Sept. 8, 1959 R. M. HOLMES 2,903,180

COLLAPSIBLE CARTON CONSTRUCTION

Filed July 16, 1957 3 Sheets-Sheet 1

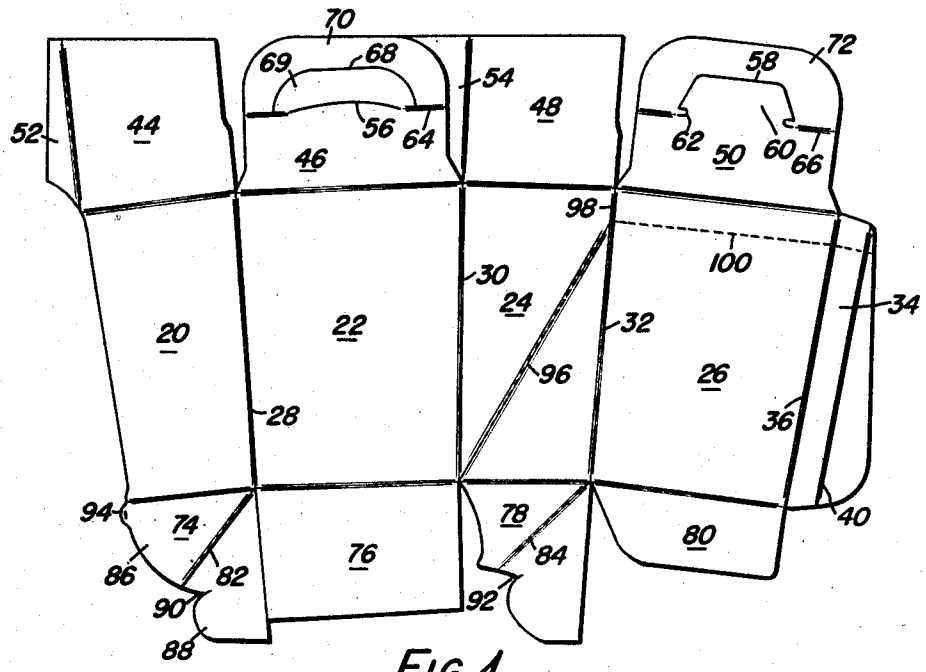


FIG. 1.

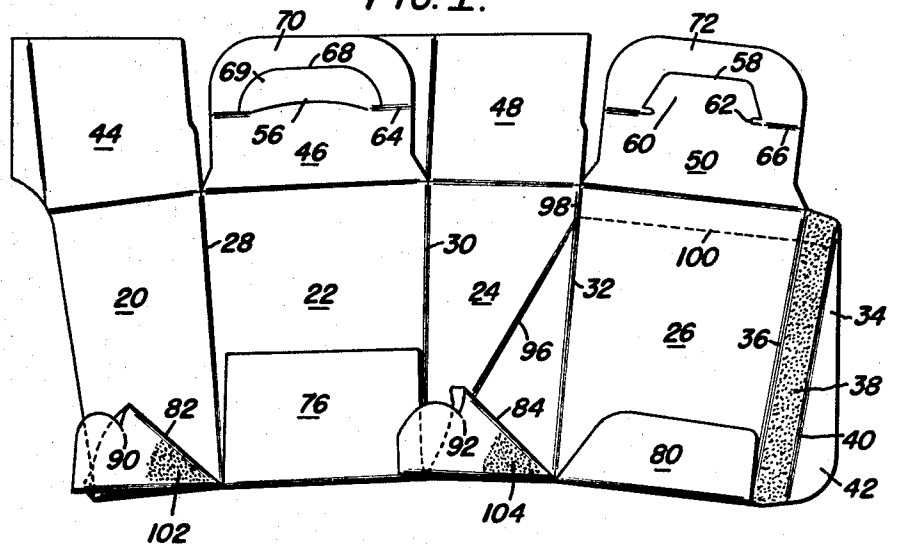


FIG. 2.

