DOUBLE WALL SEPARATOR FOR BOTTLE CARRIERS

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This application is a continuation application of my copending commonly assigned application Ser. No. 31,691 filed May 25, 1960, and now abandoned.

This invention relates in general to new and useful improvements in the bottle carrier art, and more particularly relates to new and useful bottle separators which may be positioned within a wrap-around bottle carrier for both separating the bottles disposed within the carrier and preventing the accidental removal of the bottles through the ends of the carrier.

A bottle carrier, in order to function properly, must not only properly support the bottles to facilitate the carrying thereof, but must also prevent contact of adjacent bottles so as to prevent damage to the bottles during handling. A basic commercially acceptable type of bottle carrier includes a carton which may be placed upon a desired number of bottles and engaged beneath the bottoms thereof with the necks of the bottles passing through suitable openings in the top portion of the carton. The carrier also includes a suitable type of separator for positioning within the carton to prevent the contact of the bottles with each other. In this basic type of carrier arrangement, it is desired that the carton be placed on the bottles as they move along a conveyor line. It is desirable that the separator be designed with respect to the bottles, after which the carton of the carrier is wrapped around both the bottle and the separator to form the complete package. It thus will be apparent that it is desirable that the bottle separator be separated and independent from the carton in its initial state. It is to this type of separator that the present invention relates.

In view of the foregoing, it is an object of the invention to provide a novel bottle separator for use with a wrap-around type carton of a bottle carrier, the bottle separator being readily formed from a one-piece blank which is folded along its longitudinal center line to provide two halves which are identical, and the two halves having projecting portions which project from opposite sides of the central part of the separator in transverse alignment and serve to both separate bottles when combined with the bottles in a bottle carrier, and to prevent the accidental removal of the bottles from the ends of the bottle carrier.

Another object of the invention is to provide a novel bottle separator for use with a wrap-around carton in the formation of a bottle carrier, the separator being readily formed from a single sheet of material and being provided with projecting flanges on opposite sides of the main portion thereof. Intermediate ones of the flanges being adapted to be disposed between adjacent bottles to prevent engagement of the bottles, and endmost ones of the flanges being in the form of stops for preventing the accidental movement of the bottles out of the ends of the carton.

Another object of the invention is to provide a novel double wall separator for use in bottle carriers of the type including a wrap-around carton, the separator including two upstanding walls having flanges projecting transversely thereto at the opposite ends thereof, the flanges functioning as stops to prevent the accidental removal of bottles out of the ends of the carton of the bottle carrier, and the central portion of the walls having a plurality of flanges struck therefrom, the flanges being folded to position normal to the planes of the walls and arranged in pairs for positioning between adjacent bottles to prevent engagement of the bottles with the other.

A further object of the invention is to provide a novel bottle separator for positioning within a wrap-around type carton of a bottle carrier, the bottle separator including a pair of vertical wall portions from which a plurality of flanges have been struck and folded out of the planes of the walls, the flanges being arranged in cooperating pairs, and each of the walls having at least four flanges struck therefrom, the endmost ones of the flanges being generally rectangular in outline, and the centernmost flanges being formed of overlapping material of the walls.

One of the intermediate flanges being generally C-shaped and the other being generally T-shaped, with the stem portion of the T-shaped flange being received within the C-shaped flange in the initial formation of the blank from which the separator is folded.

Another object of the invention is to provide a novel separator for use in conjunction with a carton of the wrap-around type in the formation of a bottle carrier, the bottle separator including two upstanding walls which are formed from a single sheet of material connected together along their bottoms by a fold line, the ends and intermediate portions of the walls being spaced apart by means of spacers which project between the walls and the spaces being disposed at the ends of intermediate points of the walls, and being formed from the material of the walls, so as to provide individual pockets into which bottles may be seated.

