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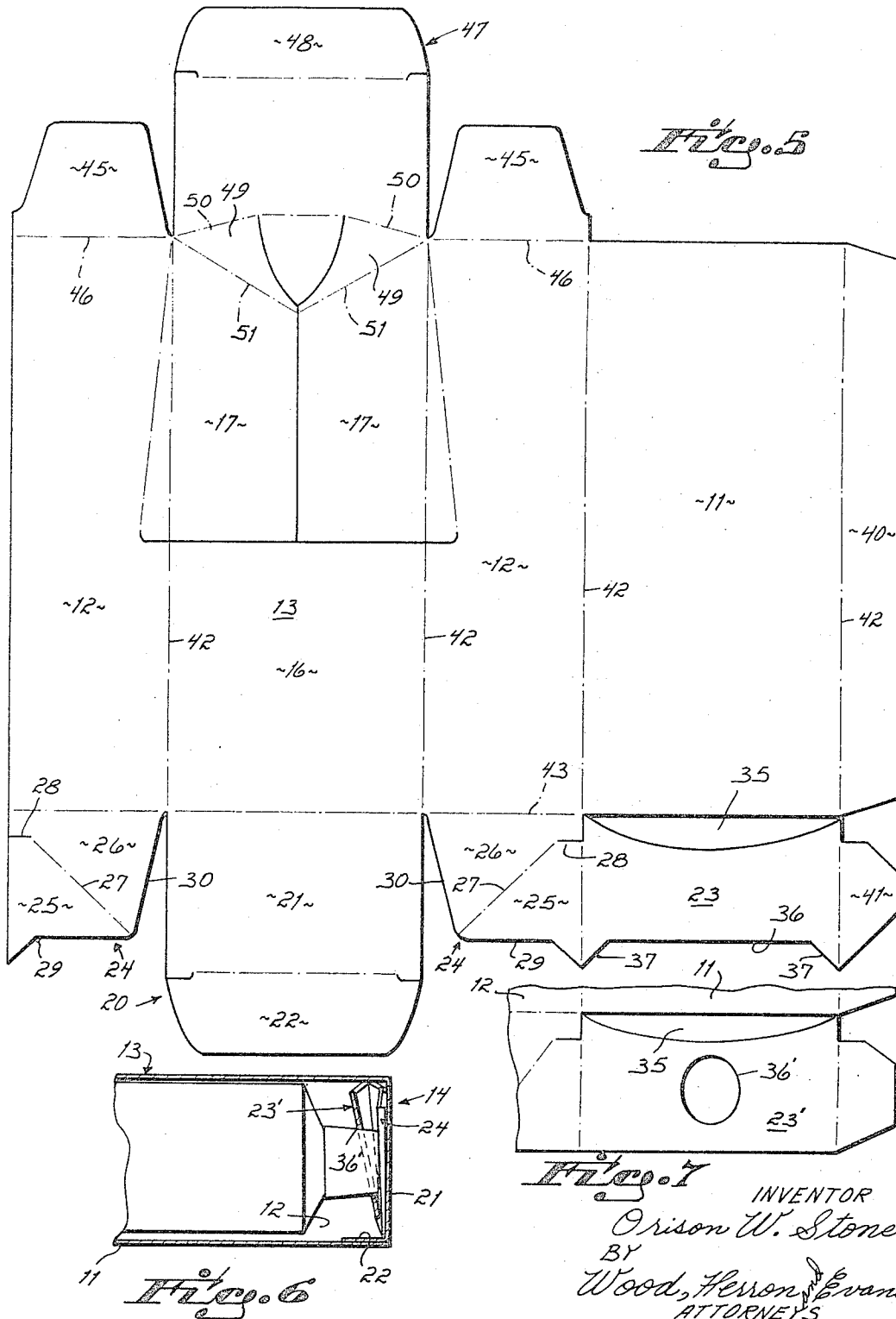
O. W. STONE

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END STRUCTURE FOR SHADOW BOX CARTON

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2 Sheets-Sheet 2



INVENTOR
Orison W. Stone
BY
Wood, Heron & Evans
ATTORNEYS

1

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END STRUCTURE FOR SHADOW BOX CARTON
Orison W. Stone, New York, N.Y., assignor to R. A. Jones and Company, Inc., Covington, Ky., a corporation of Kentucky

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7 Claims. (Cl. 206—45.14)

ABSTRACT OF THE DISCLOSURE

An end structure for a carton having a primary flap overlying the end of the carton, the end structure including a secondary flap which projects angularly into the carton and is maintained at its projected angle by gusset flaps secured to the secondary flap and the side walls of the carton.

