

Jan. 17, 1961

J. V. FISHER
CARTON PACKAGE

Re. 24,925

Original Filed Sept. 9, 1954

2 Sheets-Sheet 1

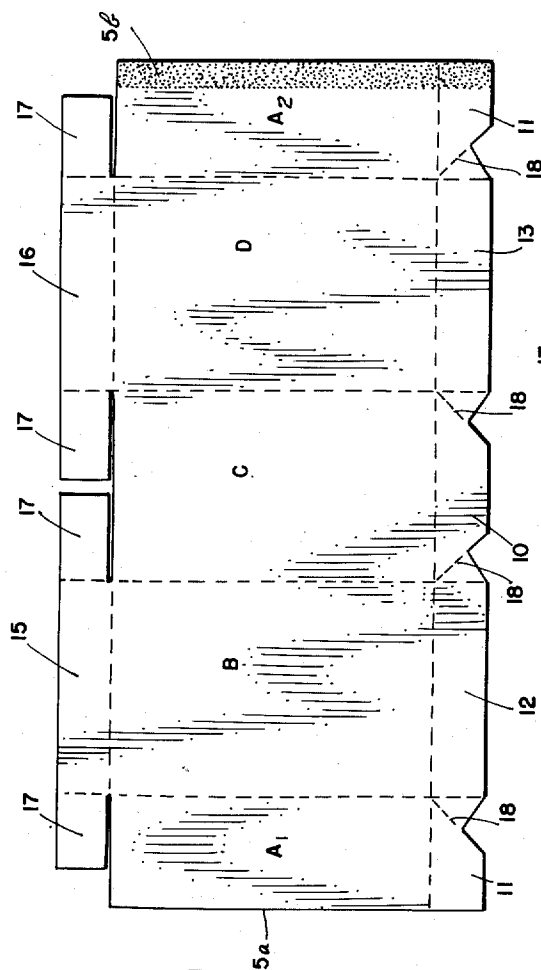


FIG. 1

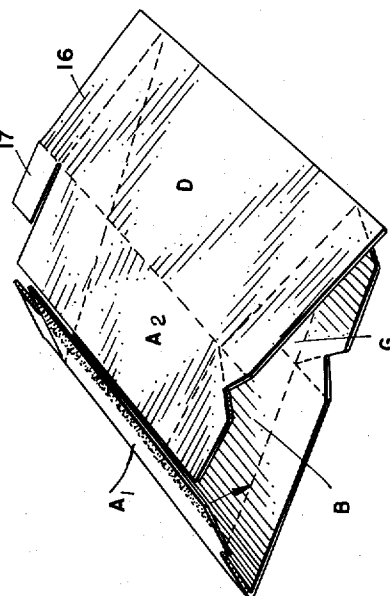


FIG. 2

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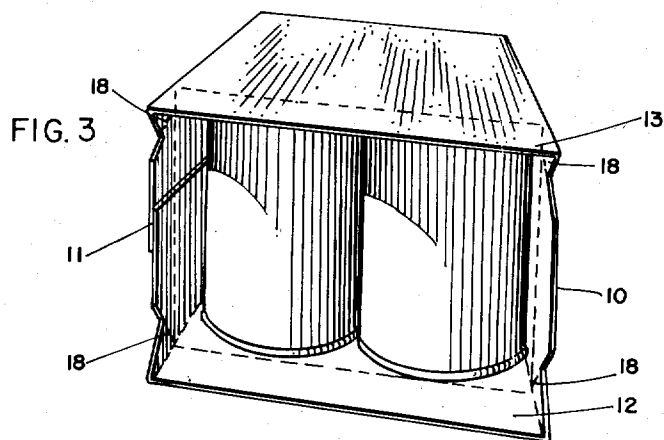
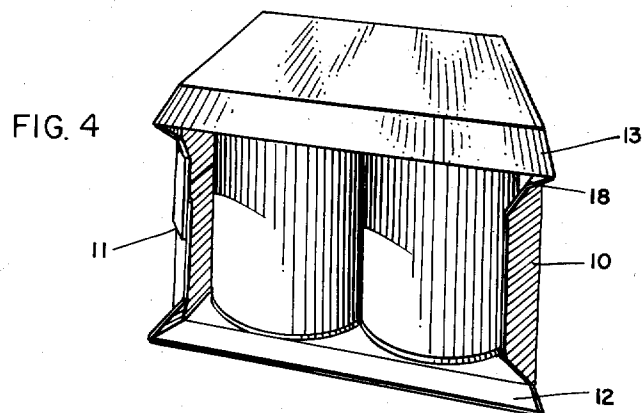
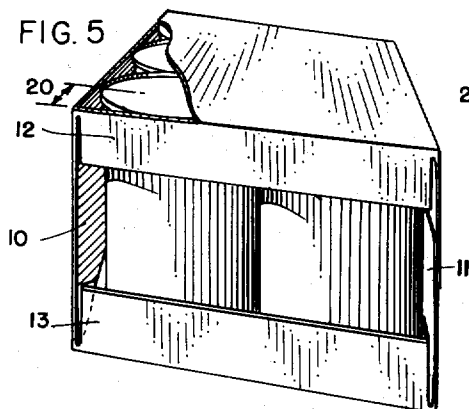
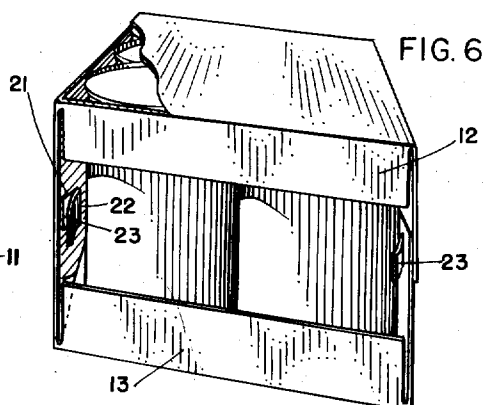
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2 Sheets-Sheet 2