Still another object of the invention is to provide a novel bottle separator which is of a double wall construction, and which is formed from a single sheet of material, whereby the two walls of the bottle separators being disposed in face-to-face relation and terminating at their ends in flanges, the end flanges at each of the walls combining to have a configuration generally corresponding to the cross-section of the wrap-around carton in which the bottle separator is positioned to prevent the accidental removal of bottles from the ends of the carton and the end flanges being provided with projecting tabs which project through slots in the carton to interlock the end flanges with the carton, the walls also having struck and folded therefrom intermediate flanges which are adapted to be positioned between adjacent bottles to separate the same.

A still further object of the invention is to provide a novel bottle separator of the double wall type wherein the two walls of the bottle separator are disposed in touching opposed relation, and each of the walls terminates at each end thereof in an end flange which is disposed substantially normal to the plane of its respective wall, the individual end flange having formed integrally therefrom a return flange and a securing flange, which securing flange is suitably secured to the adjacent portion of the respective wall to prevent the swinging of the end flange beyond a position generally normal to the plane of its respective wall and away from the walls, thereby permitting the end flange to be folded into a position generally overlying the wall so that the separator may be compact for storage and shipment.

Yet another object of this invention is to provide a novel bottle separator for use with a wrap-around type carton in the forming of a bottle carrier, the bottle separator being formed from an elongated blank folded along a longitudinal center line to define two halves which are identical, each of the halves including a plurality of wall portions which are separated by outwardly projecting spaced formed by intermediate portions of a blank folded upon themselves, and the separator having end flanges which are disposed at the ends of the separator and project outwardly with respect to the termi-
nal wall portions, the end flanges having rebent portions and securing flanges which are fixedly secured to the terminal wall portions to limit the swinging of the end flanges away from the respective wall portions beyond positions generally normal to the wall portions.

With the above and other objects in view that will hereinafter appear, 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 drawings:

In the drawings:

FIGURE 1 is a perspective view of a bottle carrier incorporating one form of bottle separator in accordance with this invention.

FIGURE 2 is a perspective view of the bottle separator removed from the carton of the bottle carrier to show the general details thereof.

FIGURE 3 is an enlarged horizontal sectional view taken along line 3-3 of FIGURE 1 and shows the general arrangement and components of the bottle separator, bottles being shown in position within the bottle carrier to indicate the function of the bottle separator.

FIGURE 4 is a plan view on a reduced scale of the blank from which the bottle separator is formed.

FIGURE 5 is a perspective view of another bottle carrier, which bottle carrier utilizes the carton of FIGURE 1, but is provided with a modified form of bottle separator.

FIGURE 6 is a perspective view of a bottle separator of FIGURE 5 removed from the carton.

FIGURE 7 is an enlarged horizontal sectional view taken along the line 7-7 of FIGURE 5, and shows the specific horizontal cross-section of the bottle separator, there also being illustrated bottles within the carrier to show the relationship within the bottle separator with respect to the bottles.

FIGURE 8 is a plan view of the blank from which the bottle separator is formed.

FIGURE 9 is a perspective view of another bottle carrier incorporating a modified form of the bottle separator.

FIGURE 10 is a perspective view of the bottle separator of FIGURE 9 removed from the carton.

FIGURE 11 is an enlarged fragmentary elevational view showing the detail construction of the handle portion of the separator.

FIGURE 12 is a horizontal sectional view, taken along the line 12 of FIGURE 9, and shows the horizontal cross-section of the bottle separator, there also being illustrated bottles in the carrier and the relationship of the bottles with respect to the separator.

FIGURE 13 is a plan view of the blank from which the bottle separator of FIGURE 10 is formed.

FIGURE 14 is a perspective view of another form of bottle carrier incorporating another form of bottle separator.

FIGURE 15 is a perspective view of the bottle separator of the bottle carrier of FIGURE 14.

FIGURE 16 is a horizontal sectional view taken along line 16-16 of FIGURE 14, and shows the horizontal cross-section of the bottle separator, there also being illustrated bottles in position within the carrier and separated by the bottle separator.

FIGURE 17 is a plan view on a reduced scale of the blank from which the bottle separator of FIGURE 15 is formed.

