Aug. 6, 1963 R. B. BECK 3,100,074

CARTON

Filed Oct. 5, 1962 2 Sheets-Sheet 1

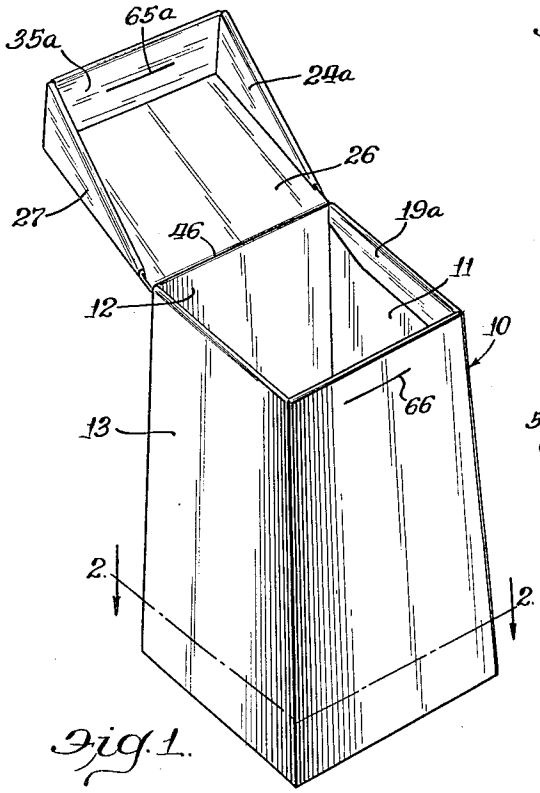


Fig. 1.

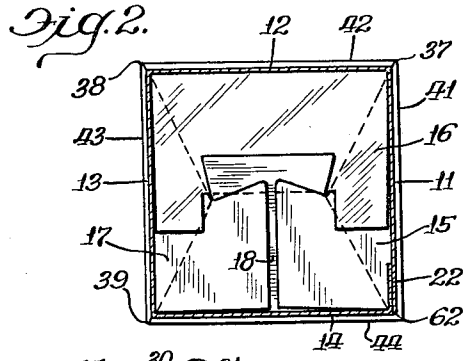


Fig. 2.

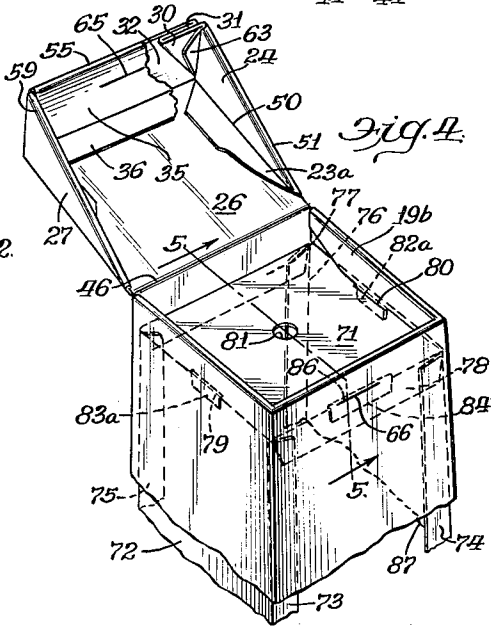


Fig. 4.

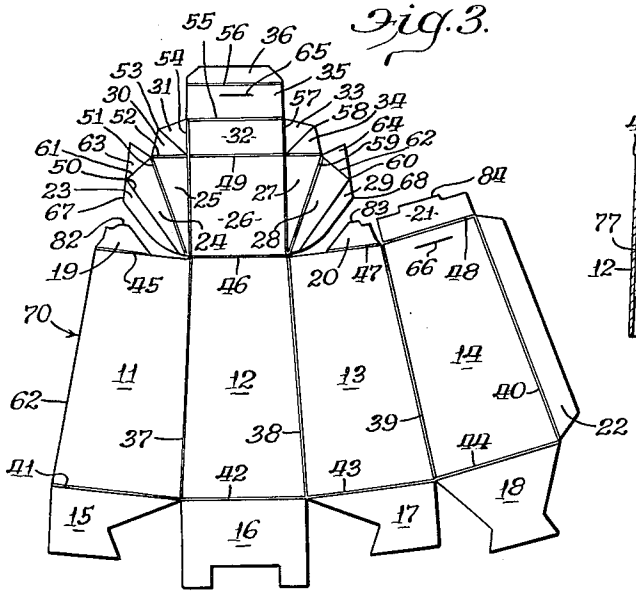


Fig. 3.

