

April 12, 1966

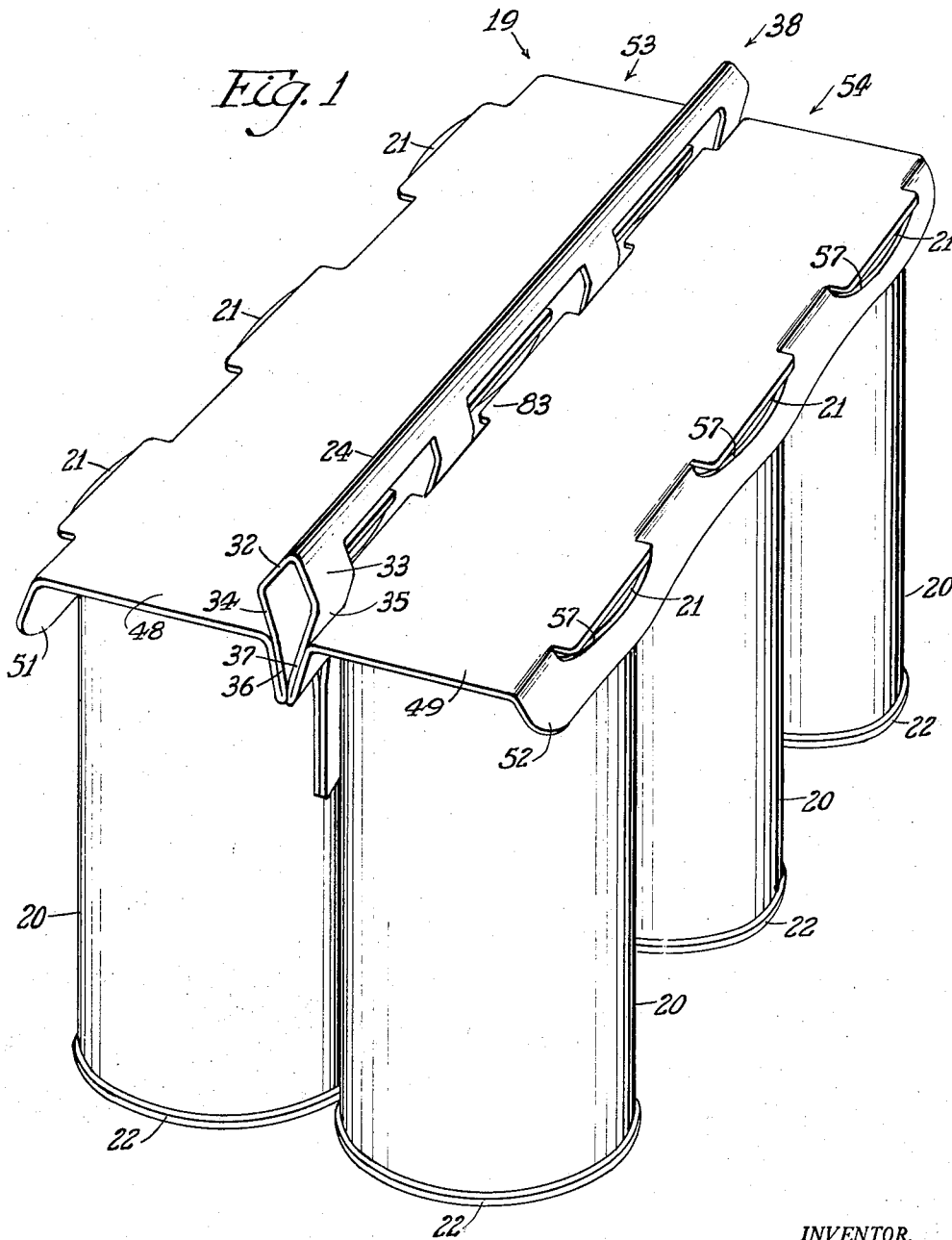
K. R. DANTOIN

3,245,711

PAPERBOARD CAN CARRIER

Original Filed Aug. 9, 1961

5 Sheets-Sheet 1



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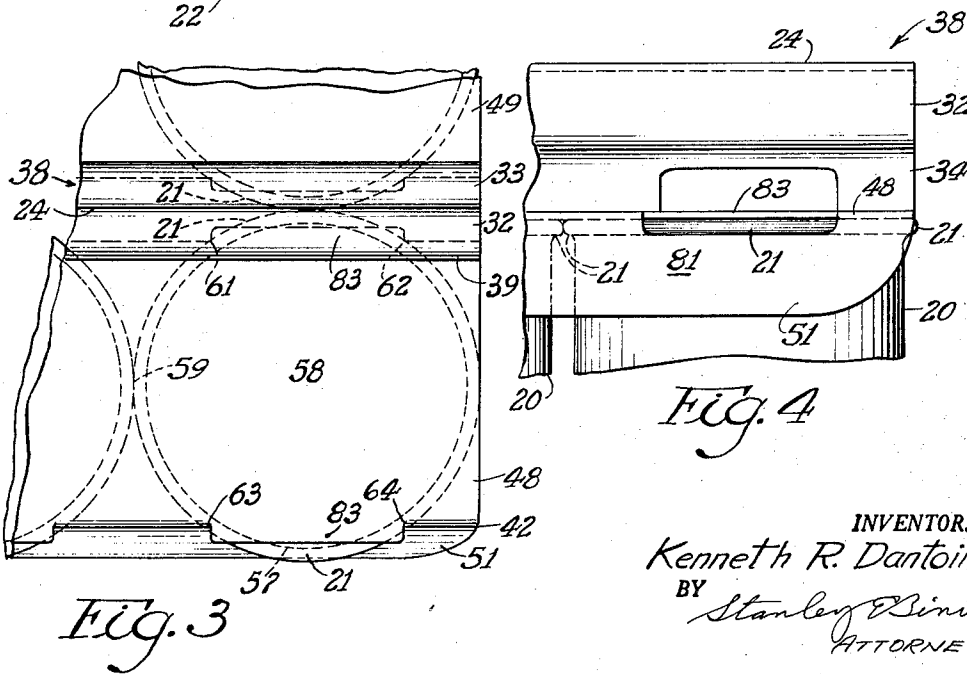
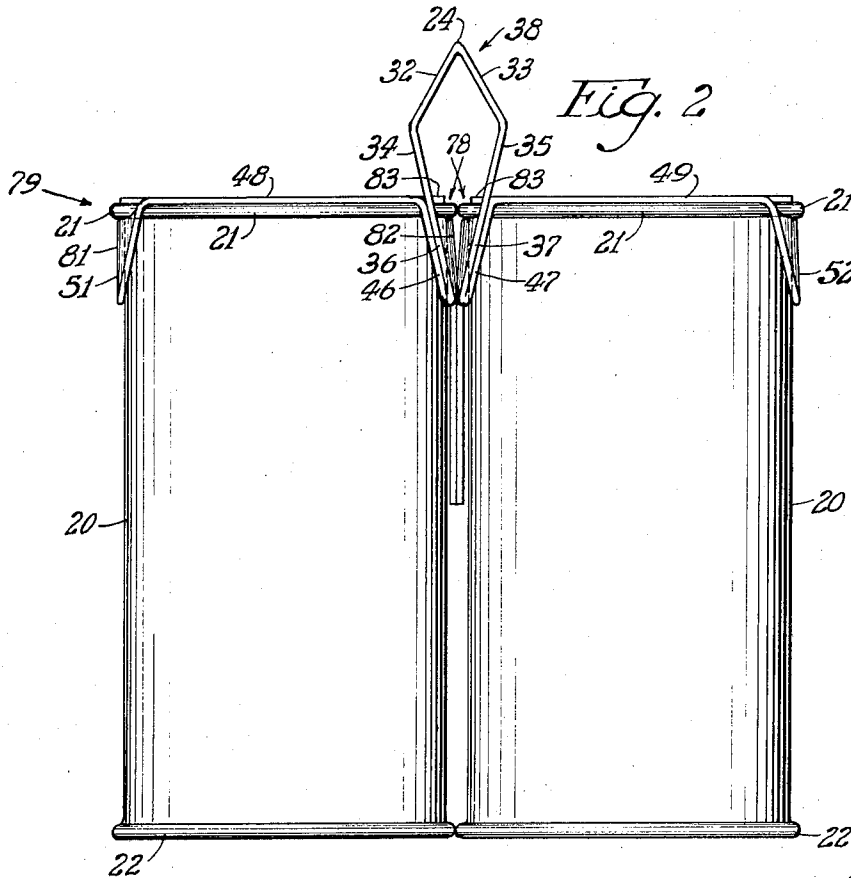
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PAPERBOARD CAN CARRIER