Reference is first made to the embodiment of the invention illustrated in FIGURES 1 through 4, inclusive, of the drawings.

The bottle carrier illustrated in FIGURE 1 is generally referred to by the numeral 25, and is particularly designed for carrying six bottles B. The bottles have been omitted from FIGURE 1 for purposes of clarity, although they are illustrated in section in FIGURE 3. The bottle carrier 25 is formed of two basic components. These include a carton 26 which extends around the lower portions of the bottles B, and a bottle separator 27 which is disposed within the carton 26 for separating and retaining bottles in position therein.

Reference is now made to FIGURE 4, wherein the details of a blank, generally referred to by the numeral 34, from which the bottle separator 27 is formed is illustrated. The blank 34 is generally rectangular in outline and is formed of a suitable economical material, such as paperboard and the like. The blank 34 has a central longitudinal fold line 35 for dividing the blank 34 into the identical halves. Each of the halves of the blank 34 is provided adjacent each of its ends with a transverse fold line 36 which divides the blank half into a pair of end flanges 37 and a central wall portion 38. The end flanges of the two blank halves are separated by slits 39 which constitute extensions of the fold line 35. Each of the fold lines 36 is interrupted by a central, generally C-shaped cut line 40 which defines an inner tab 41 on each of the end flanges 37. The blank 34 is also shaped to define a projecting tab 42 on the free edge of each of the end flanges 37.

Each of the wall portions 38 has an upwardly projecting central portion defining a handle 43. The handle 43 has a generally C-shaped cut line 44 formed therein defining a hand opening. The cut line 44 also defines a flap 45 which is connected to the remainder of the handle 43 along a fold line 46.

The central part of each wall or wall portion 38 is provided with suitable cut lines to define a pair of outer flanges 47, 48 and a pair of central flanges 49, 50. The flange 47 is generally rectangular in outline, and is defined by a generally C-shaped cut line 51. The flange 47 is hingedly connected to the wall 38 along a transverse fold line 52. The flange 48 is similar to the flange 47 and is defined by a generally C-shaped cut line 53. The flange 48 is hingedly connected to the wall 38 along a transverse fold line 54.

The flange 49 is of a generally T-shape, and is defined by a cut line 55. The flange 49 is in what may be considered a horizontal position in that a stem portion 56 thereof extends horizontally and a cross portion 57 thereof extends vertically. The cross portion 57 of the flange 49 is hingedly connected to the wall 38 along a transverse fold line 58. The fold lines 52, 58 and 59 are disposed on opposite sides of a narrow post-like portion 60 of the wall 38.

The flange 50 is of a generally C-shape, and is defined by a cut line 61 which cooperates with the cut line 55. It is to be noted that the stem portion 56 of the flange 49 is received in and is complementary to the corresponding portion of the C-shaped flange 50 so that there is no loss of material and at the same time, the over-all widths of the flanges 49 and 50 may be a maximum, considering the spacing provided. The flange 50 is hingedly connected to the body 38 along a fold line 62 which extends transversely of the blank and which is parallel to the fold line 54. The fold lines 54 and 62 are separated by a narrow post-like portion 63.

In the formation of the bottle separator 27 from the blank 34, the blank 34 is folded along the fold line 35 while the end flanges 37 are being pivoted to positions generally normal to the planes of the walls 38. As the bottle separator 27 is being assembled, the tab 41 of one of the end flanges 37 passes through the opening in the end of the wall to which an associated end flange 37 is connected. At the same time, the tab 41 of the associated end flange is disposed outwardly of the first-mentioned end flange. The arrangement of the end flanges 37 and their tabs 41 is best illustrated in FIGURE 3. It is to be noted that while the tabs 41 are offset, the end flanges 37 are in alignment. The tabs 41 of the end flanges 37 and serve to assist in the retaining of the end flanges in alignment and transversely of the planes of the walls 38.
When the handle portions 43 are brought together, the flaps 45 thereof are swung upwardly to horizontal positions, thus leaving the hand hole opening 64. The handle portions 43 combine to define a handle, which is generally referred to by the numeral 65. It is to be noted that the flanges 47, 48, 49 and 50 of each of the walls 38 project from one side of their respective walls 38, and the flaps 45 of the flanges are in transverse alignment. This is best illustrated in FIGURE 3. The flange 47 cooperates with the flange 49 and the flange 48 cooperates with the flange 50, each pair of flanges defining a bottle spacer.

