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ARTICLE CARRIER

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FIG. 1.

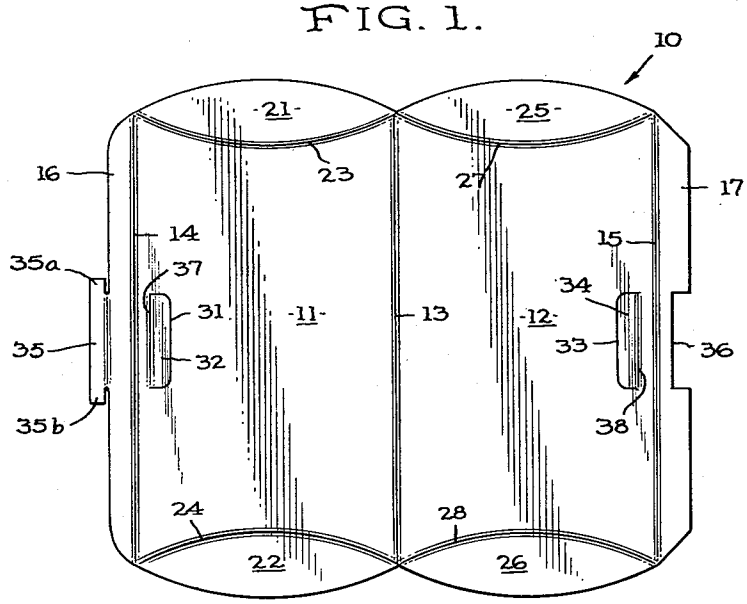


FIG. 2.

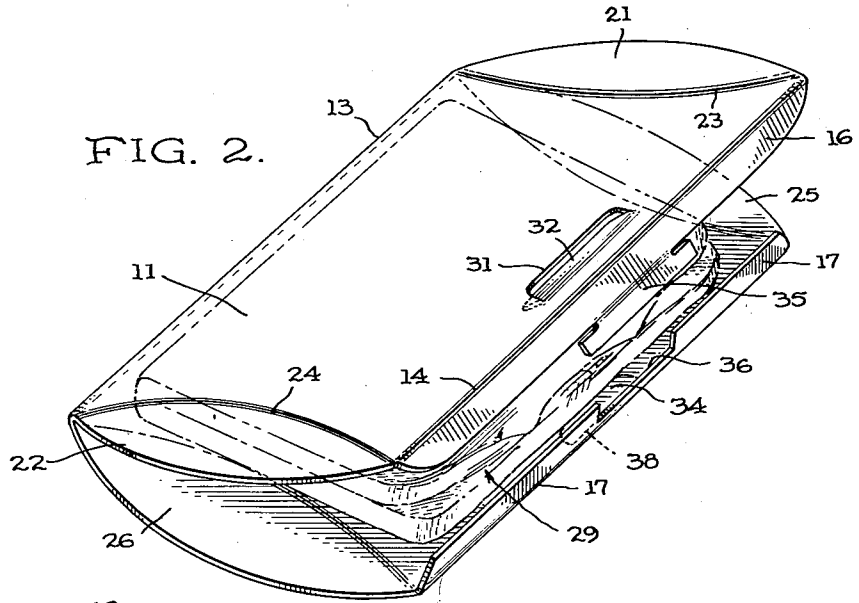
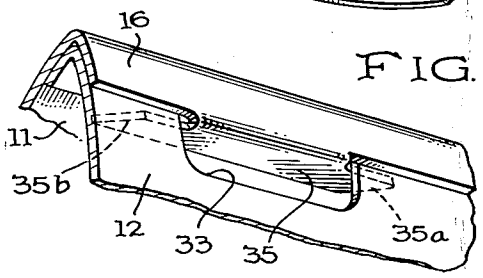


FIG. 10.



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ARTICLE CARRIER

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FIG. 3.