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5 Sheets-Sheet 2



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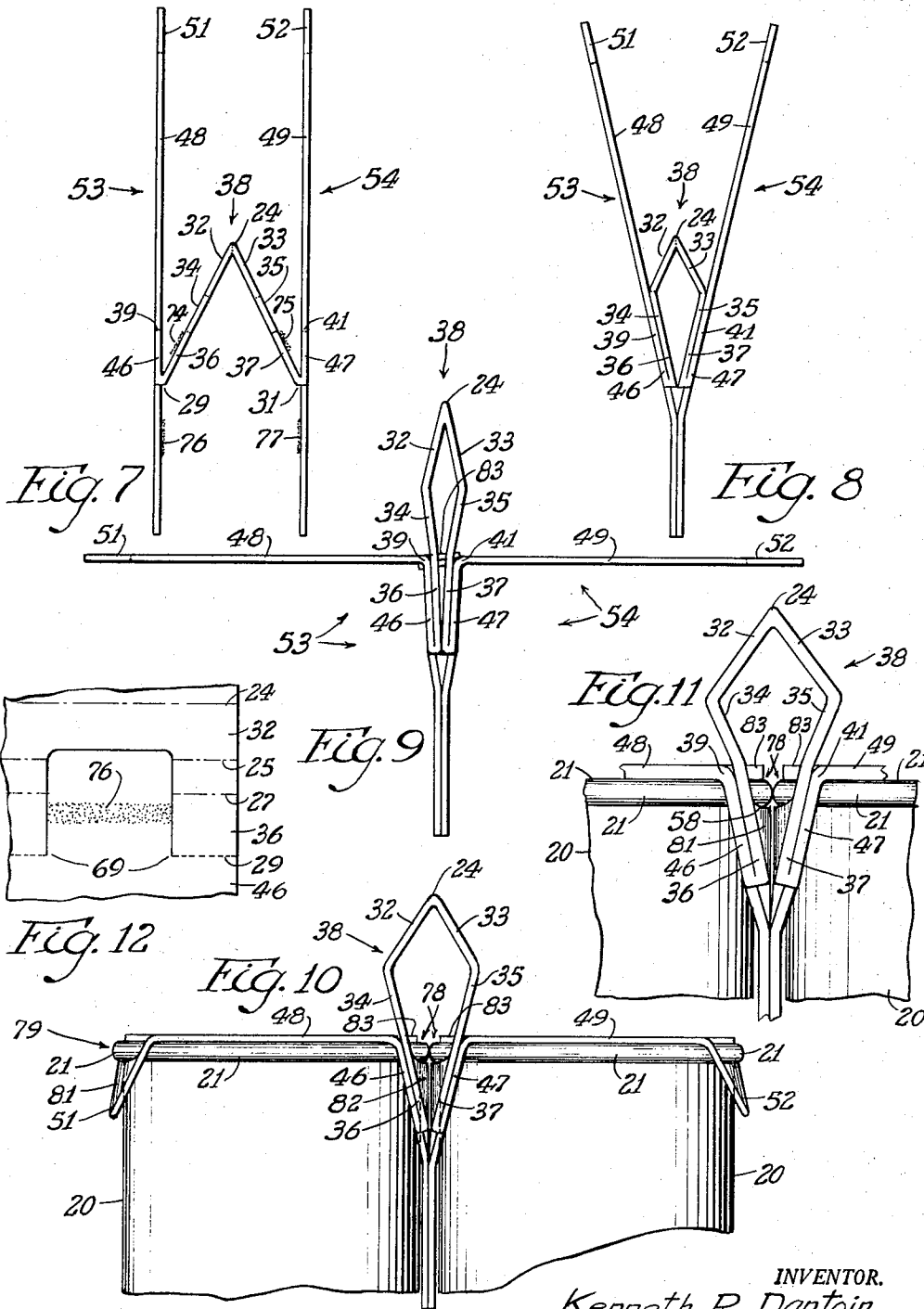
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PAPERBOARD CAN CARRIER

