United States Patent [19]

Jaeschke

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[54] **FRAME CARTON**

[75] Inventor: **Harold R. Jaeschke,** Milwaukee, Wis.

[73] Assignee: **Hoerner Waldorf Corporation,** St. Paul, Minn.

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[52] **U.S. Cl.**..... **206/45.14,** 206/45.31, 206/485

[51] **Int. Cl.**..... **B65d 5/50**

[58] **Field of Search**..... 206/45.14, 45.19, 45.31, 206/46 FR; 229/16 D, 34 HW, 14 C

[56] **References Cited**

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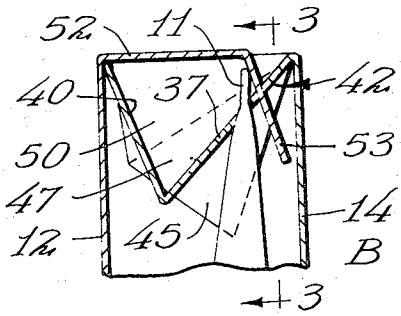
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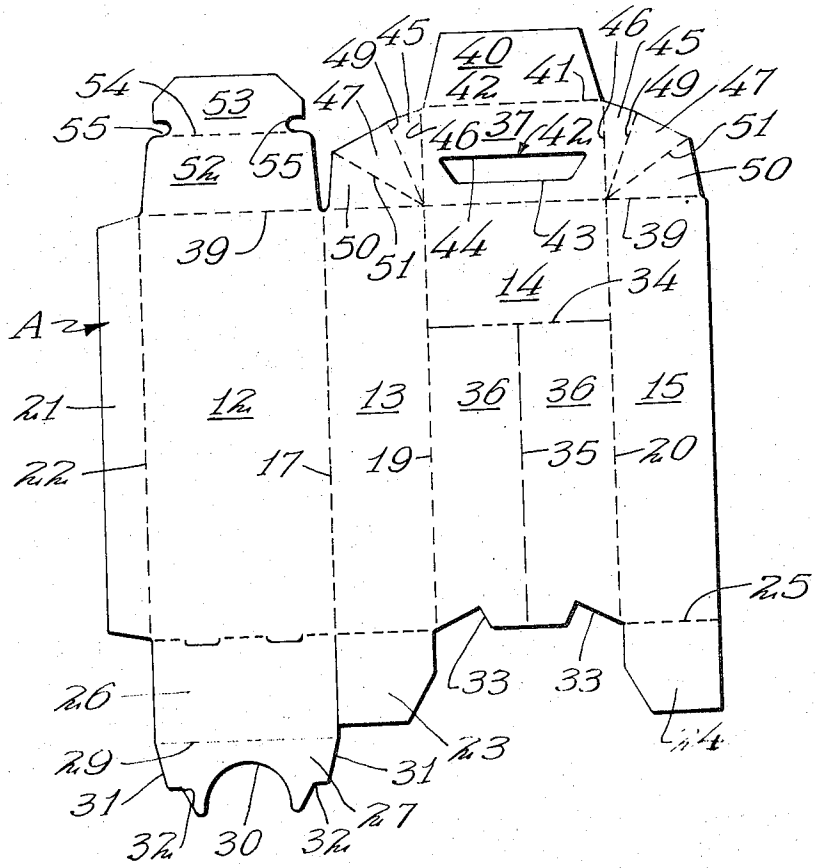
Primary Examiner—William I. Price
Assistant Examiner—Steven E. Lipman
Attorney, Agent, or Firm—Robert M. Dunning; Jerry F. Best

[57] **ABSTRACT**

A shadow box type package supports a tube having a crimped end. The rectangular carton includes a closure including a first flap connected to one wall and inclining inwardly toward the opposite wall. This flap is apertured to receive the tube end, and includes an extension extending to the juncture between the opposite wall and a second flap. The second flap extends across the carton end and includes a tuck flap engageable through the aperture in the first flap.

