

[54] FOLDING CARTON WITH PARTITION AND BLANK THEREFOR

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[56] **References Cited**

UNITED STATES PATENTS

1,112,752 10/1914 Avellanal 229/27

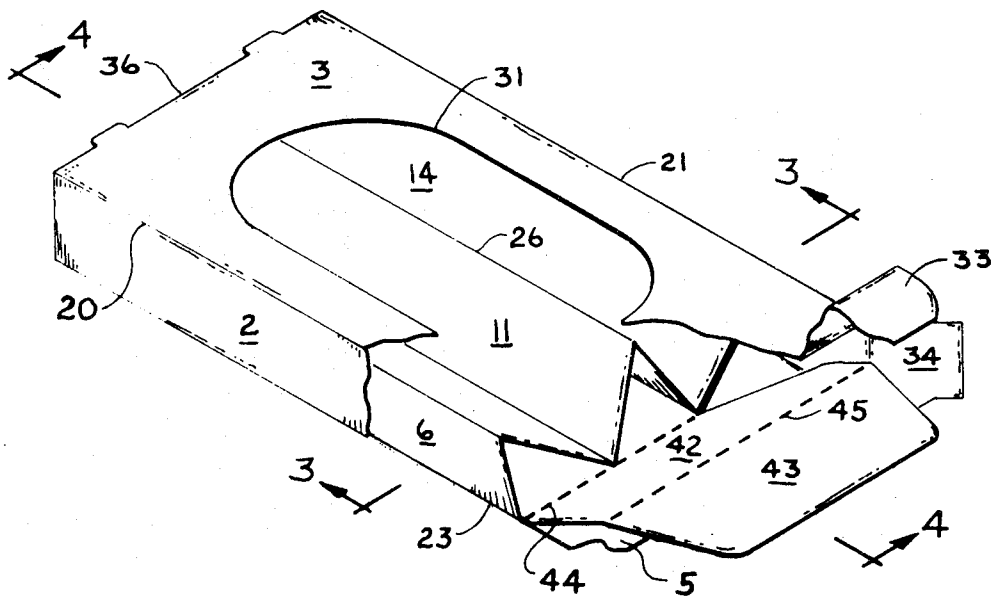
1,337,091	4/1920	Neski	229/27
2,008,949	7/1935	Ellsworth	229/27 X
3,158,259	11/1964	Pantalone	206/45.14
3,405,860	10/1968	Mamizza	206/45.14 X
3,570,658	3/1971	Swamberg	206/45.14
3,575,286	4/1971	Rosenburg, Jr.	229/27 X
3,687,279	8/1972	Stone	206/45.14

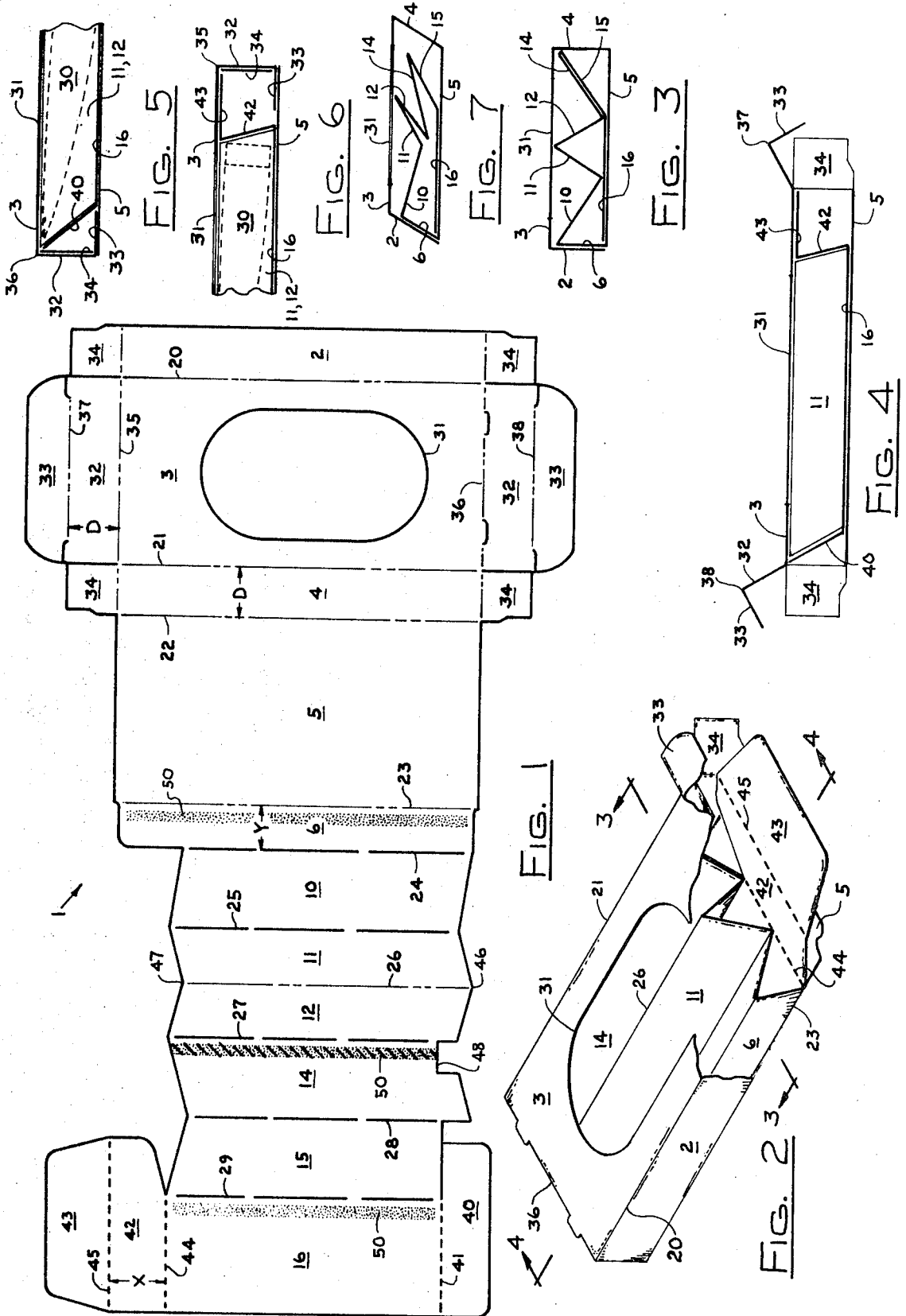
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[57] **ABSTRACT**

