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Schillinger et al.

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[54] **DISPLAY CARTON WITH INTERNAL SUPPORT**

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[52] **U.S. Cl.** **206/45.14**

[51] **Int. Cl.** **B65d 5/50**

[58] **Field of Search** ..... 206/45.14, 45.19, 206/45.31, 45.34, 46 FR; 229/14 C, 16 D

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[57] **ABSTRACT**

A shadow box with an internal object-supporting cradle that is formed from a support panel. The cradle is formed by articulated members which in turn are derived from the support panel by suitable cuts and scores. The entire shadow box is made of one piece of foldable material such as paperboard or the like.

7 Claims, 4 Drawing Figures

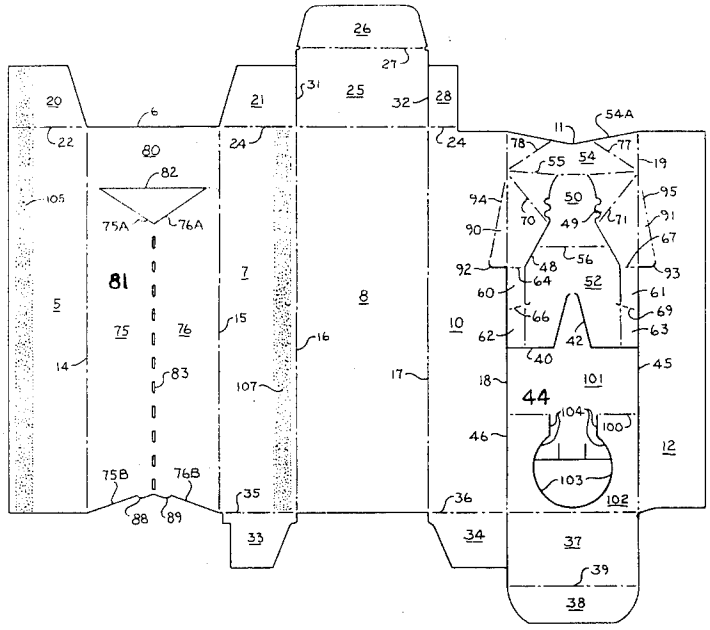


FIG. 1

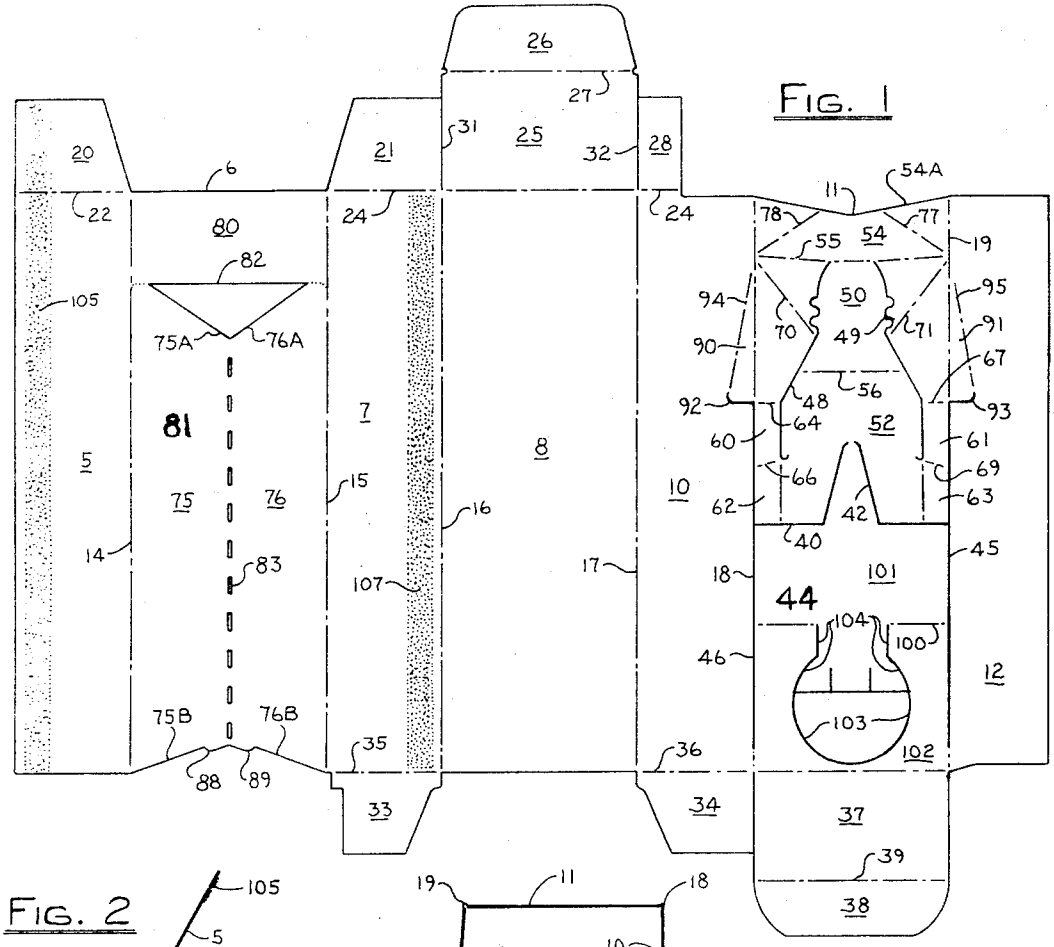
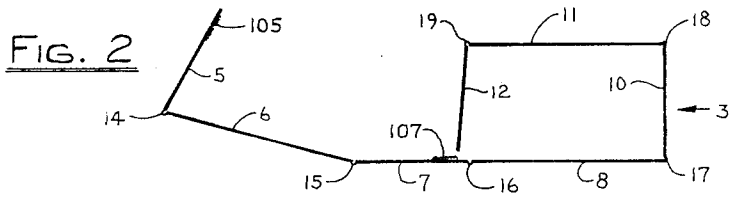


