Aug. 4, 1964 W. J. BUNTING ETAL 3,143,273

MULTI-BOX LIKE CONTAINER

Filed April 4, 1962 5 Sheets-Sheet 1

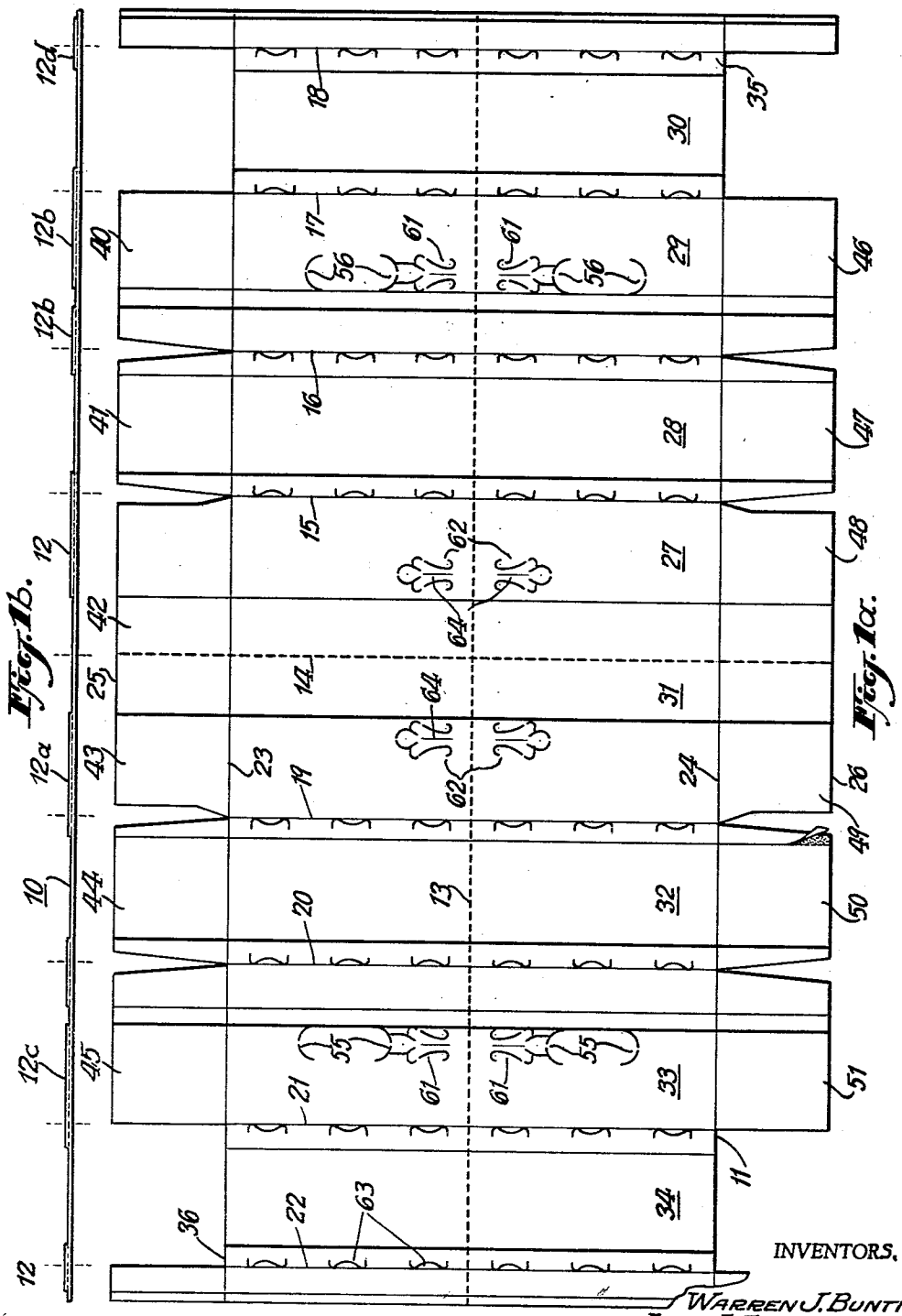


Fig. 1b.

Fig. 1c.

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Fig. 1.