In the use of the bottle carrier 25, the bottle separator 27 is used to prevent adjacent ones of the bottle B from contacting each other and preventing the accidental movement of the endmost ones of the bottles out of the carton 26. At the same time, the handle 65 of the bottle separator 27 projects up through the slot 30 to facilitate the carrying of the bottle carrier 25.

In assembling the bottle carrier 25 and six bottles B, the bottles B move along a conveyor in double rows. The bottle separator 27, as it appears in FIGURE 2, is positioned with respect to six of the bottles. This may be done automatically. After the bottle separator 27 has been positioned, the carton 26 is passed down over the bottles B in alignment with one of the bottle separators 27 and with the necks of the bottles B passing through the openings 29. The bottle carton 26 is folded under the bottoms of the bottles, and the flaps 32 and 33 are secured together to complete the package. The entire package may now be handled by using the handle 65.

The tabs 42, as is illustrated in FIGURE 5, may form extensions of the end flanges 37. In certain instances, they may be omitted. In other instances, they may be of sufficient length to extend through slots (not shown) which may be formed in the upstanding walls of the carton 26 to interlock the end flanges 37 with the carton. Since the end flanges 37 serve to prevent the accidental removal of the endmost bottles from the bottle carrier 25, it will be obvious that they function as stops and sufficient rigidity thereof is desirable.

Reference is now made to FIGURES 3 through 8, inclusive, wherein there is illustrated a bottle carrier generally referred to by the numeral 70. The bottle carrier 70 includes the carton 26 and a bottle separator, generally referred to by the numeral 71. The bottle separator 71 is formed from a blank, generally referred to by the numeral 72, the blank 72 being best illustrated at FIGURE 8. The blank 72 is formed of a single sheet of material which is generally rectangular in outline, the material being an economical one, such as paperboard and the like. The blank 72 is divided into two halves by a central fold line 76, the fold line 73 being interrupted in a manner to be described in detail hereinafter. The two halves of the blank 72 are identical, and each half includes a wall 74 which has projecting upwardly therefrom a handle portion 75. The handle portion 75 is provided with a central, generally C-shaped cut-out 76, and a flap 77 defined by the cut-out 76, the flap 77 being hingedly connected to the handle portion 75 along a fold line 78.

It is intended that the walls 74 be pivoted into upstanding opposed relation, with the walls being connected at their bottoms along the fold line 73. However, it is desired that end portions of the walls 74 be spaced apart. Accordingly, each end of the fold line 73 terminates in a generally triangular spacer 79, each of which is connected on the wall 74 along converging fold lines 81, the fold lines 81 converging at their intersection with the fold line 73. The fold line 73 is also interrupted by intermediate pairs of spreaders 82. The spreaders 82 of each pair are separated by a transverse cut line 83, and are defined by converging fold lines 84 which converge at their intersection with the fold line 73. Thus, when the walls 74 are folded to upstanding, generally parallel positions, the end portions of the walls 74 will be spaced apart by the spreaders 82 and the intermediate portions of the walls will be spaced apart at their bottoms by the spreaders 82.

When the bottle separator 71 is formed from the blank 72, the handle portions 75 are brought together in opposed relation, and the flaps 77 are swung upwardly to horizontal positions, with the handle portions 75 combining to define a handle 85 and the cut-outs 76 defining a handle channel 86. The flaps 47, which are generally horizontally disposed, form part of the grip of the handle 85.