FIG. 2



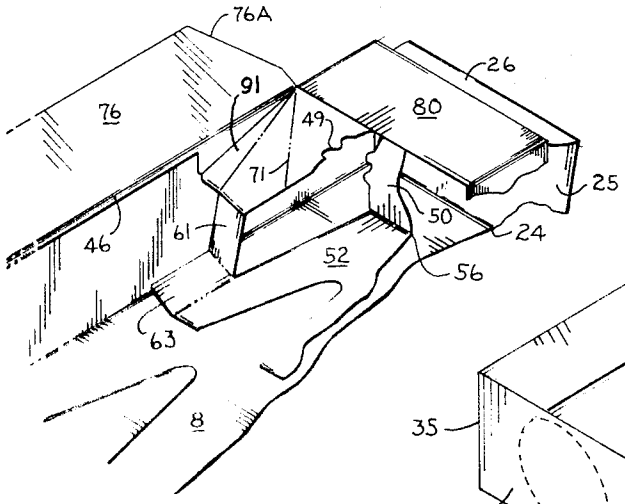


FIG. 3

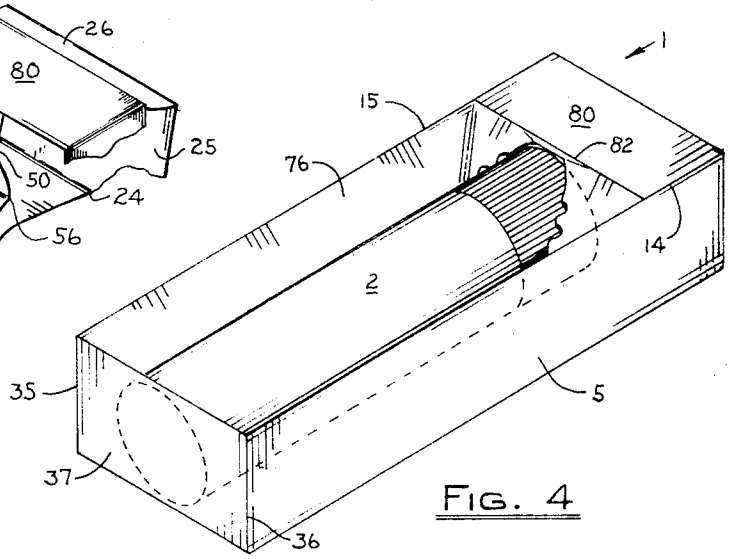


FIG. 4

DISPLAY CARTON WITH INTERNAL SUPPORT

SUMMARY AND BACKGROUND OF INVENTION

The present invention relates to an improvement in display cartons. One aspect of the invention deals with a shadow box made from one piece of foldable material, which box has a cradle for supporting the object to be displayed in connection with which the invention without being limited thereto will be described.

A recurring problem in shadow box packaging is how to hold the object to be packaged in its proper position within the display space but to have a carton into which the object can easily be loaded. Sometimes this problem is solved by making use of the shape of the object in such a way that it cannot rotate, or cannot slide up or down, or cannot fall out or otherwise get out of proper position. Another technique for coping with the problem is to provide an insert of some sort which is attached to the shadow box, the object, or perhaps both and assist in holding the box and object in proper relationship and in retaining the object within the box.

Particular problems arise when the object has a lot of weight hence inertia forces in handling may cause it to tear partitions, retaining means, etc. in the box and thereby to fall out of the front of the shadow box.

A shadow box made according to the present invention is particularly efficacious in retaining a relatively heavy object while at the same time providing convenience in inserting or loading the object into the box preparatory to shipping from the factory to a retail outlet. The present invention provides a resilient cradle formed by appropriate cuts and scores in an intermediate or internal panel within the shadow box. This cradle utilizes the folding qualities of the shadow box material — which is ordinarily paperboard or some similar paper product although it may be made of plastic sheet — to hold the relatively heavy object in position.

By way of a specific example, a shadow box with the subject cradle, made of only one ounce of paperboard, was successfully able to retain a 6½–7 ounce cylindrical metal container of pressurized hair spray or deodorant. The resilience and foldability of the paperboard material permitted making this of one piece, the seams of which could be glued at the factory whereby a flattened tube could be delivered to the customer (which is a conventional practice in the trade) and thereafter erected and loaded. Moreover, the present invention could be easily loaded with an object from the front merely by flexing the cradle at one end and a bottom retaining cradle at the other. In the above example of packaging hair spray or deodorant, the cylindrical container when loaded in the front also folded a variety of the panels into their proper place and also cooperated with certain parts of the container to hold them in place as will be further described below.