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COLLAPSIBLE CARTON CONSTRUCTION

Filed July 16, 1957 3 Sheets-Sheet 2

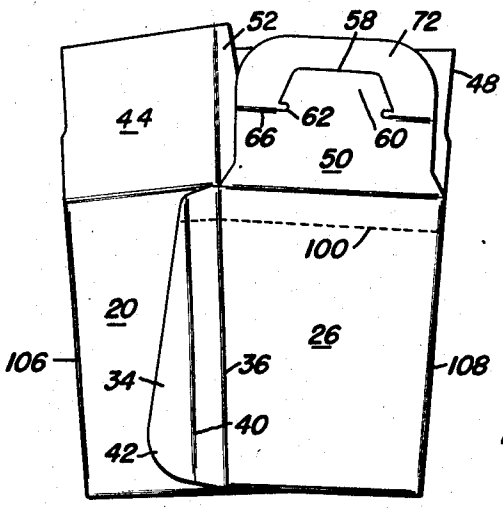


FIG. 3.

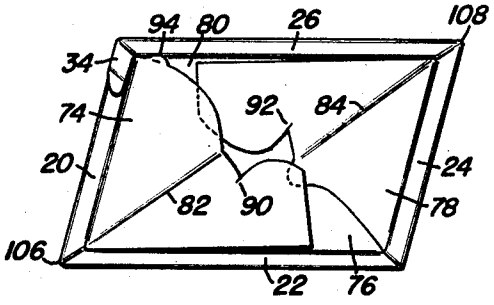


FIG. 5.

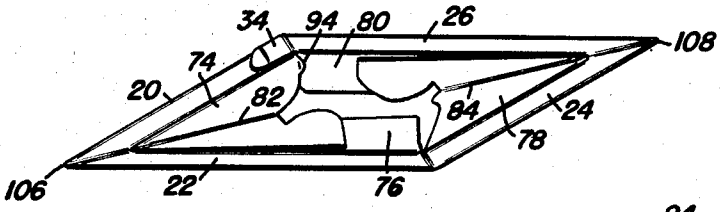


FIG. 4.

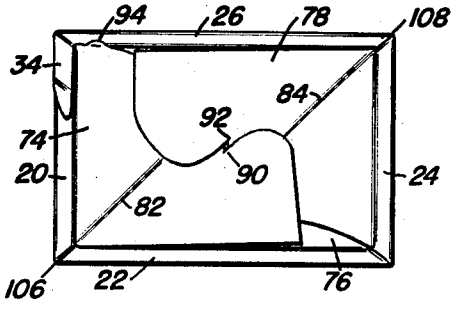


FIG. 6.

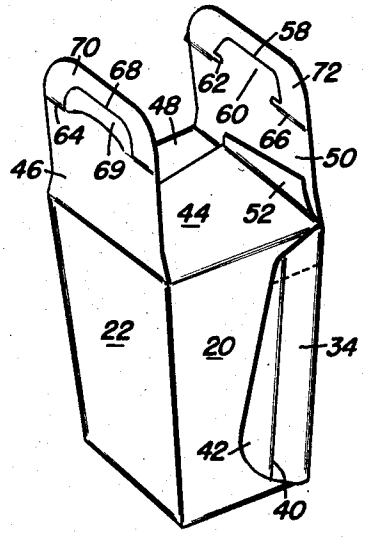


FIG. 7.

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COLLAPSIBLE CARTON CONSTRUCTION

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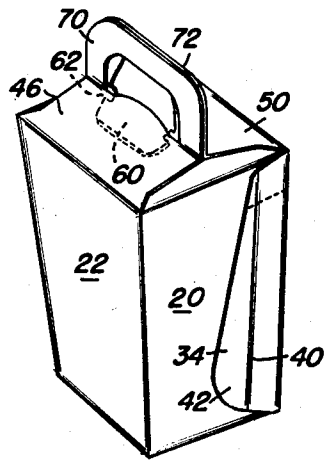


FIG. 8.

