May 7, 1968 H. GANZ ETAL 3,381,881

CARTON

Filed Jan. 18, 1967 2 Sheets-Sheet 1

FIG. 1

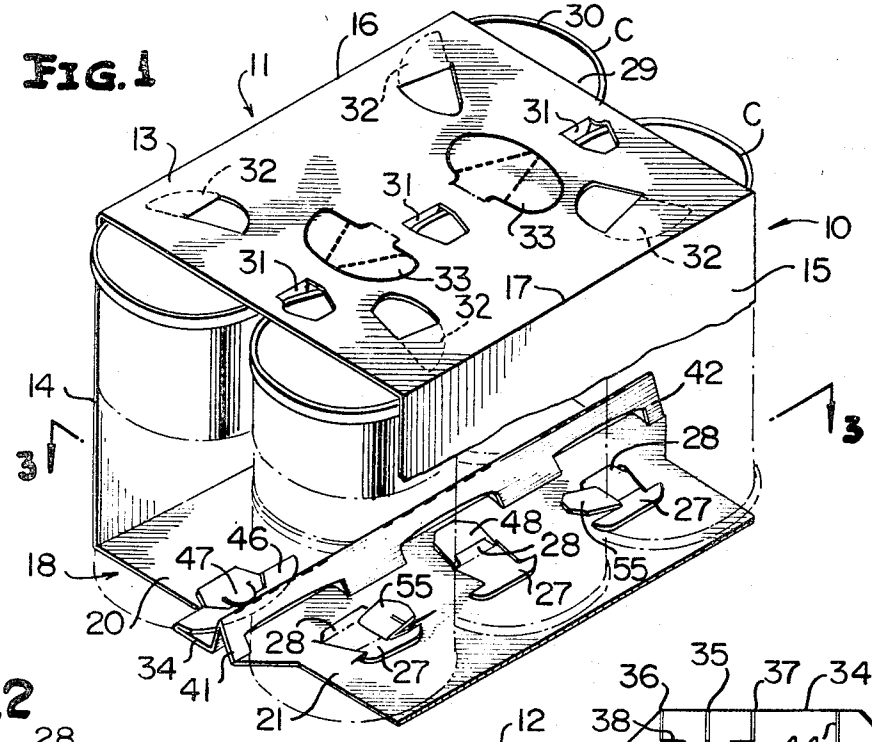
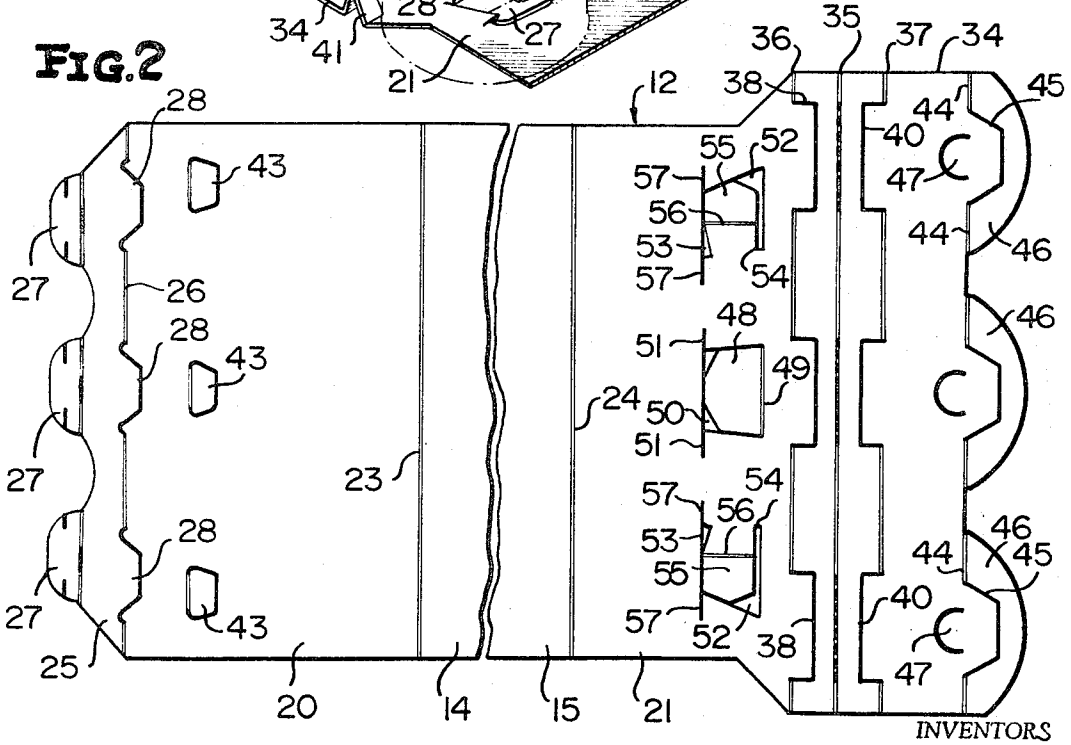