It is an object of this invention to improve the one piece shadow box type of display carton. It is another advantage to provide a shadow box which can be conveniently front loaded yet will retain the object therein. A further object is to provide an improved display container of the shadow box type which is made from one piece of foldable material such as paperboard, boxboard, or even plastic and has internal support means.

Other features, objects and advantages will become apparent from the following specification and disclosure when read in conjunction with the drawings wherein:

FIG. 1 represents a plan view of the inside of the blank cut and scored according to the present invention;

FIG. 2 is a simplified schematic cross section across the middle of a container (laterally) showing how the panels are folded together from a partly erected position;

FIG. 3 is a partly cut-away isometric drawing of an erected container with a shadow panel folded out of position for clarity;

FIG. 4 is an isometric view of part of an erected carton with an object packaged therein.

While a shadow box **1** according to the present invention can successfully accommodate objects of a large number of shapes, it will be assumed for the sake of illustration that a substantially cylindrical object **2** as illustrated in FIG. **4** is to be packaged.

The blank of FIG. **1** contains reading from right to left a series of hingedly interconnected panels which form the entire blank of which certain panels have side and end closure tabs and flaps. More specifically, blank **3** has an outer side panel **5**, a front panel **6**, another outer side panel **7**, rear panel **8**, a glue or inner side panel **10**, a support panel **11**, and a second inner side or glue panel **12**. These panels are respectively hingedly interconnected one to another in side by side relationship by a plurality of longitudinal folding or score lines, one each of which scores is between each two panels. The front panel **6** is hingedly connected to the outer side panels **5, 7** on each side thereof by longitudinal score (folding) lines **14** and **15**. The rear panel **8** is hingedly connected by a longitudinal score line **16** to the outer side panel **7** and to the first inner glue panel **10** by score line **17**.

