Nov. 29, 1960 N. B. HANSEN 2,962,202

TRUSSED-END PAPERBOARD CARTON

Filed Oct. 23, 1957 2 Sheets-Sheet 1

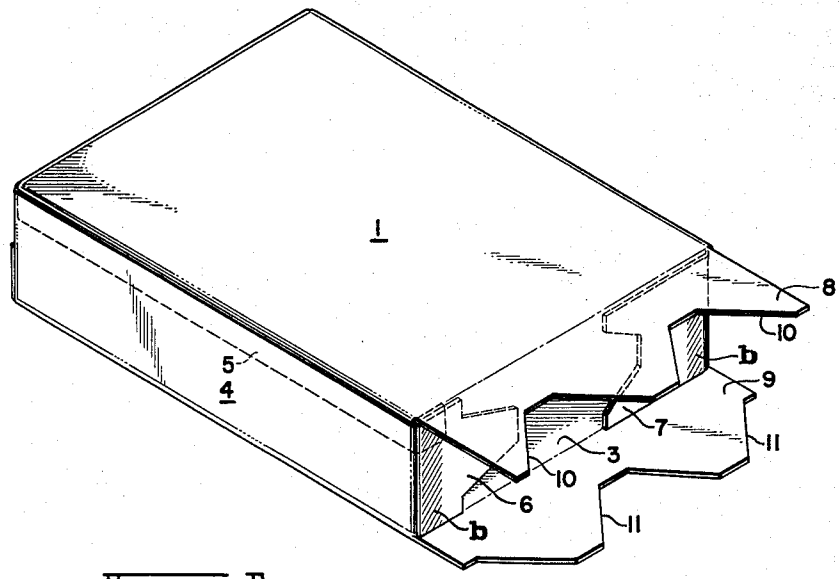


FIG. 1

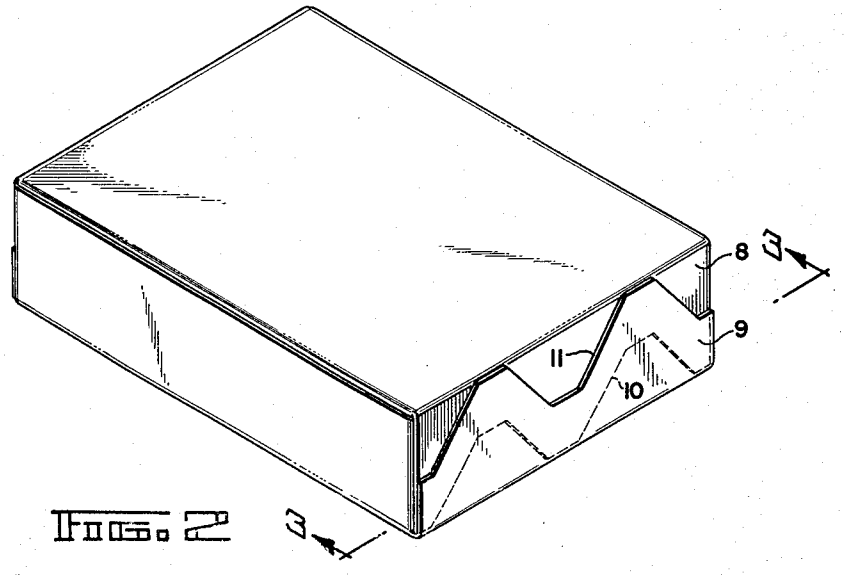


FIG. 2

INVENTOR.

NILS B. HANSEN

BY

Pollard, Johnston, Smythe & Robertson

ATTORNEYS.