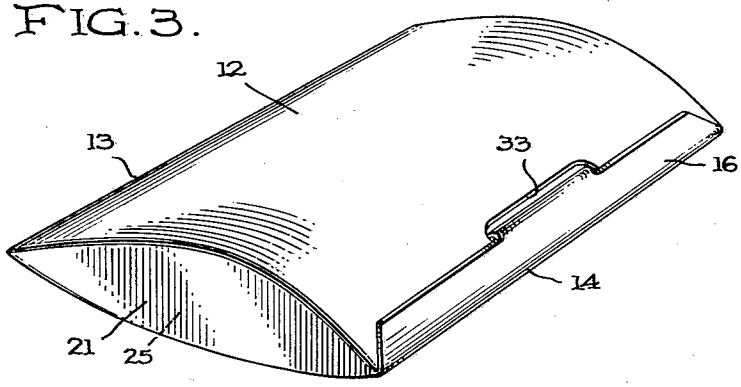


FIG. 4.

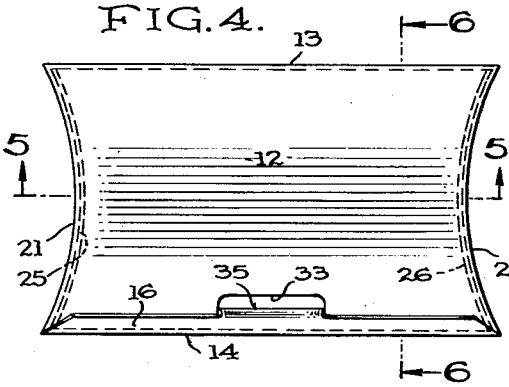


FIG. 6.

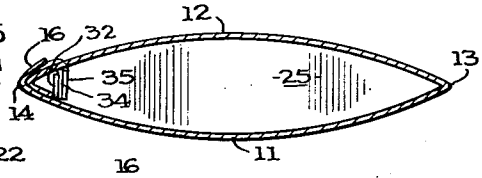


FIG. 7.

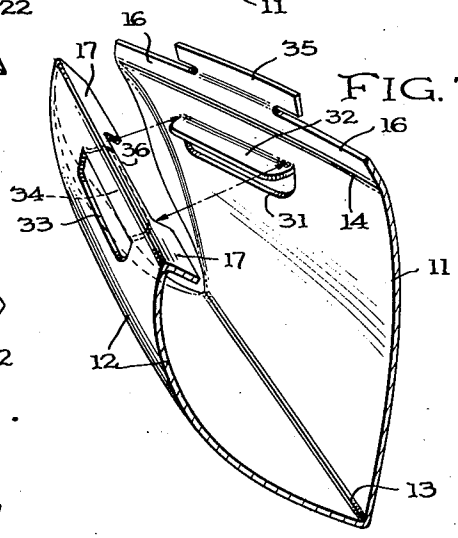


FIG. 5.

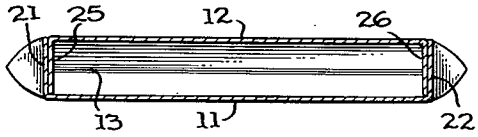


FIG. 8.

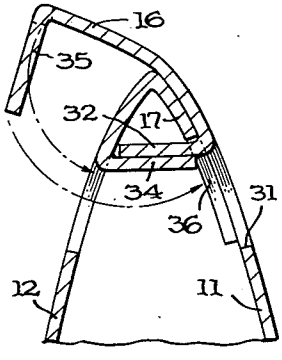
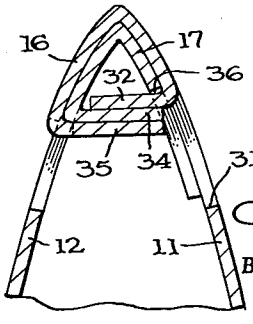


FIG. 9.



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3,126,145
ARTICLE CARRIER

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Filed Mar. 25, 1963, Ser. No. 267,426
2 Claims. (Cl. 229—52)

This invention relates to new and useful cartons or boxes made of cardboard or other similar material, and blanks therefor which are readily adapted for conversion into finished form for packaging of various articles.