The support panel **11**, concerning which more details are described below, is flanked on each side by the glue panels **10, 12** and connected thereto by respective score lines **18** and **19**.

A variety of flaps and tabs are also hingedly connected to the aforesaid panels. For instance, the top closure side tabs **20** and **21** respectively connected to outer side panels **5, 7** by lateral score lines **22** and **24**. Lateral score **24** also extends across the rear panel in order to hingedly connect the top end closure panel **25** to the upper end of the rear panel **8**. A top insert flap **26** is hingedly connected by score line **27** to the outer end of the top closure panel.

If desired, a supplementary or optional end tab **28** is hinged by score **24** to the upper end of glue panel **10**.

It will be appreciated that the supplemental and top and bottom side closure tabs are separated from adjacent members hinged to adjacent panels by cut lines **31** and **32**.

The bottom of the carton when erected is closed by bottom side closure tabs **33** and **34** which are respectively at the bottom of the outer side panel **7** and the glue panel **10**. Lateral score lines **35** and **36** connect the tabs to said panels. The bottom end closure panel **37** is separated from tab **34** by a cut connected to the bottom of the support panel by an extension of folding lines **34**. The closure flap **38** is hingedly connected to the extreme bottom end closure panel **37** by lateral score line **39**.

The support panel **11** is an important part of the present invention and its various parts are now described in detail. A generally lateral cut line **40** goes across the central portion of this support panel and divides it into

top and bottom support sections 42, 44, the top 42 being the one that contains the cradle mechanism. Left and right longitudinal cut lines 45, 46 extend of each side along the folding lines 18, 19, avoiding going completely to the end. In fact, it is very important to avoid cutting clean through to the end on either end but it is important that these longitudinal cut lines intersect lateral cut 40.

The top panel section is divided longitudinally into several portions by left and right cradle cut lines 48 and 49. The cradle (see FIG. 3) for the object is formed out of the material between the cradle cut lines. A cradle head portion 50 is at the upper end while a cradle bottom 52 is at the lower end. The cradle head 50 is connected between an upper cradle support panel 54 and the cradle bottom by the lateral folding or score lines 55 and 56.

Cradle leg panels 60 and 61 are located to the left and right of the cradle cut lines 48, 49 respectively. Each of the cradle legs 60, 61 must be separated from the lateral cut 40 by a leg end panel 62, 63 respectively. Each cradle cut line terminates at the bottom of its respective cradle leg while each support panel longitudinal cut line 45, 46 terminates at the upper end of its respective cradle leg 60, 61. It will be observed that each cradle leg lies between its respective longitudinal and cradle cut lines. The cradle cut lines are, of course, shaped in such a way as to retain the object to be packaged in the display carton.

The upper and lower sides of the cradle leg are connected by score lines 64, 66, 67, 69 respectively extending between the cradle cut lines 48, 49 and longitudinal cut lines 45, 46 for purposes that will be presently explained.

A pair of oblique folding lines 70, 71 run from the lower corners of the support panel until they intersect the cradle cut lines. The slop or angle of oblique lines 70, 71 are determined by how the panels on each side of same to match with the shadow panel 75, 76 free edges 75A, 76A in the front panel 6. The cradle head folding line 55 preferably extends over to the edge of the support panel where it intersects with scores 70, 71 on each side. Preferably the cradle head folding line is not straight but is slightly curved as illustrated in FIG. 1.

The upper cradle support panel has a top edge 54A which preferably is curved to facilitate insertion of the end closure flap 26. Also, to assist in the support panel folding, score lines 77 and 78 extend from the upper cradle support panel free edge to a common intersection with lines 70, 71 and longitudinal scores 18, 19.

