Jan. 24, 1956 G. C. CURRIE 2,731,776

METHOD OF PACKAGING CYLINDRICAL OBJECTS IN CARRIERS

Original Filed Sept. 15, 1950 4 Sheets-Sheet 1

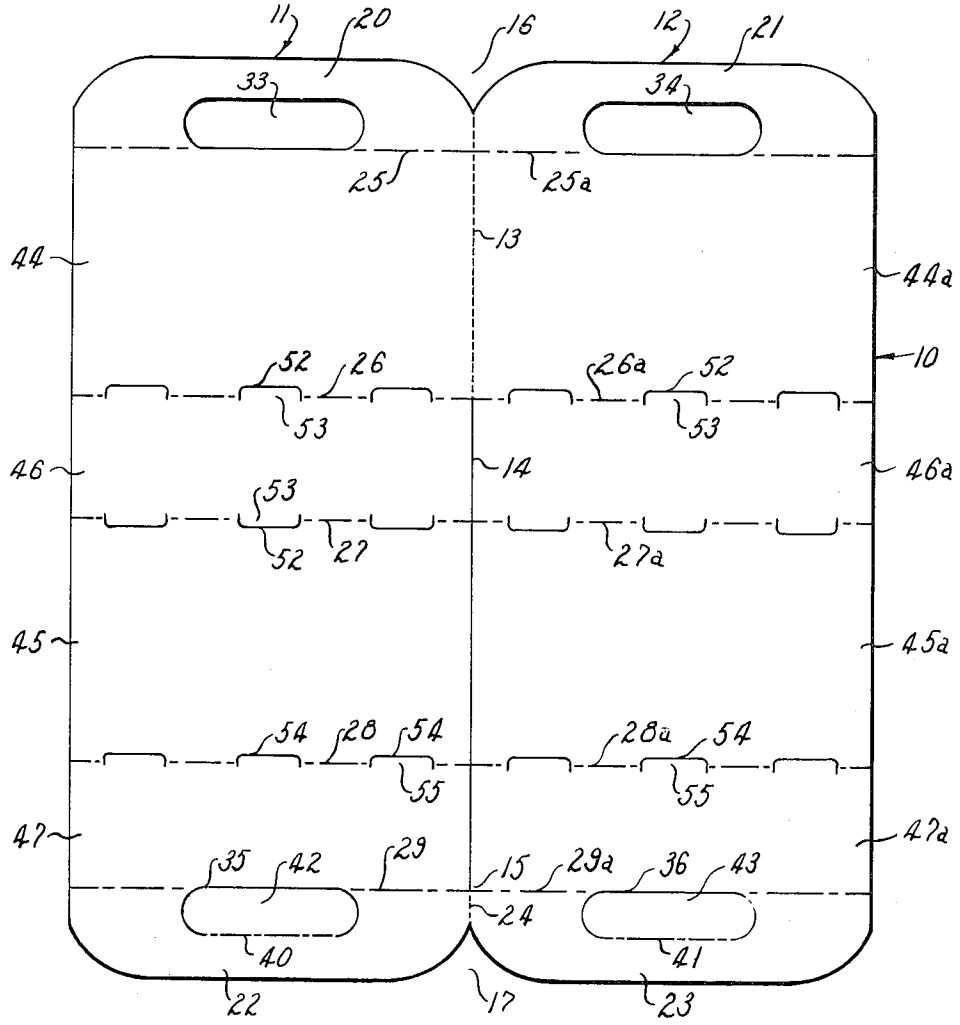



Fig-1

GROVER C. CURRIE,
INVENTOR.