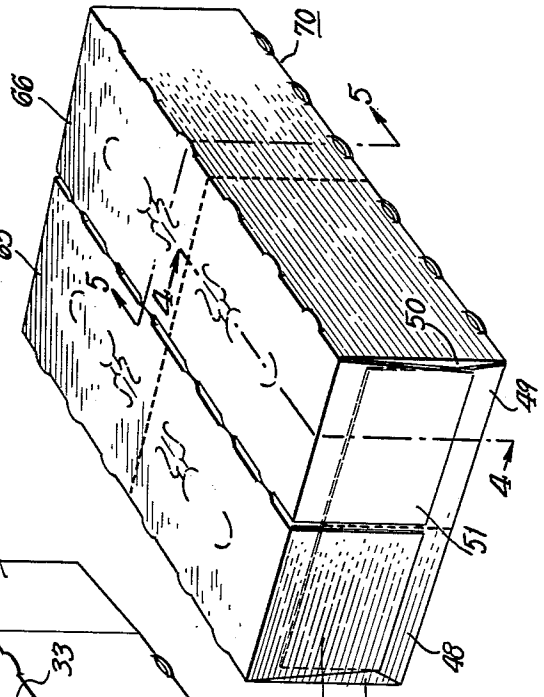
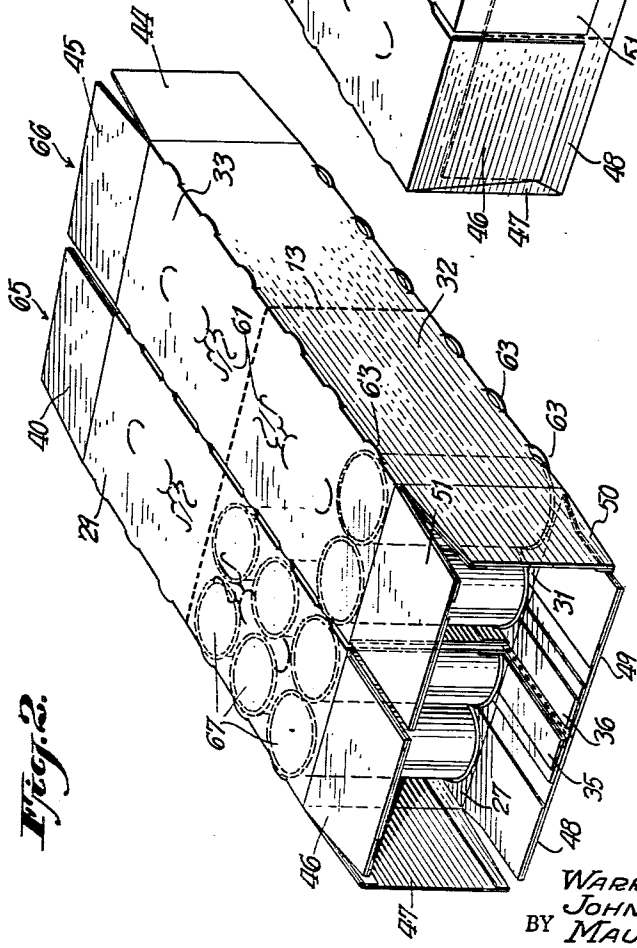


Fig. 2.



