Oct. 10, 1961 L. A. DE NOLA 3,003,676

REINFORCED CARTON

Filed May 31, 1960 2 Sheets-Sheet 1

FIG_1

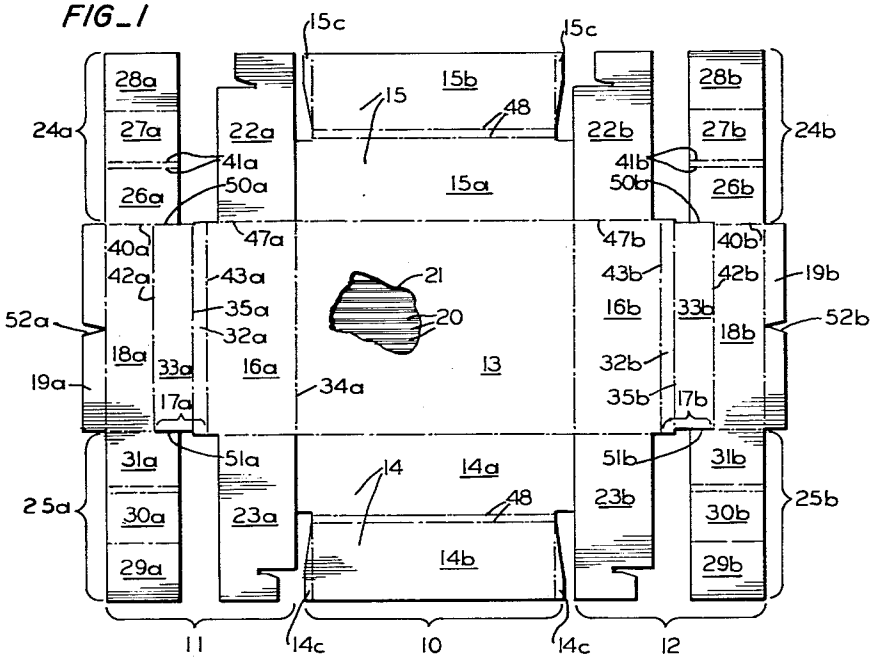
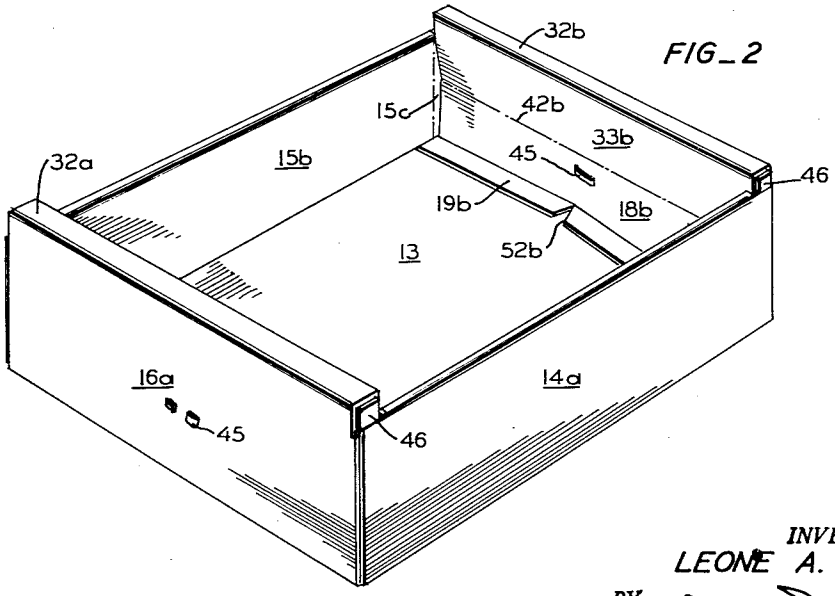


