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R. GUYER

2,665,837

CARTON

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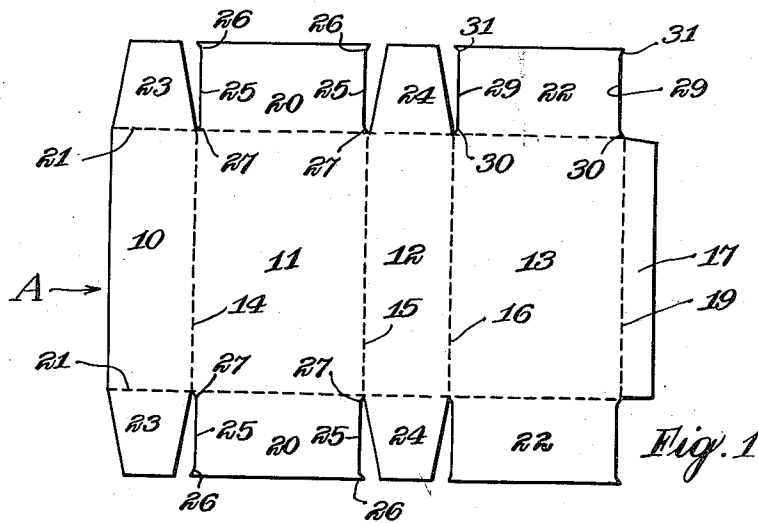
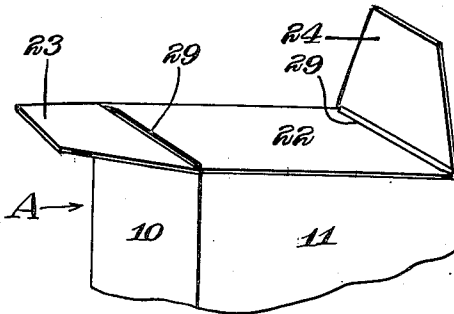


Fig. 2

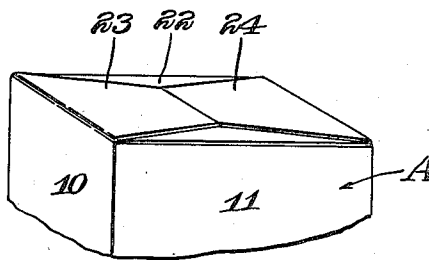


Fig. 3

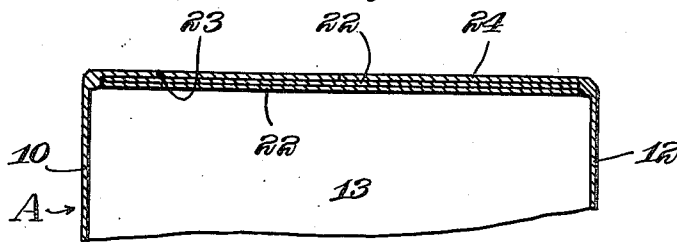


Fig. 4

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## UNITED STATES PATENT OFFICE

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CARTON

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3 Claims. (Cl. 229—37)

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My invention relates to an improvement in carton wherein it is desired to form a carton which will not sift when containing powdered or granular material.

One of the biggest objections to the use of tubular cartons for containing powdered or granular material lies in the tendency for such cartons to sift at the corners. To some extent this sifting is caused by the openings formed when the closing flaps of the carton are folded into superimposed relation. When the cartons are formed they are provided with crease lines or score lines which are in reality small channels formed in one surface of the carton stock which produce projecting beads on the other surface of the paper board. These projecting ribs or beads tend to prevent the outermost flaps from folding flat against the surface of the inner flaps particularly adjacent these ribs. Thus powdery material is often permitted to escape through the narrow unglued area closely adjacent the score lines.

The object of the present invention lies in the provision of closing flaps having cut away edge portions designed to accommodate the beads or ribs formed at the score lines connecting the outermost flaps to the carton. As a result when the carton is sealed the bead produced adjacent the outer score lines fills the cut away portion and produces a tighter carton.

A feature of the present invention lies in the provision of cut away portions which extend the major portion of the length of the beads which they accommodate but the cut away portions terminate short of the extremities of the flaps. As a result small tips or ears are produced which extend into the carton corners to assist in closing the same. These ears are of sufficiently small size so that they will readily distort in the flap closing operation.

A feature of the present invention lies in the formation of a carton of usual tubular construction having end closure flaps on the wall panels of at least one end thereof. Two of these flaps are designed to fold into superimposed relation, forming the innermost flaps of the series and these inner flaps are preferably co-extensive. The remaining opposed flaps are designed to fold into coplanar relationship outwardly of the two larger flaps, thus reversing the usual sequence of fold. The edges of the inner two flaps parallel to the fold lines connecting the remaining two opposed flaps to the carton are notched throughout most of their length so as to produce a space for accommodating the inwardly bulging carton stock produced by the inward folding of the remaining flaps.

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

In the drawings forming a part of my specification:

Figure 1 is a diagrammatic view of a carton blank showing my construction.

Figure 2 is a perspective view of the carton shown in Figure 1 in partially folded position.

Figure 3 is a perspective view of the carton end in completely folded condition.