7 Claims, 4 Drawing Figures





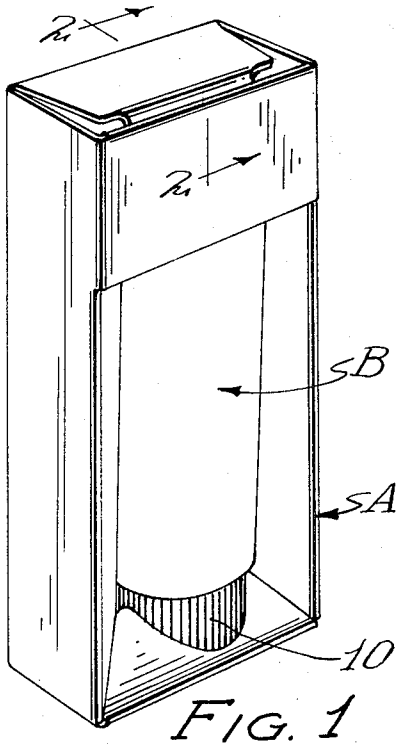


FIG. 1

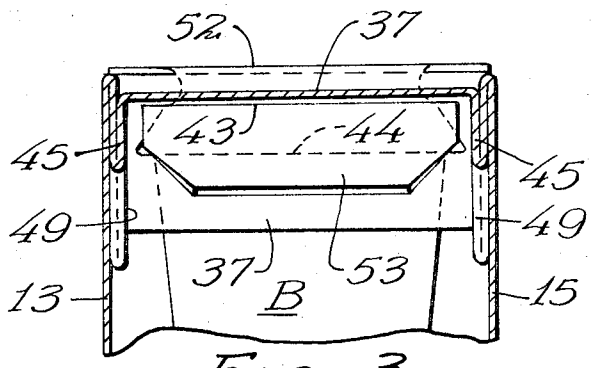


FIG. 3

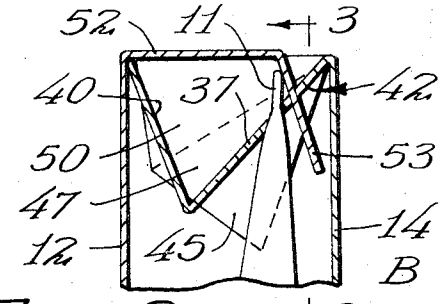


FIG. 2

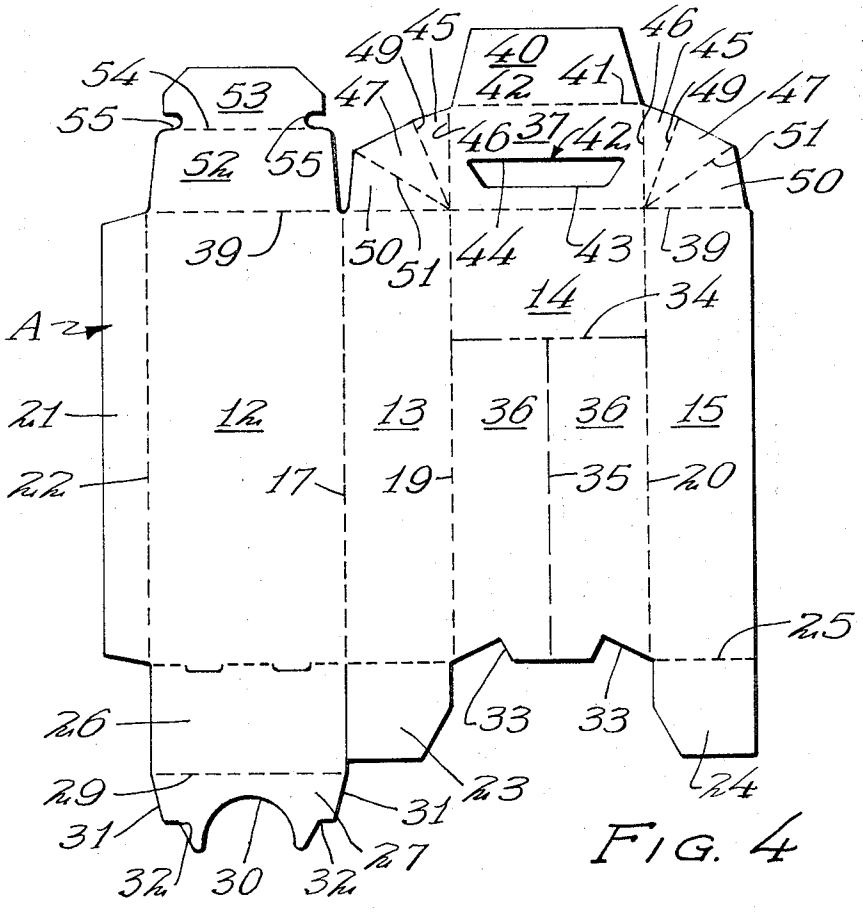


FIG. 4

FRAME CARTON

This invention relates to an improvement in shadow box type packages and deals particularly with a package for displaying an article having a flattened end such as a colasible tube or the like.

BACKGROUND OF THE INVENTION

Numerous types of cartons have been produced of the shadow box type. Cartons of this type usually have a front display panel which is split intermediate it sides to provide said flaps which are folded to incline inwardly on opposite sides of the article being displayed. Means are provided, which are usually engageable with the ends of the article, to hold it within the carton so that the article cannot be removed without opening the carton up or tearing the portions of the carton which retain the article.

For example, in U.S. Pat. No. 3,379,305 issued Apr. 23, 1968 to O. W. Stone, a shadow box carton is produced having a means for engaging the cap end of a tube, and having flaps connected to the side walls which incline inwardly on opposite sides of the tube. A pair of gusset flaps are connected to the opposite side walls, and are connected by a connecting flap or panel. The gusset flaps are arranged to hold the connecting flap at a downwardly inclined angle. This connecting flap is supported at the desired angle by the gusset flaps, and an edge of the connecting flap engages the flattened end of the tube to hold it in place. The connecting flap is separated from the carton panel from which it would normally be hinged by a slot. The opposite carton panel is provided with a closure flap having a tuck flap which is designed to tuck between the connecting flap and the rear wall of the carton.

While this structure has apparently proven very satisfactory for its entended purpose, several difficulties are experienced. In view of the fact that the connecting flap is completely disconnected from the rear carton wall, there is a tendency for the rear wall to bulge outwardly. Secondly, as the connecting flap engages the tube along its end extremity, there is a possibility that the connecting flap may flex to some extent. It is an object of the present invention to provide a structure having somewhat similar properties, but which may avoid previous difficulties.