FIG. 2




INVENTORS
Henry Ganz &
Harry J. Rossi

BY Mann, Porter, Miller & Brown
ATTORNEYS

May 7, 1968 H. GANZ ETAL 3,381,881

CARTON

Filed Jan. 18, 1967 2 Sheets-Sheet 1

FIG. 3

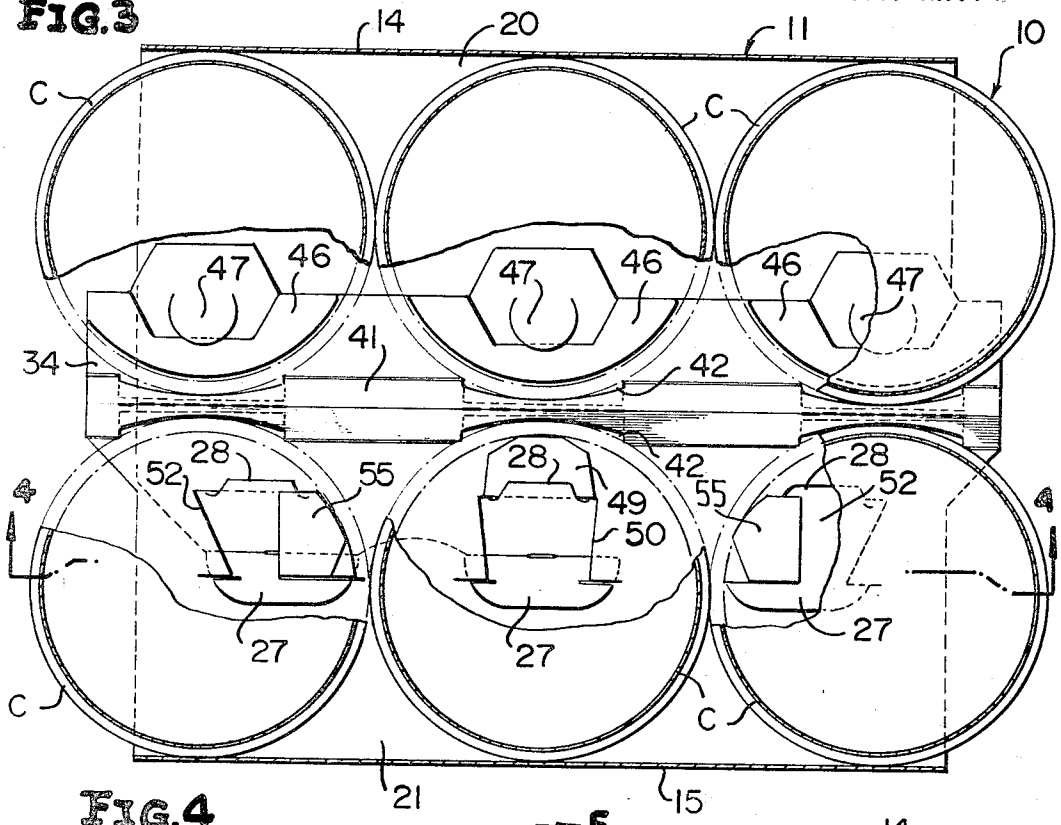
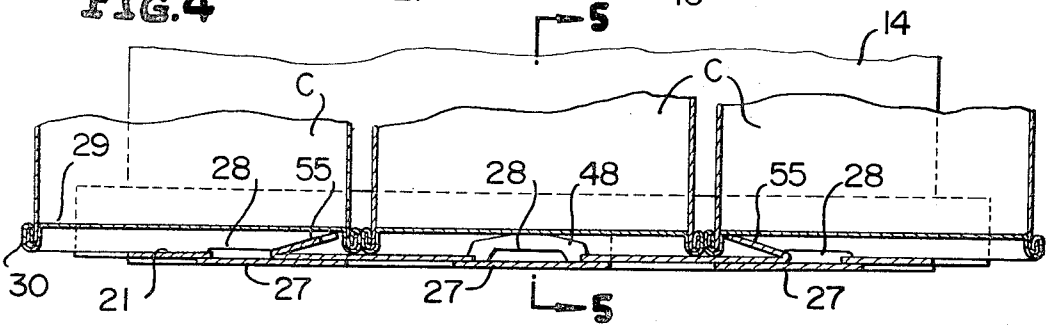



