

[54] **COLLAPSIBLE CARTON**
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[22] Filed: **Sept. 24, 1969**
[21] Appl. No.: **860,711**

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[52] U.S. Cl.....229/33, 229/15, 229/27,
229/41
[51] Int. Cl.....**B65d 5/22**
[58] Field of Search.....229/50, 33, 41, 27, 15

[57] **ABSTRACT**

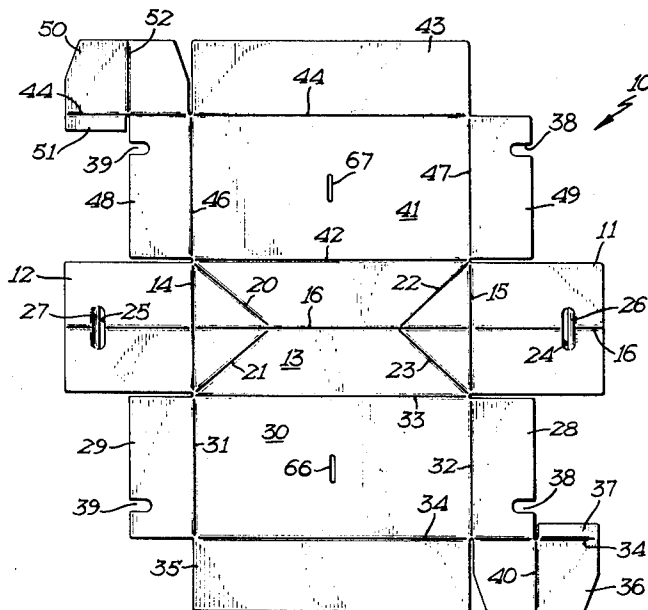
A collapsible unitary carton is formed of corrugated cardboard or paper board from a single blank and is folded and scored to provide seamless load-bearing members at the areas requiring the greatest strength. The ends and side members are joined so that a seamless bottom is provided and all the seams are removed from the corners or edges of the carton and only a single thickness of the material is used where the members must be folded to provide as flat a carton as possible when collapsed.