This invention relates to a shadow box carton and more particularly the invention is directed to an end structure which not only closes the end of the carton but provides support for the article displayed within the carton.

The shadow box type display carton usually includes a back wall, two side walls, end walls, and a front wall which is designed to frame an article of merchandise and present it visibly within the carton. Because the display is formed by the combined article and carton, the relation of the two must be presented and maintained as attractively as possible. It is preferable that the article be securely supported at both of its ends so that its position within the carton is maintained in such a way as to present the article and carton with each enhancing the aesthetic qualities of the other.

The prior art shadow box cartons are generally characterized as comprising a multiplicity of flaps, panels, cuts, and creases, all of the elements being folded and joined to each other to provide the display carton. These prior art structures are subject to one or more of the following disadvantages: They are not easily set up and loaded on existing equipment because of the multiplicity of elements not normally found in straight tuck or airplane tuck tubular cartons. Further, the configuring of the blank to provide a shadow box display carton requires too much chip board and therefore does not even approach, in cost, the standard tubular carton. Still further, the multiplicity of elements, all of which must be interrelated or interlocked, results in a carton which is something less than rugged. That is to say, the repeated jostling of the carton and the article which it contains from the point of loading to the point of purchase causes the related flaps, panels, tabs, and the like to pull part, causing unsightly gaps and even the destruction of the carton as a container for the goods.

It has been an objective of the invention to provide an end structure for a shadow box carton, the end structure providing rugged support for the article while requiring a minimum amount of material whereby the carton is economically competitive with a standard tuck carton while providing the advantages of the display carton.

The structure of the present invention is adapted for use with conventional end loading, high speed, automatic machinery and it can be used to form either or both ends of the carton. In this respect, the carton, at one stage of its movement through the machine, has one end closed and the other end open to receive the article. The structure of the present invention can be used to provide a sturdy target at the closed end of the carton to receive the article which is projected into the carton. The structure of the present invention is equally well suited for use at the open end of the carton for it can easily be closed upon the article after it has been loaded into the carton.

2

Another objective of the invention has been to provide, as the principal article supporting structure at the end of a carton, a secondary flap projecting at an angle into the carton and gusset flaps connecting the secondary flap to the side walls of the carton.

Another objective of the invention has been to provide an end structure of the type described which is easily adapted for supporting a variety of articles held in a variety of positions in the carton. The variations are attained simply by varying the shape or position of the supporting edge of the secondary flap which projects into the interior of the carton, the supporting edge being either a free edge or an aperture.

These and other objectives of the invention will become more readily understood from the following detailed description of the invention in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of a shadow box carton formed in accordance with the present invention,

FIG. 2 is a cross sectional view taken along lines 2—2 of FIG. 1 illustrating the invention supporting the crimped end of a squeeze tube at the upper end of the carton,

FIGS. 3 and 4 are fragmentary perspective views illustrating the steps of closing the carton,

FIG. 5 is a plan view of a blank from which the carton is formed,

FIG. 6 is a fragmentary sectional view of an alternative form of the invention, and

FIG. 7 is a fragmentary plan view of a blank illustrating the alternative form of the invention.

Referring to FIGS. 1 and 2, a carton 10, formed in accordance with the present invention, includes a back wall 11, side walls 12, and a front wall 13. These walls are joined by end structures 14 at the upper end and 15 at the lower end. It is the structure at the upper end with which the invention is particularly concerned, it being understood that the structure of the invention may be employed at either or both ends of the carton. The front wall includes a panel portion 16 overlying approximately the upper half of the carton, the lower half of the front wall being formed by side flaps 17 which project into the carton and frame an article 18 which is exposed for viewing. The article is a squeeze tube having a cap 19 which is received in a mitered end structure as disclosed in my copending application Ser. No. 583,721 filed Oct. 3, 1966.