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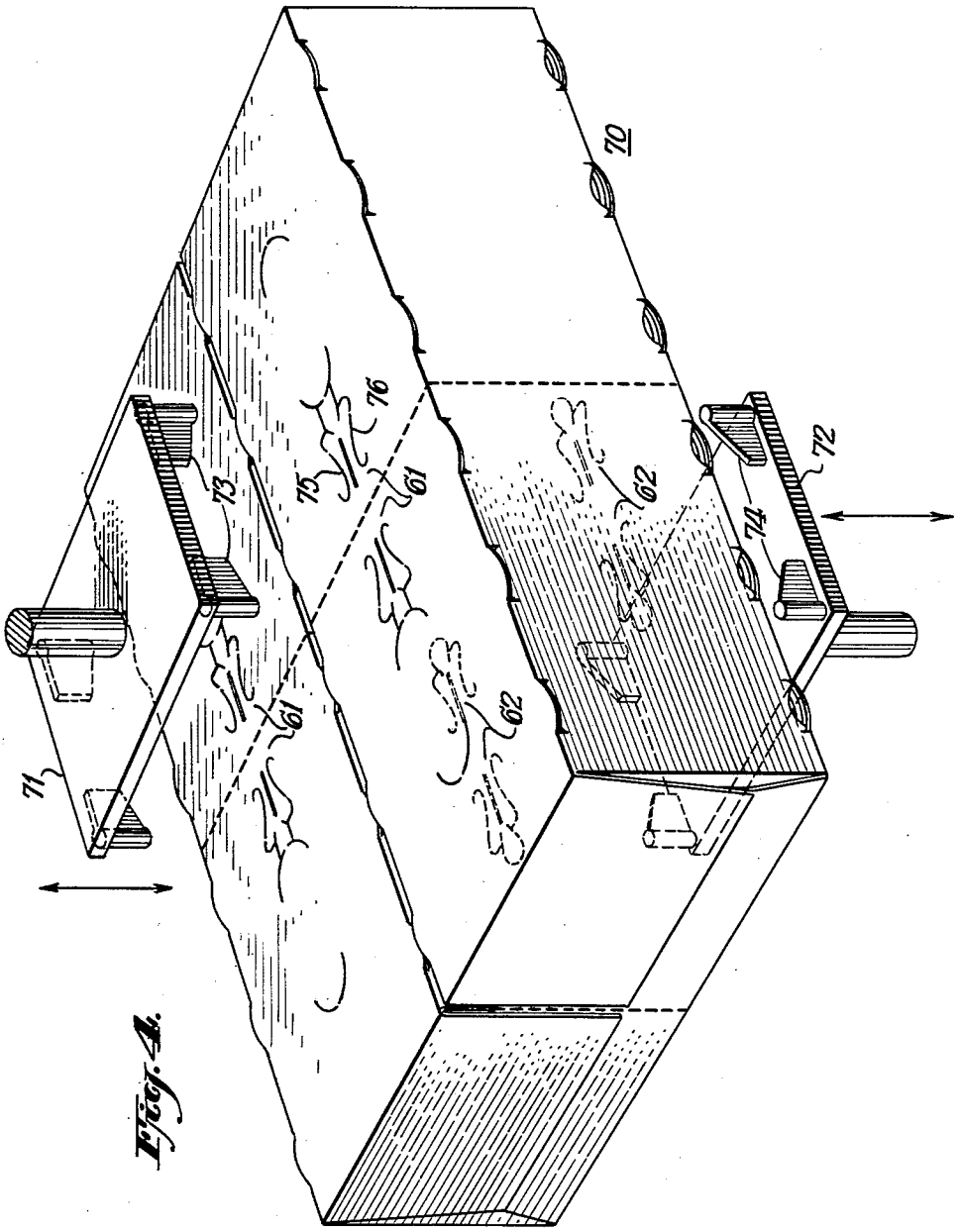


Fig. 4.

