3,158,312

FOLED Carton HAVING SEPARABLE UNITS


Filed Dec. 5, 1961, Ser. No. 157,094

9 Claims. (Cl. 229—51)

This invention relates in general to new and useful improvements in the construction of cartons which may be formed of paperboard, including corrugated paperboard, and more particularly relates to a folded carton having separable units.

There are numerous products which are shipped and sold in quantity, yet not always sold in the quantity in which they are packaged. At the same time, when less than the full package is sold, it is desired that the portion of the package remain in a packaged state. A very good example of this is beverages, particularly beer, wherein the beer is normally sold in cases of 24 cans or bottles, and is retailed either in the case lots or in packages of six.

At the present time, it is necessary that the retailer open the case and sell six individual cans therefrom, or that the individual cans be packaged in packages of six, with the packages of six being further packaged in other cartons to form a case. This, of course, results in undue handling in the first instance and undue expense in the second instance.

It is therefore the primary object of this invention to provide a novel folded carton which has sufficient rigidity and strength to properly protect the contents thereof, and at the same time may be readily separated into individual units so that less than a full carton of the particular product may be retailed.

Another object of this invention is to provide a novel folded carton which may be readily longitudinally divided into two halves, and each of the halves may be further divided into individual units so that the carton may be readily divided into four units for the retailing of any portion thereof.

Still another object of this invention is to provide a novel folded carton which is in the form of two tubular units disposed in side-by-side relation, and the tubular units being interconnected with the exception of a wide end flap at each end thereof, the wide end flap extending across the ends of both of the tubular units, whereby when the wide end flap is torn in the center thereof, the two tubular units may be separated into individual units.

A further object of this invention is to provide a foldable carton which is readily divisible into separable units, the foldable carton being in the form of two elongated tubular units disposed in side-by-side relation and having the ends thereof closed by end flaps, and at least one end flap at each end of the carton extending across both of the tubular units so as to connect together the tubular units for ready separation, and the tubular units in addition being provided with transverse weakened areas to facilitate the separation of each tubular unit into at least two sections.

A further object of this invention is to provide a novel folded carton readily divisible into separable units, the folded carton including two tubular units disposed in side-by-side relation, and each of the tubular units having intermediate portions thereof reversely folded and projecting thereinto to define double thickness partitions, and the partitions being readily separable so as to separate each of the tubular units into individual sections with the partitions then forming end flaps of the separated sections.

Still another object of this invention is to provide a novel folded carton having separable units, which carton, when partially assembled, may be folded to a flat state for shipment and storage, and may be readily erected for the reception of articles to be packaged through the open ends thereof.

Yet another object of this invention is to provide a novel blank for forming a folded carton having separable units, the blank being of a generally rectangular outline and being divided into a central wall forming portion and two outer end flaps forming portions by longitudinal fold lines, the blank being further divided by means of a transverse cut line extending between the longitudinal fold lines so as to divide the body forming portion into two symmetrical halves, and the body forming portion being divided into a plurality of walls by transverse fold lines extending between the longitudinal fold lines and the end flaps forming portions being divided into individual end flaps by cut lines extending inwardly from the edges of the blank to the longitudinal fold lines in alignment with the transverse fold lines.

A still further object of this invention is to provide a novel blank for forming a folded carton having separable units, the blank being formed from a rectangular sheet with a minimum of waste and being of a nature wherein it may be quickly and easily die cut on a production basis so that the formation of the blank is relatively inexpensive.

With the above and other object in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing:

In the drawing:

FIGURE 1 is a perspective view of a preferred form of the carton formed in accordance with this invention and shows the general details thereof.

FIGURE 2 is a perspective view of the carton of FIGURE 1, and shows the same being separated into two halves.

FIGURE 3 is a perspective view showing one of the halves of the carton of FIGURE 1 being further divided into two sections.

FIGURE 4 is an enlarged vertical sectional view taken along the line 4—4 of FIGURE 1, and shows the specific construction of the carton.

FIGURE 5 is an enlarged transverse vertical sectional view taken along the line 5—5 of FIGURE 1, and shows further the details of the construction of the carton.