As illustrated in FIGS. 2—4, the end structure of the present invention includes a primary flap 20 hinged to the front wall 13, the primary flap having a main panel 21 and a tuck panel 22 which projects into the carton. A secondary flap 23 is connected at its side edges to gusset flaps 24, the gusset flaps being connected to the side walls 12 of the carton. The gusset flap is formed of an inner panel 25 and an outer panel 26 which are connected to each other along a generally diagonal crease 27 which terminates in a cut line 28. The inner panel 25 has a free edge 29 and the outer panel 26 has a free edge 30. The free edge 29 of the inner panel may be used to provide all or partial support for the end of the article contained within the carton.

Before the article is inserted, the secondary panel 23 lies in the plane of the back wall 11 and is separated from it by a slot 35. The slot 35 is important in several respects. It provides an opening through which the tuck panel 22 of the primary flap 20 projects to close the carton. It provides the freedom which the secondary flap requires to project into the carton at an angle at the end of the carton and to be held there by the gusset flaps. It provides an opening through which a blade on the automatic loading equipment may project to engage the article and hold the article in position during the closing of the carton.

3

At the edge opposite slot 35, a secondary flap 23 presents a free edge 36 terminating at either end by inclined shoulders 37. In the illustrated embodiment, the edge 36 is adapted to engage the body of the article adjacent its crimped end and the inclined shoulders center the article within the carton. This free edge 36 may be configured in any manner consistent with the shape of the article which it is to support and the depth which it is cut into the secondary flap may be varied to determine the spacing of the article from the front wall. Further, the secondary flap may be provided with a hole 36' (FIGS. 6 and 7) into which the cap end of an article projects.

The relationship of the elements by which the carton is formed is illustrated in FIG. 5 which shows the carton blank in plan view. The back wall 11, side walls 12, front wall 13, and a glue flap 40 including a gusset tab 41 are hinged to each other along longitudinal creases 42. The glue tab 40 is adapted to be adhesively secured to the free side wall 12 and the gusset tab 41 is adapted to be adhesively secured to the free inner panel 25 of the gusset flap 24 to form the tube from which the carton is ultimately erected. The gusset flaps 24 and the primary flap 20 are hinged to the side walls and front wall respectively along a crease 43.

At the opposite end of the blank are lateral end flaps 45 connected to the side wall 12 on creases 46 and a primary flap 47 having a tuck panel 48, the flap 47 being connected to the front wall 13 through corner forming sections 49. The corner forming sections are connected to the primary flap along creases 50 which project into the primary flap and are connected to the side flaps 17 along miter creases 51.

An aspect of the invention which is best illustrated by FIG. 5 is the economy of material required for the carton. It should be understood that the objective in carton design, insofar as economy is concerned, is to maintain the longitudinal dimension as short as possible, that is, the dimension which extends in the direction of the creases 42. Additionally, of course, it is desirable to limit the lateral dimension to that required to form a tubular carton and without requiring any excess material for additional flaps. From FIG. 5 it can be observed that the lateral dimension is only that normally required for a standard straight tuck carton having four walls and a glue flap. Similarly, the longitudinal dimension is restricted to that required for the usual flap and tuck panel normally required at each end of a straight tuck carton.

The manner in which the cap end of the illustrated carton is formed is thoroughly described in my copending application Ser. No. 583,721. When the carton is in its tubular form, the lateral end flaps 45 are folded over the end of the carton and the primary flap is folded across the lateral end flaps with the tuck panel 48 projecting into the carton. This is completely standard practice. The side flaps 17, forming a part of the front wall, are depressed in the carton with the corner forming sections 49 forming a mitered corner adapted to receive an article thrust through the opening at the opposite end of the carton.