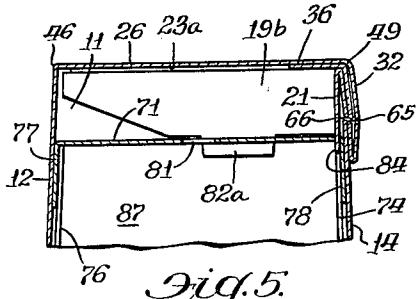


Fig. 5.

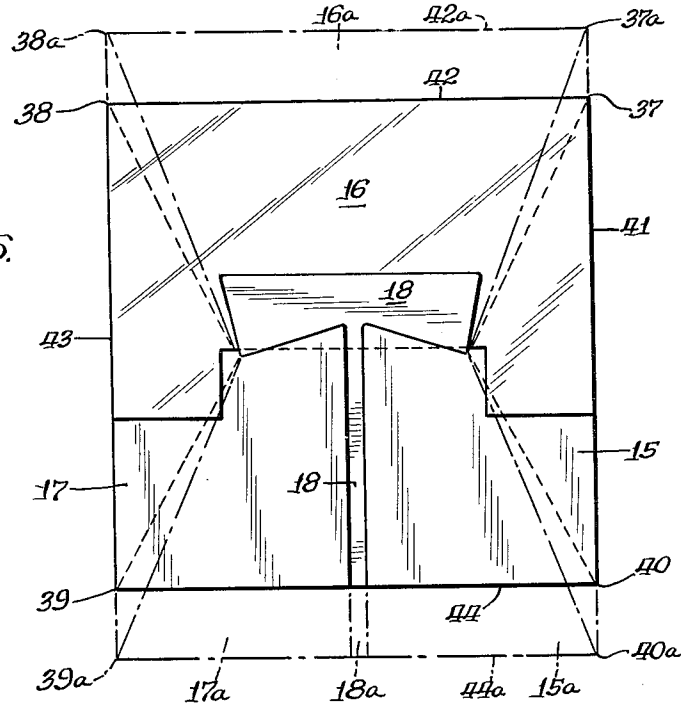
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Fig. 6.



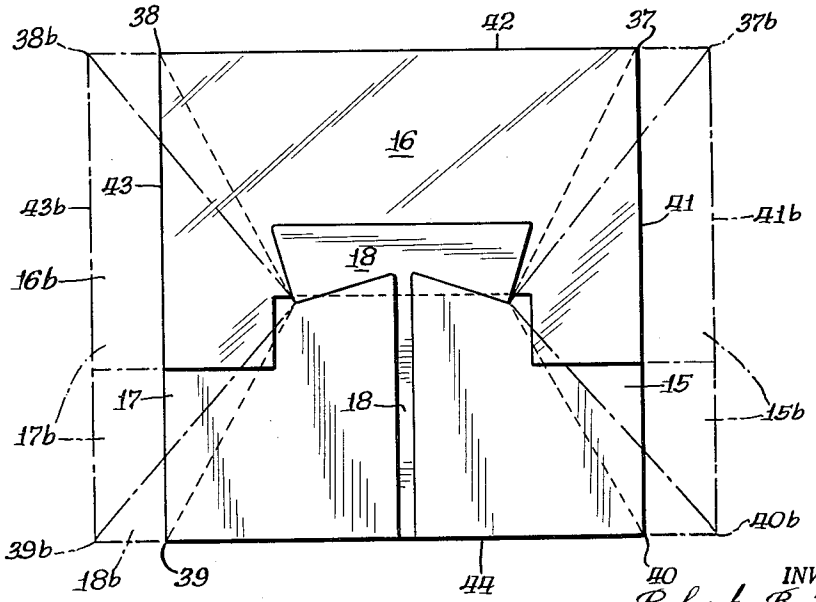


Fig. 7.

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United States Patent Office

3,100,074

Patented Aug. 6, 1963

3,100,074
CARTON

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Filed Oct. 5, 1962, Ser. No. 228,539
7 Claims. (Cl. 229—44)

This invention relates to packaging containers assembled from flat sleeves of paperboard or other sheet material and more particularly to packaging containers of the type which, in addition to serving as an immediate container, may also serve as a display carton or as a dispenser.