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24,925

CARTON PACKAGE

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Original No. 2,889,040, dated June 2, 1959, Ser. No.
454,938, Sept. 9, 1954. Application for reissue July
11, 1960, Ser. No. 42,187

3 Claims. (Cl. 206—65)

Matter enclosed in heavy brackets [] appears in the
original patent but forms no part of this reissue speci-
fication; matter printed in italics indicates the additions
made by reissue.

This invention relates to cartons for packaging and dis-
playing canned goods or other products packaged in cylin-
drical or substantially cylindrical containers. The inven-
tion is essentially an improvement on the so-called six-
pack cartons such, for example, as is disclosed in U.S.
Letters Patent 2,611,527 issued to me on September 23,
1952.

The primary object of the invention is to provide means
whereby the filling end of the carton may be closed and
locked in the closed position by engagement with the con-
tents of the carton and without the necessity of glue,
staples or equivalent anchoring material.

Another object is to provide for the easy opening of a
carton of this general type without tearing or otherwise
destroying the value of the carton.

These and other objects will more fully appear from
the following description and with reference to the ac-
companying drawings wherein:

Fig. 1 is a plan view of a carton blank embodying the
present invention;

Fig. 2 is a perspective view of the blank illustrating
how it is folded to provide a continuous strip prior to the
packaging operation;

Fig. 3 is a perspective view of the carton formed from
the blank shown in Fig. 1 but with the filling end wide
open;

Fig. 4 is a partially cut away perspective view of the
carton with the filling end partially closed;

Fig. 5 is a partially cut away perspective view of the
carton with the filling end closed; and

Fig. 6 shows a modified form of the closing flap pro-
vided with an ear for easy opening.

The invention is adaptable to any six-sided carton and
relates primarily to the closing and locking of one end
of the carton. This will normally be the filling end al-
though the invention is applicable to the opposite end.
The sides may be solid or partially open, as desired. The
end panel opposite the filling end may likewise be either
solid or not. Any desired means may be employed for
forming the carton and anchoring the four sides and the
end panel opposite the filling end. The present invention,
as stated, is directed primarily to the closing of the filling
end of the carton after it has been filled. This is accom-
plished, as will hereinafter be more fully described, by
providing a pair of closing panels which are adapted to
close all or a portion of the filling end, said closing panels
being associated with a pair of anchoring flaps hinged to
swing vertically with respect to the cans after they are
packed in the carton. The radius of each anchoring flap
is made somewhat greater than the distance between
the hinge line of the flap and the adjacent can so that
the anchoring flap may be bent somewhat and forced
past said can, whereby the flap is prevented from swing-
ing back past the can and hence the flap and its asso-
ciated closing panel are locked in the closed position.

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Referring to Fig. 1 the blank is provided with four
parallel fold lines which define the four side panels
A₁—A₂, B, C, and D, panel A₁—A₂ being initially in two
sections, before the ends of the blank are joined, as
shown in Fig. 2.

The portion of the blank which becomes the filling end
of the carton in the preferred embodiment of the inven-
tion (although it could serve equally as the opposite end
if desired) consists of the anchoring flap 10, the anchor-
ing flap 11, which is initially in two segments as shown,
and the closing panels 12 and 13.