FIG_2



INVENTOR.
LEONE A. DeNOLA

BY Robert Mednick

ATTORNEY

Oct. 10, 1961 L. A. DE NOLA 3,003,676

REINFORCED CARTON

Filed May 31, 1960 2 Sheets-Sheet 2

FIG_3

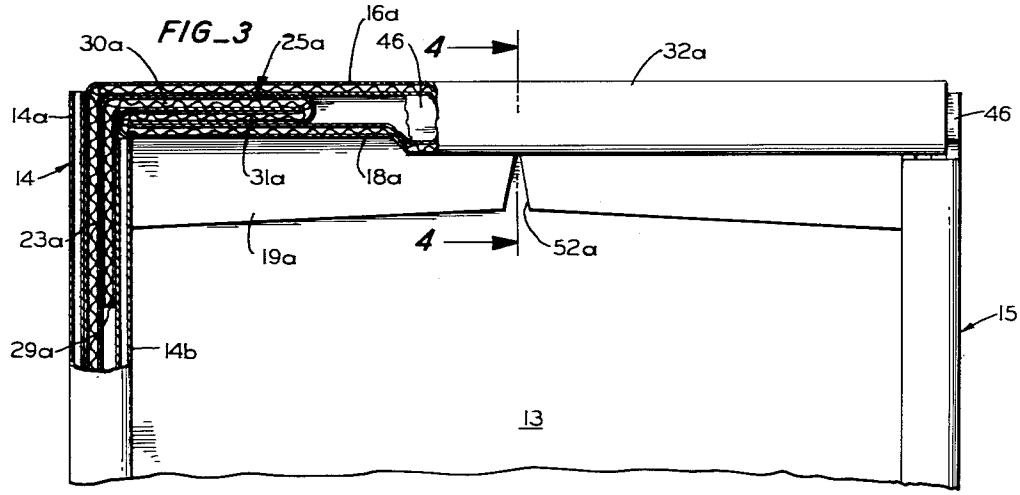


FIG_5

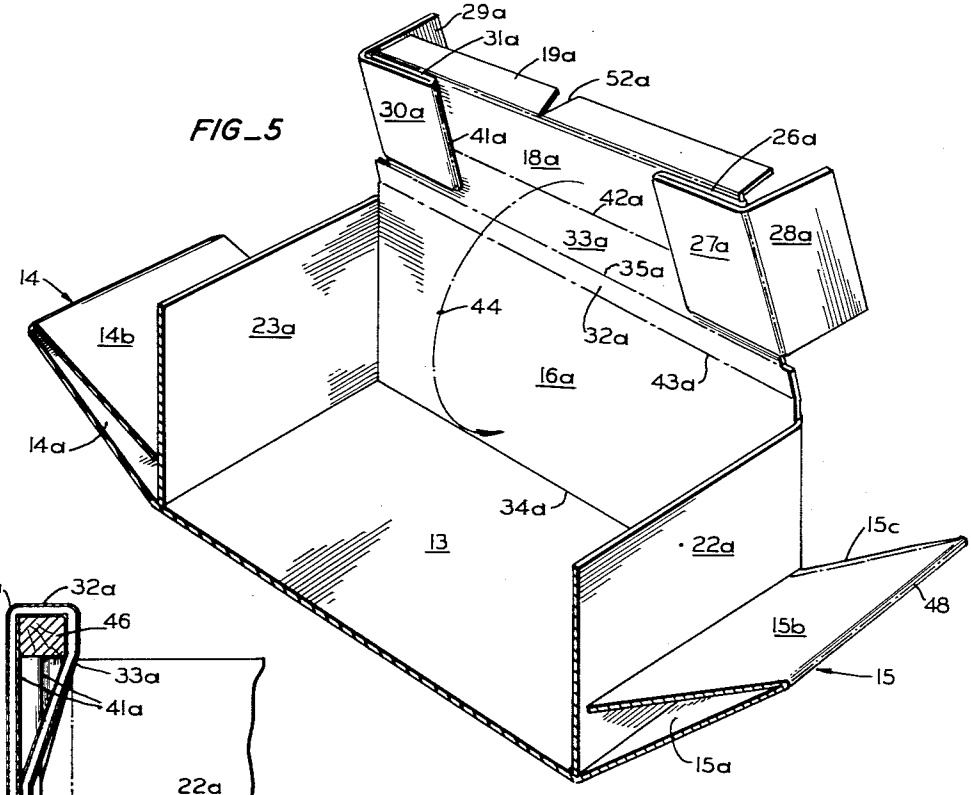
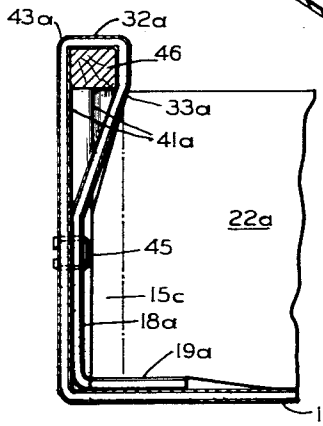