The formation of the opposite end of the carton, employing the structure of this invention, is illustrated in FIGS. 3 and 4. When the article is in place, a blade (a part of packaging machinery) projects through the slot 35 between the secondary flap 23 and the back wall 11 and engages the crimped end of the article, thrusting it toward the front wall 13. Thereafter, the secondary flap 23 is folded into the carton with its free edge 36 moving under the crimped end of the tube. Simultaneously, the gusset flaps 24 fold on the diagonal creases 27 as well as folding on the creases 43 which join them to the side walls 12. This folding is continued until the outer panel 26 of the gusset flap lies flush across the end of the carton and inner panel 25 projects into the carton and forms

4

an open acute angle A with outer panel 26 (FIG. 1). The primary flap 20 is then folded across the end of the carton with the tuck panel projecting into the carton as shown in FIG. 2.

The carton is thus completely formed. When it is formed, the resilience of the chip board forming the gusset panels and secondary flap cause the secondary flap to be maintained at the angle B illustrated in FIG. 2 underlying the body of the article at the crimped end with the free edge 36 of the secondary panel forming support for the article. The sides of the article are straddled by the shoulders 37, thereby centering the article within the carton. The free edges 29 of the inner panels 25 of the gusset flaps 24 may provide further support for the article.

The invention has been described with particular reference to the use of the end structure of the invention to support the crimped end of a squeeze tube. The invention has further been described in relation to the loading of the carton through the end which is formed by the subject end structure. It should be understood that the end structure is adaptable to support the end of an article different from the crimped end which has been illustrated. The adaptation is simply made either by altering the configuration of the free edge 36 of the secondary flap or by forming a hole 36' in the secondary flap as illustrated in FIGS. 6 and 7 to receive the cap end of an article, for example. Further, the invention is well suited for use at the closed end of the carton during automatic loading for it provides a study target for receiving the end of an article as it is thrust into the carton by automatic loading machinery.

I claim:

1. A package comprising,
an article,

a cardboard carton having a front wall, a back wall, two side walls and an end structure retaining one end of said article,

an opposite end structure for supporting the opposite end of the article comprising,

a pair of diagonally creased gusset flaps connected to said side walls,

a secondary flap lying generally across the end of the carton and having lateral ends connected to said gusset flaps and folded into said carton, said gusset flaps being folded about said diagonal at an open acute angle, and

a primary flap connected to a carton wall opposite said secondary flap and overlying said gusset flaps, said secondary flap being maintained by said gusset flaps at an open acute angle to said primary flap,

said article being engaged and supported by at least one of said secondary flap and gusset flaps.

2. In a tubular carton having four serially connected walls including two opposing side walls, an end structure for closing said carton and supporting the end of an article comprising

a secondary flap at the end of said one of said walls and projecting into said carton at an open acute angle to said wall,

a primary flap at the end of a wall opposite said one wall and lying across the end of said carton to close said carton and overlie said secondary flap,

and a gusset structure at each side of said carton connected to each side of said secondary flap, said gusset structure being constituted by two panels connected to each other by a diagonal fold line and folded about said diagonal fold line at an open acute angle, one of said panels being hinged to an end edge of a side wall and the other of said panels being hinged to said secondary flap,

said gusset structure, including the orientation of said diagonal fold line, maintaining said secondary flap at its inwardly projecting angle,

5

said secondary flap and gusset structure presenting means spaced said primary flap to support the end of an article.

3. A carton according to claim 2 in which said secondary flap has an aperture to receive the end of an article.

4. A carton according to claim 2 in which a slot is formed between said secondary flap and the adjoining wall of said carton.

5. A carton according to claim 2 in which each gusset flap includes, an inner triangular panel connected to said secondary flap, and an outer triangular panel connected to a side wall, said triangular panel presenting a free edge for the support of an article within the carton.

6. A carton according to claim, 1 said secondary flap

6

having a free edge engageable by an article for the support of the article.

7. A carton according to claim 6 further comprising shoulders formed at the ends of said free edge and projecting inwardly beyond said free edge to provide lateral centering support for an article.

References Cited

UNITED STATES PATENTS

10	1,838,269	12/1931	Langford et al.	229—38
	2,492,712	12/1949	Ringler	229—39
	3,282,410	11/1966	Cote	206—45.14

WILLIAM T. DIXSON, JR., *Primary Examiner.*

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,379,305

April 23, 1968

Orison W. Stone

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 5, line 12, after "said" insert -- inner --.

Signed and sealed this 26th day of August 1969.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.

Commissioner of Patents