SUMMARY OF THE INVENTION

An object of the present invention resides in the provision of a shadow box structure having flaps hingedly secured to the lower portions of the side walls which are folded inwardly on opposite sides of the tube. Means are provided at this end of the carton to engage the cap of the tube to hold it in place. It is the other end of the carton which includes the structure which is of particular importance in the present application.

The other end of the carton includes a first flap which is hinged to the upper edge of the front wall or display panel, and which is connected to the upper edges of the side walls by three generally triangular gusset flaps. The flap hinged to the front wall has an aperture there through in spaced relation to the fold line connecting this flap to the display panel. An extension flap is hinged to the end of this flap and inclines upwardly and rearwardly to the upper edge of the rear wall. When in use, the flattened end of the tube extends through the aperture. A cover flap is hingedly secured to the rear wall and a tuck flap is hinged to the end of the cover flap and is designed to extend into the aperture forwardly of the flattened end of the tube.

A feature of the present invention resides in the fact that the tube end extends through an aperture which is spaced from the fold line connecting the flap to the front wall. As a result, the front wall is reinforced by the flap and is not free of attachment thereto.

A further feature of the present invention resides in the fact that the flap which is connected to the front wall is held in a flat condition by the gusset flaps which are hinged to opposite side edges thereof, and by the extension flap which is hinged to the end thereof. In other words, all four edges of this flap are connected along fold lines to other flaps, holding the flap from flexing to any material extent, and thus preventing the flattened end of the tube from distorting the edge of the aperture through which is extends.