The object of the present invention is to provide an economically produced box of unique shape to carry garments or similar type articles having the advantages of quick assembly and sufficient strength needed for its purpose.

The box of the present invention is very economical and simple to manufacture. In addition, the box is very quickly assembled once the garments or articles to be carried are placed therein.

In addition, the paperboard box of the present invention is stressed due to the shape of the box blank in such a manner as to allow much lighter material to be used with no decrease in stiffness.

Also, the box of the present invention has a handle portion formed in a generally triangular shape in a manner to distribute weight of the package along the whole handle.

Basically the box of the present invention is formed with extensions of the main panels having end flaps with bowed fold lines for maintaining these flaps in a closed position without additional fastenings and a handle structure in a triangular form, when folded, with the base of the triangle providing the surface for the hand to grasp the handle.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a plan view of the blank from which the novel box of the present invention is constructed;

FIG. 2 is a perspective view of the blank of FIG. 1 in a partially folded condition;

FIG. 3 is a perspective view of the novel box folded for the carrying of articles;

FIG. 4 is a plan view of the folded box of FIG. 3;

FIG. 5 is a longitudinal sectional view along line 5—5 of FIG. 4;

FIG. 6 is a transverse sectional view along line 6—6 of FIG. 4;

FIG. 7 is a partially sectional perspective of the box in the initial step of forming the handle;

FIGS. 8 and 9 are detail sectional views showing succeeding steps in forming the handle as initiated in FIG. 7; and

FIG. 10 is a partial view in perspective showing the handle of the box formed and locked in position.

Referring to the drawings in detail, and first considering FIG. 1, the novel blank is indicated generally at 10 and is produced from any suitable paperboard, boxboard or similar material. The blank is unglued, even in finished box form, and includes main panels 11 and 12 hingedly attached by fold line 13. Hingedly attached to main panels 11 and 12 on their outer edges by fold lines 14 and 15 respectively and parallel to fold line 13 are end panels 16 and 17. On the sides of main panel 11 are curved or angular shaped closing flaps 21 and 22 hingedly connected to panel 11 by curved or angular fold lines 23 and 24 respectively. Curved or angular closing flaps 25 and 26 are hingedly connected to main panel 12 by curved or angular fold lines 27 and 28 respectively.

In main panel 11 located near fold line 14 but spaced therefrom is cut line 31 forming a flap 32 in the surface of panel 11. A similarly shaped cut line 33 forms a flap 34 in the vicinity of fold line 15 in the surface of main panel 12. End panel 16 has a locking flap 35 formed as an extension along its outer edge in alignment with flap 32 with the length of the portion of locking flap 35 attached to end panel 16 equal to or less than the length of flap 32 while the overall length of flap 35 is greater than that of flap 32 with ears 35*a* and 35*b* extending in both longitudinal directions. Flap 34 and cut line 33 are positioned so as to lie in juxtaposition with flap 32 and cut line 31 respectively when main panel 11 is folded along fold line 13 over main panel 12. Locking flap 35 will also be in juxtaposition with slot 36 in end panel 17. The folding of main panels 11 and 12 along fold line 13 is shown in the perspective view of FIG. 2 where garments are shown within the partially folded box.

With the forming of the handle for the box and locking it in position, as will be discussed in connection with other figures, side closing flaps 21, 22, 25 and 26 are pressed inward so as to snap them into a position folding along curving fold lines 23, 24, 27 and 28 respectively so as to place closing flap 21 into juxtaposition with closing flap 25, and closing flap 22 into juxtaposition with closing flap 26. There is thus formed a double convex-concave carrier being of a thickness large enough to accommodate the object 29 to be packaged and sloping to no thickness at the edges of the carton formed at fold lines 14 and 15 with a double concave end structure as shown in the perspective view of FIG. 3 and the plan view of FIG. 4. It makes no difference to the construction of the box which of closing flaps 21, 22, 25 or 26 are first snapped into position or in what order they are positioned to form the box. FIG. 5 is a cross-sectioned view along line 5—5 of FIG. 4 showing one of the possible positions of these closing flaps.