The anchoring flaps and closing panels are hinged to
the edges of the panels A₁—A₂, B, C, and D, as shown,
and with respect to each other, for movement inwardly
when the ends of the blank are overlapped, as indicated
at 5a and 5b, and glued or otherwise secured together,
as shown in Fig. 2.

The opposite end of the carton may, as stated, be closed
by any desired method. The drawings indicate the con-
ventional glued tab method whereby closing strips 15,
16, each provided with tabs 17, are folded inwardly
across the end of the carton and anchored in that posi-
tion by gluing the tabs 17 to the adjacent side panel of
the carton. This provides a two-section end panel
15—16. For a machine operation there may be sub-
stituted for the glued tab the automatic anchoring tab
assembly as shown in my copending application, Serial
No. 454,975, filed September 9, 1954, now Patent No.
2,943,427 which is also a two-section panel. Likewise,
if desired, said opposite end may be closed in the same
manner as hereinafter described for closing the filling
end.

The anchoring flaps 10 and 11 are provided with diago-
nal fold lines 18, each of which begins at one corner of
the panel to which the flap is hinged, and thence extends
inwardly to the outer edge of the flap at an angle of ap-
proximately 45° to said hinge line. This angle may be
varied a few degrees one way or the other. The outer
portion of each anchoring flap between the diagonal fold
line 18 and the adjacent edge of the closing panel is pre-
ferably cut away, as shown in Figs. 1, 2 and 3. The pri-
mary advantage of a pair of such cut-away notches, hori-
zontally aligned on opposing side panels, is to provide an
entrance notch and an exit notch for the opening plows
used when the carton is opened and filled mechanically.

Referring to Figs. 3 and 4 it will be seen that as anchor-
ing flaps 10 and 11 are folded inwardly, the portion of
each flap outside of the diagonal fold lines 18 will fold
along fold line 18 and along the flap hinge line, thus draw-
ing the closing panels 12 and 13 across the filling end of
the carton and toward the closing position shown in
Fig. 5.

When the anchoring flaps 10 and 11 have been swung
through 90°, the closing panels 12 and 13 will be approxi-
mately at right angles to the side panels of the carton but
will not, as yet, be anchored in that position.

As is best shown in Figs. 5 and 6, the radius of each of
the anchoring flaps 10 and 11 (by which is meant the dis-
tance between the flap hinge line and the outer extremity
of each flap) is greater than the distance between the
flap hinge line and the nearest surface of the adjacent
can. Hence if each anchoring [closing] flap is moved
inwardly further along its hinge line, the outer end of
each flap will first engage the periphery of the can and,
upon further movement in the same direction, will bend
and then straighten out and be locked against the back
of the can.

The practical limitations on the radius of each anchor-
ing flap are, therefore, that it should be greater than the
distance between the flap hinge line and the surface of
the nearest can, and further, as will be presently ex-
plained, it should preferably be less than the radius of

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the can. If the radius of the anchoring flap were less than the distance between the hinge line and the surface of the adjacent can it would not contact the can and hence could not come into the desired locking engagement therewith. If, on the other hand, the radius of the anchoring flap were greater than the can diameter it would not only be more difficult to force the flap past the can, but it would also unduly cramp the flap behind the can because, as will be noted from Figure 5, the distance 20 from the hinge line to the point where the can abuts against the side of the carton is equivalent to the diameter of the can. The essential factor is that the outer edge of each anchoring flap must, when swung into anchoring position, as above set forth, describe an arc which at intermediate point intersects to a slight degree the arc defined by the circumference of the nearest can.

Fig. 6 illustrates a modification of the flap which provides an answer to the annoying problem of easily opening a carton of this type. A three sided cut 21 in the central portion of each closing flap and a score line 22 at the base of the cut provides a pull tab 23 on each closing flap. A slight pull on each of the pull-tabs 23 will readily return the carton to the open position as shown in Fig. 3. This opening operation, as will be seen, will not tear or injure the carton in any manner and, if desired, the carton may again be promptly and effectively closed and locked simply by replacing the empty or partially empty cans in the carton and pushing the closing flaps back into the locking position as shown in Figs. 5 and 6.