FIG_4



INVENTOR.
LEONE A. DeNOLA
BY Robert Spodnick
ATTORNEY

United States Patent Office 3,003,676 Patented Oct. 10, 1961

3,003,676

REINFORCED CARTON

Leone A. De Nola, 367 Glendale Road, Hillsborough, Calif.

Filed May 31, 1960, Ser. No. 33,036
3 Claims. (Cl. 229—34)

The present invention relates to a reinforced carton, and more particularly relates to a paperboard carton having rigid supporting members in pocket extensions of opposite walls of the paperboard carton, and having folded flap extensions in its corners to form double vertically corrugated right angle corner reinforcements for the carton, and platforms for supporting the rigid supporting members.

An object of the present invention is to provide a specially constructed carton for carrying fruit or the like, and to form the same of a single corrugated paperboard blank, or other suitable material.

Another object of this invention is to provide a corrugated paperboard carton formed of a single blank, said carton having pocket extensions on the end walls thereof to receive rigid supporting members such as an elongated piece of wood to reinforce the carton and to provide a nailing member therefor.

Still another object of this invention is to provide a specially constructed carton formed of a single corrugated paperboard blank, the walls of the carton having double vertically corrugated end and side walls, the corners of the carton having double vertically corrugated reinforcements which also provide platforms for rigid supporting members in the end walls.

A further object of this invention is to provide a paperboard carton which is exceptionally strong, economical to manufacture, and simple to construct.

A still further object of the invention is to provide a specially constructed reinforced carton formed from a single blank and having end walls which may be preformed to allow space-saving storage thereof, the carton blank with the preformed end walls being quickly and easily assembled into a carton with rigid supporting members in pocket extensions and having double vertically corrugated right angle corner reinforcements for the carton.

The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages thereof, will be better understood from the following description considered in connection with the accompanying drawings in which an embodiment of the invention is illustrated by way of example. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention.

FIG. 1 is a view of a single corrugated paperboard blank for forming a carton of this invention.

FIG. 2 is a perspective view of a carton formed of the blank shown in FIG. 1, said carton is seen to be reinforced by rigid supporting members in pocket extensions on opposite end walls of the carton.

FIG. 3 is a partial top view of the carton seen in FIG. 2, a portion of the walls forming one corner is cut away to show the corner reinforcement arrangement.

FIG. 4 is a cross-sectional view as seen along lines 4—4 of FIG. 3 showing the end wall formation.

FIG. 5 is a partial perspective view similar to that of FIG. 2, and showing the walls of the carton blank of FIG. 1 in the process of being initially formed into the carton seen in FIG. 2.

Referring now to FIG. 1, there is seen a single corrugated paperboard blank for forming a carton with pocket

extensions to receive rigid supporting members, said carton having double vertically corrugated walls, and having double vertically corrugated right angle corner reinforcements forming platforms for the rigid supporting members. The blank is seen to include a middle section **10** with two outer sections **11** and **12** on opposite sides thereof. Middle section **10** has a bottom panel **13** with side wall enclosure extensions **14** and **15** on opposite sides thereof. Outer section **11** includes a first end wall panel **16***a*, a pocket panel **17***a*, a second end wall panel **18***a*, and a bottom extension **19***a* consecutively extending from one side of bottom panel **13** in the direction of its corrugations **20** as seen in cutaway portion **21** thereof. On opposite sides of first end wall panel **16***a* are slotted flap extension **22***a* and **23***a*; on opposite sides of second end wall panel **18***a* are corner reinforcement flap extensions **24***a* and **25***a* (unslotted). Flap extension **24***a* includes consecutive sections **26***a*, **27***a*, and **28***a*; flap extension **25***a* includes similar consecutive sections **29***a*, **30***a*, and **31***a*. Pocket panel **17***a* includes sections **32***a* and **33***a*. The other outer section **12** of the paperboard blank has similar parts designated with the same numerals but appended with the letter *b*.