FIG. 4



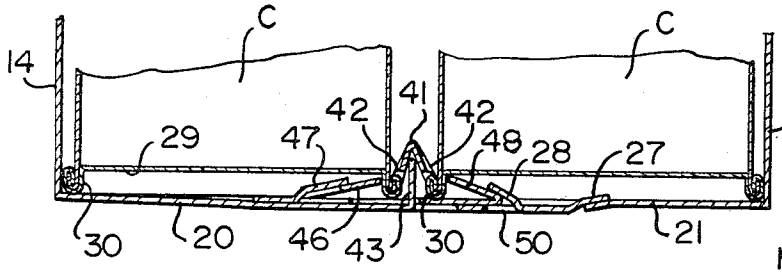




FIG. 5


INVENTORS
Henry Ganz &
Harry J. Rossi

BY
Mann, Porter, Miller & Brown
ATTORNEYS

United States Patent Office 3,381,881 Patented May 7, 1968



3,381,881

# CARTON

Henry Ganz, Teaneck, and Harry J. Rossi, Parsippany, N.J., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Jan. 18, 1967, Ser. No. 610,145
14 Claims. (Cl. 229—40)

## ABSTRACT OF THE DISCLOSURE

This disclosure relates to a carton having a terminal panel which is interlocked with another terminal panel to form a wall of the carton which opposes ends of cans disposed in two rows. The one terminal panel is constructed to provide a rib which extends between the rows of cans and is configurated to interlock with the cans. In addition, the one terminal panel is provided on opposite sides of the rib with reversely folded flaps receivable within the recessed ends of the cans and interlockable therewith to cooperate with the rib in locking the cans in fixed positions within the carton.

This invention relates in general to new and useful improvements in cartons, and more particularly to a novel can carrier.

This invention principally relates to a can carrier of the wrap-around type which is formed of relatively inexpensive paperboard. Initially, the can carriers were slit or apertured at the corners thereof along the fold lines joining together adjacent panels and the chimes or double seams of the cans were permitted to pass out through the slits or apertures to form the desired interlock. Of course, the slitting or cutting of the carrier along the fold lines greatly weakened the carrier. In an attempt to reduce the gauge of the paperboard from which the carton blanks are formed, efforts have been made towards eliminating the slits or cuts in the carrier along the fold lines between adjacent panels. However, suitable interlock means must be provided between the cans and the carrier to prevent the cans from sliding out of the open ends thereof. Also, it is necessary to firmly interlock the cans within the carrier in a manner so that the cans cannot damage one another.