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1 Claim, 3 Drawing Figures



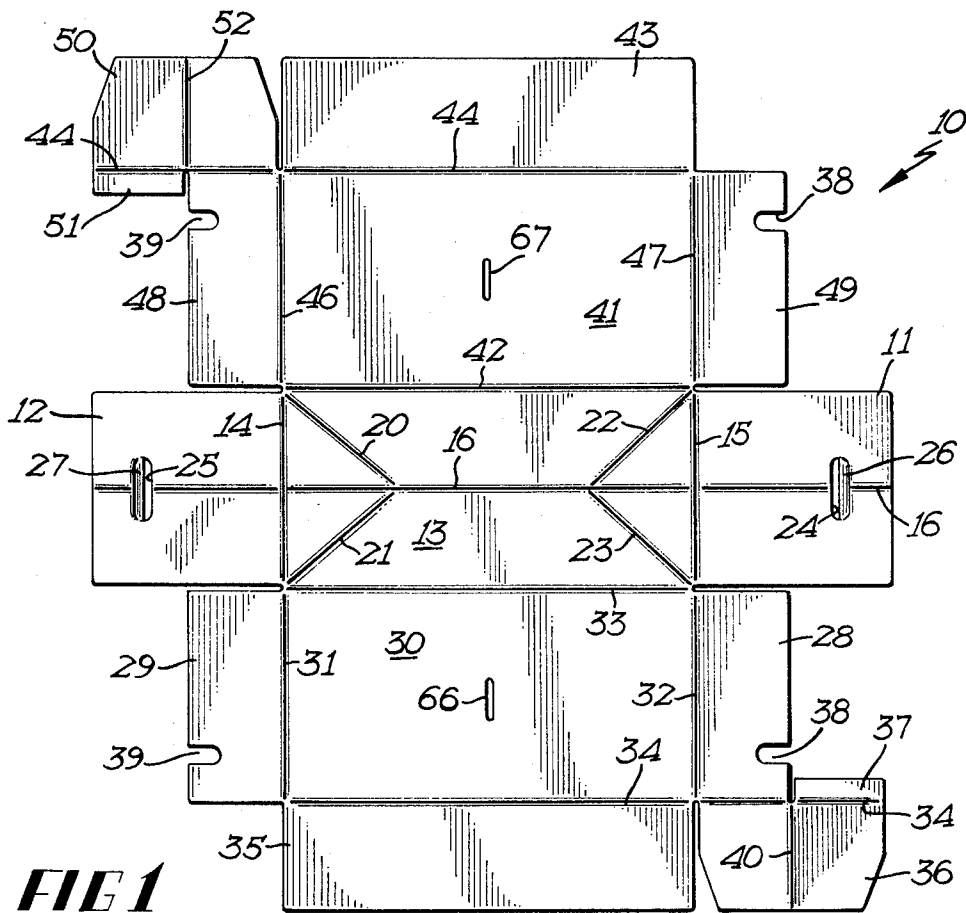


FIG 1

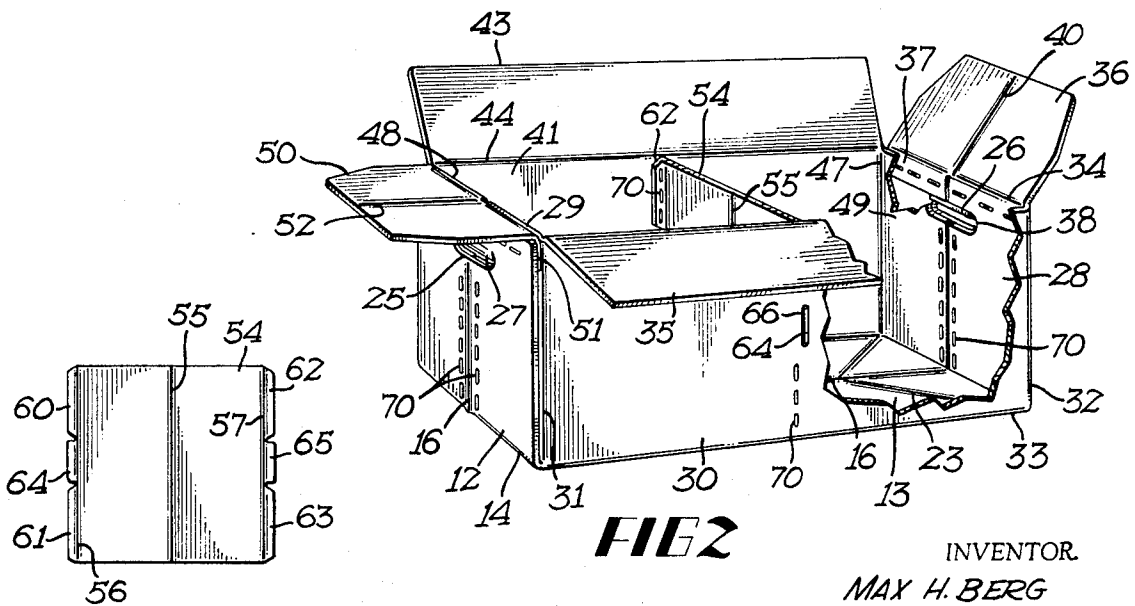


FIG 2

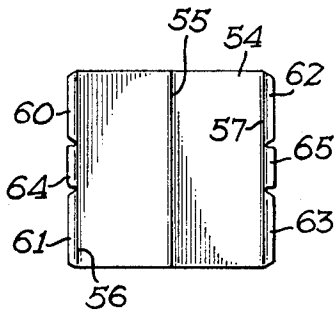


FIG 3

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COLLAPSIBLE CARTON

This invention relates to the field of cartons, and more particularly to collapsible and folding cartons formed of a semi-rigid material.

It has been well recognized that it is highly desirable to have collapsible cartons which may be used to transport eggs, either by the use of individual one-dozen cartons or by egg flats, especially between the wholesaler and retailer. The cartons must provide maximum strength to insure against breakage and must be readily collapsible to occupy as small a space as possible for return and reuse. The greatest damage to such collapsible cartons usually occurs at the corners and lower edges and the present invention avoids placing seams at these vulnerable positions.