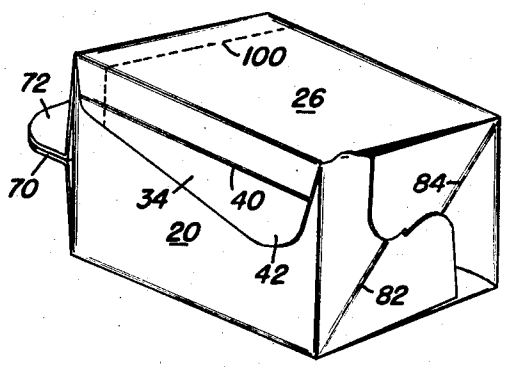


FIG. 9.

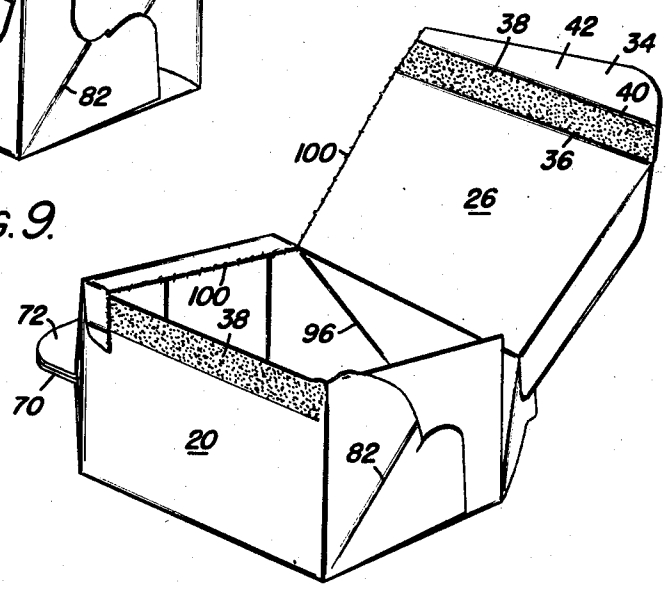


FIG. 10.

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2,903,180

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2,903,180

COLLAPSIBLE CARTON CONSTRUCTION

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Application July 16, 1957, Serial No. 672,299

6 Claims. (Cl. 229—51)

This invention relates to collapsible cartons of the type having a self-erecting bottom construction, made of cardboard or other suitable sheet material, for the distribution of ice cream and other frozen comestibles and the like, one object of the present invention being to provide an improved carton of this character so constructed as to facilitate its full opening for convenient access to the contents for removing the same in whole or in part, as by slicing or dipping.

Another object is the provision of a carton of this nature made with integral handle means, as useful, for example, in carrying its frozen contents without chilling the hands or warming the contents.

Another object is to supply such a carton provided with convenient carrying handle means while permitting the carton to be readily opened for removal of the contents in part or in whole, and to be reclosed for preserving a remaining portion of the contents.

Another object is to provide a carton having the above advantages in a construction adapted to be stored and transported in compactly collapsed condition and readily and conveniently erected for filling, as well as one of convenient form for use by the consumer.

A still further object is to supply a carton of the above character in an integral form capable of being readily manufactured in quantity, by known machines and at relatively low cost.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a plan view of a blank of sheet material cut and scored for forming a carton embodying the present invention;

Fig. 2 shows bottom flap portions folded over and provided with glued coated areas for further folding;

Fig. 3 shows the carton folded and glued in collapsed condition ready for erection and filling;

Figs. 4, 5 and 6 are bottom views showing progressive stages of erection of the carton for filling;

Fig. 7 is a perspective view showing the carton erected and filled and with its top partially closed;

Fig. 8 is a view similar to Fig. 7, but showing the top flaps closed and locked together and the handles arranged for use;

Fig. 9 is a perspective view showing the filled carton resting on a side wall in position for opening, and

Fig. 10 is a similar view showing the carton opened for removing its contents.