BY Eaton & Bell

ATTORNEYS

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Fig. 5

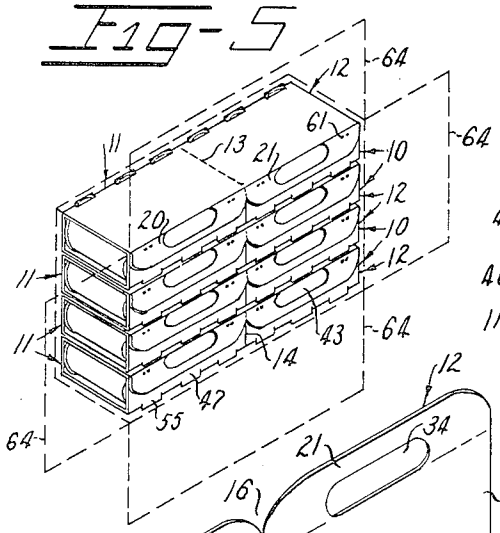


Fig. 4

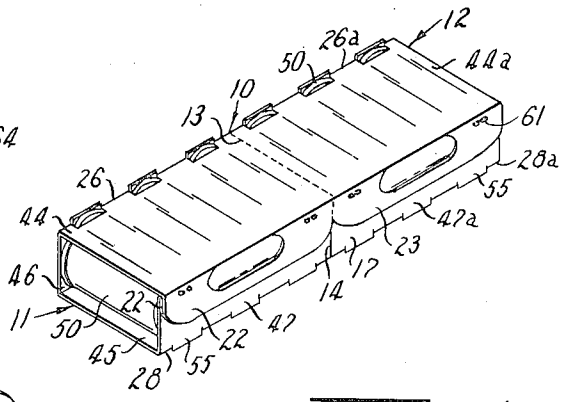


Fig. 2

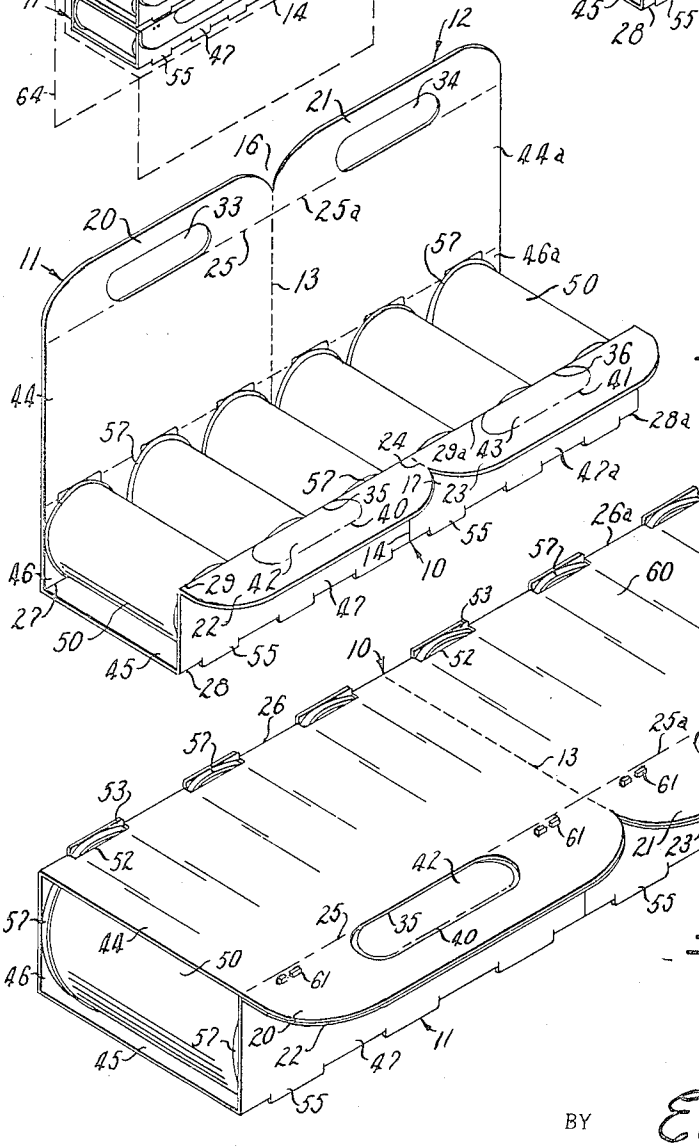


Fig. 3



INVENTOR:
GROVER C. CURRIE.