This invention particularly relates to can carriers of the wrap-around type where in one wall of the carrier is formed of two interlocked lap panels. Due to the construction of the latch which interlocks together the two lap panels, the construction of the wall of the carton formed by the lap panels differs on opposite sides of the longitudinal center line thereof. Accordingly, different types of can retaining means are necessary for the opposite sides thereof.

The innermost lap panel is provided with catch openings or apertures which are normally formed by the removal of material. In accordance with this invention, it is proposed to utilize this material which is normally waste to form integral locking tabs which are engageable within recessed ends of cans so as to position them within the can carrier.

The opposite end of the inner lap panel has a free longitudinal edge. In accordance with this invention, other locking tabs are formed along this free edge in longitudinally spaced relation and are reversely folded so as to oppose generally the center of the can carrier. These locking flaps are also configurated to be snugly received within the recessed ends of cans.

In the past, the inner lap panel of a wrap-around can carrier has been provided with an upstanding rib with which the cans are interlocked. In accordance with this invention, it is proposed to provide the inner lap panel



with such a rib. This rib in no way interferes with the formation of the aforementioned locking tabs, and the locking tabs cooperate with the rib to tightly interlock a cam with the can carrier.

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

In the drawings:

FIGURE 1 is a perspective view of a can package formed in accordance with this invention and wherein a portion of the can carrier and the cans positioned therein have been broken away in order to more clearly illustrate the details of construction of the can carrier.

FIGURE 2 is a plan view on an enlarged scale from which the can carrier of FIGURE 1 is formed, an intermediate portion of the blank being omitted.

FIGURE 3 is a horizontal sectional view, on an enlarged scale, through the can package along the line 3—3 of FIGURE 1 and shows specific details of the construction of the bottom wall of the can carrier and the relationship thereof with respect to cans disposed therein.

FIGURE 4 is an enlarged fragmentary longitudinal vertical sectional view taken along the line 4—4 of FIGURE 3 and shows further the details of the interlock between the bottom wall of the can carrier and the cans.

FIGURE 5 is an enlarged fragmentary transverse vertical sectional view taken along the line 5—5 of FIGURE 4 and shows further details of the interlock.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a can package which is generally referred to by the numeral **10**. The can package **10** is formed of six conventional cans C which are arranged in two rows of three cans each. The cans C have wrapped therearound a can carrier of the wrap-around type, the can carrier being generally referred to by the numeral **11**. The can carrier **11** is in the form of a sleeve with which the cans C are interlocked in such a manner so as to prevent the accidental sliding thereof out through the open ends of the can carrier.

The can carrier **11** is of a one-piece construction and is formed of an elongated blank, which is generally referred to by the numeral **12**. The can carrier **11** includes a top panel **13** to which there are hingedly connected side panels **14** and **15**. The side panel **14** is connected to the top panel **13** along a longitudinal fold line **16**. In a like manner, the side panel **15** is connected to the top panel **13** along a longitudinal fold line **17**.

The can carrier **11** also includes a bottom wall, which is generally referred to by the numeral **18**. The bottom wall **18** is of a composite construction and opposes the top panel **13**. The bottom wall is formed of a pair of lap panels **20** and **21** which are interlocked together. The lap panel **20** is hingedly connected to the side panel **14** along a longitudinal fold line **23**, while the lap panel **21** is hingedly connected to the side panel **15** along a longitudinal fold line **24**.

The interlocking connection between the lap panels **20** and **21** is formed by means of a latch panel **25** which is disposed along the longitudinal edge of the lap panel **20** remote from the side panel **14**. The latch panel **25** is hingedly connected to the lap panel **20** along a longitudinal fold line **26**. The free end of the latch panel **25** is of a scalloped configuration so as to present a plurality of longitudinally spaced latching tongues **27**. Generally C-shaped cuts are formed in the lap panel **20** along the fold line **26** at longitudinally spaced intervals. These cuts define catches **28** along the latch panel **25**, which catches are spaced longitudinally along the fold line **26**.