The front panel 6 is divided into an upper front panel section 80 and lower front panel section 81 by a lateral cut 82. The lower front panel section is divided into left and right shadow panels 75, 76 by a longitudinal weakness line, preferably perforated line 83. Preferably the longitudinal and lateral cut lines 83, 82 in the front panel do not per se intersect because the upper end 75A, 76A of each shadow panel is cut obliquely to provide a mitered appearance in the finished erected shadow box. These mitered upper ends fit into the oblique corners formed by scores 70, 71 when the box is erected.

At the very bottom end of each shadow panel 75, 76 there is also an oblique cut edge 75B, 76B to provide a mitered appearance. The tabs 88, 89 on the edge adjacent the front panel longitudinal cut line 83 assist the shadow panels to be held in place when the object (here a cylinder 2) is inserted into the subject shadow box.

The respective cradle spring panels 90, 91 are formed in generally triangular shape by a short lateral cut line 92, 93 extending from the top of each support panel longitudinal cut 45, 46 inwardly of its respective glue panel to where it intersects with a very heavily scored or preferably cut-scored fold lines 94, 95. These cradle spring panels are a major contributing factor to the resilient support of the object and also facilitate the articulated movement of the various parts folded out of the plane of the support panel.

The bottom support panel section 44 folds along score line 100 to provide an inner rear panel 101 and a bottom shadow panel 102. There is a cut-out 103 in the bottom shadow panel so contoured as to receive the object to be packaged. In the present instance the cut-out is approximately semi-circular with cut lines 104 extending therefrom to score 100.

As illustrated in FIGS. 1, 2, 3 each outer side glue panel is glued to one of the inner glue panels. The line of glue 105, 107 in each instance must lie along the inner glue panel between the cradle spring panels and the longitudinal cut score lines 18, 45; 19, 46.

When the panels are thus glued (FIG. 3), the container is folded flat with panels 6 and 7 on one side and 5 and 8 on the other and may be readily erected by pushing on the extreme outside edges 14, 16 until the rectangular cross section of an erected carton is assumed (FIGS. 2 and 4). If additional rigidity is desired, the supplemental or optional end tab 28 may be glued to the outer side panel tab 5.

When the container is erected as in FIGS. 2, 3, 4 the cradle legs 60, 61 depend vertically. The cradle spring panels and the adjacent part (front cradle panel 106, 107) of the top support section 54 helps to suspend the cradle leg in each case. The score lines 70, 71 assist in giving the mitered look because they mate with the top edges 84, 85 of the shadow panels. The cradle head and bottom in the preferred embodiment fold deeply into the box so that the cradle bottom rest on or almost rests on the rear panel. The degree of resting in the inward folding determines the location of the cradle leg score lines as well as the fold line between the cradle head and bottom.

The present carton is most convenient for front loading by shoving the top end of the object 2 (FIG. 4) up against the cradle head 50, moving it up under the upper front panel section 80 (this causes the required articulation to FIG. 3 positions), then pushing the bottom of the object down to engage the cut-out 103 in the bottom shadow panel. The resilience of the various parts will cause them to assume the correct final positions once the object is in place. The tabs 88, 89 are trapped between the object 2 and the edges of cut-out 103 thus positively holding the shadow panels 75, 76 in place. The front end loading can be done before or after the weakness line 83 is broken. A stronger, more easily handled and erected blank results if the weakness line 83 is left unbroken until this time.

I claim as my invention:

1. A blank of foldable material for a one piece display carton of the shadow box type which has a cradle for supporting the object to be displayed in the erected shadow box comprising

a front panel, rear panel, and support panel;

a pair of outer side panels and a pair of inner glue panels, the inside of said side panels and the outside of said glue panels being adapted to be secured to each other, at least one of said side panels being between said front and said rear panel; and at least one of said glue panels being between said rear panel and said support panel;

all of the aforesaid panels being in side by side relationship and hingedly interconnected by a plurality of score lines, each score being between each two panels that extends longitudinally of the blank and is parallel with the other such score lines;

a first generally laterally extending cut in said front panel dividing it into upper and lower front sections;

a first longitudinal line of weakness in said lower front section dividing it into left and right shadow panels;