In forming a carton as seen in FIG. 2 from the paperboard blank of FIG. 1, each of the corner reinforcement flap extensions are first folded to form double vertically corrugated right angle corner reinforcements. Flap extension **24***a* has section **26***a* folded on line **40***a* to adjoin second end wall panel **18***a*, and then has section **27***a* folded on lines **41***a* to adjoin section **26***a* as more clearly seen in FIGS. 3 and 4. The other flap extensions are similarly folded. Then second end wall panel **18***a* (as well as panel **18***b*) with folded flap extensions **24***a* and **25***a* is folded on lines **42***a* and **43***a*, in the direction of arrow **44** as seen in FIG. 5, to adjoin first end wall panels **16***a*. Cuts **50***a* and **51***a* allow section **33***a* of pocket panel **17***a* to move free of flap extensions **24***a* and **25***a*. First end wall panels **16***a* and **16***b* are permanently attached to second end wall panels **18***a* and **18***b* respectively by means such as a staple **45** seen in FIG. 4. A rigid supporting member **46** such as a four sided piece of wood is then inserted in each of the pockets formed by pocket panels **17***a* and **17***b* and the upper portion of first end wall panels **16***a* and **16***b*. Outer section **11**, as well as section **12**, has the upper extremities of folded sections **26***a* and **27***a* of flap extension **24***a*, together with the upper extremities of folded sections **30***a* and **31***a* of flap extension **25***a*, form platforms for supporting one of the rigid supporting members. When first end wall panel is folded on line **34***a*, notch **52***a* allows bottom extension **19***a* to rest on middle section **13**.

With each outer section preformed as hereinabove described, the carton itself may now be quickly and easily formed. In forming one side wall for the carton, slotted flap extension **22***a* is folded on line **47***a* to interlock slotted flap extension **22***b*. Slotted flap extensions **23***a* and **23***b* are also interlocked to form another side wall. Sections **28***a*, **28***b*, **29***a*, and **29***b* adjoin their corresponding flap extensions **22***a*, **22***b*, **23***a*, and **23***b* to form another side of the right angle corner reinforcement for the carton.

In completing the formation of the carton, the side wall enclosure extensions **14** and **15** are folded to positionally secure each side wall respectively. Side wall enclosure extension **14** is folded so that section **14***b* is on the inside, and section **14***a* is on the outside of the carton with fold lines **48** spanning the upper edge of the side wall. Sections **14***c* press against second end wall panels **18***a* and **18***b*, and against sections **33***a* and **33***b* of pocket panels **17***a* and **17***b* respectively. Side wall enclosure extension **15** is similarly folded.

It will be noted that the height of side wall enclosure extension sections **14***a* and **15***a* determine the height of

the carton, said height may be called the reference dimension or may be considered the predetermined height. Flap extensions **22**, **23**, **24** and **25** are substantially the same height as sections **14***a* and **15***a*, whereas the dimensions of panels **16***a* and **16***b* are greater than said predetermined height, and the dimensions of panels **18***a* and **18***b* are smaller than said predetermined height.

The novel arrangement of the cardboard blank forming a carton of this invention, results in exceptional stacking rigidity for a cardboard carton. The carton may be quickly and easily formed from the minimum amount of corrugated cardboard. Corner reinforcements are formed from extending panels which also provide double vertically corrugated platforms for a rigid supporting member in extending pockets. In addition, all of the surrounding walls are double vertically corrugated so that the maximum possible stacking rigidity of corrugated cardboard is attained. Furthermore, when the carton is not in use, and storage thereof is desired, its side wall enclosures may be unfolded, and the interlocking flaps released to result in an essentially flat carton blank member with preformed end members allowing space-saving storage thereof. The carton blank with preformed end walls can be quickly and easily assembled into the carton having the features of this invention. This cardboard has characteristics similar to a wooden carton or box in that its rigid supporting members may be made of wood or like material thereby providing nailing members for a cover, or for braces if needed in case the cartons are stacked.