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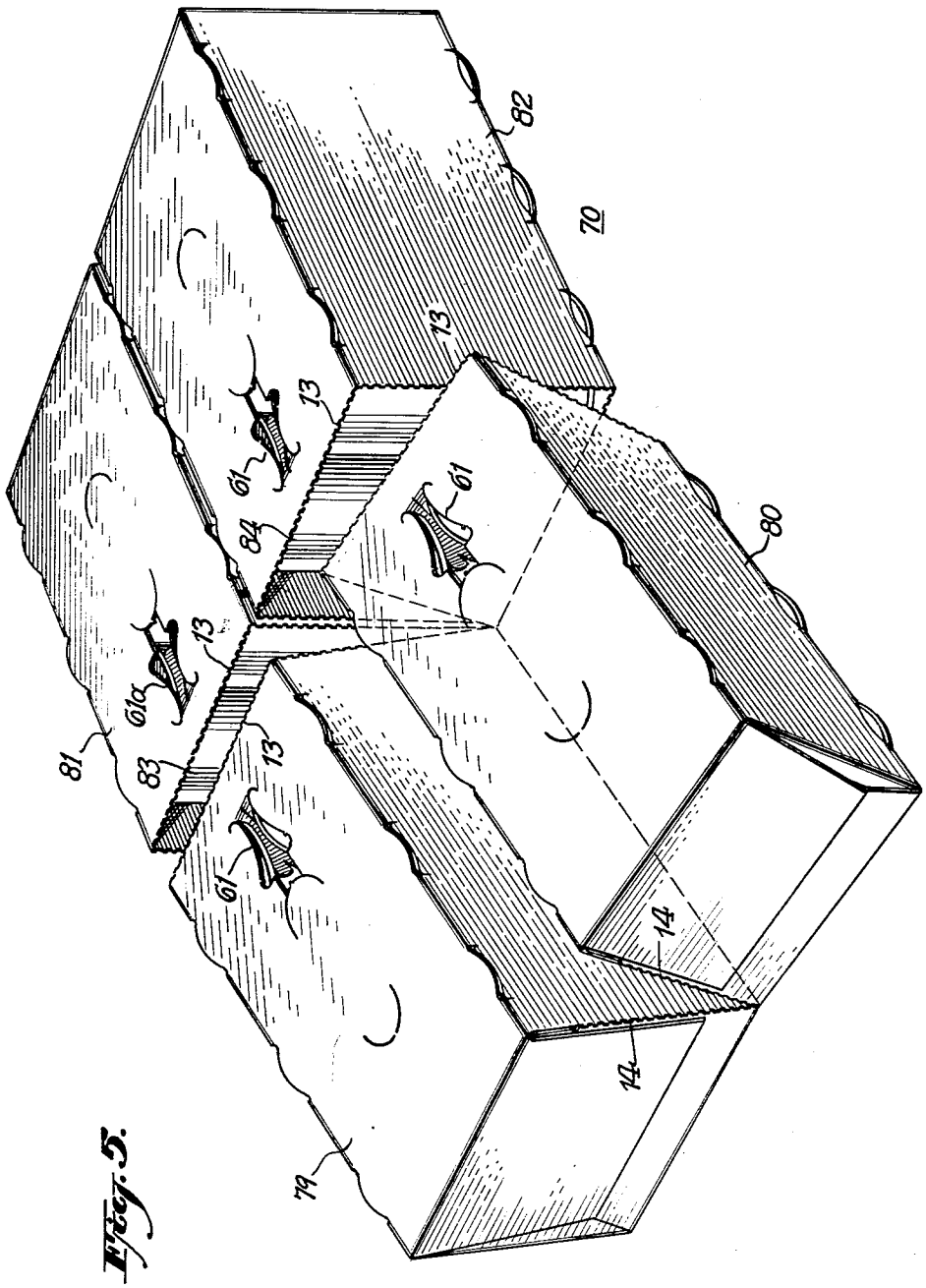


Fig. 5.

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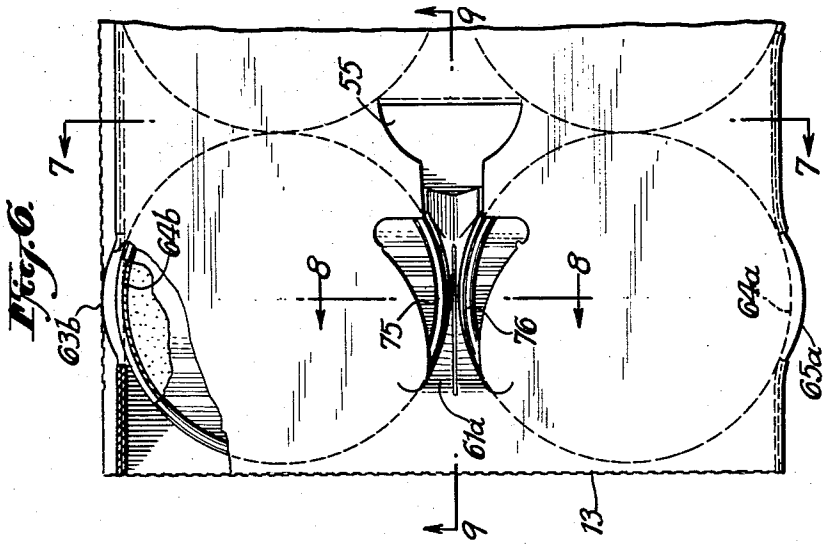


Fig. 6.