An added feature of the present invention resides in the gusset flap construction supporting the first flap. This construction includes a relatively large area triangular flap hingedly connected to the side walls, and two realtively smaller triangular flaps hingedly connected together, one of which is connected to the diagonal edge of the larger triangular flap, and the other of which is hingedly connected to the first flap. The arrangement is such that when the first flap is folded into the carton, the two smaller triangular flaps fold into face contact, the triangular flaps connected to the first flap extending upwardly to support the edge of the first flap.

A further feature of the invention lies in the fact that the aperture into which the flattened end of the tube is engaged is generally trapezoidal in shape, with the shorter parallel side of the aperture parallel to, and spaced from, the front panel of the carton. A closure flap having a tuck flap is hinged to the rear carton panel, the tuck flap being wider than the shorter side of the aperture and substantially no wider than the longer side of the aperture. Notches are provided in opposite edges of the tuck flap so that when the tuck flap is inserted, the tube holds the tuck flap locked in the aperture against the shorter side thereof.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the package in its completed form.

FIG. 2 is a sectional view through the upper portion of the package, the position of the section being indicated by the line 2—2 of FIG. 1.

FIG. 3 is a sectional view transversely through the package, the position of the section being indicated by the line 3—3 of FIG. 2.

FIG. 4 is a diagrammatic view of the blank from which the carton is formed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The package includes a carton A which supports a tube or similar object B having a crimped or flattened end. Means are provide to hold the cylindrical cap end 10 of the tube B in proper location relative to one end of the carton, and means are also provided for holding

the flattened end 11 of the tube B from any substantial movement within the carton.

As is indicated in FIG. 4 of the drawings, the carton A includes a rear wall 12, a first side wall 13, a front wall 14, and a second side wall 15. These various walls are connected along parallel fold lines 17, 19 and 20 respectively. A glue flap 21 is hingedly connected to the rear wall 12 along a fold line 22 and is secured in face contact with the inner surface of the side wall 15 which may be adhered to the second side wall 15 to form a rectangular tubular structure.

Flaps 23 and 24 are connected to the side walls 13 and 15 respectively along aligned fold lines 25. A bottom closure flap 26 is hinged to the lower edge of the rear wall 12 along an extension of this fold line. A locking flap 27 is hingedly connected to the end of the closure flap 26 along a fold line 29 which is parallel to the fold line 25. The end of the locking flap 27 is provided with an arcuate notch 30 designed to fit around the cap 10 of the tube B. Sides 31 of the locking flap 27 are tapered and are provided with offsets 32 adapted to interengage with generally triangular notches 33 in the front panel 14 as indicated in FIG. 1 of the drawings to form corners between the locking flap 27 and the side flaps forming a part of the front panel, as will be described.

A cut line 34 extends across the front panel 14 between the fold lines 19 and 20. A cut line 35 extends longitudinally of the carton midway between the fold lines 19 and 20 and parallel thereto. In actual practice, the cut lines 34 and 35 are readily separable perforated lines so as to hold the front panel together during the gluing of the carton in a tubular form. The portions of the front panel 14 on opposite sides of the cut line 35 provide shadow panels 36 which, in completed form, form inwardly inclined panels on opposite sides of the tube B.

A first flap 37 is hingedly connected to the upper edge of the front wall 14 along a fold line 39. An extension flap 40 is hingedly connected to the end of the first flap 37 along the fold line 41 which is parallel to the fold line 39. A trapezoidal elongated aperture 42 is provided through the first flap 37 with the parallel sides thereof parallel to, and spaced from, the fold line 39. The shorter parallel side 43 of the aperture 42 is nearest the fold line 39, while the longer parallel side 44 is spaced a greater distance therefrom.

The side edges of the first flap 37 are connected to the upper edges of the side walls by a gusset flap structure including three triangular gusset flaps. A first triangular gusset flap 45 is connected to each side edge of the first flap 37 along a fold line 46 which is an extension of the fold lines 19 and 20 respectively. A second or intermediate gusset flap 47 is connected to each gusset flap 45 along a fold line 49 which is at an acute angle to the fold lines 46 and which extends outwardly from the juncture between the fold lines 39 and 46. The intermediate gusset flaps 47 are connected to third gusset flaps 50 along fold lines 51 which also extend outwardly from the juncture between the fold lines 39 and 46. In actual practice, the first gusset flaps 45 are smaller or of less area than the intermediate gusset flaps 47 and the third gusset flaps 50.