Obviously, the specific embodiment of the closing expedient as above described may be modified in various ways without departing from the scope of the present invention. The embodiment herein described is designed to provide a rather full view of the contents of the carton. If this is not desired, a full closing panel (either double or single) may be used, in which case the anchoring flaps as shown in the drawings would be three-sided cuts in the closing panel (or panels). Further, if desired, similar anchoring flaps would be provided for wedging and locking between the two end cans in the same manner as the illustrated flaps wedge and lock between each end can and the side of the carton. Likewise the closing panels, as illustrated, may be made larger to cover a greater portion of the end of the carton, in which case the anchoring flaps would be shortened. The essential factor is that the anchoring flaps have sufficient area, depending upon the strength and resiliency of the board used, to provide a firm locking engagement. Furthermore, sides and ends may be transposed without departing from the present invention. To that end, the word "panel" as used in the appended claims shall be interpreted broadly to cover any area of the carton material which serves to keep the contents in the carton. Likewise the term "carton" as used in the claims is used in its broadest sense as meaning any kind of package whereby the containers are held together. Obviously the present invention is not limited to a completely enclosed box or, indeed, to a six-sided structure. These and other modifications may be employed without departing from the scope of the invention as set forth in the following claims.

1. A package comprising a group of upright cylindrical cans that are substantially in engagement with each other, a carton having vertical opposed end panels extending over two of the laterally oppositely outwardly facing sides of said group in substantial engagement with one of the sides of the cans at each of said sides of the group, and panel extensions integral with said end panels along their opposite vertical edges but otherwise free from securement to said end panels, said end panel extensions extending into said carton to positions between said end panels and said cans adjacent thereto with said last mentioned cans solely holding said end extensions in their said positions, top and bottom panels extending between and integral with said end panels and extend-

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ing over the upper and lower ends of the cans of said group substantially in engagement therewith, spaced top and bottom panel extensions respectively on said top and bottom panels extending from end to end thereof along their opposite edges, said top and bottom panel extensions being in substantially coplanar relationship and with their free edges in spaced relation and extending over the laterally facing sides of the cans along the other two opposite sides of said group at the upper and lower ends of said cans only and substantially in engagement with said laterally facing sides, and means integrally connecting side top and bottom panel extensions with said end panel extensions at the ends of the panels carrying them and holding said top and bottom panel extensions in their positions extending over said cans whereby said cans will be held in said carton by said top and bottom panel extensions through their connections with said end panel extensions and by the holding engagement between said end panel extensions and the said cans adjacent thereto.

2. A package comprising a group of upright cylindrical cans that are substantially in engagement with each other, a carton having vertical opposed end panels extending over two of the laterally oppositely outwardly facing sides of said group in substantial engagement with one of the sides of the cans at each of said sides of the group, and panel extensions integral with said end panels along their opposite vertical edges but otherwise free from securement to said end panels, said end panel extensions extending into said carton to positions between said end panels and said cans adjacent thereto with said last mentioned cans solely holding said end extensions in their said positions, top and bottom panels extending between and integral with said end panels and extending over the upper and lower ends of the cans of said group substantially in engagement therewith, spaced top and bottom panel extensions respectively on said top and bottom panels extending along their opposite edges, said top and bottom panel extensions being in substantially coplanar relationship and with their free edges in spaced relation and extending over the laterally facing sides of the cans along the other two opposite sides of said group at the upper and lower ends of said cans only and substantially in engagement with said laterally facing sides, and means integrally connecting said top and bottom panel extensions with said end panel extensions at the ends of the panels carrying them and holding said top and bottom panel extensions in their positions extending over said cans whereby said cans will be held in said carton by said top and bottom panel extensions through their connections with said end panel extensions and by the holding engagement between said end panel extensions and the said cans adjacent thereto.

3. A package comprising a group of upright cylindrical containers that are substantially in engagement with each other, a carton having vertical opposed end panels extending over two of the laterally oppositely outwardly facing sides of said group in substantial engagement with one of the sides of the containers at each of said sides of the group, and panel extensions integral with said end panels along their opposite vertical edges but otherwise free from securement to said end panels, said end panel extensions extending into said carton to positions between said end panels and said containers adjacent thereto with said last mentioned containers solely holding said end extensions in their said positions, top and bottom panels extending between and secured to said end panels and extending over the upper and lower ends of the containers of said group substantially in engagement therewith, said top and bottom panels and said end panels together defining an end loading carton, at least one of said top and bottom panels having at a side edge thereof extending between said end wall panels a container retaining extension attached thereto and extending over the adjacent end portions only of the laterally facing sides of

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the containers of said group at said side of said carton and substantially in engagement with said laterally facing sides, and means integrally connecting said container retaining extension with said end panel extension effective for holding said container retaining extension in its position extending over said containers whereby said containers will be held in said carton by said container retaining extension through its connection with said end panel extension and by the holding engagement between said end panel extension and the containers adjacent thereto.

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