A folding carton having an internal partition is made from one piece of material. Means are also provided to secure the contents of the carton in certain positions.

10 Claims, 7 Drawing Figures





FOLDING CARTON WITH PARTITION AND BLANK THEREFOR

SUMMARY AND BACKGROUND OF INVENTION

This invention relates to an improvement in folding cartons. One aspect of the invention relates to a folding carton having an internal partition which is formed from one piece of foldable material such as a blank cut out of paperboard in connection with which the invention will be described without intending to restrict the same thereto.

Cartons having various partitions have heretofore been known but it has been a common practice to form the partition from separate pieces of material and to insert it into the erected carton.

The present invention forms the carton and its internal partition from one piece of material whereby erecting the carton will cause the partition to be erected thus facilitating automatic or high production manual loading operations. Because such cartons normally have several objects included therein, thus having two or more items to be inserted either separately or simultaneously, the extra handling operations require a high degree of simplicity and trouble free structure.

Accordingly, an object of this invention is to provide a carton made from one piece of material and having an internally located partition which can be erected in response to forming the carton to its final shape. It is a further object of the invention to provide a carton having means for retaining its contents at a certain predetermined position with the carton.

In its preferred and disclosed form, a windowed or display carton is provided having an internal partition and object locating or retaining means particularly suited for receiving two tubes of material and holding same in place adjacent a contents display window.

Other objects, advantages and features of the invention may be discerned from a reading of the following specification together with the annexed drawing wherein:

FIG. 1 is a plan view of a blank for making the carton and partition of the present invention as seen from the side having the outwardly facing carton;

FIG. 2 is an isometric partly cutaway view of an erected carton;

FIG. 3 is an end view of the erected carton as seen along section 3—3 of FIG. 2;

FIG. 4 is a side view of the erected carton as seen along 4—4 of FIG. 2 illustrating the manner in which a tube is retained within the carton in register with the window; and

FIGS. 5 and 6 show portions of the carton of FIG. 4 when loaded with tube(s); and

FIG. 7 shows a flat blank.

The blank 1 of FIG. 1 has a series of panels hingedly connected by score lines, cutscore lines, and perforations. The particular material, its weight, and the direction of grain will determine the type of score, etc., most desirable for ease of folding while yet providing a carton with suitable strength.

Reading from right to left as seen in FIG. 1 there are a first side, front, second side, back and glue panels 2, 3, 4, 5, and 6 respectively which are used to form the tubular portion or outer portion of the container. Connected to these on the left as viewed in FIG. 1 is a further series of panels used to form a partition structure that can be erected to its proper position in response to

erecting the tubular portion of the container. The partition structure as will be evident from the following discussion is located completely within the tubular container once the same is formed, and similarly is disposed within the flattened blank from which the container is erected. The partition structure includes, reading from right to left in FIG. 1, a first support panel 10, a pair of center panels 11, 12, a second support panel 14, a third or inside support panel 15, and an inside back panel 16.