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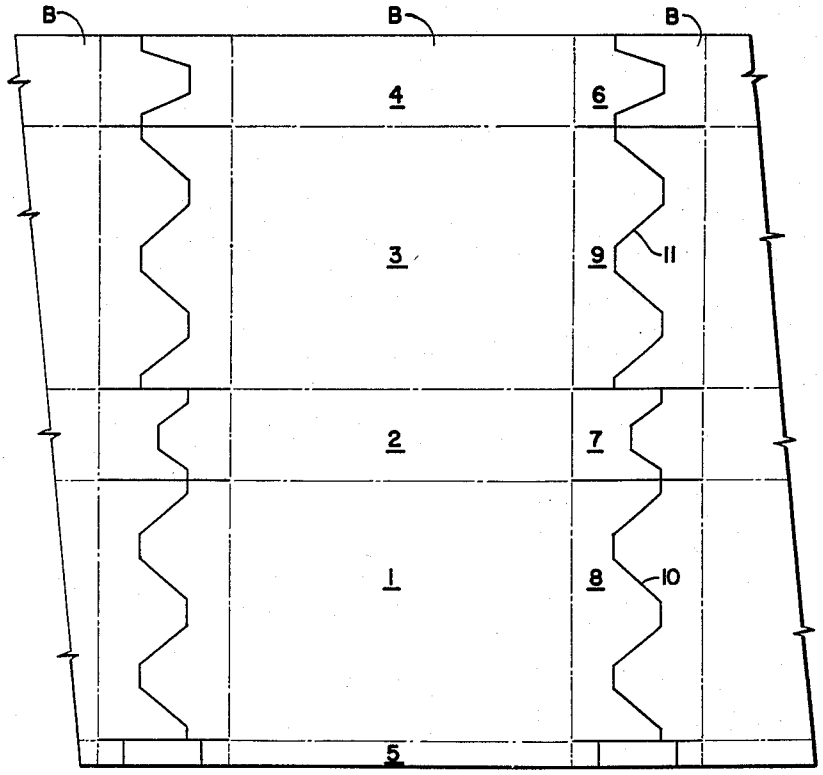


FIG. 4

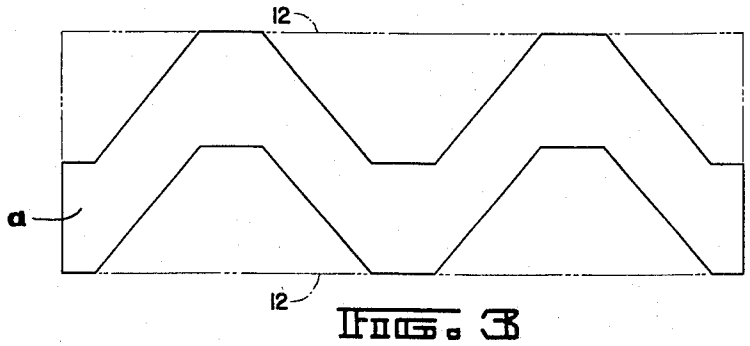


FIG. 3

INVENTOR.

NILS B. HANSEN

BY

Pollard, Johnston, Smythe & Robertson

ATTORNEYS.

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2,962,202

TRUSSED-END PAPERBOARD CARTON

Nils B. Hansen, Marietta, N.Y., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Oct. 23, 1957, Ser. No. 691,832

1 Claim. (Cl. 229—37)

The invention relates to an improvement in end closures for paperboard cartons.

Much attention has been given in years past to the problem of designing strong sift-proof cartons. In order to accomplish this object in the general type of carton which includes pairs of inner and outer end flaps extending from pairs of opposed side wall panels, it has been considered quite essential to have the outer pair of end flaps overlap over a very substantial area and preferably over the entire area of the end of the carton. The principal drawback to this is that it consumes a large quantity of paperboard and so increases the cost. But as such cartons have been so well suited to the packaging of so many products, they have become perhaps the most widely used of all carton types, and the cost of using the wide overlapping outer flaps has come to be accepted as inherently necessary in order to obtain a top quality package. My invention relates to a discovery of how to reduce the cost of using the wide overlapping flaps while retaining the essential wide overlap and qualities of good strength and effective sealing.