Figure 4 is an enlarged sectional view showing the manner in which the carton stock fills the gap or notch formed in the ends of the innermost flaps.

The carton A is in general similar to an ordinary tubular carton. The side wall 10, front wall 11, side wall 12, and rear wall 13 are foldably connected together along parallel fold lines 14, 15, and 16. A glue flap 17 is foldably connected to the wall panel 13 along a fold line 19. The terms "front" and "rear" wall panels are employed merely for ease in explanation as any of the panels can form the front or rear of the carton.

Furthermore, as both of the ends of the carton are shown identical in structure, the flaps at opposite ends of the carton will be given similar identifying numerals.

Closing flaps 20 are foldably connected to the top and bottom ends of the front wall panel 11 along parallel fold lines 21. Similar closing flaps 22 are foldably connected to the upper and lower extremities of the rear panel 13. Closing flaps 23 are foldably connected to the upper and lower edges of the side wall panel 10 and similar flaps 24 are foldably connected to the upper ends of the side wall panel 12. The flaps 23 and 24 may be rectangular in shape if desired but are shown as being of tapered form to simplify the stripping of the carton stock from the notched or recessed edges of the flaps 20 and 22.

The opposite ends of the flaps 20 are provided with elongated notches or cut away portions which extend virtually the entire length of the flaps. The notches 25 at opposite ends of the flaps 20 angle inwardly from the juncture of the fold lines 21 with the vertical fold lines 14 and 15, extend parallel throughout most of the length of the flaps 20 and angle outwardly or in a diverging direction near the extremities of these flaps. This arrangement forms small pointed ears or tips 26 at the extremities of the flaps and similar ears 27 at the juncture between the flaps 20 and the fold lines 21.

The flaps 22 are similarly provided with elon-

gated cut away portions or notches 29 which angle inwardly from the juncture between the fold lines 21 and the vertical fold lines 16 and 19 to form ears 30. Near their outer extremity the notches or cut away portions 29 angle outwardly in a diverging direction to form small ears or tips 31.

As a result of this structure the closing flaps 20 and 22 are somewhat narrower than the distance between the side wall panels 10 and 12 when the carton is rectangularly arranged. The depth of the notches 25 and 29 is approximately equal to the thickness of the bulge or rib formed on the inner surface of the carton stock during the creasing operation. As a result the folding downwardly of the flaps 23 and 24 does not cause the ridge or bead on the inner surface of the stock to rest upon the upper surface of the inner flaps.

As is well known in the box making art, score lines are usually produced by means of a scoring rule which forces the carton stock into a corresponding channel formed in the female portion of the die. This produces a visible rib or ridge which is noticeable when the carton is in flat condition. In folding the carton, it is usual practice to fold the paper with this ridge innermost. As a result the outside of the carton stock forms a generally right angular corner while the inner surface of the paper board forms a very pronounced ridge or bead. Obviously the thickness of this bead increases during the folding action.

It is usual practice to separate the closing flaps by use of a cutting rule which forms a cut or slit of no visible width. As a result the carton flaps are of the same width as the panels from which they hinge. When the flaps are folded into superimposed relation the internal ribs or ridges in the carton stock at the fold lines tend to hold the flat surfaces apart for a short distance from the fold lines. If the flaps are made narrower the carton stock between the flaps must be stripped away and an aperture is often left at the corners where the beads at the fold lines are compressed, thus creating a tendency for apertures to be formed at the carton corners. However, I have found that by notching the ends of the innermost flaps in the manner illustrated and leaving the flaps the full width at their extremities the beads formed by folding the outermost flaps will fill the space created by the notches and will crowd the small pointed ears at the ends of the notches so as to prevent tiny apertures at the corners.

In the closing of the cartons it has been found desirable to apply pressure on opposite sides of the carton to hold the flaps 23 and 24 overlapping the flap 22 as far as possible. This inward

pressure is applied to the extremities of side wall panels 10 and 12 near the fold lines 21 when the adjacent flaps 23 and 24 are folded into coplanar relation. This pressure is preferably maintained until the adhesive has set sufficiently to hold these flaps in adhered position.

In accordance with the patent statutes, I have described the principles of construction and operation of my 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 carton including rectangularly arranged side walls and an end closure, the end closure including closing flaps issuing from each of the rectangularly arranged side walls, two of said closing flaps being of substantially the full dimensions of the end closure and being secured in surface contact, side edges upon said first named closing flaps extending adjacent to the lines of fold connecting the remaining two closing flaps with their respective side walls, said side edges being notched inwardly from the fold lines connecting these first named flaps to their respective side walls to the free opposite edges of these first closing flaps, the ends of the notches being inclined to provide small pointed ears at each end thereof, the notched portions extending in parallel relation, inwardly projecting beads extending along the fold lines connecting said remaining closing flaps to their respective end walls, said beads engaging in said notches, said remaining closing flaps overlying the first named closing flaps and being secured thereto.

2. The structure described in claim 1 and in which the remaining closing flaps engage the uppermost of the first named closing flaps and are arranged in co-planar relation.

3. The structure described in claim 1 and in which the portions of said side edges beyond said notches extend into the interior corners of the carton.

REYNOLDS GUYER.

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