The preferred embodiment of the invention, herein disclosed by way of illustration, is preferably made from a one-piece cardboard blank (Fig. 1) cut and scored to form front, side, rear and closure walls, **20**, **22**, **24** and **26**, respectively, separated by scored fold lines, **28**, **30** and **32**. In the present instance, the carton is of tapered

form with its walls tapering outwardly and upwardly from bottom to top, as shown. Closure wall **26** has a securing strip or flap **34** foldably attached thereto along a score line **36**. When the blank is glued and folded, as hereafter described, strip **34** is detachably secured to the outer face of the front wall **20** adjacent the free edge thereof (Fig. 3). The strip is preferably secured to the front wall by the application thereto of a band of adhesive material, as shown at **38** (Fig. 2) and the corresponding surface of the front wall **20** may be provided with adhesion-resisting coatings, score lines or other means for facilitating separation of the strip from the front wall such as disclosed, for example, in Bloomer Patent No. 2,133,946, and the patent to Inman et al. No. 2,655,304, and now well understood in the art. The strip is provided with a score line **40** about which it may be bent upwardly and left unglued at its front edge, as **42**, to provide a portion by which it may be grasped and pulled to separate the connection of the strip with the front wall, as disclosed generally in said patents.

Walls **20**, **22**, **24** and **26** are provided with foldably connected top closure flaps, **44**, **46**, **48** and **50**, marked off from the walls by folding score lines, as shown. Flaps **44** and **48**, which are first folded downwardly to close the top of the carton (Fig. 7), are preferably formed with folding side edge portions, **52** and **54**, to insure tighter closure. Flaps **46** and **50** are then folded down over flaps **44** and **48** (Fig. 8). Flap **46** has a slit **56** formed therein, while flap **50** is cut as at **58** to free a tongue **60** for insertion through slit **56** to lock all four flaps in closed position. Tongue **60** is preferably undercut at its sides, as at **62**, for more secure locking engagement with the slit ends of the opposite flap and both flaps may be formed with score lines, as at **64** and **66**, to make these parts more bendable and facilitate their engagement.

Flap **46** is provided likewise with a substantially U-shaped slit **68**, corresponding generally to the outline of the opening left by tongue **60** of flap **50**, leaving a tab **69** between slits **56** and **68** which is folded down under tongue **60**. This provides a pair of substantially U-shaped handle means, **70** and **72**, on flaps **46** and **50**, which are folded upwardly about the score lines **64** and **66** and brought together for grasping conjointly, as shown in Fig. 8, thus providing centrally balanced, substantially constructed and convenient handle means for carrying the carton without contact of the hands with the carton itself.

The walls **20** to **26**, inclusive, are provided at their opposite or bottom ends with bottom closure flaps **74**, **76**, **78** and **80**, respectively, foldably connected therewith along interposed score lines, as shown. Flaps **74** and **78** are provided with score lines, **82** and **84**, respectively, extending diagonally thereacross and separating each of them into two portions, as **86** and **88**, so that each flap may be folded on itself about its score line and folded over the side wall with which it is connected, as shown in Fig. 2 and further described hereafter.

The outer free edges of flaps **74** and **78** are cut with notches, **90** and **92**, respectively, for engagement with each other when the carton is erected and closed, as shown in Fig. 6. Flap **74** has a small projecting part **94** (Fig. 1) for guiding the interengagement of the bottom flaps (Fig. 4), as hereafter described. Flap **76** is substantially rectangular in shape, to substantially close the carton bottom, while flap **80** is smaller and folded outside of flap **76**.

Rear wall **24** is scored along a fold line **96** extending substantially diagonally across the same (Fig. 1). That is, line **96** extends diagonally substantially from a point adjacent the point of intersection of the rear wall **24**

with closure wall 26 and top locking flap 48, except for a small displacement 98 downwardly of the carton, as hereafter referred to. From that point the line extends to the opposite or lower bottom corner of rear wall 24, as shown in Fig. 1. A weakened tear line 100 is formed, as by spaced surface cuttings or other known means, so as to extend from the front edge of securing strip 34 to the rear wall 24, adjacent to the line or fold of the closure wall 26 with its top flap 50, as shown (Fig. 1).

In the manufacture of the carton, bottom flap 74 is folded on itself about its score line 82 and then folded as a whole over the front wall 20 (Fig. 2). Flap 78 is similarly folded on itself and then over rear wall 24. Flap 80 is folded over closure flap 26. With the parts thus folded, adhesive is applied to limited areas, 102 and 104, of the folded flaps, respectively, and to the securing strip 34, as described above.