The present invention is directed to a carton which is stamped from a single blank and provides maximum strength for the carton by providing a seamless bottom and edges which are not exposed and joined to other members but are subject only to being folded. A minimum amount of material is folded to provide maximum flexibility and collapsibility.

It is therefore, a general object of the present invention to provide a collapsible carton used primarily for containing eggs which has maximum strength and optimum foldability while being formed from a single blank of semi-rigid material.

It is another object of this invention to provide a carton having no seams on the edges of the carton which may be damaged in shipment.

It is still a further object of this invention to provide a carton having half width ends to give maximum strength where fastened together but not interfering with the foldability about a central vertical score line of the end members.

It is a further object of this invention to provide a carton having a readily located central partition which may be attached to the sidewalls of the carton.

These and other objects and advantages of the invention will more fully appear from the following description, made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the several views, and in which:

FIG. 1 is a plan view of the carton blank as formed from semi-rigid material;

FIG. 2 is a perspective view of an assembled carton having a broken away portion exposing the interior thereof; and

FIG. 3 is an elevation of a central partition used with the carton.

A carton blank 10 is stamped from semi-rigid material such as reinforced cardboard or corrugated cardboard and has a first pair of end members 11 and 12 which are connected to a bottom portion 13 along a pair of transverse fold lines 14 and 15 respectively. A central score line 16 passes longitudinally through the center of ends 11 and 12 and bottom member 13. Central fold line 16 bisects fold lines 14 and 15 and has four diagonal fold lines 20, 21, 22 and 23 extending from the four corners of bottom member 13 at approximately 45° angles with respect to center fold line 16. Situated in end members 11 and 12 near the upper portion thereof, when the members are folded upwardly, are a pair of hand-hold slots 24 and 25 respectively. Disposed in slots 24 and 25 are a pair of reinforcing members 26 and 27 respectively which may be folded upwardly to help reinforce the hand-hold slots. Thus, a solid bottom is formed and is supported by solid end members.

A second panel member has a pair of half-width end members 28 and 29 which are secured to a side member 30 about a pair of fold lines 31 and 32. Fold lines 31 and 32 are substantially aligned with fold lines 14 and 15 respectively and side member 30 is foldably secured to bottom member 13 along a fold line 33 which extends along one of the longitudinal edges of bottom member 13. On the other side of the side member 30 is a fold line 34 which has a cover flap 35 secured thereto. Fold line 34 extends across half-width end member 28 and further extends across an end cover flap 36. In other words, end flap 36 is foldably secured to member 28. A dependent flange member 37 is also foldably secured to cover flap 35 along fold line 34. One-half of a hand-hold slot 38 is formed in

member 28 and in another panel member yet to be described. Another half of a hand-hold member 39 is formed in member 29 and another panel member yet to be described. Hand-hold slots 38 and 39 cooperate respectively with hand-hold slots 24 and 25 respectively. A fold line 40 extends vertically to substantially bisect cover flap 36.

Another side member 41 is foldably secured to bottom member 13 along another longitudinal fold line 42. A cover flap 43 is foldably secured to side member 41 along a fold line 44 which is parallel to fold line 42 and on the opposite edge of side member 41. A pair of fold lines 46 and 47 are aligned with fold lines 14 and 15 respectively and a pair of half-width end members 48 and 49 are foldably secured to said side member 41 by said fold lines 46 and 47 respectively. The other portion of hand-hold 39 is found in member 48 and the other half of hand-hold 38 is found in end member 49. Fold line 44 extends across half-width end member 48 and further extends across an end cover flap 50. In other words, end flap 50 is foldably secured to member 48. A dependent flange member 51 is also foldably secured to cover flap 50 along fold line 44. A fold line 52 extends vertically to substantially bisect cover flap 50. Cover flaps 35, 36, 43, and 50 have a width substantially equal to one half the width of the bottom member 13.