BY Eaton & Bell

ATTORNEYS

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FIG- 7

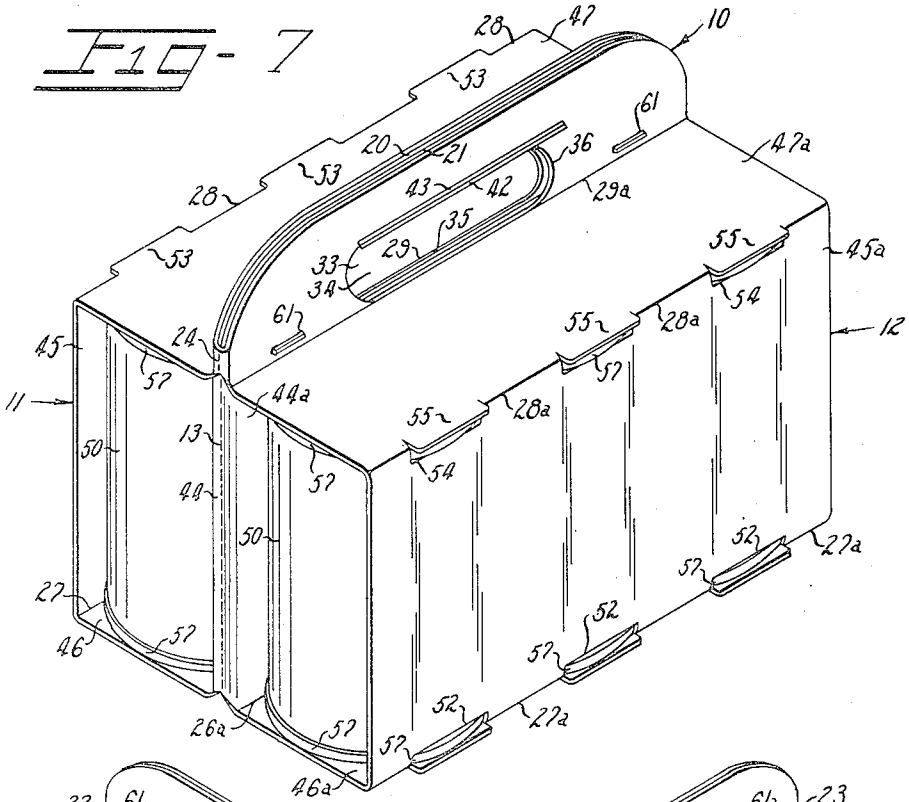
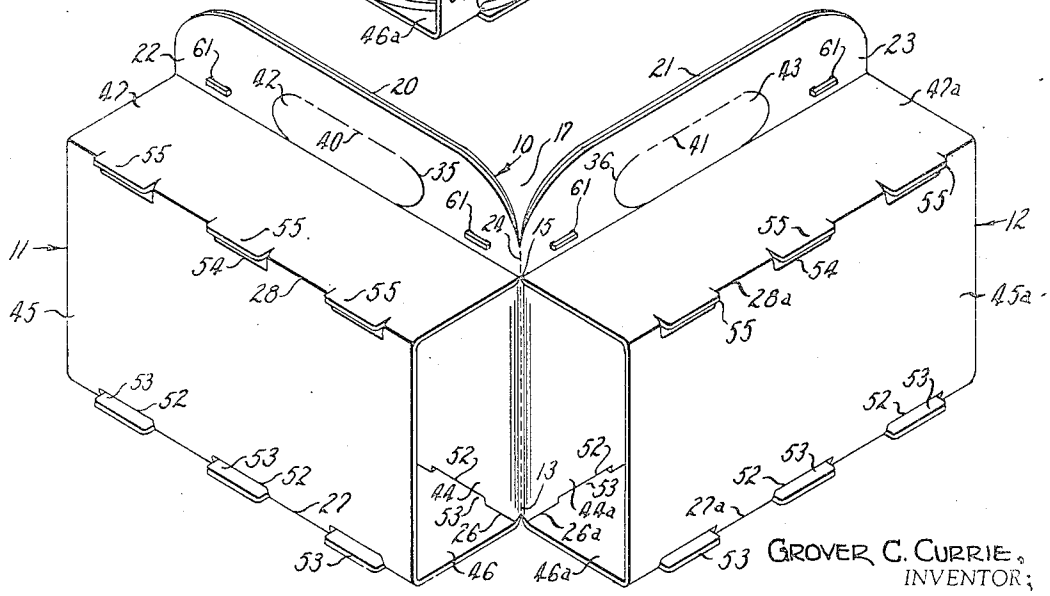



FIG- 6




GROVER C. CURRIE,
INVENTOR;

BY Eaton & Bell

ATTORNEYS

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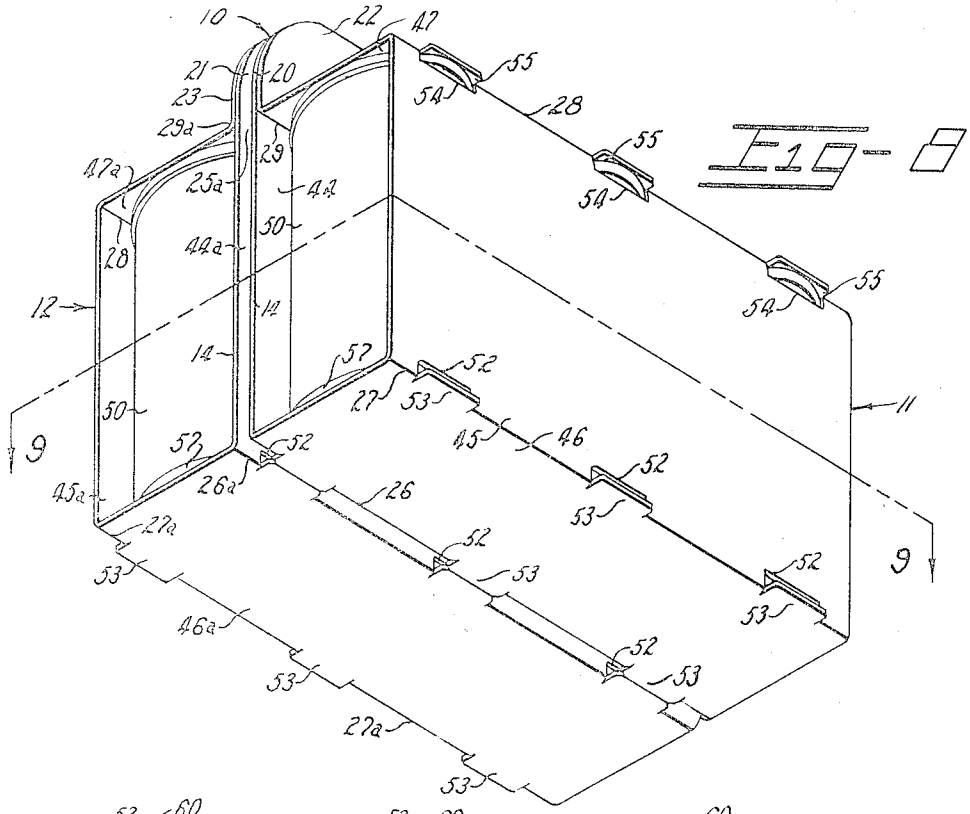



