

Nov. 24, 1964

G. E. STRUBLE

3,158,308

BOX WITH CRADLE SUPPORT

Filed March 11, 1963

2 Sheets-Sheet 1

FIG. 1.

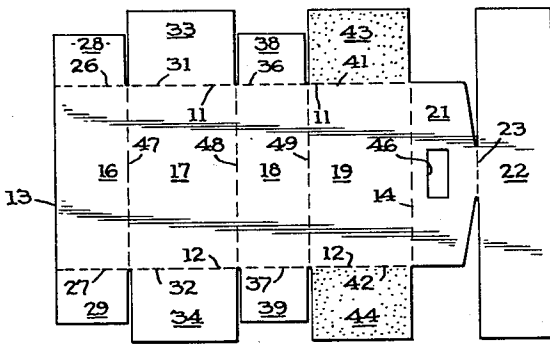


FIG. 2.

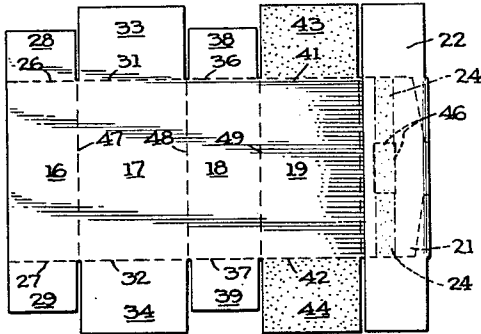


FIG. 7.

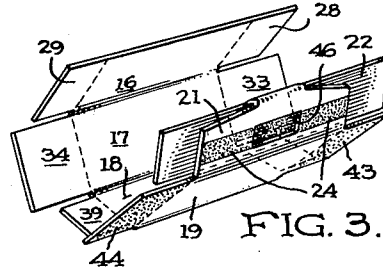
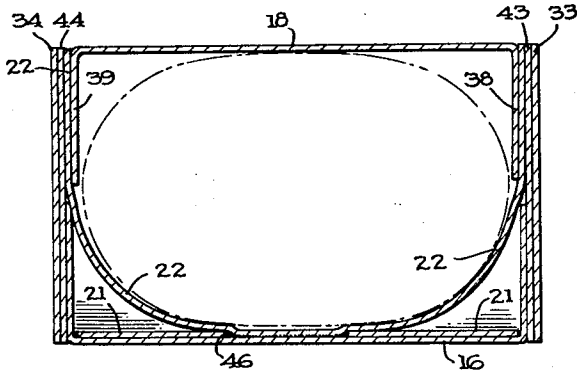


FIG. 3.

FIG. 4.

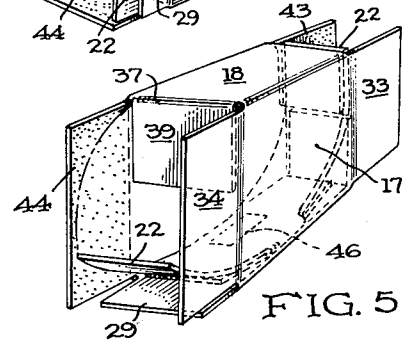
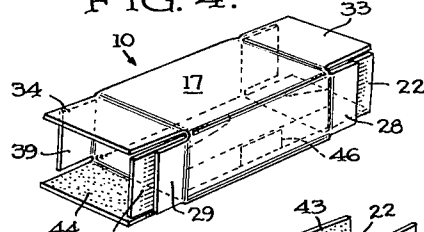
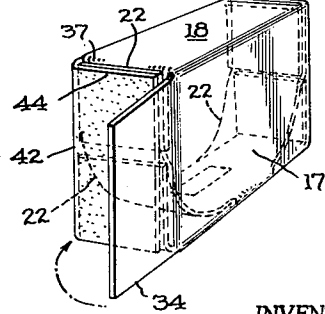


FIG. 5.

FIG. 6.



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FIG. 8.

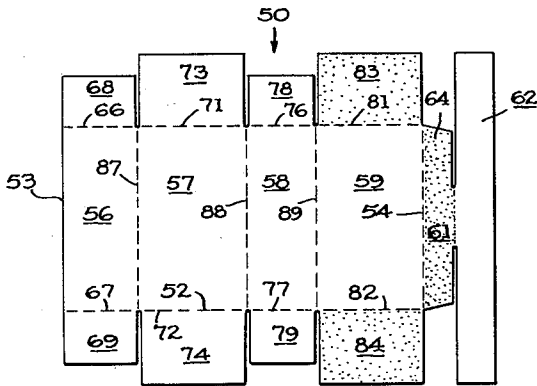


FIG. 12.