FIG. 6 is a cross-section view along line 6—6 of FIG. 4 showing the convex bow of main panels 11 and 12 and the interlocking of the handle elements. The details of the handle elements are shown in enlarged form in FIGS. 7–10.

The initial step in forming the handle is shown in the partial perspective view of FIG. 7. End panel 17 is folded along fold line 15 and flaps 32 and 33 are bent along respective fold lines 37 and 38 to a position substantially normal to main panels 11 and 12 and brought together in positions shown in enlarged cross-section of FIG. 8. As shown in FIG. 8, end panel 17 is folded under the end area of main panel 11 and end panel 16 is folded along fold line 14 so as to overlap the upper surface of main panel 12 along fold line 15. Locking flap 35 is then forced into the cut out section delineated by cut line 33 and previously occupied by flap 34. The position of the handle elements in the completely formed handle is shown in cross-section in FIG. 9 and the perspective view of FIG. 10. Locking flap 35 overlaps flap 34 which in turn overlaps flap 32. The ears 35*a* and 35*b* of locking flap 35 having been forced through the aforementioned cutout resume their original position with respect to the center portion of locking flap 35 due to the resiliency of the paperboard or similar material used. As shown in FIG. 10 the ears 35*a* and 35*b* cause a locking action thereby keeping the box closed along the edge in which the handle is formed. The arcuate fold lines 23, 24, 27 and 28 keep closing flaps 21, 22, 25 and 26 in position and articles are thereby contained in the novel boxlike structure and may be transported thereby.

The concave ends on this novel boxlike structure, achieved by curved or angular scoring, impart rigidity and stiffness to boxboard material not possible to obtain in any other box construction. This rigidity allows the

caliper of the material used to be dropped to a very light weight and to still maintain the feel of a box made from much heavier caliper.

Also it should be noted that the location of slot **36** in end panel **17** serves a dual function. First it is used to line up the opposing main panels by alignment of the slot with cutout flap **32** and locking flap **35**. A second function of the slot is to add strength to the handle portion in the grain direction of the blank. Paperboard is weakest in the grain direction of the sheet and if the slot were eliminated in favor of a narrower end panel **17** the paperboard would be further weakened at what is already its weakest point.

Furthermore, the handle portion of the box of the present invention forms a substantially equilateral triangle, with the base of the triangle providing a surface for the hand to grasp the handle without having the weight of the package resting at one point. This triangular shape adds a strength factor not obtainable in handles of the prior art where all portions are flat against each other.

It will be obvious to those skilled in the art that various changes may be made without departing from the scope of the invention and therefore the invention is not intended to be limited to what is shown in the drawings and described in the specification, but only as set forth in the appended claims.

What is claimed is:

1. A blank for an article carrier comprising a first main panel, a second main panel hingedly connected to said first main panel, first and second end panels hingedly connected to said first and second main panels respectively, a locking flap hingedly connected to said first end panel, said second end panel having a cutout slot therein, and first and second cutout flaps cut from said first and second main panels respectively and hingedly connected thereto, said locking flap of greater length than the length of said second cutout flap, said slot of greater length than either of said cutout flaps whereby said locking flap, said first and second cutout flaps, and the slot in said second end panel are in operative alignment to close the article carrier and form a handle for ease of transporting the article carrier.

2. The blank for an article carrier of claim 1, further characterized by said first and second main panels having closing flaps on the sides thereof, and curved folding lines hingedly connecting said closing flaps to said respective main panels whereby said closing flaps form sides to the article carrier and maintain their position once placed in a closing position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,624,439	Senat	Apr. 12, 1927
1,852,527	King	Apr. 5, 1932
3,084,843	Urban	Apr. 9, 1963

FOREIGN PATENTS

768,763	Great Britain	Feb. 20, 1957