FIGURE 6 is an enlarged horizontal sectional view taken along the line 6—6 of FIGURE 4, and shows the specific manner in which the carton is divided into four individual sections.

FIGURE 7 is a perspective view of the carton of FIGURE 1 while still in its flat state ready for storage and shipment, but partially secured together for immediate erection.

FIGURE 8 is a plan view of a blank from which the carton of FIGURE 1 is formed, the view being on a reduced scale.

FIGURE 9 is a plan view of a blank for forming a slightly modified form of carton in accordance with this invention.

FIGURE 10 is a perspective view of the carton which is formed from the blank of FIGURE 9.

FIGURE 11 is a horizontal sectional view on an enlarged scale taken along the line 11—11 of FIGURE 10, and shows the specific details of construction of the modified carton.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a first form of carton in accordance with this invention, wherein the carton is generally referred to by the numeral 15. The carton 15, in accordance with this invention, may be readily divisible into two elongated tubular units 16 and
Each of the tubular units 16 and 17 may be further divided into two individual sections, the tubular unit 16 being divisible into sections 18 and 19, while the tubular unit 17 is divisible into sections 20 and 21.

The blank 22 is of a one-piece construction and is formed from a generally rectangular blank, which is best illustrated in FIGURE 8. The blank is generally referred to by the numeral 22. The blank 22 may be formed of any suitable cardboard product, including corrugated cardboard.

The blank 22 is provided with a pair of longitudinally extending fold lines 23 and 24 which are disposed adjacent the longitudinal edges of the blank 22 and divide the blank 22 into a pair of end flap forming portions 25 and 26, respectively, and a central wall forming portion 27. The wall forming portion 27 has a pair of longitudinal fold lines 28 and 29 thereon spaced equally on opposite sides of the longitudinal center of the blank 22. The fold lines 28 and 29 set off intermediate portions of the wall forming portion 27.

The wall forming portion 27 is divided into two symmetrical halves by a transverse cut line 30 which ends between the fold lines 23 and 24. Each of these halves is divided into a plurality of wall panels by means of a plurality of transverse fold lines.

Considering the upper half of the blank 22, as viewed in FIGURE 8, a first pair of fold lines 31 and 32 extend between the fold lines 33 and 34 on one hand and the fold lines 29 and 35 on the other hand, to set off a pair of wall panels 36 and 37, respectively. A fold line 35 extends between the fold lines 23 and 24, while a fold line 36 extends between the fold lines 29 and 31 in the pair of wall panels 36 and 37, respectively. Another pair of transverse fold lines 39 and 40 extend between the fold lines 23 and 24 on one hand and the fold lines 29 and 40 on the other hand, respectively, to define wall panels 41 and 42, respectively. A final pair of fold lines 43 and 44 extend between the fold lines 23 and 29 and the fold lines 24 and 41, respectively, at the ends thereof, to set off wall panels 45 and 46, respectively. A connecting flap 47 is connected to the wall panel 45 along the fold line 43, while a connecting flap 48 is connected to the wall panel 46 along the fold line 44.

The other half of the wall forming portion 27 is similarly divided into wall panels by a plurality of transverse fold lines extending between the longitudinal fold lines 23 and 24 and the longitudinal fold lines 29 and 30. Fold lines 49 and 50 set off wall panels 51 and 52, which correspond to the wall panels 33 and 34. Fold lines 53 and 54 set off wall panels 55 and 56, which correspond to the wall panels 37 and 38, respectively. Fold lines 57 and 50 set off wall panels 59 and 60, which correspond to the wall panels 41 and 42. Terminal fold lines 61 and 62 set off wall panels 63 and 64, which correspond to the wall panels 45 and 46. Connecting flaps 65 and 66 are connected to the wall panels 63 and 64 along the fold lines 61 and 62, respectively.

It will be apparent that the intermediate portion 27 is also divided into symmetrical halves by the cut lines 30. The upper half of intermediate portion 27 is subdivided by a plurality of transverse cut lines 67, 68, and 69, which are in alignment with the fold lines 31, 35, and 39, respectively.

The intermediate portion 27 is weakened along the longitudinal center of the blank 22. This weakening includes a cut line 70 which extends between the cut lines 67 and 68, in conjunction therewith sets off a pair of separate flaps 71 and 72 which are connected to the wall panels 33 and 34, respectively.