Closure wall 26 and its inwardly folded flap 80 are then folded over rear wall 24 and its inwardly folded bottom flap 78. Front wall 20 with its inwardly folded flap 74 is folded over side wall 22 and its inwardly folded flap 76 and securing strip 30 is pressed down over and glued to the top edge of the front wall, as shown in Fig. 3, thus completing the folding and gluing of the carton in collapsed, substantially flat and compact condition for storage and transportation to the user.

The carton is easily and rapidly erected for filling by inward pressure against the side edges, 106 and 108 (Fig. 3), so as to separate and distend the walls to erected position as progressively shown in Figs. 4 to 6, inclusive. In this operation, the separation of front wall 20 from side wall 22 pulls the inwardly folded bottom flap 74 and the inner bottom flap 76 to erected position, while the separation of closure wall 26 and closure wall 24 pulls inwardly folded flap 78 and inner bottom flap 80 to erected position. The adhesively connected bottom flaps 74 and 76 thus move together as one bottom section and the connected flaps 78 and 80 move together as a cooperating bottom section. The projecting part 94 on bottom flap 74 guides flap 74 smoothly over the outer edge of flap 80, thus insuring properly coordinated movement of the bottom flaps toward erected position. Continued erecting movement moves the inner portion of flap 74 along the outer surface of flap 80 and then beneath the outer portion of flap 78. At the same time, the inner portion of flap 78 moves beneath the outer portion of flap 74. This causes the opposing edges of flaps 74 and 78 to slide along the surfaces of the opposite inner bottom flaps until flaps 74 and 78 come into engagement with each other, as shown in Fig. 6, until their notches 90 and 92 engage each other, thus limiting the erecting movement of the flaps in a position substantially normal to the walls of the carton and parallel with its bottom. Such erecting movement is likewise limited by the engagement of inner bottom flap 76 along the inner bottom corners of the carton.

The bottom closure flaps are thus quickly snapped to erected position to tightly close the bottom of the carton by merely pressing inwardly against its opposite corners, as described, so that the bottom is, in effect self-erecting. The top closure flaps remain open and the carton resting on its bottom, is filled and its top closed by folding down top closure flaps 44 and 48, which tightly close the carton top. Top flap 46 is then folded down, followed by folding down of flap 50 and the insertion of its tongue 60 over the tab 69 and through the slit 56 of the opposite flap, thereby securely locking the top flaps in closed position. Such folding brings together the handle portions 70 and 72 which are folded upwardly (Fig. 8) and brought together for conjoint use as handle carrying means. The carton is thus closed in condition for delivery to the consumer.

The carton is opened by grasping the free edge portion 42 of securing strip 34 and pulling it loose from its connection with the front wall. The top flaps remaining locked in closed position, as described, the closure wall 26 is separated from its end adjacent top flap 50 by tearing it along the weakened tear line 100 from its free edge rearwardly to its junction with the rear wall. However, since the top end of the rear wall is maintained in erected position by the locked top closure flaps, the rear wall is bent rearwardly about its fold line 96 which intersects the tear line 100. Since the adhesively connected flaps 78 and 80 connect the closure flap with the upper portion of rear wall 24 above its fold line 96 and with the bottom end of the rear wall, for movement together as a unit, the closure flap and this upper portion of the rear wall are swung rearwardly about the weakened fold line 96 to the position shown in Fig. 10, in which the carton is effectively opened for access to its contents for slicing, dipping or otherwise removing all or a part thereof. The remainder of the carton remains intact and after removal of a portion of the contents, the closure wall and the triangular upper portion of the rear wall are readily folded back to positions closing the carton and in which the securing strip 34 may be tucked inside its front wall 20. The carton is then conveniently returned to the refrigerator or other storage space for further preservation of the remaining contents.

The invention thus provides an improved and highly convenient carton in which the contents are tightly packaged, but which may be readily and conveniently opened to an extent adequately exposing the contents for slicing, dipping or other methods of removal, while leaving the carton structure sufficiently intact to facilitate its closure and return to a storage space for the preservation of any remaining contents.