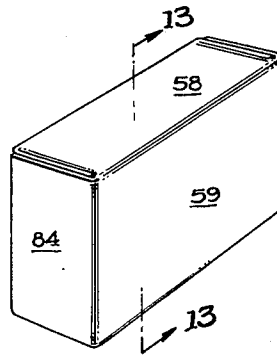


FIG. 9.

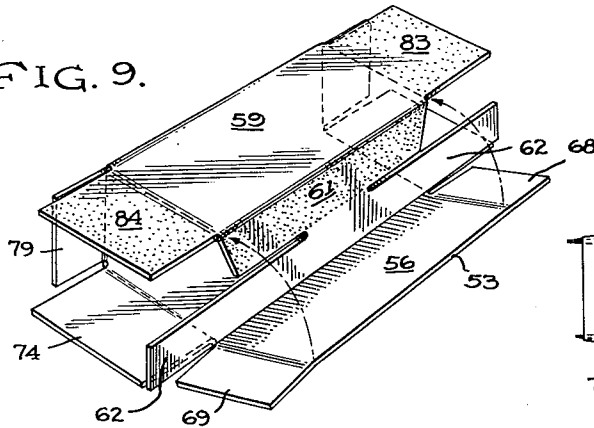


FIG. 10.

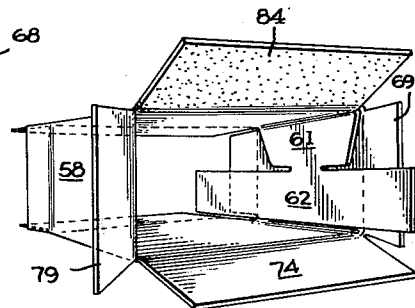


FIG. 13.

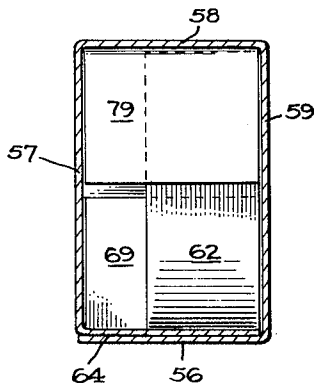
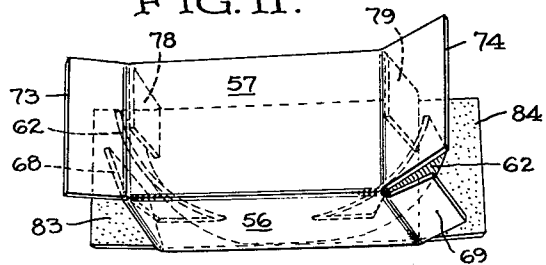


FIG. 11.



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**BOX WITH CRADLE SUPPORT**

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7 Claims. (Cl. 229-14)

This invention relates generally to improvements in cartons and more particularly to a novel support and protection within a box for objects whose shape does not conform to the rectangular shape of a carton into which it is placed.

A primary object of the present invention is to provide a novel blank and carton constructed from paperboard or the like which is readily adapted for use in automatic erecting and packing equipment which includes a novel support panel for protecting a packaged article and preventing damage to the carton itself.

The present invention provides support and protection of an object whose shape does not conform to the rectangular shape of a carton into which it is placed such as in the case of an oval object.

A further object of the present invention is to overcome the problem created in the packaging of odd shaped objects in rectangular cartons whereby the movement of the object inside the carton may cause damage to the product itself and damage to the carton's appearance. Damage to the carton may be indirectly caused by the shape of the product when such shape does not help in strengthening the unsupported corners of the carton. Also the product tends to relocate itself with its major axis on a corner to corner alignment. This alignment of the product withdraws support from all six planes of the carton and makes it liable to crushing. This would not happen in a carton of the same size with good internal support from the product.

Basically the invention is a simple seal end carton with a support panel which remains flat against the side panel until after the carton has been opened and the product inserted on high speed mechanical filling equipment. The support panel is formed around the product by the closing and sealing units of the high speed mechanical filling equipment without the necessity of adding to or modifying such filling equipment.