A centrally disposed weakening line 73 extends between the cut lines 66 and 67 and in part defines two flaps 74 and 75, which are hingedly connected together along the line 77 and are hingedly connected to the wall panels 37 and 38, respectively.

Another centrally located longitudinal cut line 76 extends between the cut lines 68 and 69 and in part sets off a pair of flaps 77 and 78, which are separated from one another and which are hingedly connected to the wall panels 41 and 42, respectively.

A further longitudinal weakening line 79 extends between the cut lines 69 and 70 and the upper end of the blank 22, as viewed in FIGURE 8, and forms a dividing line between a pair of connected flaps 80 and 81. The flaps 80 and 81 are hingedly connected together along the weakening line 79 and are hingedly connected to the wall panels 45 and 46, respectively.

The lower half of the intermediate portion 27 includes a cut line 82 which extends between the fold lines 28 and 29 and forms a dividing line between a pair of connecting flaps 83 and 84.

Two other cut lines 85 and 86 extend between the fold lines 28 and 29, in alignment with the fold lines 53 and 57, respectively.

The lower half of the intermediate portion 27 also includes a cut line 85 which extends between the cut lines 39 and 40 and in part sets off a pair of flaps 86 and 87 which are hingedly connected to the wall panels 51 and 52, respectively.

Another longitudinal cut line 91 extends along the center of the blank 22 between the cut lines 83 and 84 and in part sets off a pair of flaps 92 and 93 which are hingedly connected to the wall panels 59 and 60, respectively.

A further longitudinal, centrally located weakening line 94 extends between the cut line 84 and the lower end of the blank 22, as viewed in FIGURE 8, and forms a weakening line between a pair of flaps 95 and 96 which are hingedly connected to the wall panels 63 and 64.

The end flap forming portion 25 is divided into a plurality of individual end flaps by a plurality of transverse cut lines. These cut lines include cut lines 97, 98, 99, 100, 101, and 102, which are aligned with the fold lines 35, 39, 51, 54, 58, and 61, respectively. These transverse cut lines extend from the left edge of the blank 22, as viewed in FIGURE 8, to the fold line 30.

The cut line 97 sets out an end flap 103 which is hingedly connected to the wall panel 45, while the cut line 98 sets out an end flap 104 which is hingedly connected to the wall panel 45. The cut line 99 sets out an end flap 105 which is hingedly connected to the wall panel 45.

At the lower part of the blank 22, as viewed in FIGURE 8, the cut line 102 sets out an end flap 106 which is hingedly connected to the wall panel 63 while the cut line 101 sets off an end flap 107 which is hingedly connected to the wall panel 59. An end flap 108 is set out by the cut line 100 and is hingedly connected to the wall panel 55. The cut line 99 and 100 set out a very wide end flap 109 which is twice as long as the end flaps 104 and 107, and which bridges the cut line 30 and is hingedly connected to the wall panels 33 and 34.

The end flap forming portion 26 is also divided into a plurality of individual end flaps by a plurality of cut lines. These cut lines include cut lines 110, 111, 112, 113, 114, and 115, which correspond to the cut lines 97 through 102, inclusive, respectively. The cut lines 106 through 115, inclusive, set out end flaps 116, 117, 118, 119, 120, 121 and 122 which correspond to the end flaps 103 through 109, inclusive, respectively.

Reference is now made to FIGURE 7, wherein the carton 15 is illustrated in its interconnected flat state ready for shipment, storage or erecting. In forming the carton 15 from the blank 22, the first step is to adhesively secure the connecting flaps 47 and 48 to the inner surfaces of the wall panels 33 and 34 along the cut line 30.
like manner, the connecting flaps 65 and 66 are connected to the inner surfaces of the wall panels 51 and 52 along the cut line 30. When the carton 15 is in its flat state of FIGURE 7, it is folded along the fold lines 35 and 36 and 53 and 54. It is to be understood that the carton 15 may be readily erected from the flattened state of FIGURE 7 to the completed carton structure of FIGURE 8. It is to be understood that the carton 15 will be inverted when it is erected from its flat state of FIGURE 7 to its assembled state of FIGURE 1.