A closure flap 52 is hingedly connected to the upper edge of the rear wall 12 along the fold line 39. A tuck flap 53 is hingedly connected to the closure flap 52 along a fold line 54 which is parallel to the fold line 39. Locking notches 55 are provided on separate sides of the tuck flap 53 adjoining the fold line 54. The tuck flap 53 is of substantially the same width as the longer side 44 of the aperture 42. The distance between the bases of the notches 55 is substantially equal to the length of the shorter side 43 of the trapezoidal opening 42.

The tubular carton may be closed by folding the closure flaps 23 and 24 into a common plane, folding the closure flap 26 beneath the flaps 23 and 24, and folding the locking flap 27 inwardly, the central notch 56 therein fitting around the cap 10 of the tube B. The opposite end is closed by forcing the first flap 37 into position. This is done by folding inwardly the gusset flap structures inwardly as the first flap 37 is forced downwardly, the gusset flap structure folding along the fold lines 49 and 51 until the intermediate flap 47 and third flap 50 on each side of the carton swing into alignment against the inner surfaces of the side walls 13 and 15, the gusset flaps 45 extending upwardly and inwardly of the intermediate gusset flaps 47 to support the side edges of the first flap 37 as is indicated in FIG. 2 of the drawings. Thus the first flap 37 is supported at an angle to the top of the carton as indicated. During this operation, the crimped or flattened end 11 of the tube B is extended through the aperture 42. The second flap or closure flap 52 is then folded downwardly, ad hte tuck flap 53 is also inserted through the aperture 42 between the tube B and the front panel 14 of the carton. During the insertion of the tuck flap 53 this flap will curve to some extent about the flattened end toward the longer edge 44 of the opening aperture 42 until the notches 55 are engaged in the aperture where upon the tuck flap will flatten out and lock the closure panel in closed position.

It will be noted that all four edges of the first flap 37 are hingedly connected to angularly related flaps or panels, the extension flap 40 extending upwardly from the lower edge of the panel 37 to the juncture of the rear panel 12 and the closure panel 52. Thus the panel 37 is rigidly supported and the flattened end 11 of the tube B cannot become accidentally disengaged, or cannot flex the panel 37 so as to become disengaged therefrom.

In accordance with the Patent Statutes, I have described the principles of construction and operation of my improvement in FRAME CARTON; and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following Claims without departing from the spirit of my invention.

I claim:

1. A packing including:

an article having a relatively flattened end,

a paperboard carton having a front panel, a back panel, and side walls connecting the edges of said front and back panels, and an end structure retaining the end of the article opposite to said flattened end,

a second opposite end structure supporting the flattened end, the second end structure including:

a first flap hingedly secured to one of said panels and sloping inwardly toward the opposite panel,

an extension flap secured to the end of said first flap,

a second flap hingedly secured to said opposite panel,

said first flap having an aperture therethrough spaced from the edges thereof through which the flattened end of said article extends,

a tuck flap hingedly secured to the end of said second flap and extending into said aperture.

2. The structure of claim **1** and in which said tuck flap extends between said flattened end of said article and said one panel.

3. The structure of claim **1** and in which said tuck flap includes locking means engaging the ends of said aperture.

4. The structure of claim **1** and including a series of gusset flaps connecting the upper edges of said side walls to the edges of said first flap to limit inward pivoting of said first flap into the carton.

5. The structure of claim **4** and in which said gusset flaps comprise three hingedly connected generally triangular flaps.

6. The structure of claim **4** and in which the series of gusset flaps connecting the upper end of each side wall to said first flap include a first gusset flap hingedly to the first flap, an intermediate gusset flap hinged to said first gusset flap along a diagonal fold line which is at an acute angle relative to the hinge line connecting said first gusset flap to said first flap, and a third gusset flap hingedly connecting said intermediate gusset flap to a corresponding side wall.

7. The structure of claim **6** and in which the first gusset flap is smaller than the remaining two.

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