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5 Sheets-Sheet 4



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PAPERBOARD CAN CARRIER

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5 Sheets-Sheet 5

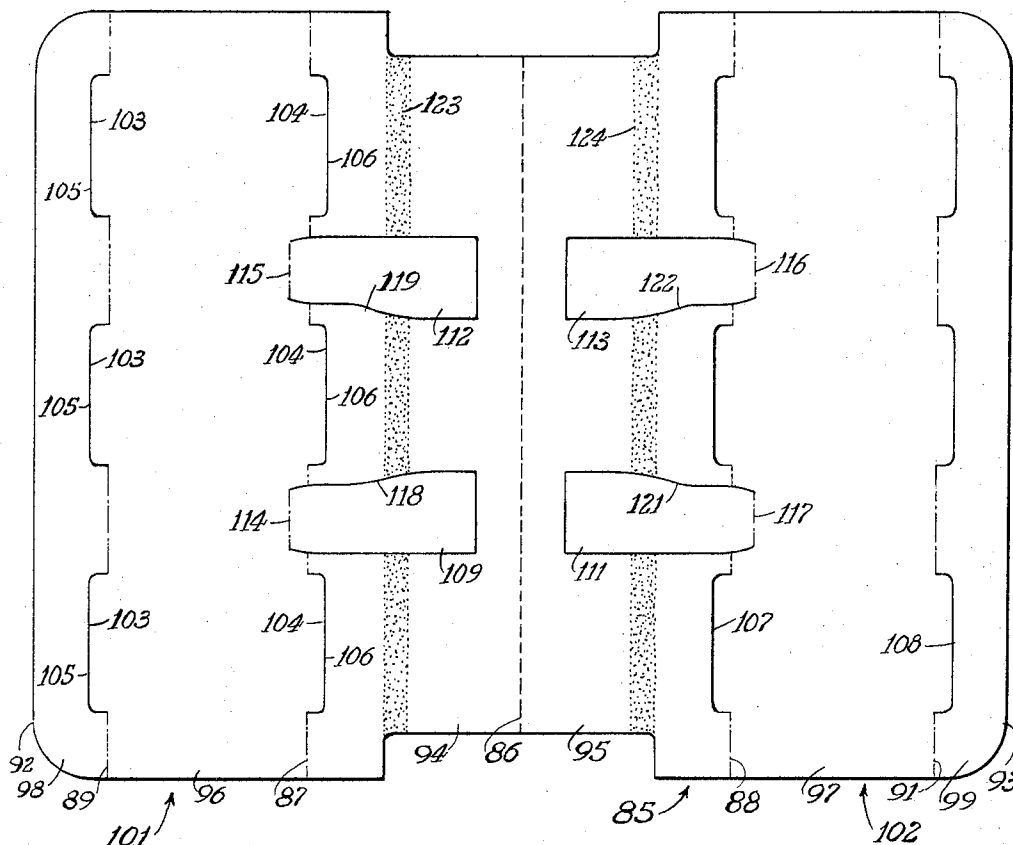


Fig. 15

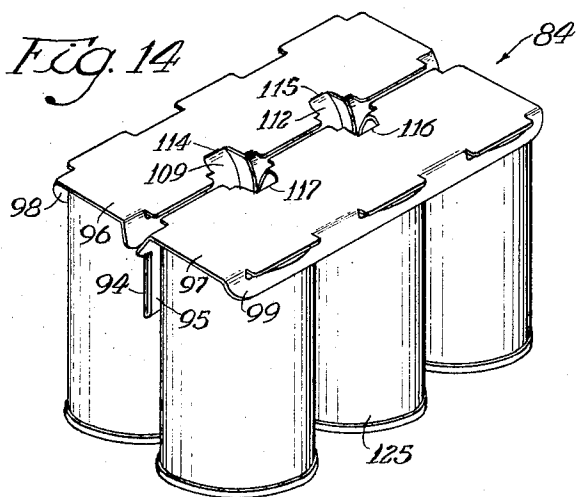


Fig. 14

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3,245,711

PAPERBOARD CAN CARRIER

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Continuation of application Ser. No. 130,341, Aug. 9,
1961. This application Jan. 16, 1964, Ser. No. 338,051
23 Claims. (Cl. 294—87.2)

This application is a continuation of applicant's co-
pending application Serial No. 130,341, filed August 9,
1961, now abandoned.

This invention relates generally to can carriers, and
more particularly to a novel paperboard can carrier of
the type requiring a minimum of body material to pro-
vide for gripping the upper beads, only, of a plurality of
cans.

The purpose of this invention is to simplify can carriers,
and provide a new, novel and improved paperboard can
carrier.

An object of this invention is the provision of a paper-
board can carrier wherein the two differing transverse
and longitudinal elastic properties of a paperboard are
utilized structurally to maximum advantage.

Another object is to provide a can carrier which will
permit the stacking thereof one upon another, despite an
upwardly projectable handle.

Still another object of this invention is the provision of
a can carrier which liftably engages cans, under the top
beads thereof, at one side only.

Yet another object is to provide a can carrier adapted
to hold a plurality of cans in a tight, rigid, and compact
unit.

A further object of this invention is the provision of a
can carrier adapted to hold cans closely together whereby
the cans engage and reinforce each other while depending
from the carrier.

Still a further object is to provide a can carrier which
engages only the top beads of cans.

Yet a further object of this invention is the provision
of a can carrier that elastically and tensionally embraces
a can, and frictionally holds the can against rotational dis-
placement, so that the label stays in proper orientation.

Another object is the provision of a paperboard can
carrier having four shoulders engaging the top bead of a
can carried by said carrier, to prevent unwanted sidewise
movement of the can relative to the carrier.

Still another object of this invention is the provision
of a can carrier having recessed finger receiving means
for carrying said carrier and whereby said fingers clamp
and engage vertical edge portions of said carrier.

A further object of this invention is the provision of a
can carrier having a recessed finger grip means, thereby
eliminating projecting handle means and permitting the
stacking of such carriers one upon the other.

Other specific objects and many of the attendant ad-
vantages of this invention will be readily appreciated as
the same becomes better understood by reference to the
following detailed description when considered in con-
nection with the accompanying drawings in which like
reference numerals designate like parts throughout the
figures thereof and wherein:

FIG. 1 is a perspective view of the can carrier for car-
rying six cans showing the cans depending therefrom;

FIG. 2 is an end elevation view of the can carrier
showing the cans carried thereby;

FIG. 3 is a fragmentary plan view showing a corner
portion of the can carrier and cans carried thereby;

FIG. 4 is a fragmentary side elevational view showing
a corner portion of the can carrier and the cans depending
therefrom;

FIG. 5 is a fragmentary perspective view showing a

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corner portion of the can carrier and a can engaged there-
with, and illustrating the manner of such engagement;

FIG. 6 is a plan view of the sheet or blank from which
the carrier may be constructed, showing the slits and scores
therein, and adhesive thereon, before being folded into
an operative structure;

FIG. 7 is an end view of the can carrier blank show-
ing the first step in folding the blank;

FIG. 8 is an end view of the blank showing the sec-
ond step in folding the blank;

FIG. 9 is an end view of the blank showing the third
step in folding the blank;

FIG. 10 is an end view showing the blank secured
onto the beads of cans;

FIG. 11 is an enlarged fragmentary view showing the
central portion of the arrangement shown in FIG. 10;

FIG. 12 is a fragmentary view showing a portion of
the blank of FIG. 6, illustrating a modification of the
carrier wherein the adhesive is absent from the lowest
handle panel and present only on the U-shaped cut-out
extensions;

FIG. 13 is a plan view of a modification showing a cut-
off portion of the blank of FIG. 6 and illustrating a three
can pack blank;

FIG. 14 is a modification showing a carrier without a
handle member, but having finger grip means for carry-
ing the carrier; and

FIG. 15 is a plan view of the blank from which the
carrier of FIG. 14 may be constructed.