When the carton 15 is erected from the flat state of FIGURE 7, after the tubular units 16 and 17 have been generally illustrated in FIGURES 4 and 6. The carton 15 is now ready to have the articles to be packaged therein placed, through the cut sections of the tubular units 16 and 17. The carton 15 illustrated in the drawings is particularly adapted for receiving 24 cans of beer, with six cans of beer being placed in each of the sections of the carton. After the cans of beer or other product to be packaged are placed within the carton 15, the ends of the carton structure may be secured in a manner generally illustrated in FIGURE 11 or 12. The carton 15 is generally referred to and described in the drawings as an open top carton, which may function as an open top bag or like container.

The blank 132 is illustrated in FIGURE 9 and is of a generally rectangular outline. It is to be noted that the blank 132 is identical with the blank 22 with the exception that the intermediate portion 27 has been omitted and a continuous weakening line 133 extends down the longitudinal center of the blank 132 from one end to the other. The blank 132 is provided with a pair of longitudinal fold lines 134, 135 disposed adjacent the opposite side edges of the blank 132 and dividing the blank into a centrally located wall forming portion 136 and a pair of outer end flange forming portions 137 and 138.

The wall forming portion 136 is divided into symmetrical halves by a centrally located, transverse cut line 139 which extends between the fold lines 134 and 135. The upper half of the wall forming portion 136, as viewed in FIGURE 9, is divided by a plurality of transverse fold lines 140, 141, 142 and 144, each of which extends between the fold lines 134 and 135. These fold lines divide the upper half of the wall forming portion 136 into wall panels 145, 146, 147 and 148, and a connecting flap 149.

The lower half of the wall forming portion 136, as viewed in FIGURE 9, is divided by a plurality of transverse fold lines 159, 151, 152 and 153, which extend between the fold lines 134 and 135 and set out wall panels 154, 155, 156 and 157, as well as a terminal connecting flap 158.

The end flap forming portion 157 is divided into a plurality of end flaps by transverse cut lines extending from the outer edge of the blank 132 to the fold line 133. These transverse cut lines are referred to by the numerals 159, 160, 161, 162, 163 and 164, which are aligned with the fold lines 142, 141, 140, 150, 151 and 152, respectively. The cut lines 159 through 164 set out end flaps 165, 166, 167, 168, 169 and 170 which are hingely connected to the wall panels 148, 147, 146, 155, 156 and 157, respectively. The cut lines 161 and 162 also set out a wide end flange 171 as compared to the other end flanges. The end flange 171 bridges the cut line 139 and is hingedly connected to the wall panels 145 and 154.

The end flap forming portion 138 is provided with cut lines 172, 173, 174, 175, 176 and 177 which correspond to the cut lines 159 through 164, inclusive, respectively, and set out end flaps 178, 179, 180, 181, 182, 183 and 184 which correspond to the end flaps 165 through 171, inclusive, respectively.

Although it has not been specifically illustrated in the drawings, it is to be understood that the carton 125 is initially formed by adhesively securing or otherwise securing the connecting flap 149 to the undersurface of the wall panel 145 and the connecting flap 158 to the undersurface of the wall panel 154. The partially formed carton may then be folded along the fold lines 141 and 151 to assume a flattened state, such as is shown in FIGURE 7 with respect to the carton 15.

The carton 125 is erected and filled in the same manner described above with respect to the carton 15. When it is desired to break the carton 125 into smaller units, the carton 125 may be divided in half by tearing the end flaps 171 and 184 at the centers thereof so as to separate the tubular units 126 and 127. If it is desired to dispense only one-quarter of the contents of the carton 125, each of the tubular units 126 and 127 may be further broken down into sections by breaking the same along the weakening line 133.

As compared to the carton 15, the carton 125 has the deficiency that when it is separated into the individual sections 128, 129, 130 and 131, the ends of these sections remote from the initial ends of the carton are open. However, if these sections are held upright so that the original ends of the cartons are disposed lower, they may function as an open top bag or like container.
From the foregoing, it will be seen that there has been devised a simple carton construction which may be folded from a single generally rectangular blank with a minimum of waste and which, when erected, may receive four groups of elements, which four groups may be divided as desired by separating the carton either into halves or into individual sections which in the example illustrated, would be quarters. In addition, while the cartons may be readily divided into sections, it will be understood that the cartons will have sufficient strength to absorb the necessary abuses encountered during shipment of such a carton.