In the prior can carrier constructions, the lap panel **21** is provided with longitudinally spaced latch openings or

apertures having a first wall behind which the catches **28** engage, and a second wall behind which the tongues **27** engage. The material removed in the formation of the latch apertures was wasted. However, in accordance with this invention, this material is utilized in a manner which will be described hereinafter.

It is to be noted that the ends of the cans C are of a recessed construction and each can end includes a recessed end panel **29** defined by an axially projecting chime or double seam **30**. The chime or double seam **30** also projects radially outwardly of the remainder of the can.

The manner in which the cans C are interconnected with the top panel **13** is not a part of this invention, and therefore, will not be described in complete detail here. However, it is to be noted that the top panel **13** has centrally located, depending flaps **31** which are clamped between the chimes **30** of the transversely adjacent cans at the upper ends thereof. The endmost ones of the cans C are restrained against movement out through the open ends of the can carrier **11** by means of locking flaps **32** which are struck from the top panel **13** and reversely folded, the locking flaps **32** being seated within the recessed upper ends of the cans C'. The upper panel **13** is also provided with cuts **33** defining depressible flaps which, when depressed, facilitate the gripping of the package **10**.

The new features of the can carrier **11** are found in the bottom wall **18**, and more particularly on the lap panel **21**. It is to be noted that the construction of the lap panel **21** is more than that necessary to provide an interlock with the lap panel **20** so as to complete the bottom of the can carrier **11**. The lap panel **21** includes a relatively wide terminal portion or extension **34** which extends beyond the transverse center of the can carrier **11**. The extension **34** is provided with a fold line **35** which extends longitudinally of the can carrier. On opposite sides of the fold line **35**, there are interrupted fold lines **36** and **37** which are parallel to the fold line **35**. The fold lines **36** and **37** are interrupted by C-shaped cuts **38** and **40**, respectively, which are disposed in back-to-back relation. When the lap panel **21** is folded along the fold lines **35**, **36** and **37**, an upstanding rib **41** will result. The rib **41** extends along the longitudinal center of the can carrier **11** from one end to the other, as is clearly shown in FIGURES 1 and 5.

The C-shaped cuts **38** and **40** result in the formation of pockets **42** in the rib **41** at the base thereof, and on opposite sides thereof, in position for receiving the chimes **30** of the cans C in the manner best shown in FIGURE 5. The rib **41**, being at the bottom of the can carrier **11**, may be considered a keel. The rib **41** is reinforced by upstanding tabs **43** which are struck from the lap panel **20** and are positioned within the rib **41** in the manner also best shown in FIGURE 5.

This invention particularly relates to the provision of additional means for interlocking the cans C with the can carrier **11** in the bottom portion thereof. To this end, the panel extension **34** is provided along the free edges thereof with arcuate projections which are centered relative to the C-shaped cuts **38** and **40**. Each projection is connected to the free edge of the lap panel **21** along an interrupted fold line **44**, the fold line **44** being interrupted by a generally C-shaped cut **45**. Each projection is thus generally C-shaped in outline and is in the form of a locking tab **46**. It is to be understood that the arcuate peripheral edge of each locking tab is of a radius of curvature corresponding to the internal radius of curvature of the chime **30**.

It is to be noted that when the locking tabs are utilized, they are reversely folded into overlying relation with respect to the adjacent portion of the panel extension **34**. This is clearly shown in FIGURES 3 and 5. In order that the locking tabs **46** may be retained in their operative positions during the folding of the blank **12** around the cans C, there is struck from the panel extension **34** in alignment with each of the locking tabs **46** a generally



semi-circular restraining tab **47**. When the locking tab **46** is reversely folded, it snaps past the restraining tab **47** and is retained in its reversely folded position thereby in the manner clearly shown in FIGURES 3 and 5.