Referring now to the drawings, wherein like reference
characters designate like or corresponding parts through-
out the several views, there is shown in FIG. 1 the can
carrier generally indicated at 19 designed to carry six
beaded or rimmed cans, such as conventional beer cans
indicated at 20, in two rows of three cans in a row.

Conventional beer cans are cylindrical in shape having
circumferential rims or beads 21 at the top ends and
beads 22 at the bottom ends, thereof. Such cans can be
supported and transported by the carrier of the present
invention.

The new carrier is formed from a single blank of paper-
board and is constructed to engage beer cans, or the like,
beneath their top end beads and interlock therewith. The
carrier is formed from the blank by a series of folding
operations.

The paperboard blank generally indicated at 23, FIG.
6, is elastic and grained, and is rectangular in shape hav-
ing a long longitudinal axis running with the grain and a
short transverse axis transverse to the grain. The blank
and the carrier formed therefrom is symmetrical about
the transverse axis crease score 24, and is made up of a
series of panels defined by score lines transverse to the
grain of the paperboard as hereinafter described. Satis-
factory results have been obtained from 25 point paper-
board, but it is understood that the invention is not
limited thereto.

Paired corresponding interrupted crease scores 25 and
26, 27 and 28, and interrupted perforation scores 29 and
31, define paired corresponding panels 32 and 33, 34 and
35, and 36 and 37, respectively, which constitute the panels
of a handle generally indicated at 38.

Corresponding interrupted top crease scores 39 and 41,
and 42 and 43, and end edges 44 and 45, define corre-
sponding inner side panels 46 and 47, top panels 48 and
49, and outer side panels 51 and 52, respectively, which
panels constitute the panels of the body, generally indi-
cated at 53 and 54, respectively.

The interrupted top score creases 39 and 42 have cuts
connecting their adjacent scored portions, that is the in-
terrupted crease scores 39 and 42 have their discontinuous
portions spanned with paired and oppositely disposed
shallow U-shaped cuts, through the paperboard, such as

indicated at 55 and 56, respectively, to receive arcuate portions of the beads 21 of the cans 20 when the side panels 46 and 51 are folded along the interrupted top crease scores 39 and 42 and when the top panel 48 is in a position disposed overlying the top ends of said cans, thereby causing the lip edges 57 and 58, respectively, of said shallow U-cuts to snap on under the beads of the cans.

The distance 60, indicated by arrows, between cooperating cuts can be equal to but is preferably less than the diameter of the body of the cans, thereby providing a snap-on fit of the lip edges under the beads, and to stretch and elastically deform portions of the side panels 51 and 52, adjacent the cans, to embrace the cans beneath the top beads thereon over an arc, to more securely hold the cans in the carrier.

It is to be noted that the distance between score lines 39 and 42 is less than the distance 60 between cuts 55 and 56.

Satisfactory results have been obtained with U-shaped cuts 55 and 56 being of an extent to receive about 70 degrees of circumferential arc of the can beads, though it is understood that the invention is not limited thereto.

Furthermore, the configuration of the inner U-shaped cuts 56 are relatively shallow compared to the more deep configuration of the outer U-shaped cuts 55, that is, the outer U-shaped cuts 55 are preferred to be about one thirty second of an inch deeper in dimension than the corresponding dimension of the more shallow inner U-cuts 56. However, it is understood that the invention is limited to said dimensions; and that while U-cuts of equal dimensions will work, U-cuts of the above relative dimensions provide more satisfactory results and are therefore preferred.

In addition, the U-cuts are preferred to be of a dimension somewhat deeper than the height dimension of the beads. However the invention is not limited to such dimensions.

It is further preferred that the U-cuts be spaced along the top panel 48 so that the cans will contact one another, such as indicated at 59, FIG. 3, when the cans are assembled in the carrier, for compactness and stability, but the invention is not limited to such juxtaposition.

Satisfactory results have been obtained with the U-cuts terminating on the interrupted score lines 39 and 42, such as indicated at 61 and 62, and 63 and 64, respectively; however, the invention is not limited to such construction.

Also it is preferred that said terminal points 61 and 62, and 63 and 64 all fall at the circle of the can bead, such as indicated at 61, 62, 63 and 64, of FIGS. 3 and 5; however the invention is not limited to such construction.

Companion top panel 49 is provided with cuts similar to cuts 55 and 56, such as indicated at 65 and 66, and therefore its detailed construction will not be repeated.

Inner side panels 46 and 47 are partly defined by paired and oppositely disposed regular U-shaped cuts such as indicated at 67 and 68, which connect adjacent scored portions of interrupted crease lines 29 and 31, respectively, that is the interrupted crease lines 29 and 31 have their discontinuous portions spanned by said regular U-shaped cuts, said U-cuts terminating on the interrupted score lines 29 and 31 at points indicated at 69 and 71, respectively. These cuts provide hand openings in the handle panels when the blank is operatively folded into a carrier, as hereinafter described.

Said regular U-cuts 67 and 68 along the interrupted crease lines 29 and 31, combine to define the panels 46 and 47, along the inner sides thereof, respectively.

Continuous bands of adhesive are applied transversely across the blank 23 thereby covering portions of interrupted panels 36 and 37, such as indicated at 74 and 75, and portions of the U-shaped extension areas, such as indicated at 76 and 77, respectively, see FIG. 6. The placement of said bands of adhesive on panels 36 and 37, and

on the U-shaped extension areas, serves purposes herein-after described.

Some paperboard is elastic and grained. It is elastic in the sense that, within limits, it is capable of returning to or recovering its original state, shape or form after being deformed, bowed or deflected. It is grained in that its fibrous ingredients are considered to align themselves in grain arrangement, in a small degree like the grain in wood. When such paperboard, supported flat as a simple beam with the grain running in a direction from one support to the other support, is bent by forces applied across or transversely with respect to its grain, it is found to be stiffer than when said paperboard is supported as a simple beam with the grain running in a direction transversely of said beam supports and bent by forces applied along or parallel with respect to its grain. Put in another way, the yieldability or elasticity of paperboard is greater in a direction running across the grain than in a direction running with the grain. In the elastic and grained blank 23, FIG. 6, the paperboard grain is deemed to run in a direction parallel to the long or longitudinal axis, such as indicated by arrows 80. While the present carrier can be formed without regard to the paperboard grain, it is preferred to form and construct the carrier with regard to the grain as set out in the blank of FIG. 6, thereby utilizing the stiffer quality of the paperboard for a springy advantage and the more elastic quality for the deformation advantage, as hereinafter described.