Each of the walls 74 also has struck therefrom flanges 87, 88, 89 and 90. The flanges 87 and 88 are disposed on the narrow outermost portion, whereas the flanges 89 and 90 are centrally located. Each of the flanges 87 and 88 is of a rectangular configuration, and the flanging 89 is defined by a generally C-shaped cut line 91. The flange 88 is hingedly connected to its respective wall 74 along a fold line 92 which extends transversely of the fold line 73.

The flange 88 is defined by a C-shaped cut line 93, and, like the flange 87, is connected to its respective wall 74 along a transverse fold line 94. It will thus be apparent that the flanges 87 and 88 differ only in that they are left and right, as compared to each other.

The flange 89 is generally C-shaped, and is defined by an irregular cut line 95. The flange 89 is hingedly connected to its respective wall 74 along a transverse fold line 96, the fold line 96 being parallel to the fold line 92 and being separated therefrom by a narrow post-like portion 97 of the respective wall 74.

The flange 90 is generally T-shaped in outline and is generally horizontally disposed, the flange 90 including a generally horizontal stem portion 98 and a generally vertical cross-bar 100. The flange 90 is defined by a cut line 101 which cooperates with the cut line 95. It is to be noted that the stem portion 98 of the flange 90 is received within the C-shaped flange 89 and that the flanges 89 and 90 may have a maximum effective width for the space available for the forming of the flanges. The flange 90 is connected to its respective wall 74 along a fold line 102 which is disposed parallel to the fold line 94 and is separated therefrom by a narrow post-like portion 103.

When the bottle separator 71 is formed, all of the flanges of one of the walls 74 are folded in one direction, and all of the flanges of the other of the walls are folded in the opposite direction. This is best shown in FIGURE 7. Corresponding ones of the flanges are in alignment with each other, and the flange 87 cooperates with the flange 89 to define a first bottle spacer, while the flange 88 cooperates with the flange 90 to define a second bottle spacer.

As is best shown in FIGURE 7, the spreaders 80 and 82 function to spread apart the ends and intermediate portions of the bottle separator 71, thus defining a plurality of pockets in which the individual bottles B may be received. The spread ends of the walls 74 prevent the accidental removal of the bottles through the open ends of the carton 26. The bottle spacers defined by the flanges 87, 88, 89 and 90 cooperate with the spread apart intermediate portions of the walls 74 to prevent engagement of adjacent bottles with one another.

In assembling the bottle carrier 70, the bottles B pass along a conveyor in two aligned rows. The bottle separator 71 is positioned with respect to six of the bottles along the line of bottles, after which the carton 26 is moved down over the tops of the bottles, with the necks of the bottles passing through the openings 29. The lower portion of the carton 26 is then folded beneath the bottoms of the bottles, and the flaps 32 and 33 interlock together. As the carton 26 is moved down over the bottles and the bottle separator 71, the handle 85 passes upwardly through the slot 30 in the carton, and thus projects above the carton 26 to facilitate the carrying of the bottle carrier 70 loaded with the bottles B.

The bottle carrier illustrated in FIGURES 9 through 15, inclusive, is generally referred to by the numeral 110.
The bottle carrier 110 is composed of the carton 26 and a bottle separator, generally referred to by the numeral 111. The bottle separator 111 is formed from a blank, generally referred to by the numeral 112 and illustrated in FIGURE 13.

The blank 112 is cut from a generally rectangular sheet of inexpensive material, such as paperboard. The blank has a central fold line 113 dividing the blank into two identical halves. A fold line 114 extends transversely to the fold line 113 at each end thereof, and divides each half of the blank 112 into a pair of end flanges 115 and a central wall portion 116. The fold line 114 across each of the blank halves 112 is interrupted by a generally C-shaped cut line 117 which defines an inner tab 118.

When in the blank state, the adjacent end flanges 115 of the two blank halves have diverging edges 120. Also, each end flange 115 has an upwardly and outwardly sloping edge 121 remote from its respective wall portion or wall 116. The end flange 121 also includes an upwardly and inwardly sloping upper edge 122. The combined cross-sections of two of the end flanges 115 correspond generally to the end cross-section of the carton 26. Each end flange 115 also has a projecting tab 123 which projects from the edge 121 thereof for a purpose to be described in detail hereinafter.