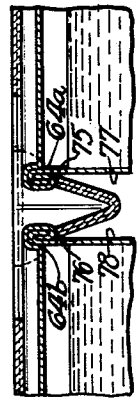


Fig. 8.

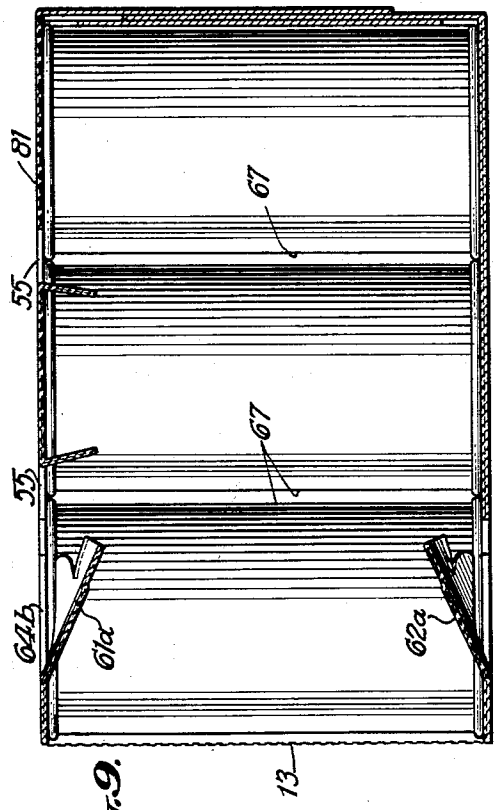


Fig. 9.

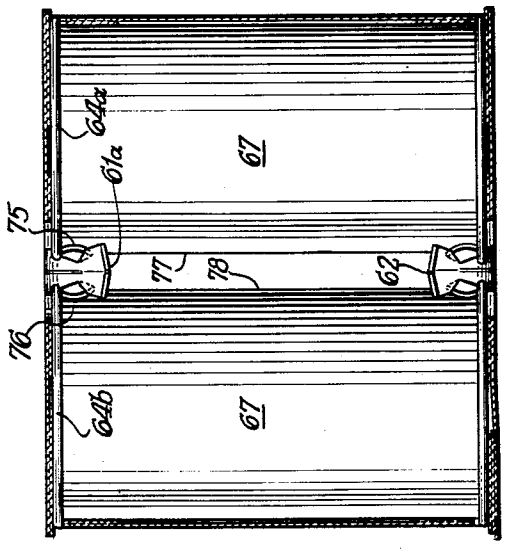


Fig. 7.

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3,143,273

MULTI-BOX LIKE CONTAINER

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4 Claims. (Cl. 229—51)

This invention pertains to carton blanks for packaging canned goods in bulk, to cartons formed from such blanks, and to packages of canned goods encased in such cartons.

An object of the invention is to provide a carton adapted to package a relatively large number of cans of said goods in the form of a unitary package but which is manually severable into a number of smaller packages encasing said goods.

A more specific object of the invention is to provide a carton adapted to package, for example, two dozen cans of such goods in the form of a single, unitary package, which, however, may be severed into two packages, each completely encasing a dozen cans of said goods, and each such package of which may in turn be severed into two packages of six cans each of said good, i.e., so-called "six packs."

A further object of the invention is to provide an economical and effective locking tab for such cartons for anchoring the cans in place in each packaging unit, such as to preclude breakage of the package or disassembly of the cans in normal handling or transportation.

In accordance with the invention, a carton blank is provided, comprising a relatively stiff and flexible substantially rectangular sheet of heavy kraft paper, for example, which sheet is medially perforated or otherwise partially cut or scored for ease of separation, both longitudinally and transversely thereof. The blank is also creased parallel to its transverse median at points progressively spaced therefrom and is marginally creased longitudinally to form a series of eight rectangular panels together with end sealing tabs for the terminal panels. The blank is further marginally cut to form oppositely disposed end flaps spanning the medial pair of panels and end flaps individual to the remaining panels except the terminal panels. The blank is also arcuately cut along the crease lines at distances spaced to register with the rims of the cans loaded into the carton formed from the blank. Certain of the panels, viz., those corresponding to the top and bottom panels of the carton formed from the blank as explained below, are also medially cut on each side of the aforesaid perforated longitudinal median, to provide substantially lyre-shaped, tonguelike cuts, the tongued portions of which provide locking tabs for holding the cans in place in the carton in the manner explained below. The top carton panels are additionally arcuately cut medially to provide finger openings for gripping. The blank is preferably reinforced along the crease lines and substantially throughout the said top and bottom panels, by means of reinforceing strips of heavy kraft paper or equivalent, glued to the underside of the blank.