Obviously, the direction of the grain, of a grained paperboard, can be determined by the above bending procedure, the stiffness being an index of the direction of grain.

In folding the processed blank 23 into the present carrier and onto the cans to be carried, the blank is first folded downwardly, on each side of the central crease line 24, to bring the underside of such half blanks substantially face to face, forming a steep roof-gable-like arrangement.

The two end portions, constituting body panels 53 and 54, are then swept upwardly, folded along interrupted perforated lines 29 and 31, respectively, to form the W-arrangement shown in FIG. 7.

The W-arrangement is then further telescoped and the wings thereof forced flat together until the adhesive portions 74 on the handle panel 36 are abutted against the inner side panel 46, and the adhesive portions 75 on the handle panel 37 abutted against the inner side panel 47, and the adhesive portions 76 and 77 on the inner side panels 45 and 47, respectively, are likewise juxtaposed. When the adhesive is set, or otherwise hardened, and the lateral folding pressure relieved, the arrangement will take the form substantially as shown in FIG. 8. Obviously, in lieu of adhesive, staples or any other suitable means can be used to secure the panels to each other as hereabove described.

The two end portions, constituting top panel 48 and outer side panel 51, and top panel 49 and outer side panel 52, are then swept downwardly, folded along top crease lines 39 and 41, respectively, to a horizontal position as shown in FIG. 9, thereby forming spaced bead receiving openings along the interrupted crease lines 39 and 41 resulting from the shallow U-cuts 56 and 65, respectively, said receiving openings being generally indicated at 78, see FIGS. 2, 10 and 11.

The carrier is now ready to be secured onto cans 20, the cans 20 being arranged in two rows of three cans each, oppositely disposed.

The top panels 48 and 49 are disposed in a position overlying the top ends of the two rows of cans, with the inner side panels 45 and 47, and the U-shaped extensions thereof, disposed between the rows of cans.

One row of cans, the left hand row, see FIGS. 2 and 10, is moved adjacent the bead receiving openings, and the bead portions adjacent said bead receiving openings 78 are pushed into and received by said openings. Then the outer side panel 51 is folded downwardly along in-

interrupted crease line 42 and against the outer side portions of the cans, thereby forming outer bead receiving openings generally indicated at 79 which receive the outer bead portions therein. In view of the fact that the distance 60 between the shallow U-cuts 55 and 56 is preferably less than the diameter of the body of the cans, the outer side portion 51 must be forcefully pushed over the projecting beads in order that the outer bead openings 79 can operatively receive the beads therein. In said forcing action the bead opening lips 57 are forced over the projecting beads and snap on the can body under the bead, the lip edges being finally disposed adjacent the underside of the beads.

In forcing or camming the lip edge 57 over the rounded bead, the lip portions of the side panel 51, that is that portion of the side panel under the lip edge, indicated by reference numeral 81, is stretched or elastically deformed to achieve a tensioned fit of a part of said lip portion around a portion of the body of the can. That is, the elastic lip portion 81 functions to embrace or otherwise wrap-around an arcuate portion of the can body, thereby utilizing the greater transverse elasticity of the blank for a wrap-around or deformation advantage of more securely clamping the cans in the carrier.

The forces necessary to cam the lip edge 57 over the can bead, and establish an elastically deformed and wrap-around fit of the outer lip portion 81 around an arcuate portion of the can body, are transmitted through top panel 48 to the corresponding inner lip portion 82 and likewise elastically deform and establish a tensioned wrap-around fit of said lip portion 82 around an arcuate portion of the adjacent can body and adjacent the underside of the associated beads.

Since the paperboard grain is deemed to run in a direction parallel to the long or longitudinal axis of the paperboard blank, such as indicated by arrows 80, and since the paperboard is stiffer and more unyielding in said longitudinal direction than in the more elastic transverse direction, most of the stretch or deformation will occur and be concentrated in the lip portions 81 and 82, where deformation is wanted, and little or no stretch will occur in the connecting top panel 48 where it is not wanted. Therefore, the two different elastic characteristics of the paperboard are used to maximum advantage.

In view of the fact that it is preferred that the shallow U-cut terminal points 61 and 62, and 63 and 64 all fall at the can bead, such as indicated on FIG. 3, and in view of the fact that such points fall on interrupted crease lines 39 and 42, respectively, the downward folding of the side panels 46 and 51 on such top crease lines, respectively, relative to the top panel 48, produce shoulders which abut the can bead. Said shoulders operatively engage the can bead at four points and thereby hold the cans securely against unwanted sidewise or rotational movement in the carrier.

The other row of cans, that is the right hand row, are similarly secured to the right hand portion of the carrier, that is to the body panels generally indicated at 54, thereby providing a six can pack.

Cans can be released from the carrier by lifting upwardly on the outer side panels 51 and 52, thereby disengaging the can beads from their can receiving opening means.

The foldable handle 38, is collapsable and lends itself to allowing the loaded carriers to be stacked one upon another. In that event, the tip or apex 24 is pushed vertically downwardly until panels 34 and 35 overlay panels 48 and 49 respectively, and panels 32 and 33 overlay panels 34 and 35, respectively. To achieve this collapsed position, panels 32 and 33 must of necessity be wider than panels 34 and 35, respectively, so as not only to overlay panels 34 and 35 but to extend into the center of the arrangement, that is to a point above the inner contact point of the cans in the carrier. See FIG. 11. Said handle arrangement acts as a toggle means to force

apart the spring panels 46 and 47 when a downward force is applied at handle apex 24. This toggle means can be used to advantage when loading the cans into the carrier to hold the spring panels apart while the lip edges are cammed over the can beads.

While a six can pack carrier was described hereinabove, it is obvious that a two or four can pack carrier can be provided by merely using a narrower blank, accordingly.

Furthermore, a handle-less three can pack carrier can be provided by merely cutting along the interrupted slit score line 29, thereby removing the body panel, generally indicated at 53, comprising side panel 51, top panel 48, and side panel 46, such as shown in the modification of FIG. 13.

The six can pack carrier, and the like, can be modified, if desired, by omitting the adhesive on the handle panels 36 and 37, such as omitting the adhesive indicated at 74 and 75, respectively, and retaining the adhesive only on the U-shaped cut-out extensions, as indicated by FIG. 12.