The above defined panels for the tubular container and for the partition structure are connected to each other by a plurality of parallel score lines 20, 21, 22, 23, 24, 25, 26, 27, 28 and 29 (reading from right to left) which extend longitudinally of the container.

The end structures of this container have both inner and outer panel arrangements (FIGS. 4 - 6). The outer panels are used to close the ends of the carton. The inner panels are used to position the carton contents illustrated as a pair of tubes 30 (FIGS. 5, 6) in position relative to the window 31 which is cut in the front panel. Window 31 can either be left open or covered by a patch of transparent material adhered to the inside of the carton such as cellophane, polyethylene or polystyrene.

The outer end members are all mounted on the outer most ends of the two side panels and front panel.

The inner end arrangements are on the other hand supported from the inside back panel 16.

The outer members comprise on each end of the front panel an outer end panel 32 and an end flap 33 with a pair of tabs 34 at the end of each side panel 2, 4. The outer end panels 32 have a depth D which is substantially the same as the depth D of the side panels 2, 4 and corresponds substantially to the depth of the carton when the same is erected. The outer end panels and tabs are separated from the ends of the front and side panels respectively by a horizontal or lateral score lines 35, 36 and the flaps 33 are separated from end panels 32 by further lateral score lines 37, 38.

The inner end construction comprises a tube crimp panel 40 hingedly connected by a lateral score line 41 (preferred and shown as perforated) to one end of the inside back panel 16. At the other end of the panel 16 is an inner end panel 42 which has a depth X bigger than the depth D referred to above for other panels. Outwardly of panel 42 is a holding panel 43. Both 42 and 43 are connected by lateral scorelines 44, 45 (preferred and shown as perforated) to their respective adjacent panels.

In the preferred embodiment, the width of the tube crimp panel 40 and of the inner end panel 42 is substantially the width of the front or back panels 3, 5, being preferably a small amount (from one-sixteenth to one-fourth inch) less in width for ease of assembling the container.

The two center panels 11, 12 are the mirror images of each other. Preferably the inner end panels 42, 40 are supported in oblique positions (FIG. 3) when the carton is completely erected and filled with tubes 30. To that end the center panels 11, 12 are given a trapezoidal or at least quadrilateral shape. As illustrated, the ends of these panels are cut at an oblique angle at one end so that their ends intersect along score 26 at a position where the apex 46 (FIG. 1, 4, 5) is substantially on or at the lateral score line 36 when the container is

completely erected and for that matter even when in flattened form.

At the other end of the center panels is a preferably parallel slope where the oblique ends again intersect on score line 26 at the apex 47.

As seen in FIGS. 2 and 4 - 6 the end panels 40, 42 are thereby supported at angles by resting upon the oblique ends of the center panels. Holding panel 43 is held against the front panel with its free edge at score 35 such that the end panel 42 is held in place. In addition end panel 42 has a depth X larger than the depth D whereby it has to be flexed out of its normal flat position in order to be moved to the oblique position of FIG. 4. Because of this over-center sort of action, the panel 42 is locked into position and cannot be readily moved out of it. Thus an inner end construction is realized and serves to hold the head end of the tube 30 and prevent it from shifting back and forth in the container thereby getting out of register with the window 31. Moreover the small compartment left at one end of the container can be used to store additional objects of different size and shape.

The tube crimp panel 40 extends far enough along the ends 46 of center panels 11 and 12 so that the flat ends of the tubes 30 are held or crimped between panel 40 and the front panel once the carton is closed (FIG. 5). In this manner the tubes cannot rotate and are restrained so that they are maintained in register with the window.

The ends of the support panels 10, 14 and 15 are cut at suitable oblique angles so that panels 42 and 40 will rest on them in the position dictated by the oblique slope at the ends of the center panels. Thus, the ends of the various support panels are cut at such angles that a more or less zigzag pattern appears for that edge of the partition structure.

A cutout 48 in support panel 14 facilitates gluing the same to the inside support panel 15 which has no such cutout. As seen in FIG. 3, the inside support panel 15 is reversely folded relative to support panel 14 and along score line 28, and acts as a connecting means between the support panel and the back panel. The remainder of the connecting means is supplied by the inside back panel 16 and score line 29 the former being secured by a suitable adhesive such as glue 50 to the back panel 5.