It will be readily apparent from FIGURES 3 and 5 that not only do the locking tabs **46** serve to position the cans C within the can carrier **11** by preventing their longitudinal movement, but also, the locking tabs **46** cooperate with the rib or keel **41** to firmly anchor the cans.

A further feature of this invention is the provision of additional locking tabs on the side of the rib or keel **41** remote from the locking tabs **46**. As was previously pointed out, normally the lap panel **21** was provided with latch openings or apertures through which the catches **28** and the tongues **27** were passed to form the interlock between the lap panels **20** and **21**. The material removed in the formation of these latch openings was wasted. In accordance with this invention, this material is utilized in the form of integral locking tabs.

Considering the central portion of the lap panel **21**, it will be seen that there is formed therein a locking tab **48** which is connected to the panel **21** along a fold line **49** which extends longitudinally of the panel. When the locking tab **48** is reversely folded out of the plane of the panel **21** to the position clearly shown in FIGURE 5, there is formed in the lap panel **21** the normal latch opening or aperture **50**. In order to provide for the proper reception of the associated tongue **27**, at the edge of the latch opening **50** parallel to the fold line **49**, slits **51** are formed as a continuation of that edge.

It is to be noted that the edge of the locking tab **48** remote from the fold line **49** is configurated to be received within the recessed end of a can and to frictionally grip the chime thereof. The locking tab **48** thus prevents a central one of the cans C from shifting longitudinally within the can carrier **11**. At the same time, the locking tab **48** cooperates with the rib or keel **41** to tightly clamp the associated can at the central portion of the can carrier.

It will be readily apparent from FIGURE 5 that the locking tab **48** in no way interferes with the forming of the interlock between the lap panels **20** and **21**. The associated catch **28** is passed through the latch opening **50** in the normal manner and is engaged behind the locking tab **49**. Thereafter, the associated tongue **27** is passed through the latch opening **50** and is suitably engaged in the slits **51** so as to be retained in place in the manner shown in FIGURE 5.

The material which normally results in the forming of the two outer latch openings is utilized differently than that of the central latch opening. The outer latch openings **52** are defined partially by cut lines and partially by a pair of notches **53** and **54**. The cut lines define a latching tab **55** which is integrally connected to the remainder of the lap panel **21** along a fold line **56** which extends transversely of the lap panel **21**. In view of the fact that all of the material which is normally removed in the forming of the latch opening **52** is not removed when the locking tab **55** is reversely folded, it will be seen that the notch **53** provides for the reception of the associated tongue **27** while the notch **54** provides for the reception of the associated catch **28**. It is also to be noted that at the end of the latch opening **52** adjacent the fold line **24**, there are provided longitudinally extending slits **57** for facilitating the locking of the associated tongue **27** in place.

Referring now to FIGURES 1 and 3 in particular, it will be seen that the longitudinal inner edge of each reversely folded locking tab **55** is contoured for engagement with the inner surface of a chime **30** of a can C. The locking tabs **55** accordingly restrain the endmost cans C for movement out of the open ends of the can carrier **11**. It is also to be noted that the locking tabs **55** in no way interfere with the interconnecting of the lap panels **20** and **21**. The catches **28** can be freely passed through

the latch openings **52** and the tongues **27** are readily passable through the latch openings **52** in the associated slits **57**.

It is also to be noted that the locking tabs **55** serve to cam the cans C towards the keel **41**. Thus, there is a definite cooperate between the locking tabs **55** and the keel **41** in the retaining of cans in place within the can carrier **11**.

Although only a single preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that minor variations may be made in the can carrier construction without departing from the spirit and scope of the invention, as defined in the appended claims.

We claim:

**1.** In a carton of the type for receiving a plurality of cans having recessed ends, a single panel adapted to engage the ends of cans arranged in two rows, said panel having an upstanding rib adapted to extend between two rows of cans, and can retaining means carried by said panel on opposite sides of said rib for locking engagement within recessed ends of cans and for cooperation with said rib to prevent shifting of cans within said carton.