It is to be noted that when the carrier per se is unloaded, as in FIG. 9, the handle panels 36 and 37 are quite close together and the shallow U-shaped cut out tabs 83 overlap. However, when the carrier is loaded with cans, as in FIGS. 2, 10 and 11, the handle panels 36 and 37 are comparatively spread wider apart, the tabs 83 pulled away from each other and spaced endwise from each other, and the can beads abut each other. The can beads are biased and spring urged against each other due to the stiff leaf spring action of the cemented inner side panels 46 and 47. Said panels are cemented together, face to face, at their lower extension portions, and their upper portions are free of each other and laterally relatively movable thereby providing a double leaf spring arrangement. Said spring action aids in maintaining a tight compact relationship of the two rows of cans, and resists their spreading apart. Since the paperboard grain is deemed to run in a direction parallel to the longitudinal axis of the blank, such as indicated by arrows 80, and since the paperboard is stiffer and more unyielding in said longitudinal direction than in the more elastic transverse direction, the stiff springy property of the paperboard is used to its maximum advantage in the carrier.

When a lifting force is applied to the handle 38, said force is transmitted to the inner side panels which liftably engage the can beads by means of the inner lift edges such as indicated at 58, see FIG. 11. The leaf spring action of the side panels 46 and 47 urge the cans together at their top ends and resist the can rows thereof from spreading apart. The clamping action of the elastic lip portions 81 and 82, and the interconnecting top panels, tend to secure the lip edges 57 and 58, respectively, under the can beads.

In lifting a three can pack, one merely extends a hand over the top of the middle can and grasps the pack with the fingers extended across the can and clamped against that portion of the side panels under the can beads, and then lifts upwardly.

FIGS. 14 and 15 show a modification wherein the six can pack carrier is provided with recessed finger grip means, thereby eliminating projecting handle means and permitting the stacking of such carriers one upon the other.

The recessed finger grip carrier, generally indicated at 84, is formed from a single rectangular blank, such as indicated generally at 85, elastic and grained, and having a long longitudinal axis running with the grain and a short transverse or central axis transverse to the grain, such as blank 23 hereinbefore described. The blank and the carrier formed therefrom are symmetrical about the transverse or central axis crease 86, and is made up of a series of panels defined by score lines transverse to the grain of the paperboard.

Paired corresponding interrupted crease scores 87 and 88, and 89 and 91, and end edges 92 and 93, define corresponding inner side panels 94 and 95, top panels 96 and 97, and outer side panels 98 and 99, respectively, which panels constitute the body panels of the carrier, generally indicated at 101 and 102, respectively.

The interrupted score lines 87 and 89 have cuts connecting their adjacent scored portions, that is, said interrupted crease scores have their discontinuous portions spanned with paired and oppositely disposed shallow U-shaped cuts, through the paperboard, such as indicated at 103 and 104, respectively, to receive arcuate portions of the beads of cans when the side panels 94 and 98 are folded along the interrupted crease scores 87 and 89 and when the top panel 95 is in a position disposed overlying the top ends of such cans, thereby causing the lower lip edges 105 and 106, respectively, of said shallow U-cuts to snap on under the beads of the cans.

The dimensions, relationship, character, nature, features, etc., of the above U-cuts are the same as hereinbefore described for U-cuts 55 and 56.

Companion top panel 97 is provided with shallow cuts similar to cuts 55 and 56, such as indicated at 107 and 108, and therefore the detailed construction thereof will not be repeated.

Paired and oppositely disposed tabs 109 and 111, and 112 and 113, respectively, are struck from the body panels, approximately at the third points transversely of said body panels, that is, each is struck from that portion of the body panel that lies between adjacent shallow U-cuts, thereby cutting the tabs from the top and the adjacent inner panels. Said tabs provide finger receiving apertures for reasons hereinafter described.

Said tabs have one side hinged, in the top panels of the blank, on an axis transversely of the blank, such as indicated along the crease line 114, 115, 116 and 117, respectively. Said hinge crease lines 114 and 115 are adjacent to and spaced from interrupted crease line 87; and said hinge crease lines 116 and 117 are adjacent to and spaced from interrupted crease line 88.

The tabs project longitudinally of said blank and inwardly from said hinge crease lines, and are defined by a generally U-shaped cut extending from the hinge crease lines in the top panels, and extending across the inner side panels adjacently to the transverse axis crease line 86.

The confronting sides of said tab U-cuts are not straight line cuts, but are offset to provide finger engageable shoulders such as indicated at 118, 119, 121 and 122, for the finger gripping purpose hereinafter described.

Bands of adhesive are applied transversely across the blank, approximately centrally of the inner panels, such as indicated at 123 and 124, respectively. The tab portions are free of adhesive.

In folding the creased and cut horizontally disposed blank 85 into the modified carrier and onto the cans to be carried, the blank is first folded vertically upwardly on each side of and along the central crease line 86, said crease line 86 acting as a hinge. Such folding pressure brings the blank halves face to face, and the adhesive bands in abutting relation onto each other. When the adhesive is set, or otherwise hardened, the lateral folding pressure can be relieved.

The two end portions, comprising top panels 96 and 97 are then reversely swept downwardly along hinge crease lines 87 and 88 to a horizontal position, thereby forming spaced bead receiving openings along the interior crease lines 87 and 88, resulting from the shallow U-cuts such as 104 and 107, respectively, said bead receiving openings being similar to openings 78, see FIGS. 2, 10 and 11.

The carrier is now ready to be secured onto cans 125, the cans being arranged in two rows of three cans each, see FIG. 14.

Top panels 96 and 97 are disposed in a position overlying the top end of the two rows of cans, with the inner side panels 94 and 95 disposed between the rows of cans.

One row of cans, the left hand row, is disposed adjacent the inner bead receiving openings, and the can bead portions adjacent said inner bead receiving openings are pushed into and received by said openings. Then the outer side panel 98 is folded downwardly along interrupted crease line 89 and against the outer side portions of said row of cans, thereby forming outer bead receiving openings which receive the outer bead portions therein.

The right row of cans is similarly secured to the right hand portion of the carrier, that is to the body panels generally indicated at 102, thereby providing a six can pack, similar to the six can pack hereinbefore described, except for the handle means.

In forcing the outer side panels over and under the beads, the lip portions of said side panels are stretched or elastically deformed to achieve a tensioned fit of a part of said portion around a portion of the body of the adjacent can, similar to the six can pack hereinbefore described.

To manually pick up and carry such six pack of cans, one merely thrusts the thumb and middle finger of one hand onto the tabs 109 and 111, and 112 and 113, respectively, and pushes downwardly, pushing the hinged tabs aside. Then one clamps said thumb and fingers on the edge shoulders 118 and 121, and 119 and 122, respectively, and lifts upwardly to raise the six pack for carrying.

If desired, the tabs can be shortened by removing the lower portions therefrom, to facilitate the pushing of the hinged tabs aside.

Obviously, should it be desired, the tabs can be entirely removed from the blank by cutting along their hinge lines, such as along crease lines 114, 115, 116 and 117.