Further in accordance with the invention, the blank is formed into a collapsible carton by subjecting the same to successive bends of ninety degrees each along the successive transverse crease lines disposed on each side of the transverse median, thus to form a pair of rectangular tubes joined at the base along the perforated transverse median and which are sealed into permanent rectangular form by sealing the above-mentioned end tabs to the body of the blank along opposite sides of the transverse median. The carton as thus formed and ready for

loading with the cans to be packaged, is accordingly of collapsible, double rectangular tube construction, which may be thus squashed flat for packing the cartons in bulk for shipment, and may be pulled open into rectangular form for can loading.

The carton as so formed is end loaded with the cans to be packaged, the preferred carton dimensions being such in relation to the can size, as to load a dozen cans in each tube, with six cans disposed on each side of the perforated median which now extends medially thereabout, this being the longitudinal median of the original blank. As thus loaded, the carton is end sealed by turning in the end flaps in lapping relation and glueing together as a result of which the two tubes are integrated from top to base by means of the end flaps which, as above stated, span the medial panels of the carton blank, these being the contiguous panels forming the base of the assembled carton.

With the cans so encased in the carton as now end sealed, the free ends of the above-mentioned tongue-like locking tabs are medially flexed and forced between the adjacent pairs of cans disposed on each side of the aforesaid perforated line, thus to lock the cans in place with the can rims in registry with the carton slots along the crease lines.

The carton as thus encasing the canned goods in bulk, may be handled and transported as a unit from factory to wholesaler to jobber. Or it may at any such stage or in the customer's hands, be broken into two packages by splitting the two tubular cases apart along the perforated median between them, and each such package may further be split in half along the perforated line extending thereabout midway of its ends to give a total of four packages, each containing one-fourth of the cans and in which the cans are locked in place by the aforesaid locking tabs.

Having thus described the invention in general terms, reference will now be had for a more detailed description to the accompanying drawings, wherein:

FIGURE 1*a* is a plan view of a carton blank in accordance with the invention; while FIGURE 1*b* is a view thereof in end elevation.

FIGURE 2 is a view in perspective of the carton blank of FIG. 1 as formed into an open-ended carton for loading with the canned goods to be packaged, and illustrating the disposition of such cans therein.

FIGURE 3 is a perspective view of the FIG. 2 carton assembly but showing the carton closed and sealed at both ends with the canned goods packaged therein.

FIGURE 4 is a perspective view of the carton assembly of FIG. 3 together with a mechanism for so punching and shaping the above-mentioned locking tabs as to lock the cans in place.

FIGURE 5 is a perspective view of the FIG. 3 assembly with the locking tabs manipulated to locking engagement with the cans therein, this view also illustrating the manner in which the package may be broken up into twelve-pack and six-pack units.

FIGURE 6 is an enlarged, fragmentary top plan view of a portion of FIG. 5, and showing in detail the manner in which the above-mentioned locking tabs hold the cans in place; while FIGURES 7, 8 and 9 are sectional elevations of FIG. 6, as taken at 6—6, 7—7 and 8—8 thereof, respectively.

Referring to FIGS. 1*a* and 1*b*, the carton blank shown generally at **10**, comprises a relatively stiff and flexible, substantially rectangular sheet **11** of material which may be creased and perforated or scored, being composed preferably, however, of organic material, such as a heavy kraft paper, the sheet **11** being reinforced over certain

areas by additional backing strips of such paper, as at **12–12*e***, inc., glued thereto.

The blank is medially perforated throughout its length and width, as at **13** and **14**, for separation thereat. The blank is also creased at spaced intervals parallel to the transverse line **14** of perforations, and on each side thereof, as at **15–18**, inc., and **19–22**, inc.; and is further marginally creased on each side of its longitudinal line **13** of perforations and parallel thereto, as at **23**, **24**, and at distances equi-spaced, respectively, from the extreme lateral edges **25**, **26** of the blank. These crease lines subdivide the blank into a series of eight rectangular panels, comprising four on each side of the median **14**, as at **27–30**, inc., and **31–34**, inc., from the outer crease lines **18** and **22** of the terminal panels **30** and **34** of which extend end sealing flaps, as at **35** and **36**.