The upper part of each wall 116 terminates in a short cut line 124 extending inwardly from opposite ends thereof. The portion of the wall 116 intermediate the cut lines 124 is integrally connected to a handle-forming portion 125. The handle-forming portion 125 has a central cut line 126 defining a flap 127 which is hingedly connected to the handle-forming portion 125 along a fold line 128. A pair of L-shaped reinforcing members 129 are hingedly connected to opposite ends of the handle-forming portion 125 along fold lines 130 which are disposed generally normal to the fold lines 112. These reinforcing portions 129 are foldable into overlying relation with respect to the handle-forming portion 125 and are generally adhesively secured thereto.

Each of the walls 116 is provided with four flanges 131, 132, 133 and 134. The flanges 131 and 134 are disposed generally normal to the fold lines 112. The flange 131 is defined by a cut line 135 which is hingedly connected to the wall 116 along a fold line 136 disposed normal to the fold line 113. The flange 134 is defined by a cut line 137 and is hingedly connected to the wall 116 along a fold line 138 which is parallel to the fold line 136. The flange 132 is generally T-shaped in outline and is horizontally disposed. The flange 132 is defined by a cut line 142 and is hingedly connected to the wall 116 along a fold line 143 which is parallel to the fold line 136. The fold lines 136 and 143 are separated by narrow post-like portions 144 of the wall 116.

The flange 133 is generally C-shaped in outline and is complementary to the flange 132. The flange 133 is defined by an irregular cut line 145 which, in part, follows the cut line 142. The flange 133 is hingedly connected to the wall 116 along a fold line 146 which is parallel to the fold line 138. The fold lines 146 and 138 are spaced apart with the portion of the wall 116 therebetweeen being in the form of a post-like portion 147.

The assembled bottle separator 111 is illustrated in FIGURE 10. It is to be noted that the walls 116 are disposed in a face-to-face engagement, and that the end flanges 115 at the opposite ends of the walls 116 are disposed in alignment. The tabs 118 of the end flanges 115 overlap the adjacent end flange to reinforce the same. As is best shown in FIGURE 12, the innermost one of the tabs 118 passes through the openings from which the tabs are cut. The tabs 118 are offset from each other, whereas the end flanges 115 lie generally in the same plane.

The flanges 131, 132, 133 and 134 of each wall 116 are folded outwardly from the plane of the wall in the same direction, with the flanges of one wall extending in an opposite direction from the flanges of the other wall, and the flanges of the two walls being in alignment. The flange 131 cooperates with the flange 132 to form a first bottle spacer, and the flange 133 cooperates with the flange 134 to form a second bottle spacer, there being two bottle spacers on each side of the two walls 116.

When the bottle separator 111 is formed, the handle-forming portions 125 are in face-to-face relation, and combine to define a handle, generally referred to by the numeral 140. When the flaps 127 are swung upwardly, the cut-outs 126 define a hand hole 141, and the flaps 127 form part of the grip portion of the handle 140.

In forming a package utilizing the bottle carrier 110, bottles B move along a conveyor in two lines. An assembled bottle separator 111 is slipped down over its associated six bottles in the relationship shown in FIGURE 12. This may be automatically done. After this has been accomplished, the open carton 26 is slipped down over the necks of the bottles B with the necks passing through the openings 29 in the carton. At the same time, the handle 140 passes upwardly through the slot 30 in the carton 26. The lower portion of the carton 26 is wrapped around the bottoms of the bottles, and the flaps 32 and 33 thereof suitably secured together.

At this time, it is pointed out that the vertical portions of the carton 26 are provided with slots 69 adjacent each end thereof, the slots 69 extending vertically. When the carton 26 is assembled over the bottles B and the bottle separator 111, the slots 69 receive the tabs 123 to interlock the bottle separator 111 with the carton 26. The interlocking of the end flanges 115 with the carton 26 resists the deformation of the end flanges 115 and thus resists the accidental removal of a bottle through an end of the bottle carrier 110.