Some characteristic features of this invention are: (a) the provision of a paperboard can carrier wherein the various score lines are transverse to the grain of the paperboard blank from which the carrier is formed; (b) the provision of a paperboard can carrier in which the transverse elasticity and the differing longitudinal elasticity thereof are utilized to novel advantage; (c) the provision of a paperboard can carrier in which panel elements thereof function as leaf springs to maintain the carrier pack in tight compact relationship; (d) the provision of a paperboard can carrier in which a projecting handle thereof is foldable to permit stacking of the carrier packs; (e) the provision of a can carrier which liftably engages cans, under the top beads thereof, at one side, only; (f) the provision of a six can pack carrier, formed from a single paperboard blank, having a handle, and being of the type that overlays the top ends, only, of cans; (g) the provision of a paperboard can carrier having oppositely disposed cuts to receive can beads therein, said cuts terminating at points all of which fall on the can beads to be held thereby, said points also falling on crease lines, so that when the paperboard is folded along the crease lines, shoulders are formed at said points, which about the can beads to operatively engage said beads at four points; (h) the provision of a paperboard can carrier of the type that overlays only the top ends of cans, the body panels of which comprise three panels, namely, a top panel and two side panels, said panels being defined by only two spaced score lines; and (i) the provision of a handle-less carrier, wherein finger receiving apertures are provided for carrying of said carrier, and wherein said fingers clamp and engage vertical edge portions of said carrier.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood, that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed and desired to be protected by Letters Patent of the United States is:

1. A paperboard blank forming a carrier for a plurality

of cans in a single row, each such can having a projecting circumferential bead at the top end, comprising: a paperboard blank having a longitudinal grain and being relatively more elastic in a direction transverse to said grain than in a direction running with said grain; a single pair of parallel and corresponding interrupted score lines on said blank defining an elongated top panel and side panels extending from opposite sides of said top panel, said interrupted score lines being disposed transversely of said longitudinal grain so that said grain runs sidewise across said elongated top panel, and said score lines being spaced apart a distance less than the outer diameter of such can beads; oppositely disposed shallow U-cuts having the arm cuts thereof connected to adjacent scored ends of said interrupted score lines, respectively, the oppositely disposed arm cuts of said shallow U-cuts being directed toward each other, and the base cuts of said shallow U-cuts being disposed transversely of said longitudinal grain, and the distance between the oppositely disposed base cuts being less than the outer diameter of such can beads, said shallow U-cuts defining projecting tabs and bead receiving openings for such can beads, said side panels being foldable along said score lines over the sides of such cans when said top panel is in a position overlying the top ends of such cans, thereby causing the lip edges of said U-cuts to snap under the beads of such cans, whereby the portions of said side panels adjacent said lip edges elastically deform transversely and tensionally fit around arcuate portions of such cans, respectively, thereby utilizing the relatively stiff longitudinal tension resistant property in the top panel for its relative unyielding advantage and the greater transverse elastic quality in the side panels for deformation advantage.

2. The paperboard blank of claim 1 wherein the distance between the oppositely disposed base cuts is less than the outer diameter of the body portion of such cans.

3. A paperboard blank forming a carrier for carrying a plurality of cans in two adjacent rows, such cans having a projecting circumferential bead at the top end thereof, comprising: a rectangular paperboard blank having a transverse central score line, a single interrupted score line on each side of said central score line spaced therefrom and in correspondence with each other, and a corresponding pair of parallel interrupted score lines spaced outwardly of said single interrupted score lines and in correspondence with each other respectively, said single and paired interrupted score lines being parallel to said central score line, said single score lines defining a pair of handle panels hinged respectively on opposite sides of said central score line, a pair of inner panels between said single interrupted score lines and said pair of parallel score lines hinged respectively on the outer edges of said handle panels, a pair of top panels between said parallel interrupted score lines hinged respectively on the outer edges of said inner panels, and a pair of outer panels hinged respectively on the outer edges of said top panels, each of said inner panels having spaced corresponding regular U-shaped extensions cut from and extending into said adjacent handle panels, the extensions on one handle panel being opposite the extensions on the other handle panel, said extensions being formed by regular U-cuts connecting scored ends of said single interrupted score lines, the paired parallel interrupted score lines having paired and oppositely disposed shallow U-cuts connecting adjacent scored ends of said paired parallel interrupted score lines respectively to provide bead receiving openings for such cans to be carried, said paired shallow U-cuts being disposed substantially opposite said regular U-cuts and said paired shallow U-cuts being spaced a distance substantially equal to the diameter of such cans to be carried; a transverse band of adhesive on at least one of said inner panels adapted to secure said inner panels foldably upon each other; the blank half portions being foldable downwardly upon each other about the central score line and the inner panels being reversely foldable up-

wardly about said single interrupted score lines and securable upon each other by means of said adhesive, and the top panels being reversely foldable downwardly over the tops of such cans when the inner panels are disposed between such adjacent rows of cans, and said outer panels being downwardly foldable over the sides of such cans, thereby causing the lip edges of said shallow U-cuts to snap under the beads of such cans.

4. The paperboard blank of claim 3 wherein each of said outer panels is entirely free of connection to said top panel on three sides.

5. The paperboard blank of claim 3 wherein said band of adhesive is spaced from said shallow U-cut.

6. The paperboard blank of claim 3 wherein the paired shallow U-cuts are spaced a distance less than the diameter of such cans.

7. The paperboard blank of claim 3 wherein the shallow U-cuts terminate on said associated interrupted score lines and said terminals fall substantially at the circle of the beads of such cans.

8. The paperboard blank of claim 3 wherein the blank is characterized by a longitudinal grain running longitudinally of said blank and being relatively more elastic in a direction transverse to said grain than in a direction running with said grain, and the score lines in said blank being disposed transversely of said longitudinal grain.

9. The paperboard blank of claim 3 and a pair of parallel handle score lines on said handle panels, respectively, in correspondence with each other and parallel to said central score line, the most remote of each of said paired handle score lines, measured from said central score line, being spaced from said adjacent single interrupted score line a distance substantially equal to the distance between said adjacent single interrupted score line and the adjacent score line of said pair of parallel interrupted score lines, respectively, and the handle score lines adjacent the central score line, respectively, being spaced from said central score line a distance whereby when the carrier is loaded with such cans to be carried and said handle is foldably collapsed vertically downwardly, the handle portions between said handle score lines will overlie the associated top panels, respectively, and the portions of said handle between said central score line and the adjacent handle score line of said pair of parallel handle score lines will overlie the above said handle portions, respectively, thereby allowing such loaded carriers to be stacked one upon the other with the flatly collapsed handle therebetween.

10. The paperboard blank of claim 9 and a transverse band of adhesive on said remote handle panels to secure said remote handle panels foldably upon the adjacent inner panels, respectively.