**2.** The carton of claim **1** wherein said panel has a free edge and certain of said can retaining means being formed along said free edge.

**3.** The carton of claim **1** wherein said panel has a free edge and certain of said can retaining means being formed along said free edge, said certain can retaining means being in the form of reversely folded locking tabs.

**4.** The carton of claim **1** wherein said panel has a free edge and certain of said can retaining means being formed along said free edge, said certain can retaining means being in the form of reversely folded locking tabs, each having a peripheral edge contoured to snugly fit a can.

**5.** The carton of claim **1** wherein said panel has a free edge and certain of said can retaining means being formed along said free edge, said certain can retaining means being in the form of reversely folded locking tabs, each having a central cut-out and a holding tab carried by said end panel generally within each cut-out and overlying a respective locking tab to hold each locking tab in its reversely folded position.

**6.** The carton of claim **1** wherein said can retaining means are in the form of integral reversely folded locking flaps.

**7.** The carton of claim **1** wherein said carbon is of the type having lap panels interconnected by a mechanical interlock, said panel being one of said lap panels and latch apertures therein for receiving panel interlocking catches, and certain of said can retaining means being in the form of locking tabs formed from the material removed in forming said latch apertures and reversely folded over said panel.

**8.** The carton of claim **1** wherein said carton is of the type having lap panels interconnected by a mechanical interlock, said panel being one of said lap panels and latch apertures therein for receiving panel interlocking catches, and certain of said can retaining means being in the form of locking tabs formed from the material removed in forming said latch apertures and reversely folded over said panel, said locking tabs including a central locking tab opposing said rib, and outer locking tabs extending in opposite directions generally parallel to said rib.



**9.** A lap panel of a can carrier of the sleeve type, said lap panel being particularly adapted for forming an interlocking connection with a second lap panel and having latch apertures therein for receiving locking catches; the improvement in said panel comprising the utilization of the material normally removed as waste in the forming of said latch apertures for forming locking tabs receivable with recessed ends of cans, said normally removed material being reversely folded to one side of said aperture and having an edge contoured for snug engagement within a recessed can end.

**10.** The can carrier lap panel of claim **9** wherein said locking tabs are spaced longitudinally of said lap panel with a central locking tab extending transversely, and outer locking tabs extending generally longitudinally in opposite directions.

**11.** The can carrier lap panel of claim **9** wherein said lap panel has a free longitudinal edge, and second locking tabs formed in longitudinally spaced relation along said free edge and reversely folded towards the first-mentioned locking tabs.

**12.** The can carrier lap panel of claim **9** wherein said lap panel has a free longitudinal edge, and second locking tabs formed in longitudinally spaced relation along said free edge and reversely folded towards the first-mentioned locking tabs, each second locking tab having a central cut-out, and a holding tab carrier by said lap panel generally within each cut-out and overlying a respective second locking tab to hold each second locking tab in its reversely folded position.

**13.** The can carrier lap panel of claim **9** wherein said lap panel has a free longitudinal edge, and second locking tabs formed in longitudinally spaced relation along said free edge and reversely folded towards the first-mentioned locking tabs, said lap panel having longitudinal fold line means extending therealong intermediate the first-mentioned locking tabs and said second locking tabs for forming an intermediate rib cooperable with all of said locking tabs to retain cans in place.

**14.** A terminal can carrier panel having a free longitudinal edge, and locking tab formed in longitudinally spaced relation along said edge and being reversely folded into overlapping relation relative to said panel, said locking tabs each having a free peripheral edge contoured for snug interlocking engagement within a recessed can end.


**References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,523,985 | 9/1950 | Foster | 220—112 X |
| 3,163,322 | 12/1964 | Weiss | 229—40 X |
| 3,223,308 | 12/1965 | Weiss | 206—65 |
| 3,292,843 | 12/1966 | Chidsey et al. | 206—65 |


DAVID M. BOCKENEK, *Primary Examiner.*