The marginal portions of the blank between the crease lines **23**, **24** and outer edges **25**, **26**, are die cut to provide oppositely disposed end flaps, as at **40–45**, inc., and **46–51**, inc., for all of the panels **29–33**, inc., and except for the end panels **30**, **34**. It will be observed that the pair of end flaps **42**, **43** and **48**, **49** for the medially adjacent panels **27**, **31**, are joined together, respectively, along the transverse medial perforation line **14**.

The above-mentioned reinforcing strips, **12–12*e***, inc., overlap each of the transverse crease lines **17–21**, inc., in addition to which certain of these strips substantially cover certain of the panel areas, as at **12–12*c***, inc., and for reasons explained above. Also reinforcing strips, as at **12*d***, **12*e***, are provided for the terminal flaps **35**, **36**. All such reinforcing strips are glued to the facing sheet **11** of the carton blank.

The blank is arcuately cut, as at **55**, **56**, to provide finger grip openings; is also cut, as at **61**, **62**, in tongue-like fashion, to provide the locking tabs above mentioned, and is further arcuately cut to provide centering openings for the can rims as explained. The locking tabs are also medially creased, as at **64**, for purposes explained below.

Referring now to FIGS. 1 and 2, the blank **10**, is first formed into an open-ended carton by making successive right-angle bends along the crease lines **15–18**, inc., and **19–22**, inc., in the direction downwardly or away from the plane of the paper in FIG. 1*a*, until the blank is formed into two open-ended tubes, as at **65**, **66**, FIG. 2, the sides of which are respectively numbered in accordance with the panels of FIG. 1*a* from which they are formed.

With such bending the terminal tabs **35** and **36** are brought into position to overlie the panels **27** and **31**, respectively, on their reinforcing tab bearing surfaces, and adjacent the perforated medial line **14**, and are glued to said panel surfaces thereat, respectively.

The collapsible carton as thus formed, is now loaded with a total of twenty-four cans of the canned goods to be packaged, twelve in each tube **65**, **66**, with six cans in each tube being packed on each side of the perforated line **13** and in the manner illustrated at **67**. The cans are positioned with their upper and lower rims in registry with, and projecting through, the carton slots, as at **63**.

With the cans thus encased, the container is closed by lapping and sealing together the end flaps in the manner with reference to FIG. 2 as follows. The flaps **47**, **50** are turned in and overlapped by, and glued to, the integrated flaps **48**, **49**, and the flaps **46**, **51** then turned down and glued to the flaps **48**, **49**. The canned goods are then completely packaged in the carton in the manner shown in FIG. 3, in which the integrated flaps **43**, **43** and **48**, **49**, hold the two compartments **65**, **66**, together from top to base.

The packaged can assembly designated generally by the numeral **70**, FIG. 3, is now in condition for actuation of the locking tabs **61**, **62**, to lock the cans in position in the carton, and this is accomplished in the manner illustrated in FIG. 4. To this end the packaged assembly **70**, is disposed between spaced and vertically displaceable punch assemblies **71**, **72**, each mounting a plurality of key-like punches, as at **73**, **74**, disposed in alignment with the upper and lower tiers of locking tabs **61**, **62**, respectively. The punch assemblies **71**, **72**, are now actuated toward each other until the punches **73**, **74**, engage the locking tabs **61**, **62**, respectively, and by combined medial flexing along the crease lines **64**, and pivotal displacement of these tabs about their unscored ends, force the top tabs **61** downward and the bottom tabs **62** upward between the contiguous cans in the manner best illustrated in FIGS. 6–9, inc., for the upper and lower locking tabs **61*a*** and **62*a***, respectively.