Fig. 8

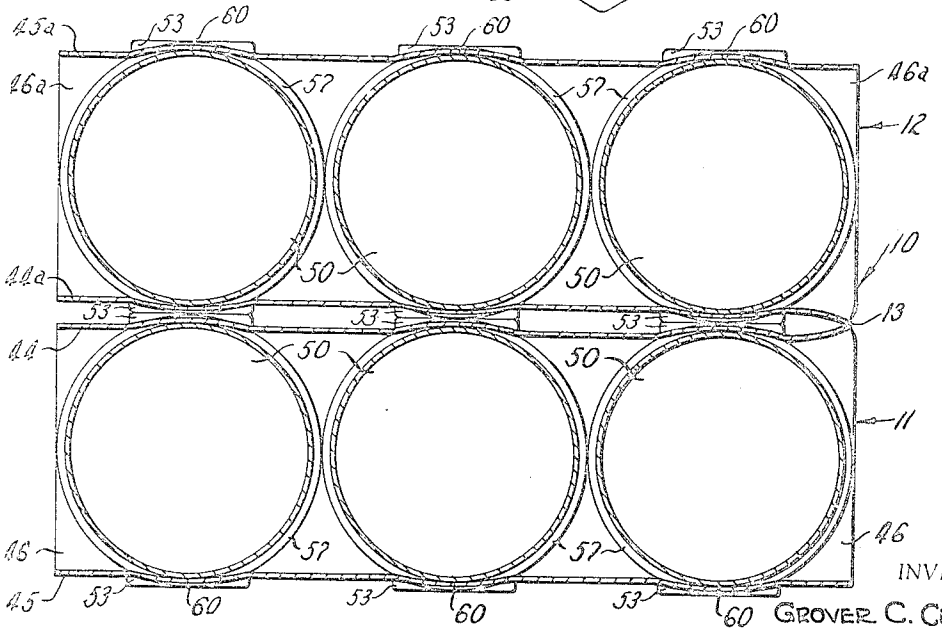



Fig. 9

INVENTOR:
GROVER C. CURRIE.

BY Eaton Bell

ATTORNEYS

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2,731,776

# METHOD OF PACKAGING CYLINDRICAL OBJECTS IN CARRIERS

Grover C. Currie, Charlotte, N. C., assignor to Dacam Corporation, Charlotte, N. C., a corporation of North Carolina

Original application September 15, 1950, Serial No. 185,072, now Patent No. 2,656,950, dated October 27, 1953. Divided and this application October 16, 1950, Serial No. 190,327

5 Claims. (Cl. 53—5)

This invention relates to an improved method of forming carriers or cartons for cylindrically-shaped containers such as beer cans and the like.

It is an object of this invention to provide a method of forming carriers from a single piece of material so cut and scored as to permit the same to be folded into an elongated rectangular tube with a pair of outwardly projecting handle portions disposed longitudinally of the carrier and in alinement with each other. The handle portions are also scored at their juncture with the tube thus formed so as to be folded against one of the walls of the tube to permit a plurality of such carriers to be placed within a common package or box in side-by-side or superposed relation.

It is another object of this invention to provide a method of forming carriers of the type described which have front, rear, top and bottom panels and in which all of the panels are cut intermediate their ends to form two carton sections in alinement with each other except the rear panel thereof which is perforated or scored intermediate its ends so as to permit the two sections to be folded along the score line back to back against each other. The carrier is also provided with handle portions extending from the rear panel sections and having openings therein whereby, upon the two sections of the carton being folded back to back against each other, the openings in said handle portions will coincide substantially with each other to thus provide a compact carrier which may be carried from one place to another by an operator grasping said handle portions.