11. A paperboard blank forming a carrier for carrying a plurality of cans in two adjacent rows, such cans having a projecting circumferential bead at the top end thereof, comprising: a rectangular paperboard blank having a transverse central score line and a corresponding pair of parallel interrupted score lines on each side of said central score line disposed parallel to said central score line, said score lines defining a pair of inner panels foldably hinged respectively on opposite sides of said central score line and a pair of top panels between said parallel interrupted score lines foldably hinged respectively on the outer edge of each of said inner panels and a pair of outer panels foldably hinged respectively on the outer edges of said top panels, the interrupted score lines having a plurality of paired and oppositely disposed shallow U-cuts connecting adjacent scored ends of said paired interrupted score lines respectively to provide bead receiving openings for such cans, said paired U-cuts being spaced a distance substantially equal to the diameter of the cans to be carried; the score lines defining said inner and outer panels being spaced a distance less than the height of such cans to be carried, a transverse band of adhesive on at least one of said inner panels adapted to secure said inner panels foldably upon each other said adhesive being spaced from the

adjacent shallow U-cuts; and oppositely disposed longitudinally extending tabs, intermediate said shallow U-cuts, cut from said tops and extending into the adjacent inner panels, respectively, said tabs being foldably hinged on said top panels, and said tab cuts having portions of the confronting side edges in the inner panels cut diagonally to provide finger grip shoulders, whereby said hinged tabs can be pivotally pushed downwardly to provide finger receiving apertures for finger gripping said shoulders; said inner panels being foldably upwardly upon each other and being securable upon each other by means of said adhesive, and said top panels being reversely foldable over the tops of such cans when the inner panels are disposed between such adjacent rows of cans, and said outer panels being downwardly foldable over the side of such cans, thereby causing the lip edges of said shallow U-cuts to snap under the beads of such cans.

12. A paperboard blank forming a carrier for carrying a plurality of cans in two adjacent rows, such cans having a projecting circumferential bead at the top end thereof, comprising: a rectangular paperboard blank having a transverse central score line and a corresponding pair of parallel interrupted score lines on each side of said central score line disposed parallel to said central score line, said score lines defining a pair of inner panels foldably hinged respectively on opposite sides of said central score line and a pair of top panels between said parallel interrupted score lines foldably hinged respectively on the outer edge of each of said inner panels and a pair of outer panels foldably hinged respectively on the outer edges of said top panels, said interrupted score lines having a plurality of paired and oppositely disposed shallow U-cuts connecting adjacent scored ends of said paired interrupted score lines respectively to provide bead receiving openings for such cans, said paired U-cuts being spaced a distance substantially equal to the diameter of the cans to be carried; finger receiving aperture means, intermediate said shallow U-cuts, extending into said tops and adjacent inner panels, said aperture means being oppositely disposed on opposite sides of said central score line; and securing means adapted to secure said inner side panels foldably upon each other; said inner panels being foldable upwardly upon each other and being securable upon each other by means of said securing means, and said top panels being reversely foldable over the tops of such cans when the inner panels are disposed between such adjacent rows of cans, and said outer panels being downwardly foldable over the sides of such cans, thereby causing the lip edges of said shallow U-cuts to snap under the beads of such cans.

13. The blank of claim 12 wherein each of said outer panels is entirely free of connection to said top panel on three sides.

14. The blank of claim 12 wherein the securing means is on at least one of the inner panels and is spaced from said shallow U-cuts.

15. The blank of claim 12 wherein the paired shallow U-cuts are spaced a distance less than the diameter of such cans.

16. The blank of claim 12 wherein the finger receiving aperture means include an off-set cut edge in the inner panels to form finger grip shoulders.

17. The blank of claim 12 wherein the shallow U-cuts terminate at the associated interrupted score lines and said terminals fall substantially at the circle of such can beads.

18. The blank of claim 12 wherein the blank is characterized by a longitudinal grain running longitudinally of said blank and being relatively more elastic in a direction transverse to said grain than in a direction running with said grain, and the score lines in said blank being disposed transversely of said longitudinal grain.

19. The blank of claim 12 wherein said securing means

is a band of adhesive on at least one of said inner panels and spaced from said shallow U-cuts.

20. A paperboard blank forming a carrier for carrying a plurality of cans in two adjacent rows, such cans having a projecting circumferential bead at the top ends thereof, comprising: a rectangular paperboard blank having a pair of adjacent inner panels arranged on opposite sides of a score line on the transverse axis of said blank said inner panels being foldable upon each other about said score line; a pair of corresponding top panels formed as extensions of said inner panels, respectively, and separated therefrom by corresponding interrupted score lines; a pair of corresponding outer panels formed as extensions of said top panels, respectively, and separated therefrom by corresponding interrupted score lines corresponding to the interrupted score lines that separate the top panels from the inner panels, said blank having a longitudinal grain running longitudinally of said blank and being relatively more elastic in a direction transverse to said grain than in a direction running with said grain, and the score lines in said blank being disposed transversely of said longitudinal grain; paired oppositely disposed shallow U-cuts connecting adjacent scored ends of said interrupted score lines defining said top panels, respectively, to provide bead receiving openings and bead engaging lip edges for such cans, said paired U-cuts being spaced a distance substantially equal to the diameter of such cans to be carried; hand grip means on said blank for carrying such carrier; a band of adhesive on at least one of said inner panels, spaced from said adjacent U-cuts for securing said inner panels upon each other; said inner panels being foldable upon each other and being securable upon each other by means of said adhesive, and said top panels being reversely foldable over the tops of such cans when the inner panels are disposed between such adjacent rows of cans, and said outer panels being downwardly foldable over the sides of such cans, thereby causing the lip edges of said shallow U-cuts to snap under the beads of such cans.

21. The paperboard blank of claim 3 wherein the shallow U-cuts are as deep as the height dimension of the beads of the cans to be carried.

22. In a carrier for carrying a plurality of cans in two adjacent rows, each of said cans having a projecting bead at the top end thereof, said carrier being formed of a resilient material, and said carrier having means engaging and retaining outer edge portions of said cans, the improved structure comprising: a pair of flat carrier panels disposed face to face and insertable vertically between said rows of cans, each panel having a lower edge and an upper, support edge engageable with the underside of an adjacent can bead for supporting said cans at the inner sides thereof, said panels being free of fold lines between said upper and lower edges; and securing means for securing a portion of said panels together, said securing means being spaced downwardly from said support edges to provide free leaf spring panel portions thereabove which are yieldably biased toward each other, said panels being adapted to draw the top ends of said two rows of cans together.

23. A carrier as recited in claim 22, wherein said carrier is formed of a material having a longitudinal grain, and wherein said panels are formed with said longitudinal grain running transversely to said support edges.

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