Reverting for a moment to FIG. 4, it will be observed that the cutting contour for the locking tabs **61**, **62**, follows substantially the contour of a lyre, characterized by substantially S-shaped curvatures as at **75**, **76**, one **S 76** being substantially the virtual image of the other, **75**. The purpose of these curvatures is to cause the edges of each tab as medially flexed and displaced as aforesaid to conform to the cylindrical surfaces of the adjacent cans between which the tab is inserted and in the manner best shown in FIGS. 6–9, inc. As a result, when the punch assemblies are withdrawn after medial flexing and displacement of the tabs between adjacent cans in the manner above explained, the tabs, owing to their resilience, will tend to follow the receding punches **73**, **74**, and in so doing the curved tab edges **75**, **76**, will, referring to FIG. 8, ride along the opposed cylindrical can surfaces **77**, **78**, until they lock under the projecting rims **64*a***, **64*b*** of the cans.

FIG. 5 shows the packaged assembly with the locking tabs thus displaced into locking engagement with the contiguous cans. This view also illustrates the manner in which the packaged assembly may be severed along the perforated median **14** into two cartons of a dozen cans each as by longitudinally splitting in the manner illustrated at **79**, **80**; and wherein each such carton may further be severed along the perforated median **13** into two cartons of six cans each, as by transversely splitting in the manner illustrated at **79**, **81** and **80**, **82**. It will be observed that in the transverse splitting along the perforated median **13**, the terminal cans although exposed, as at **83**, **84**, are nevertheless held in place by the locking tabs **61**, **62** which thereby retain all cans in place in each six-pack.

What is claimed is:

1. A carton for canned goods comprising a bottom wall, a pair of side walls foldably connected to the edges of the bottom wall respectively, a pair of top walls foldably connected to the edges of the side walls respectively, a pair of center walls disposed in face to face relation and being foldably connected to the top walls and to the bottom wall respectively, a pair of spaced end walls foldably connected to the top walls, side walls and bottom wall respectively, said carton being provided with a longitudinally extending line of perforation extending from the top edge of one end wall, down said one end wall, along the bottom wall and up the other end wall to the top edge of the other end wall, said carton being provided with a transversely extending line of perforation extending from the bottom edge of one center wall, up said center wall across one of said top walls, down said adjacent side wall, across the bottom wall, up the other side wall, across the adjacent top wall and down the other center wall, whereby the so-formed carton for canned goods may be severed into four packages along said lines of perforations with each of the packages having one open end, the top and bottom walls of each package being provided with a substantially lyre-shaped, tongue-like cut adjacent the open end, the tongued portion of which being adapted to be medially folded, depressed inwardly and wedged between a pair of cans with one edge of said portion engaging the

rim of one of said cans and the other edge of said portion engaging the rim of the other of said cans to resist longitudinal movement of the cans towards said open end of said package.

2. A carton for canned goods according to claim 1 wherein the longitudinal edges of the top and bottom walls are provided with arcuate cuts at spacings to register with the rims of the cans disposed in the carton respectively.

3. A carton for canned goods according to claim 1 wherein reinforcing strips are bonded to the longitudinal foldable connections between the top, bottom and side walls respectively to facilitate severing the carton into four independent packages.

4. A carton for canned goods comprising a bottom wall having a medially longitudinally extending line of perforations and a medially transversely extending line of perforations, a pair of side walls foldably connected to the opposite edges of the bottom wall respectively, said side walls having transversely extending lines of perforations disposed adjacent the transverse line of perforation of the bottom wall respectively, a pair of top walls foldably connected to the edges of the side walls respectively, said top walls having transverse lines of perforation extending from the transverse lines of perforations of the side walls respectively, a pair of center walls disposed in face to face relation and being foldably connected to the edges of the top walls respectively and the other edges of the center walls being foldably connected to the bottom wall respectively, a pair of end walls having transverse lines of perforation extending

from the longitudinal line of perforation of the bottom wall respectively, said end walls being formed by overlapping and sealing flaps foldably connected to the top walls and side walls and the bottom wall respectively, whereby the so-formed carton for canned goods may be severed into four packages along said lines of perforations with each of the packages having one open end, the top and bottom walls of each package adjacent the open end being provided with a substantially lyre-shaped, tongue-like cut, the tongued portion of which being adapted to be depressed inwardly and wedged between a pair of cans disposed adjacent said open end with the edges of the tongued portion engaging the adjacent rims of said pair of cans respectively to resist longitudinal movement of the cans towards said open end and to resist vertical movement of said cans.

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