It will likewise be seen that the invention provides a carton having the above advantages combined with effectively arranged handle carrying means by which it may be conveniently carried, without chilling contact of the hands with the body of the carton or the warming by such contact of the carton contents. Such provision of handle means is made in a manner which readily permits the opening of the carton for removal of its contents and the reclosing of the same for further preservation. The carton is integrally and economically manufactured from a single blank of material and by known machines so that it is economically adapted for manufacture in quantity lots, as well as for convenience in storage, shipment, erection and use.

It will thus be seen that the invention accomplishes its objects and while it has been herein disclosed by reference to the details of a preferred embodiment, it is to be understood that such disclosure is intended in an illustrative, rather than a limiting sense, as it is contemplated that various modifications in the construction and arrangement of the parts will readily occur to those skilled in the art, within the spirit of the invention and the scope of the appended claims.

I claim:

1. A collapsible carrier carton having a self-erecting bottom comprising a one-piece blank cut, scored and folded to form foldably connected front, rear, side and closure walls, a connection between said closure and front walls provided with means for disconnecting the same, and top and bottom closure flaps foldably connected with said walls at the opposite ends thereof, respectively, said top closure flaps being provided with means for locking the same in erected closed position and with handle means for carrying the carton, said bottom flaps being arranged in pairs of opposed inner and outer flaps, each of said outer flaps being attached to the adjacent inner flap for forming the bottom of the carton in two sections and being formed with a fold line and foldable inwardly about said fold line together with the attached inner flap upon movement of said walls to collapsed position, said bottom closure flaps being moved to erected position normal to said walls by erecting movement of said walls and said rear wall being formed with a weakened folding

line extending thereacross, a portion of said rear wall being foldable backwardly along said weakened folding line and one of said bottom sections being movable out of engagement with the other to allow said closure wall to be moved with said rear wall portion to an open position for exposing the contents of said carton.

2. A collapsible carrier carton having a self-erecting bottom comprising a one-piece blank cut, scored and folded to form foldably connected front, rear, side and closure walls, a connection between said closure and front walls provided with means for disconnecting the same, and top and bottom closure flaps foldably connected with said walls at the opposite ends thereof, respectively, said top closure flaps having handle means foldably connected therewith for carrying said carton, a weakened tear line extending across said closure wall from the front edge thereof to said rear wall, said bottom flaps being arranged in pairs of opposed inner and outer flaps, each of said outer flaps being attached to the adjacent inner flap for forming the bottom of the carton in two sections and being formed with a fold line and foldable inwardly about said fold line together with the attached inner flap for movement of said walls to collapsed position, said bottom closure flaps being moved to erected position normal to said walls by erecting movement of said walls and said rear wall being formed with a weakened folding line extending thereacross from the inner end of said weakened tear line, a portion of said rear wall being foldable backwardly along said weakened folding line and one of said bottom sections being movable out of engagement with the other, to allow said closure wall to be separated along said weakened tear line and to be moved with said rear wall portion to an open position for exposing the contents of said carton.

3. A collapsible carrier carton having a self-erecting bottom comprising a one-piece blank cut, scored and folded to form foldably connected front, rear, side and closure walls, said carton having a substantially rectangular shape in cross section parallel with the bottom thereof and said side and closure walls being wider than said front and rear walls, a connection between said closure and front walls provided with means for disconnecting the same, and top and bottom closure flaps foldably connected with said walls at the opposite ends thereof, respectively, said closure flaps on said closure and side walls being provided with handle means foldably connected therewith for carrying the carton, a weakened tear line extending across said closure wall from the front edge thereof to said rear wall, said bottom flaps being arranged in pairs of opposed inner and outer flaps, each of said outer flaps being attached to the adjacent inner flap for forming the bottom of the carton in two sections and being formed with a fold line and foldable inwardly about said fold line together with the attached inner flap upon movement of said walls to collapsed position, said bottom closure flaps being moved to erected position normal to said walls by erecting movement of said walls and said rear wall being formed with a weakened folding line extending thereacross from the inner end of said tear line, a portion of said rear wall being foldable backwardly about said weakened folding line and one of said bottom sections being movable out of engagement with the other, to allow said closure wall to be separated along said weakened tear line and moved with said rear wall portion to an open position for exposing the contents of said carton.