What I have accomplished is, in a sense, to build a truss section into the end of the carton. I do this by notching the ends of the outer pair of flaps in such a way that, when closed and sealed, they overlie one another along a sinuous glue lap. As the notched ends are secured to one another over substantially the area of this sinuous glue lap, this results in forming what may be best described as a double thickness truss. Also, because the first outer flap, when folded, can extend for the full width of the carton, complete sealing is afforded across the base of the adjacent inner end flap. In this respect one of the fundamental advantages of the wide overlapping outer flaps is retained, but because of the notched ends there is a very considerable saving in the amount of paperboard used, with consequent reductions in cost of the product. And the built in truss section contributes both strength and lightness to the package.

Referring to the drawings, I shall now describe the best mode contemplated by me for carrying out my invention.

Fig. 1 is a perspective view of a carton which includes my improved end closure, with the outer end flaps open.

Fig. 2 is the same as Fig. 1 except that here the flaps are all closed and sealed.

Fig. 3 is a diagram of the truss section, taken as indicated at 3—3 in Fig. 2, showing the sinuous overlapping area of the two outer end flaps.

Fig. 4 is a face view of a section of a paperboard sheet from which the blank for the carton of Figs. 1 and 2 is cut and scored.

My invention is applied to a carton of the general type which includes a body having four side wall panels **1, 2, 3, 4**, panels **1** and **4** being secured together by a conventional glue flap **5**, a pair of inner end flaps **6, 7**, and a pair of outer end flaps **8, 9**, extending from pairs

of opposed side wall panels. In Fig. 4, the dot-dash lines represent fold lines which usually are made as score lines formed when the blanks B are produced. Conventional cutting and scoring dies may be used for these purposes. According to my invention the outer end flaps **8** and **9** have notched ends, the notches being indicated at **10, 11**. The notches **10** of flap **8** are offset with respect to notches **11** of flap **9** as shown in Figs. 1 and 4. When these flaps are folded as shown in Fig. 2, their notched ends overlie one another along a sinuous glue lap, and the ends are secured together over substantially the area of the glue lap, this being the area shown diagrammatically at *a* in Fig. 3. The sinuous glue lap extends diagonally back and forth between opposed edges **12, 12** of the end of the carton. Section *a* forms a double thickness truss at the end of the package which is quite strong, stiff, and light in weight. Besides this, my construction still affords full width sealing between flap **8** and each of flaps **6** and **7**.

Glue is applied to the end flaps in a conventional manner over areas of the flaps which will produce adherence between outer flaps **8** and **9** over substantially the area of the truss shown diagrammatically at *a* in Fig. 3, and which also will produce adherence between the outer flap **8** and each of the inner flaps **6** and **7** over corner sealing areas which extend at least along substantially the bases of flaps **6** and **7** as indicated by the shaded areas *b* in Fig. 1. Ordinarily the glue which produces adherence over area *a* will be applied to the inside of flap **9**, and that which produces adherence over the corner sealing areas *b* will be applied to the inside of flap **8**.

As shown in Fig. 4, the notches **10** and **11** in the flaps at one end of the paperboard blank are offset with respect to those in the flaps at the other end. In view of this it is possible, not only to obtain the sinuous double thickness truss construction, but also to have nesting blanks all of which are identical in form as distinguished from certain nesting blank arrangements heretofore suggested where notched flaps have been proposed for other purposes. This feature of having identical nesting blanks is in addition to the primary one of providing the trussed end closure.

The terms and expressions which I have employed are used in a descriptive and not a limiting sense, and I have no intention of excluding such equivalents of the invention described, or of portions thereof, as fall within the scope of the claim.

I claim:

In a paperboard blank for a folding carton of the general type which includes a body having four side wall panels and pairs of inner and outer end flaps extending from the ends of pairs of opposed side wall panels, the end closure construction in which said outer end flaps have notched ends, the notches in one of the outer flaps of each pair being offset with respect to those in the other outer flaps of the respective pairs, and the notches in the outer end flaps at one end of the paperboard blank being offset with respect to those in the outer end flaps at the other end of the paperboard blank, whereby successive blanks cut from a paperboard sheet are identical in form.

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