A bottle carrier, generally referred to by the numeral 150, is illustrated in FIGURES 14 through 17, inclusive. The bottle carrier 150 includes a carton 26 and a bottle separator which is generally referred to by the numeral 151. The bottle separator 151 is formed from a generally rectangular blank, which is generally referred to by the numeral 152. The blank 152 is defined by a generally C-shaped cut 166 which is removed from the flange 159 and remains as an extension of the
that other variations may be made in the example bottle separators disclosed herein without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. A separator for use in a bottle carrier for separating individual bottles disposed therein, said separator being formed from a single sheet folded to define two upstanding walls, end portions of said walls being directed away from one another to provide end bottle stops and intermediate portions of said walls being disposed generally normal to the planes of said walls to form intermediate bottle spacers, each of said intermediate bottle spacers being formed of two flanges struck from an adjoining one of said walls and folded outwardly therefrom with said two flanges being disposed in opposed face-to-face relation, each of said walls having four flanges struck therefrom with the endmost ones of said flanges being generally rectangular and the central ones of said flanges being struck from overlapping portions of said wall, one of said central flanges being T-shaped and the other of said central flanges being C-shaped, whereby said central flanges may be of a maximum width for the available material of said wall.

2. A blank for forming a separator for use in a bottle carrier for separating and retaining bottles therein, said blank being in the form of a generally rectangular sheet having a central fold line dividing the sheet into two identical halves, each of said halves including a wall portion having two pairs of bottle spacers forming flanges cut therefrom, the flanges of each pair being separated by a narrow strip to which said flanges are connected by fold lines, the endmost ones of said flanges being generally rectangular and the central ones of said flanges being struck from overlapping portions of said wall, one of said central flanges being T-shaped and the other of said central flanges being C-shaped, whereby said central flanges may be of a maximum width for the available material of said wall.

3. The blank of claim 2 wherein each wall terminates in end flanges hingedly connected thereto.

4. The blank of claim 2 wherein each wall terminates in end flanges hingedly connected thereto, each of said end flanges being partially separated from its associated wall to define a locking tab.

5. The blank of claim 2 wherein each wall terminates in end flanges hingedly connected thereto, each of said end flanges terminating in a locking tab remote from said walls.

6. A separator for use in a bottle carrier for separating individual bottles disposed therein, said separator being formed from a single sheet folded to define two upstanding walls, said walls terminating at opposite ends thereof in outwardly directed end flanges disposed generally in alignment and normal to the planes of said walls, said end flanges defining end bottle stops, a plurality of pairs of intermediate flanges struck from said walls and directed outwardly from the planes thereof to form intermediate bottle spacers disposed generally normal to the planes of said walls, adjacent flanges of each of the plurality of pairs of intermediate flanges having an area less than the area of an associated one of the other flanges of each of the plurality of pairs of intermediate flanges and the outwardly directed length of each flange of the plurality of pairs of intermediate flanges is identical whereby said intermediate bottle spacers are of a maximum width and area for the available material.

7. A separator for use in a bottle carrier for separating individual bottles disposed therein, said separator being formed from a single sheet folded to define two upstanding walls, said walls terminating at opposite ends thereof in outwardly directed end flanges disposed generally in alignment and normal to the planes of said walls, said end flanges defining end bottle stops, at least two intermediate bottle spacers struck from and disposed general-
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8. A separator for use in a bottle carrier for separating individual bottles disposed therein, said separator being formed from a single sheet folded to define two upstanding walls, said walls terminating at opposite ends thereof in outwardly directed end flanges disposed generally in alignment and normal to the planes of said walls, end flanges defining end bottle stops, at least two intermediate bottle spacers spaced from and disposed generally normal to the planes of said walls, each of the intermediate bottle spacers including a pair of flanges spaced parallel to each other and directed outwardly from the planes thereof to form intermediate bottle spacers disposed of a maximum area for the available material.