It is another object of this invention to provide a method of forming carriers wherein a single sheet of material such as cardboard and the like is cut into a substantially rectangular member having rounded corner portions and an indentation in the medial top and bottom edges thereof, then scoring said rectangular blank a plurality of times transversely thereof and scoring or perforating a portion of said blank longitudinally thereof in alinement with the indentations in the top and bottom edges thereof and cutting a portion of said blank longitudinally thereof in alinement with the last-named score line to thus form a blank foldable into two carton sections. The blank is then folded along said transverse score lines into a rectangular tube and the top and bottom edges of said blank are secured together to form a handle member and the rectangular tube is folded along said longitudinally extending score lines and said longitudinally extending cut lines to form a substantially square carton having two juxtaposed carton sections.

This is a divisional application of my co-pending application Serial No. 185,072, filed September 15, 1950, entitled "Carrier," which is now Patent No. 2,656,959.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings in which—

Figure 1 is an elevation of the blank from which the carrier is formed and showing the manner in which it is cut and scored;



Figure 2 is an isometric view of the carrier partially erected and having a plurality of cylindrically-shaped articles or containers therein;

Figure 3 is an enlarged isometric view similar to Figure 2 but showing the step in erection following the placing of the cylindrically-shaped containers therein;

Figure 4 is a view similar to Figure 3, at a reduced scale, showing the handle portions of the carrier in folded position against one of the walls of the carrier;

Figure 5 is an isometric view showing a package or carton in dotted lines and showing a plurality of the carriers stacked within the package illustrating the manner in which they may be stored or shipped from one place to another;

Figure 6 is an isometric view showing the two sections of the carrier in partially folded position;

Figure 7 is an enlarged isometric view of the completed carrier in fully folded position for manually carrying from one place to another and showing the top, one side and one end thereof;

Figure 8 is a view similar to Figure 7 but showing the opposite side and end of the carrier from that shown in Figure 7 and also looking up at the bottom of the carrier;

Figure 9 is an enlarged sectional plan view through the carrier showing the manner in which the cylindrically-shaped containers are housed within the carrier and being taken substantially along the line **9—9** in Figure 7.

Referring more specifically to the drawings, the numeral **10** broadly designates a substantially rectangular blank of cardboard or similar pliable material from which the carrier is formed. The blank **10** is cut and scored in such a manner as to provide a pair of substantially symmetrical carton sections which are also broadly designated at **11** and **12**, respectively. The juncture of these carton sections, which may be hereinafter referred to as a first section **11** and a second section **12**, is defined by a straight line of closely spaced perforations **13** which extends from the upper end of the blank **10** in Figure 1 and terminates intermediate the ends thereof at one end of a cut line **14**, this line **14** also extending to a point indicated at **15** adjacent the lower end of the blank **10**. It will be noted that the upper and lower ends of the blank **10** in Figure 1 are provided with substantially V-shaped notches **16** and **17**, respectively, which define the proximate edges of handle portions **20** and **21** and **22** and **23** respectively.

It will be noted that an imperforate score line **24** which extends from the point **15** to the notch **17** defines one end of the cut line **14** extending to the lower end of the carrier blank **10**. The purpose of the variations in the lines **13**, **14** and **24** defining the juncture of the sections **11** and **12** will be later described.

It will be observed in Figure 1 that the lines **13**, **14** and **24** extend longitudinally of the blank **10** and the blank **10** is also provided with transversely extending score lines, the first section **11** being provided with transverse score lines **25** to **29**, inclusive, and the second section **12** being provided with score lines **25***a* to **29***a*, inclusive, which coincide with the respective score lines **25** to **29**, inclusive, in the first section **11** and are also in alinement therewith. The score lines **25**, **25***a* define the inner edges of the respective handle forming portions **20**, **21** and the score lines **29**, **29***a* define the inner edges of the respective handle forming portions **22**, **23**.

It will be noted that the corners of the blank **10** are rounded or cut away to coincide substantially with the proximate edges of the handle portions **20**, **21**, **22** and **23** defined by the respective notches **16** and **17**. Also, the handle forming portions **20** and **21** are provided with coinciding centrally located openings **33** and **34**, respec-

tively, while the handle forming portions **22** and **23** have respective cut lines **35** and **36** therein which may coincide with the respective score lines **29** and **29***a*, if so desired. However, these cut lines **35** and **36** need not necessarily be disposed in alinement with the score lines **29** and **29***a*. This is also true of the lower or inner edges of the openings **33** and **34** with respect to the respective score lines **25** and **25***a*.

The cut lines **35** and **36** each extend along a portion of the sections **11** and **12**, respectively, and curve downwardly at each end in Figure 1 and terminate at opposed ends of respective score lines **40** and **41**, thus defining respective flaps **42** and **43** which are hinged along the respective score lines **40** and **41**.