Having herein described the invention, what is claimed as new is:

1. A reinforced carton comprising: a corrugated paperboard carton formed from a single blank including a pair of end sections and a middle section, each end section including a first end wall panel, a second end wall panel, a pocket panel connecting the first and second end wall panels, each end wall panel having a pair of flap extensions on opposite sides thereof, one of the pairs of the flap extensions being slotted, said middle section including a bottom panel having side wall enclosure extensions on opposite sides thereof, the first end wall panels of each end section being connected to the other opposite sides of the bottom panel in the direction of its corrugations, the end sections being folded to form surrounding walls for the bottom panel, the pocket panel forming a pocket extension with the top portion of the first end wall panel, the slotted flap extensions on each side of the end sections being folded to form a side wall, and the side wall enclosure extensions being folded to secure the side walls; and a rigid supporting member in each pocket extension, each of the unslotted flap extensions being folded and positioned between its first end wall panel and the adjoining second end wall panel to form a double vertically corrugated platform having an outer portion, the outer portion adjoining the slotted flap extension on the same side of the end section, whereby each of the unslotted flap extensions form with the slotted flap extension a double vertically corrugated right angle corner reinforcement for the carton, and support said rigid supporting member inserted in the pocket extension.

2. A reinforced carton comprising: a corrugated paperboard carton having double vertically corrugated walls of a predetermined height, said carton being formed from a single blank including a pair of end sections and a middle section, each end section including a first end wall panel having a height greater than said predetermined height, a second end wall panel having a height smaller than said predetermined height, a pocket panel connecting the first and second end wall panels, each end wall panel having a pair of flap extensions on opposite sides thereof, one of the pairs of the flap extensions being slotted, said middle section including a bottom panel having side wall enclosure extensions of said predetermined height on opposite sides thereof, the first end wall panels of each end section being connected to the other opposite sides of the bottom panel in the direction of its corrugations, the end sections being folded to form surrounding walls for the bottom panel, each end section being folded to adjoin one face of the inner end wall panel with one face of the outer end wall panel in order to form an end wall, the pocket panel forming a pocket extension with the top portion of the first end wall panel exceeding said predetermined height, the slotted flap extensions on each side of the end sections being folded to form a side wall, and the side wall enclosure extensions being folded to secure the side walls; and a rigid supporting member in each pocket extension, each of the unslotted flap extensions being folded and positioned between its first end wall panel and the adjoining second end wall panel to form a double vertically corrugated platform having an outer portion, the outer portion adjoining the slotted flap extension on the same side of the end section, whereby each of the unslotted flap extensions form with the slotted flap extension a double vertically corrugated right angle corner reinforcement for the carton, and support said rigid supporting member inserted in the pocket extension.

3. A reinforced carton comprising: a corrugated paperboard carton having double vertically corrugated walls of a predetermined height, said carton being formed from a single blank including a pair of end sections and a middle section, each end section including a first end wall panel having a height greater than said predetermined height, a second end wall panel having a height smaller than said predetermined height, a pocket panel connecting the first and second end wall panels, and a bottom extension connected to the second end wall panel, each end wall panel having a pair of flap extensions on opposite sides thereof, one of the pairs of the flap extensions being slotted, said middle section including a bottom panel having side wall enclosure extensions of said predetermined height on opposite sides thereof, the first end wall panels of each end section being connected to the other opposite sides of the bottom panel in the direction of its corrugations, the end sections being folded to form surrounding walls for the bottom panel, each end section being folded to adjoin one face of the inner end wall panel with one face of the second end wall panel in order to form an end wall, the pocket panel forming a pocket extension with the top portion of the first end wall panel exceeding said predetermined height, the slotted flap extensions on each side of the end sections being folded to interlock the slotted flap extensions and to form a side wall, and the side wall enclosure extensions being folded to secure the side walls; and a rigid supporting member in each pocket extension, each of the unslotted flap extensions being folded and positioned between its first end wall panel and the adjoining second end panel to form a double vertically corrugated platform having an outer portion, the outer portion adjoining the slotted flap extension on the same side of the end section, whereby each of the unslotted flap extensions form with the slotted flap extension a double vertically corrugated right angle corner reinforcement for the carton, and support said rigid supporting member inserted in the pocket extension.

References Cited in the file of this patent

UNITED STATES PATENTS

2,688,433 Hamilton ---------- Sept. 7, 1954

FOREIGN PATENTS

626,166 Great Britain ---------- July 11, 1949