It will be seen that novel and advantageous provision has been made for carrying out the desired end. However, attention is directed to the fact that variations may be made in the example cartons disclosed herein without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. A one-piece folded carton comprising a pair of tubular units disposed in side-by-side relation, end flaps at opposite ends of said tubular units closing said tubular units, said end flaps including at least one wide end flap at each end of said carton extending across the ends of said tubular units with said wide end flaps forming the sole connection between said tubular units, each of said tubular units having an intermediate partition structure dividing each tubular unit into a plurality of sections, each tubular unit being of a generally rectangular cross-section and having four walls, and said intermediate structure being formed by pairs of intermediate portions of said walls disposed generally normal to the plane of respective ones of said walls, said intermediate portions of first two opposite pairs thereof being integrally connected, and said intermediate portions of second two opposite pairs thereof being separated and spaced apart with said intermediate portions of said first two pairs disposed therebetween and secured thereto.

2. The carton of claim 1 wherein the connections between the intermediate portions of said first two pairs are weakened to facilitate the separation of said first two pairs of said intermediate portions to divide the respective tubular unit into sections with said intermediate portions forming end flaps therefor.

3. A carton blank comprising a generally rectangular sheet having a pair of longitudinal fold lines disposed adjacent the longitudinal edges of said sheet and dividing said sheet into a central wall forming portion and two end flap forming portions, a transverse cut line extending entirely between said longitudinal fold lines and dividing said central wall forming portion into two symmetrical halves, a plurality of transverse fold lines extending between said longitudinal fold lines and dividing each of said halves into a plurality of walls and at least one terminal flap, and cut lines extending transversely of said end flap forming portions in alignment with said transverse fold lines and dividing said end flap forming portions into a plurality of end flaps including a central end flap along each longitudinal edge of said sheet bridging said first mentioned cut line and being of a greater width than the other end flaps and a longitudinal weakening line along the center of said sheet and extending the full length thereof.

4. The blank of claim 3 wherein the longitudinal weakening line along the center of said sheet and extending the full length thereof includes alternating completely cut portions and partially cut portions.

5. The blank of claim 3 together with centrally located longitudinal fold lines spaced equally on opposite sides of the longitudinal center of said sheet and setting off intermediate portions of said central wall forming portion and transverse cut lines extending between said centrally located longitudinal fold lines in alignment with said transverse fold lines.

6. The blank of claim 3 together with centrally located longitudinal fold lines spaced equally on opposite sides of the longitudinal center of said sheet and setting off intermediate portions of said central wall forming portion, and transverse cut lines extending between said centrally located longitudinal fold lines in alignment with said transverse fold lines.

7. The blank of claim 6 wherein the longitudinal weakening line along the center of said sheet and extending the full length thereof includes alternating completely cut portions and partially cut portions each extending between adjacent ones of said last-mentioned cut lines.

8. A one piece folded carton comprising a pair of tubular units each comprising a plurality of end flaps in opposed relationship at opposite ends of the tubular units, opposed side panels, and opposed top and bottom panels, a side panel of each of the pair of tubular units being in side-by-side relation, said end flaps including at least one wide end flap at each end of said carton extending across both tubular units normal to a plane established by the side panels in side-by-side relation, said wide end flaps forming the sole connection between said tubular units, and each of said tubular units having a transversely weakened portion across the side, top and bottom panels thereof whereby each tubular unit may be divided into sub-units.

References Cited in the file of this patent

UNITED STATES PATENTS

2,154,085 Bergstein -------------- Apr. 11, 1939
2,290,971 King -------------- July 28, 1942
2,596,331 Ferguson -------------- May 13, 1952
2,679,724 Androfek -------------- May 18, 1954
2,686,000 Berk -------------- Aug. 10, 1954
2,758,777 Dixon -------------- Aug. 14, 1956
2,794,586 Broderick -------------- June 4, 1957
2,973,150 Costrell -------------- Feb. 28, 1961