lines to provide a hinge connection.

5. A carton formed from a unitary paperboard blank cut and foldable into carton form, the carton so formed including front, bottom, rear and end walls and a cover hinged to the rear wall, the cover of the carton having an integral extending closure flap, said flap being divided by a score line into an inner panel and an outer grasping panel adapted for opening the carton, the inner panel having a series of disconnected U-shaped cut lines therethrough defining a series of substantially separated tongue-like portions extending toward said cover and having their inner surface adhered to the outer surface of the carton front wall, the adjacent ends of said disconnected U-shaped cut lines being joined by lines of weakness in said inner panel to provide a relatively weak hinge as compared with the hinge provided by said score line.

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