The adhesive pattern is shown in FIG. 1 where the shaded areas of panels 6 and 16 are glued on the side observed and the broken line shaded area shows panel 14 glued on the rear.

The outer tubular portion of the carton is formed by gluing a glue panel 6 to the side panel 2, again as best illustrated in FIG. 2. Preferably the glue panel 6 has a depth Y somewhat less than the carton depth D whereby the edge 24 of support panel 10 is connected to a medial region of side panel 2. In this manner erection of the tubular part of the carton to the position shown in FIGS. 2 and 3 tugs on first support panel 10 which in turn erects the partition formed by the two center panels 11 and 12 to approximately the position shown in FIGS. 2 - 6. Once the tubes 30 are inserted in place, the score line 25 comes to rest as shown in FIG. 3 on the inside back panel.

It is also true that during erection of the carton the second support panel 14 and inside support panel 15 being glued together hinge or bend about line 27 in re-

sponse to pushing by the side panel 4, whence they will arrive at their approximate final position.

As seen in FIGS. 4 - 6 the various inner end structures are moved into position by folding them against the ends 46, 47 of the center panels and closing the carton in the usual fashion once the tubes 30 and the inner end structures have been put in place within the carton.

FIG. 7 shows the position of the panels when the blank has been folded and glued together along the side seam and other panels by glue 50 patterned as in FIG. 1.

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I claim:

1. A one piece blank for a carton having a partition that is made from one piece of material and comprising

15 - a front, back, and pair of side panels erectable from a flattened blank sealed along a side seam into a rectangular cross section to form a tubular container; and

20 a partition structure located within said tubular container and erectable responsive to forming of the tubular shape from a flattened blank and including

25 a pair of centrally located center panels each the mirror image of the other and connected along a centrally disposed hinge line and erectable to a position with the hinge line near the front panel and the center panels diverging toward the back panel, a pair of support panels each of which is hinged to and extends from one of the center panels to one of the side panels,

30 means for attaching one of said support panels to a medial region of its respective side panel, and means for connecting to the back panel the hinged connection between the other of said support panels and its center panel.

2. A one piece blank according to claim 1 wherein said attaching means comprises a glue panel having a depth slightly less than that of the side panel.

3. A one piece blank according to claim 1 wherein said connecting means comprises an inside back panel and an inside support panel reversely folded underneath the other of said support panels and connected by score means on each side to, respectively, said other center panel end and said inside back panel.

4. A one piece blank according to claim 3 further having an inside end construction suitable for receiving a flat object such as the flat end of a tube and holding it in place that includes -

50 a crimp panel hinged to one end of said inside back panel and having a width substantially that of the carton, an oblique cut on that end of each center panel to support said crimp panel in an oblique position.

5. A one piece blank according to claim 3 further comprising an inner end construction comprising oblique ends on one end of both said center panels and an inner end panel hingedly supported on one end of said inside back panel and having a depth greater than that of the carton depth whereby the same can be locked in an over-center position at an oblique angle while supported on the oblique slopes of said center panel ends.

6. A one piece blank according to claim 4 and an inner end construction comprising oblique ends on one end of both said center panels and an inner end panel hingedly supported on one end of said inside back

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panel and having a depth greater than that of the carton depth whereby the same can be locked in an over-center position at an oblique angle while supported on the oblique slopes of said center panel ends.

7. A blank according to claim 1 further comprising 5 a window cut in a central portion of said front panel at a location such that at least a portion of said partition will be viewable through the window when the carton is erected.

8. A carton made from the blank of claim 1.

9. A carton having a partition that is made from one piece of material and comprising -

front, back, and first and second side panels sealed along a side seam into a rectangular cross section to form a tubular container; and

a partition structure located within said tubular container and including -

a pair of centrally located center panels each the mirror image of the other and connected along a centrally disposed hinge line which is disposed adjacent the said front panel, the center panels diverging from said hinge line toward the back panel, 20 a pair of support panels each of which is hinged on

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one edge to and extends from a respective one of the center panels to one of the side panels, means for attaching one of said support panels to a generally medial region of its respective side panel, and

means for connecting to the back panel the hinged connection between the other of said support panels and its center panel.

10. A one piece blank according to claim 9 wherein said connecting means comprises an inside back panel and an inside support panel reversely folded underneath the other of said support panels and connected by score means on each side to, respectively, said other center panel end and said inside back panel; and

an inner end construction comprising oblique ends on one end of both said center panels and an inner end panel hingedly supported on one end of said inside back panel and having a depth greater than that of the carton depth whereby the same can be locked in an over-center position at an oblique angle while supported on the oblique slopes of said center panel ends.

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