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 novel blank of the invention looking at the inner surface thereof;

FIG. 2 is a plan view of the blank of FIG. 1 with the support panel initially folded flat;

FIG. 3 is a perspective view of the blank of FIGS. 1 and 2 in an intermediate folded position;

FIG. 4 is a perspective view showing the completely erected carton formed from the blank of FIG. 1 with the end flaps thereof open;

FIG. 5 is a perspective view of the novel carton showing the partially formed cradle support of the present invention;

FIG. 6 is a perspective view showing the step following FIG. 5 in the formation of the cradle support;

FIG. 7 is a longitudinal cross section view of the novel carton in its finally erected condition;

FIG. 8 is a plan view of a modified blank of the present invention looking at the outer surface thereof;

FIG. 9 is a perspective view of the modified blank of FIG. 8 showing the novel carton in a partially erected condition;

FIG. 10 is a perspective view showing the completely

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erected carton formed from the blank of FIG. 8 with the end flaps thereof open;

FIG. 11 is a perspective view of the novel carton with the cradle support in a partially formed condition;

FIG. 12 is a perspective view of the novel carton fully closed; and

FIG. 13 is a transverse cross section of the novel carton on line 13-13 of FIG. 12.

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 material or the like. The blank includes an elongated body portion which is substantially rectangular and is boarded by the upper margin fold line 11 parallel to a lower margin fold line 12 and normal to the margin fold lines 11 and 12 are edge 13 and end margin fold line 14. Blank 10 comprises a series of linearly disposed hingedly connected panels including a first side wall panel 16, a second side wall panel 17 a third side wall panel 18, and a fourth side wall panel 19. Fourth side wall panel 19 is hingedly connected to intermediate panel 21 at the end margin fold line 14. In turn intermediate panel 21 is connected to support panel 22 at fold line 23. The first side wall panel 16 has hingedly connected at opposite ends thereof end flaps 28 and 29 at fold lines 26 and 27 respectively, which are colinear with the upper and lower margins 11 and 12 respectively. The second side wall panel 17 has hingedly connected at fold lines 31 and 32 end flaps 33 and 34 respectively. The third side wall panel 18 has end flaps 38 and 39 hingedly connected at fold lines 36 and 37 respectively. The fourth side wall panel 19 has end flaps 43 and 44 hingedly connected at fold lines 41 and 42 respectively. End flaps 43 and 44 have a suitable adhesive applied to both the inner and outer surfaces of said flaps. Intermediate panel 21 has an opening 46 therethrough. The glue on end flaps 43 and 44 as indicated by the stippling thereon is applied by automatic equipment as is conventional in the art.

The panels 16 through 19 are connected by means of a plurality of mutually parallel fold lines normal to and terminating at the upper and lower fold line margins 11 and 12 as indicated by fold lines 47, 48 and 49.

It will be noted that the side wall panels 16-19 and intermediate panel 21 are of an equal width while support panel 22 has a width substantially equal to the width of one of the side panels and the longer end flap extensions attached hereto.

As shown in FIG. 2 the novel carton is initially erected first by folding support panel 22 on fold line 23 over intermediate panel 21. By conventional gluing apparatus a glue strip 24 is then applied on the outer surface of intermediate panel 21. The thickness of the board of intermediate panel 21 prevents the glue wheel of the gluing apparatus from touching the adjacent surface of support panel 22 except for the portion of the surface of panel 22 that is pressed into opening 46 during the folding operation. This is followed by the folding to form the carton as further shown in FIG. 3. When folded as shown in FIG. 4 carton 10 will have panel 16 in juxtaposition with intermediate panel 21 and fold line 23 in juxtaposition with fold line 47. When formed in this manner glue strip 24 is located so as to at least partially cover the surface of panel 22 exposed by opening 46 in intermediate panel 21. Therefore, in the gluing process the carton as shown in FIG. 4 is formed and the glue strip surface 24 performs the dual functions of adhering the intermediate panel 21 to side wall panel 16 thereby forming the finished carton, and in addition firmly adheres support panel 22 to side wall panel 16 thereby holding this panel in position for forming the cradle in the novel carton 10.

After an object has been placed in carton 10 the forma-

tion of the cradle takes place as shown in FIG. 5. End flaps 38 and 39 are folded in forming the carton along fold lines 36 and 37 respectively. Next the cradle formation is continued by the bending of the ends of support panel 22 so that the ends thereof are located in juxtaposition with end flaps 38 and 39. Next, end flaps 28 and 29 are folded along their respective fold lines 26 and 27. The following step as shown in FIG. 6 is the folding of end flaps 43 and 44 along their respective fold lines 41 and 42. Since end flaps 43 and 44 contain an adhesive substance on both their inner and outer surfaces, they adhere to the ends of support panel 22 and the outer surfaces of end flaps 28 and 29 respectively, with their inner surfaces and adhere to end flaps 33 and 34 respectively, which are now folded along their respective fold lines 31 and 32 so as to be in juxtaposition with end flaps 43 and 44 respectively. The carton containing the article which it will carry has now been completely formed and sealed. FIG. 7 shows a longitudinal cross section view of the carton containing an oval shaped product such as an oval bar of soap. This view illustrates the positions of the end flaps with respect to the ends of support panel 22 and also illustrates the connection between support panel 22 and side panel 16.