The score lines **25** and **26** and **27** and **28** define opposed edges of respective rear and front panels **44** and **45**. The score lines **25***a* and **26***a* and **27***a* and **28***a* define opposed edges of respective rear and front panels **44***a* and **45***a*. The score lines **26**, **26***a* and **27**, 27a define opposed edges of respective bottom panels **46** and **46***a*. The score lines **28** and **29** and **28***a* and **29***a* define opposed edges of respective top panels **47** and **47***a*.

Since the present carrier is particularly adapted for carrying cylindrically-shaped articles, such as cans, which are indicated at **50** in Figures 2, 3, 4, 5, 7, 8 and 9, the score lines **26**, **27**, **26***a* and **27***a* are interrupted by a plurality of substantially identical spaced cut lines **52** which define a plurality of projections **53** extending from opposed sides of the bottom panels **46** and **46***a*. Similar spaced cut lines **54** define a plurality of spaced projections **55** along the score lines **28** and **28***a* and the purpose of the projections **53** and **55** will be later described.

After thus cutting and scoring the blank, it is folded in a manner to be described and a plurality of cylindrically-shaped articles or containers **50** are placed therein. It might be stated that although three cylindrically-shaped articles **50** are shown in each of the sections **11** and **12**, or a total of six articles in the assembled or erected carrier, any desired number of cylindrically-shaped articles may be carried thereby.

Figure 2 best illustrates the position and state of erection of the carrier blank in which it is preferred that the cylindrically-shaped articles or containers be placed therein.

It will be noted that the carrier is preferably placed with the front panels or walls **45** and **45***a* facing downwardly and the top and bottom panels **47** and **47***a* and **46**, **46***a* are bent upwardly along their respective score lines **28**, **28***a* and **27**, **27***a* into right angular relation with the front panels **45** and **45***a*. At this time, the handle portions **22** and **23** are also bent outwardly along the respective score lines **29** and **29***a* into substantially right angular relation to the respective top panels **47** and **47***a*.

Thus with the carrier in the position shown in Figure 2, the containers or articles **50** may then be placed in the upper surfaces of the front panels **45**, **45***a* and it is preferred that the length or height of the articles or containers **50** be substantially the same as that of the height of the front panels **45**, **45***a* so opposed ends of the containers or articles **50** may rest against the top and bottom panels **47**, **47***a* and **46**, **46***a*, respectively, of the carrier.

The spacing of the projections **53** and **55** on the respective bottom and top panels **46**, **46***a* and **47**, **47***a* is such that the opposed ends of the cylindrically-shaped containers **50** will be disposed in alinement therewith when they are placed on the upper surfaces of the front panels **45**, **45***a* in juxtaposed relation to each other.

In order to insure that the cans **50** may be held within the confines of front and rear panels **45**, **45***a* and **44**, **44***a*, it is preferable that the diameter of each of the cans **50** should be somewhat greater than the width of the bottom and top panels **46**, **46***a* and **47**, **47***a*, respectively. This will cause the side panels **44**, **44***a* and **45**, **45***a* to bulge outwardly a small amount as is clearly shown in Figure 9, this being made possible by the cut lines **52** and **54**. The respective projections **53** and **54** on the bottom and top panels **46**, **46***a* and **47**, **47***a* then serve to aline opposed edges of the containers **50**.

Each of the containers **50** is preferably of a type which has its top and bottom seamed thereon thus providing seams or chimes **57** which may project through the openings defined by the cut lines **52** and **54** when the respective panels **44**, **44***a* and **45**, **45***a* are in erected position as shown in Figures 3 to 9, inclusive. These cutout portions defined by the cut lines **52** and **54** also permit the side panels to bulge outwardly a small amount, as at **60** (Figures 3 and 9) adjacent each of the cans **50** when the carrier is erected.

Referring now to Figure 3, it will be observed that following the placing of the cans **50** in the carton, the rear panels **44**, **44***a* are then folded into right angular relation with the bottom panels **46**, **46***a* and atop the cans **50** along the respective score lines **26**, **26***a*, resulting in the inner or front faces of the handle portions **20** and **21** engaging the inner or rear faces of the handle portions **22** and **23**. In Figure 3, the handle portions **20** and **21** are illustrated as being secured to the handle portions **22** and **23** by staples indicated at **61**. These, incidentally, are the only points at which the panels are secured together, the manner in which the carrier is erected eliminating the necessity of gluing or otherwise securing any of the other panels in fixed relation to each other. With the handle portions thus secured to each other, a carrier in the form of an elongated substantially rectangular tube is formed.