4. A collapsible carrier carton having a self-erecting bottom comprising a one-piece blank cut, scored and folded to form foldably connected front, rear, side and closure walls, a connection between said closure and front walls provided with means for disconnecting the same, and top and bottom closure flaps foldably connected with said walls at the opposite ends thereof, respectively, said top closure flaps on said closure and side walls being provided with means for locking the same

in erected position and with foldably connected handles for carrying said carton, a weakened tear line extending across said closure wall from the front edge thereof to said rear wall, said bottom flaps being arranged in pairs of opposed inner and outer flaps, each of said outer flaps being attached to the adjacent inner flap for forming the bottom of the carton in two sections and being formed with a fold line and foldable inwardly about said fold line together with the attached inner flap upon movement of said walls to collapsed position, said bottom closure flaps being moved to erected position normal to said walls by erecting movement of said walls and said rear wall being formed with a weakened folding line extending from the inner end of said weakened tear line substantially diagonally across said rear wall, a portion of said rear wall being foldable backwardly along said weakened folding line and one of said bottom sections being movable out of engagement with the other, to allow said closure wall to be separated along said weakened tear line and moved with said rear wall portion to an open position for exposing the contents of said carton.

5. A collapsible carrier carton having a self-erecting bottom comprising a one-piece blank cut, scored and folded to form foldably connected front, rear, side and closure walls, a connection between said closure and front walls provided with means for disconnecting the same, and top and bottom closure flaps foldably connected with said walls at the opposite ends thereof, respectively, a pair of said top closure flaps on opposite side walls being formed with slits to provide parts for interlocking engagement with each other and substantially U-shaped handles for carrying said carton, said bottom flaps being arranged in pairs of opposed inner and outer flaps, each of said outer flaps being attached to the adjacent inner flap for forming the bottom of the carton in two sections and being formed with a fold line and foldable inwardly about said fold line together with the attached inner flap upon movement of said walls to collapsed position, said bottom closure flaps being moved to erected position normal to said walls by erecting movement of said walls and said rear wall being formed with a weakened folding line extending thereacross, a portion of said rear wall being foldable backwardly along said weakened folding line and one of said bottom sections being movable out of engagement with the other to allow said closure wall and a portion of said rear wall to be moved to an open position for exposing the contents of said carton.

6. A collapsible tapered carrier carton having a self-erecting bottom comprising a one-piece blank cut, scored and folded to form foldably connected front, rear, side and closure walls tapering upwardly and outwardly from the bottom thereof, said side and closure walls being wider than said front and rear walls, an adhesive connection between said closure and front walls provided with a freely extending portion adapted to be pulled to disconnect the same, and top and bottom closure flaps foldably connected with said walls at the opposite ends thereof, respectively, said top closure flaps on said closure and side walls being cut to provide a slit part and an oppositely shouldered tongue part for interlocking engagement with each other and substantially U-shaped handles for carrying the carton, a weakened tear line extending across said closure wall from the front edge thereof to said rear wall, said bottom flaps being arranged in pairs of opposed inner and outer flaps, each of said outer flaps being attached to the adjacent inner flap for forming the bottom of the carton in two sections and being formed with a folding line and foldable inwardly about said fold line together with the attached inner flap upon movement of said walls to collapsed position, said bottom closure flaps being moved to erected position normal to said walls by erecting movement of said walls and said rear wall being formed with a

weakened folding line extending substantially diagonally thereacross from the inner end of said weakened tear line, a portion of said rear wall being foldable backwardly along said weakened folding line and one of said bottom sections being movable out of engagement with the other, to allow said closure wall to be separated along said tear line and moved with a portion of said rear wall to an open position for exposing the contents of said carton.

References Cited in the file of this patent

UNITED STATES PATENTS

1,670,036	Hirsch	May 15, 1928
2,355,730	Inman	Aug. 15, 1944
2,655,304	Inman et al.	Oct. 13, 1953
2,659,526	Buttery	Nov. 17, 1953
2,844,297	Holmes	July 22, 1958
2,852,180	Inman	Sept. 16, 1958