FIG. 8 shows a plan view of another embodiment of a carton embodying the advantages of the present invention. The novel blank is indicated generally at 50 and includes an elongated body portion which is substantially rectangular and includes an upper margin fold line 51 parallel to a lower margin fold line 52 with end 53 and end margin fold line 54 normal to margin fold lines 51 and 52. The blank 50 comprises a series of linearly disposed hingedly connected panels including a first side wall panel 56, a second side wall panel 57, a third side wall panel 58, and a fourth side wall panel 59. The fourth side wall panel 59 is connected to a support panel 62 by a glue flap panel 61. Only the outer surface 64 of connecting panel 61 shown by the stippling thereon has an adhesive material applied thereto. The first side wall panel 56 has end flaps 68 and 69 hingedly connected thereto at fold lines 66 and 67. The second side wall panel 57 has end flaps 73 and 74 hingedly connected thereto at fold lines 71 and 72. The third side wall panel 58 has end flaps 78 and 79 hingedly connected thereto at fold lines 76 and 77. The fourth side wall panel 59 has end flaps 83 and 84 hingedly connected thereto at fold lines 81 and 82 respectively.

In the perspective view of FIG. 9 the novel carton is folded along the fold lines 87, 88 and 89 separating side panels 56, 57, 58 and 59 and along fold line 54. Side panel 56 is shown in a partially folded position in order to better illustrate how the gluing strip 61 will hold carton 50 together while positioning support panel 62. When completely folded, adhesive means on the surface 64 of glue flap panel 61 adheres to the inner surface of side panel 56 forming the carton as shown in FIG. 10.

After the product to be carried in the carton has been inserted therein end flaps 78 and 79 are folded along their fold lines 76 and 77 respectively as in FIG. 11, and as previously described in connection with FIGS. 1-7 the support panel 62 is bent with its ends in juxtaposition to end flaps 78 and 79. The remaining end flaps are then closed and glued in a manner similar to that disclosed in the first embodiment. The closed sealed carton is shown in FIG. 12. A transverse cross section on lines 13-13 of FIG. 12 is shown in FIG. 13. In this figure the inter-folding of end flaps 69 and 79 with one end of support panel 62 is clearly shown.

Although the embodiment shown in FIGS. 8-13 is a more economical version of the carton of the present in-

vention this arrangement gives the carton the same cradle effect as the embodiment disclosed in FIGS. 1-7, but withdraws the compression strength found in the full panel construction.

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 drawing and described in the specification, but only as set forth in the appended claims.

What is claimed is:

1. A blank for producing cartons with additional support for the objects packaged therein comprising a first, second, third and fourth side wall panel, an intermediate connecting panel connected by one of its edges to said fourth side wall panel, a supporting panel connected to said intermediate connecting panel on its opposite edge, adhesive means connecting said intermediate connecting panel with said first side wall panel, and a pair of end flaps for each of said side wall panels with one each of said flaps located at opposite ends of each of said side panels, said supporting panel having an end to end distance greater than the width of each of said side panels.

2. The blank in accordance with claim 1 wherein said adhesive means joins said first side panel and said intermediate connecting panel in juxtaposition relationship.

3. The blank in accordance with claim 1 wherein said intermediate connecting panel has an opening therethrough in alignment with said adhesive means when said blank is formed into a carton whereby said adhesive means directly connects said first side panel and said supporting panel.

4. The blank in accordance with claim 1 wherein said intermediate connecting panel has said adhesive means on one surface thereof, said adhesive means located between said intermediate connecting panel and said first side wall panel.

5. The blank in accordance with claim 4 wherein said intermediate connecting panel and said supporting panel have a distance from the edge of one to the edge of the other substantially equal to the edge to edge distance in the same direction across said third side wall panel.

6. The blank in accordance with claim 1 wherein one pair of said end flaps connected to one of said side wall panels has adhesive means thereon, said adhesive means on said end flaps being on both surfaces thereof.

7. A blank for producing cartons with additional support for the objects packaged therein comprising a first, second, third and fourth side wall panel, an intermediate connecting panel connected by one of its edges to said fourth side wall panel, a supporting panel connected to said intermediate connecting panel on its opposite edge, adhesive means connecting said intermediate connecting panel with said first side wall panel, and closure means located at opposite ends of each of said side panels, said supporting panel having an end to end distance greater than the width of each of said side panels.

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