Now, referring to Figure 5, there is shown in dotted lines a shipping case, carton, package or the like designated at **62** and which may have closure flaps **64** hingedly connected thereto which may be folded in overlapping relation to each other for closing the normally open end or side of the shipping carton **62**. The case **62** being shown to illustrate one manner in which a plurality of carriers may be shipped.

In order to provide a compact package to permit stacking and/or shipping of a plurality of the filled carriers formed of a plurality of the blanks **10** shown in Figure 1, the handle portions **22** and **23** may be folded downwardly in Figure 3 against the outer surfaces of the respective top panels **47** and **47***a* as shown in Figure 4, the corresponding handle portions **20** and **21** being secured to the handle portions **22** and **23** so that all of the handle portions **20** to **23** will assume the position shown in Figure 4 in superposed relation to the top panels **47**, **47***a*. Thus a plurality of the carriers in the condition shown in Figure 4, may be inserted in a package **62** after which the closure flaps **64** may be folded thereagainst to complete the package for shipping purposes. The completed package **62**, in the condition described, may be placed in stores for display and sale along with other commodities.

Upon removing a carrier from the shipping case **62**, it may be folded along the perforated score line **13**, inasmuch as the cut line **14** extends along the proximate edges of the top panels **47**, **47***a*, the front panels **45**, **45***a* and the bottom panels **46** and **46***a*. A carrier partially folded along the perforated score line **13** is shown in Figure 6 illustrating a step in the final erection of the carrier. The cans **50** have been omitted from the carrier shown in Figure 6 for purposes of clarity.

Due to the fact that the cut line **14** (Figure 1) terminates at the point **15**, which is the juncture of the handle portions **29** and **29***a* with the top panels **47** and **47***a*, and the blank **10** is merely scored at the juncture of the handle portions **22** and **23**, it is merely necessary for a person to swing the two sections **11** and **12** apart from each other, creasing them at the perforated score lines **13** and **14**, to substantially the position shown in Figure 6 with the rear panels **44** and **44***a* in juxtaposed relation to each other. The handle portions **20**, **22** and **21**, **23** to swing upwardly away from the top panels **47** and **47***a* into sub-

stantially right-angular relation to the top panels **47** and **47***a* when the rear panels **44** and **44***a* are folded back to back substantially against each other as shown in Figures 7, 8 and 9 for carrying purposes.

It will be observed in Figure 3 that the flaps **42** and **43** of the respective handle portions **22** and **23** are slightly smaller than the finger openings **33** and **34** in the respective handle portions **20** and **21** with the result that, upon swinging the two carton sections **11** and **12** into the position shown in Figures 7, 8 and 9, the flaps **42** and **43** may be folded within the openings **33** and **34** to substantially the position shown in Figure 7 to thus provide an opening through which a person's fingers may extend for carrying the filled carrier.

It is evident that the carrier may be partially folded into substantially the position shown in Figure 6 for display purposes if desired, which would not only display the contents of the carton but would also display the advantages of a carrier formed by this method.

If desired, the carton sections **11** and **12** may be separated along the perforate line **13** and the score line **24**. Thus, for example, a customer desiring to buy only three cans of beer or the like need not buy six cans but can separate the carton sections **11** and **12** and purchase only three cans in a half carton having a handle portion for carrying.

It is thus seen that there is provided a method of forming a carrier which may be made from a single piece of material and which is so scored and cut as to be easily filled with cylindrically-shaped containers, such as beer cans and the like, and which may, further, be folded into an elongated compact unit in which the cylindrically-shaped containers are tightly locked and whereby a plurality of the carriers may be packed in stacked relation to each other to form a compact package for shipping purposes. A carrier of this type may be readily used with automatic machinery for folding the blank as it is filled with containers as shown in Figure 2 and passing the carrier through the sequence of operation illustrated in Figures 1 to 5, inclusive, for automatically packing a plurality of containers for shipping purposes in such a manner that the carriers would be easily accessible in the cases when packed as shown in Figure 5. The carriers could then be easily passed through the stage shown in Figure 6 to the stage shown in Figure 7 to greatly enhance the usefulness of the carrier and to present an attractive appearance from a sales standpoint.

It is also evident, that, if so desired, the stitching, in the form of staples **61**, may be easily removed to enable the carton to again be laid out in the form shown in Figure 1 preparatory to again being filled with cylindrically-shaped containers thus facilitating its use over and over again.