9. A separator for use in a bottle carrier for separating individual bottles disposed therein, said separator being formed from a single sheet folded to define two upstanding walls, said walls terminating at opposite ends thereof in outwardly directed end flanges disposed generally in alignment and normal to the planes of said walls, end flanges defining end bottle stops, at least two intermediate bottle spacers spaced from and disposed generally normal to the planes of said walls, each of the intermediate bottle spacers including a pair of flanges spaced parallel to each other and directed outwardly from the planes thereof to form intermediate bottle spacers disposed of a maximum area for the available material.

11. A bottle carrier comprising a tubular carton having open ends and a separator disposed within said carton for maintaining bottles out of direct contact with one another and closing the open ends of said carton, said separator being formed from a single sheet folded to define two upstanding walls, said walls terminating at opposite ends thereof in outwardly directed end flanges disposed generally in alignment and normal to the planes of said walls, end flanges defining end bottle stops, at least two intermediate bottle spacers spaced from and disposed generally normal to the planes of said walls, each of the intermediate bottle spacers including a pair of flanges spaced parallel to each other and directed outwardly from the planes thereof to form intermediate bottle spacers disposed of a maximum area for the available material, the end flanges conforming in outline to the general outline of said carton to retain endmost bottles from accidental movement out of the ends of the tubular carton.
generally in alignment and normal to the planes of said walls, said end flanges defining end bottle stops, at least two intermediate bottle spacers struck from and disposed generally normal to the planes of each of said walls, each of the intermediate bottle spacers including a pair of flanges struck from a respective wall, first flanges of each of said pair of flanges struck from one of said walls being identically shaped and second flanges of each of said pairs of flanges struck from the same one of said walls being dissimilar in shape to said first flanges and dissimilar to each other, the areas of each of first flanges of said pair of flanges being identical to each other while the areas of each of said second flanges struck from the said same one of said walls are dissimilar to each other but identical to corresponding second flanges struck from the other one of said two upstanding walls whereby each of the intermediate bottle spacers is of a maximum area for the available material.

A separator for use in a bottle carrier for separating individual bottles disposed therein, said separator being formed from a single sheet folded to define two upstanding walls, at least two intermediate bottle spacers struck from and disposed generally normal to the planes of each of said walls, each of the intermediate bottle spacers including a pair of flanges struck from a respective wall, first flanges of each of said pair of flanges struck from one of said walls being identically shaped and second flanges of each of said pair of flanges struck from the same one of said walls being dissimilar in shape to said first flanges and dissimilar to each other, the areas of each of first flanges of said pair of flanges being identical to each other while the areas of each of said second flanges struck from the said same one of said walls are dissimilar to each other but identical to corresponding second flanges struck from the other one of said two upstanding walls whereby each of the intermediate bottle spacers is of a maximum area for the available material.

15. An article carrier comprising a tubular carton having open ends, a plurality of articles in said carton, a separator disposed within said carton for maintaining said articles out of direct contact with one another, said separator including a pair of upstanding walls, a pair of intermediate flanges struck from each of said walls, a pair of flanges of one of said walls being directed outwardly from the plane thereof in a first direction to form intermediate article spacers disposed generally normal to the plane of said one wall, another of the pair of flanges of the other of said walls being directed outwardly from the plane of said another wall in a direction opposite to said first direction to form intermediate article spacers disposed generally normal to the plane of said another wall, said flanges being joined to associated walls by fold lines, the fold lines in each wall being spaced from one another a predetermined distance, the length of each flange normal to said planes being greater than one-half said predetermined distance whereby said intermediate flanges are of a maximum length to either side of said walls for the material available between said fold lines, at least another pair of intermediate flanges struck from each of said walls, and each flange of said at least another pair of intermediate flanges being intimately adjacent an associated one of said first-mentioned pair of flanges whereby each of said article spacers is of a two-ply thickness.

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