a second generally laterally extending cut in said support panel dividing same into top and bottom support sections;

second and third longitudinal cut lines part of the way along the edges of said support panel intersecting said second lateral cut;

left and right hand cradle cut lines extending generally longitudinally within said top support section, shaped to receive the object to be displayed and defining an articulated object cradle portion in said top section between said left and right cradle cut lines flanked on each side by an articulated cradle suspension portion;

each said articulated cradle suspension portion having a cradle leg panel located between one of said cradle cut lines and one of said second and third longitudinal cuts, the top termini of the latter cuts being substantially at the top terminus of said cradle leg panels and the lower termini of said cradle cut lines being at the lower termini of said cradle leg panel, and

a score line at each of the top and bottom termini of each said cradle leg panels intersecting respectively one of the cut lines bounding said cradle leg panels;

a cradle support panel at the top end of said top support section above the top termini of said cradle cut lines;

a lateral fold line between said cradle cut lines hingedly connecting said cradle support panel and said object cradle portion; and

another lateral fold line within said object cradle portion between the top termini of said cradle panels and said lateral fold line.

2. A blank according to claim **1** wherein each side glue panel has a cradle spring panel lying along the respective score line between said support panel and one of said glue panels and above the top termini of said second and third cuts, formed in said glue panel by lines of weakness to enable the spring panels to fold inwardly of the carton when erected and between them to resiliently support said articulated cradle suspension portion.

3. A blank according to claim **1** wherein the outside of each glue panel is secured to the inside of one of said side panels.

4. A blank according to claim **1** further including a bottom end closure panel hingedly connected by a lateral score to the bottom of said support panel and the bottom termini of said second and third longitudinal cuts are spaced only a short distance from the last said lateral cut.

5. A display carton of the shadow box type which has a cradle for supporting the object to be displayed and which is made from one piece of foldable material comprising

a front panel, rear panel, and support panel;

a pair of outer side panels and a pair of inner glue panels, the inside of said side panels and the outside of said glue panels being secured to each other, at least one of said side panels being connected between said front panel and said rear panel; and at least one of said glue panels being connected between said rear panel and said support panel;

all of the aforesaid panels being in side by side relationship and hingedly interconnected by a plurality of score lines, each score being between each two panels that extends longitudinally of the piece of material and is parallel with the other such score lines;

a first generally laterally extending cut in said front panel dividing it into upper and lower front sections;

a first longitudinal line of weakness in said lower front section dividing it into left and right shadow panels;

a second generally laterally extending cut in said support panel dividing same into top and bottom support sections;

second and third longitudinal cut lines part of the way along the edges of said support panel intersecting said second lateral cut;

left and right hand cradle cut lines extending generally longitudinally within said top support section, for receiving the object to be displayed and defining an articulated object cradle portion in said top section between said left and right cradle cut lines flanked on each side by an articulated cradle suspension portion;

each said articulated cradle suspension portion having a cradle leg panel located between one of said cradle cut lines and one of said second and third longitudinal cuts, the top termini of the latter cuts being substantially at the top terminus of said cradle leg panels and the lower termini of said cradle cut lines being at the lower termini of said cradle leg panel, and

a score line at each of the top and bottom termini of each said cradle leg panels intersecting respectively one of the cut lines bounding said cradle leg panels;

each side glue panel having formed therein by lines of weakness a cradle spring panel lying along the respective score line between said support panel and one of said glue panels and above the top termini of said second and third cuts, each such spring panel being folded inwardly of the carton and between them resiliently supporting said articulated cradle suspension portion;

a cradle support panel at the top end of said top support section above the top termini of said cradle cut lines; and

a lateral fold line between said cradle cut lines hingedly connecting said cradle support panel and said object cradle portion.

6. A display carton according to claim 5 wherein that part of the object cradle portion between said another lateral fold line and said second laterally extending cut is supported substantially against the inside of the rear panel.

7. A display carton according to claim 5 wherein the outside of each glue panel is secured to the inside of one of said side panels by adhesive located between said rear panel and each of said cradle spring panels.

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