In the drawings and specification, there has been set forth a preferred embodiment of the invention and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. A method of packaging cylindrical objects in a carrier formed from a flat blank having a bottom panel, a first side panel hingedly connected to a side edge of said bottom panel, a second side panel having one side edge hingedly connected to the opposite side edge of the bottom panel, a top panel hingedly connected to the other side edge of the second side panel and said blank being provided with spaced lines of cut along the junction of the second side panel with the respective top and bottom panels, said method comprising the steps of first folding the top and bottom panels into substantially perpendicular relation to the second side panel to form a channel-shaped receptacle having a width substantially equal to the height of the cylindrical objects, and said folding forming openings at said lines of cut spaced along the junction of the second side panel with the top and bottom panels, then moving a plurality of juxtaposed cylindrical objects in a continuous row with their side walls facing down into engagement with the second side panel to cause the cylindrical objects to register with the spaced openings to prevent displacement of the cylindrical objects longitudinally of the channel-shaped receptacle, and guiding and confining the ends of the cylindrical objects during their movement into the channel-shaped receptacle by the top and bottom panels to prevent displacement of the cylindrical objects laterally of the channel-shaped receptacle and thereafter folding the first side panel over the cylindrical objects and into parallel relation to the second side panel.

2. A method of packaging a plurality of chime type cans or the like in a carrier having a bottom panel, a first side panel hingedly connected to a side edge of said bottom panel, a second side panel having one side edge hingedly connected to the opposite side edge of said bottom panel, a top panel hingedly connected to the other side edge of said second side panel, and said carrier being provided with a plurality of evenly spaced and alined apertures along the juncture of at least one of the hingedly connected side edges of the second side panel, said method comprising the steps of first folding said top and bottom panels into substantially perpendicular relation to said second side panel to define a channel-shaped receptacle having a width of substantially the same dimension as the height of the cans, then moving in a continuous row a plurality of juxtaposed cans with their side walls facing down into engagement with the second side panel while guiding and confining the ends of the cans by said top and bottom panels to cause the chimed ends of the cans to engage in the spaced apertures to maintain the cans within the carrier, and then folding said first side panel over said cans into parallel relation to said second side panel.

3. A method of packaging a plurality of chime type cans or the like in a carrier having a bottom panel, a first side panel hingedly connected to a side edge of said bottom panel, a second side panel having one side edge hingedly connected to the opposite side edge of said bottom panel, a top panel hingedly connected to the other side edge of said second side panel, said carrier being provided with a plurality of evenly spaced and alined apertures along the junctures of both hingedly connected side edges of the second side panel, and handle portions connected to said first side panel and to said top panel, said method comprising the steps of first folding said top and bottom panels into substantially perpendicular relation to said second side panel to define a channel-shaped receptacle having a width of substantially the same dimension as the height of the cans, then moving in a continuous row a plurality of juxtaposed cans with their side walls facing down into engagement with the second side panel while guiding and confining the ends of the cans by said top and bottom panels to cause the chimed ends of the cans to engage in the spaced apertures to maintain the cans within the carrier, then folding said first side panel over said cans into parallel relation to said second side panel and securing said handle portions together.

4. A method of packaging a plurality of chime type cans or the like in a carrier having a pair of juxtaposed separable bottom panels, a first pair of side panels hingedly connected to corresponding side edges of said bottom panels, a second pair of separable side panels hingedly connected to the opposite side edges of said bottom panels, a pair of separable top panels hingedly connected to the other side edges of said second side panels, said carrier being provided with a plurality of evenly spaced and alined apertures along the juncture of at least one of the hingedly connected side edges of the second side panels, and handle portions connected to said first pair of side panels and to said pair of top panels, said method comprising the steps of first folding said top and bottom panels into substantially perpendicular relation to said second side panels to define a channel-shaped receptacle

having a width of substantially the same dimension as the height of the cans, then moving in a continuous row a plurality of juxtaposed cans with their side walls facing down into engagement with the second side panels while guiding and confining the ends of the cans by said top and bottom panels to cause the chimed ends of the cans to engage in the spaced apertures to maintain the cans within the carrier, then folding said first side panels over said cans into parallel relation to said second side panels, then securing said handle portions together, and folding the first side panels and handle portions into back-to-back relationship while separating the top and bottom panels at their respective corresponding junctures.

5. A method of packaging a plurality of chime type cans or the like in a carrier having a bottom panel, a first side panel hingedly connected to a side edge of said bottom panel, a second side panel having one side edge hingedly connected to the opposite side edge of said bottom panel, a top panel hingedly connected to the other side edge of said second side panel, and said carrier being provided with a plurality of evenly spaced and alined apertures along the junctures of both the hingedly connected side edges of the second side panel, said method comprising the steps of first folding said top and bottom panels into substantially perpendicular relation to said second side panel to define a channel-shaped receptacle



having a width of substantially the same dimension as the height of the cans and a depth of substantially the same dimension as the diameter of the cans, then moving in a continuous row a plurality of juxtaposed cans with their side walls facing down into engagement with the second side panel while guiding and confining the ends of the cans by said top and bottom panels to cause the chimed ends of the cans to engage in the spaced apertures to maintain the cans within the carrier, and then folding said first side panel over said cans into parallel relation to said second side panel.

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