FIG. 3 discloses a center partition 54 having a central score line 55 passing vertically therethrough and substantially bisecting the partition. Formed along each edge of the partition is a pair of fold lines 56 and 57. Two flange members 60 and 61 are foldably secured to partition 54 along fold line 56 and two flange members 62 and 63 are foldably secured to partition 54 along fold line 57. Intermediate flanges 60 and 61 is a tab member 64 and intermediate flange members 62 and 63 is another tab member 65. Tabs 64 and 65 cooperate and fit into a pair of slots 66 and 67 respectively.

Suitable means such as flexible card stitching or staples 70 are used to secure members 29, 48, and 51 to end member 12 and in a similar manner are used to secure members 49, 28, and 37 to end member 11. It will also be observed that flanges 60 - 63 are secured to side members 30 and 41 through suitable means such as just described. It will also be recognized that certain adhesives may be used to close the carton.

The carton is assembled by folding side members 41 and 30 upwardly away from bottom member 13, folding half width end members 29, 48, 49, and 28 inwardly and folding end members 11 and 12 upwardly and on the outside of the half end members. Dependent flange members 51 and 37 should be positioned so that they are sandwiched between members 29 and 12 and 49 and 11 respectively before staples or stitching is used to secure the members together. Center partition 54 is then snapped into place so that tabs 64 and 65 are quickly located by their corresponding slots and the flange members 60 - 63 are then stapled or stitched in place to complete the carton. The carton may be readily collapsed by pressing the sides together, causing the end members to fold inwardly with the bottom member folding downwardly along the fold lines. It will also be recognized that there are certain relief cuts made between members such as end members 12, 29, and 48 and 11, 49 and 28 to provide adequate clearance of the end members when folded into place.

From the preceding disclosure, it will be apparent that a carton is disclosed which, when assembled, does not contain any seams or connection points at the corners where the carton is most likely to wear. Tabs 26 and 27 may also be eliminated if so desired, but do provide additional reinforcing of the hand-hold. By having the end members slit on one of the thicknesses, a fold is accomplished with greater ease and the end result is a carton which is considerably less subject to damage.

It will of course, be understood that various changes may be made in the form, details, arrangement, and proportions of the parts without departing from the scope of the invention.

What is claimed is:

1. A collapsible unitary carton of semirigid sheet material comprising:

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- a. a first panel member forming a first pair of end members foldably secured to a bottom member along a first pair of transverse fold lines, said end members and bottom member having a central score line extending along said members and substantially bisecting said pair of fold lines, said bottom member having additional score lines extending diagonally from each corner thereof towards said central score line; 5
- b. a second panel member forming a pair of half width end members foldably secured to a side member along a second pair of transverse fold lines substantially aligned with said first pair of transverse fold lines, said side and bottom members being foldably secured to each other along one of the edges thereof, said side member having a cover flap and one of said pair of half width end members having a full width cover flap with a dependent flange member projecting therefrom adjacent said end member, the transverse length of said dependent flange member being substantially less than the transverse length of its adjacent half-width end member, said cover flaps and dependent flange member being foldable about another fold line extending along the other edge of said side member, a score line substantially bisecting said end cover flap secured thereto; 10 15 20
- c. a third panel member identical in form to said second panel member but reversed in end-to-end relationship 25

- and having a third pair of transverse fold lines substantially aligned with said first and second pair of transverse fold lines forming a second side member, said second side and bottom members being foldably secured to each other along the other of the edges thereof;
- d. fastening means securing said flange members and said half width end members to said cooperating end members;
- e. at least one elongated slit formed in each of said side members substantially midway between and along a plane parallel to said end members of said carton;
- f. and a partition panel having a fold line at the center of the same and at least a pair of narrow flange members formed on the edges thereof secured to said side members by said fastening means with at least one tab element formed therewith extending outwardly engaging said elongated slits;
- g. said dependent flange members being disposed between a respective end and half-width member with said flange members being constructed and arranged so that the respective end members with the half-width members and flange members secured thereto present only one thickness of material along said central score line to allow ready collapse of the carton.

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