Heretofore many items which otherwise might have been packaged in flat-sided paperboard cartons instead have been packaged in more expensive containers of glass, plastic or metal because such materials readily adapt themselves to unusual shaping treatments which give the container a distinct and attractive appearance. Paperboard, which is the most economical material for packaging, has been largely ignored where appearance is a factor because paperboard cartons in most cases have not had imaginative treatment which would produce distinctive attractive containers.

One of the objects of this invention is the provision of containers formed from flat sheets of fibrous material such as paperboard or non-fibrous material such as film or a combination of the two, which not only have a most attractive and distinct sloping appearance but which may be assembled readily from seamed flat sleeves.

Another object of the invention is the provision, in sloping containers formed from flat sleeves, of skirted flip covers which remain closed until flipped open.

Still another object of the invention is the provision of sloping containers formed from flat sleeves which are readily adapted to insertion and retention of platforms which may contain one or more dispensing outlets for string, ribbons, coiled cotton and other similar material or for powders, granules and the like.

Other objects and advantages of the invention will be apparent from the description and drawings wherein:

FIGURE 1 is an isometric view of a typical container of the invention.

FIGURE 2 is a cross-sectional view of FIGURE 1 taken along the line 2—2 and viewed from the direction of the arrows showing the appearance of the bottom of the container of FIGURE 1 on the inside.

FIGURE 3 is a typical blank of a container of the invention but showing a more elaborate cover than that of FIGURE 1 and showing flaps adapted to retain a platform.

FIGURE 4 is a partial isometric view of the carton formed from a blank similar to that of FIGURE 3 but with minor variations showing the assembled cover with cut away portions to reveal the construction and also showing a typical platform in position.

FIGURE 5 is a cross-sectional view of the top portion of the carton of FIGURE 4 taken along the line 5—5 of FIGURE 4 but with the top closed and viewed in the direction of the arrows.

FIGURE 6 is a schematic inside view of the bottom of an alternate construction wherein the bases of the side panels are longer than those of the front and back panels.

FIGURE 7 is a schematic inside view of the bottom of an alternate construction wherein the bases of the front and back panels are longer than those of the side panels.

Some objections to paperboard cartons or cartons of other sheet materials have been that such cartons have been insubstantial, have been prosaically rectangular and have usually had either tucked-in tops or glued tops and bottoms. The flip-top cigarette box is a successful departure from the usual carton but the rectangular shape has been retained.

The cartons of this invention have unique shapes in that they have relatively larger square or rectangular bases with smaller rectangular or square tops, at least two of the main panels narrowing from base to top so as to provide sloping sides. Preferably, where possible, the side edges of the top opening are folded edges because such folded edges provide strength and present an attractive substantial appearance. The front edge of the top opening is also preferably folded inwardly except where it may be desirable to use a narrow outwardly folded front edge to lock the top by wedging action rather than the slit **66**. Likewise, the cover preferably has folded edges. The bottom preferably is of the snap lock type illustrated since this type is very easily and quickly assembled and has a neat attractive outside appearance.

Referring once more to the drawings:

In FIGURE 3, main panels **11** and **13** constitute the side panels while main panels **12** and **14** constitute the back and front panels respectively. Each of the main panels is joined to a bottom panel by a scored fold line. Thus panel **11** is joined to panel **15** along line **41**, panel **12** is joined to panel **16** along line **42**, panel **13** is joined to panel **17** along line **43** and panel **14** is joined to panel **18** along line **44**. Front panel **14** is also joined by a scored fold line **40** to glueing or sealing flap **22** on one side, to panel **13** along fold **39** on the other side and to tab **21** along fold **48** at the top. Likewise, side panel **13** is joined by scored fold line **38** to back panel **12** and by scored line **47** to tab **20**. Side panel **11** which has a cut edge **62** is joined by a scored fold line **37** to back panel **12** and by scored fold line **45** to tab **19**. Back panel **12** is joined to the cover by scored fold line **46** which acts as the top hinge between the main top panel **26** and the back panel **12**. Three typical covers are shown. In FIGURE 1, the simplest cover is devoid of panels **23**, **36** and **29** shown in FIGURE 3. The panels of FIGURE 1 corresponding to panels **24**, **28** and **35** in FIGURE 3 have cut edges where the folded edges **50**, **60** and **56** appear in FIGURE 3. Thus in FIGURE 1, **35***a* corresponds to **35** and **24***a* corresponds to **24** in FIGURE 3. These inner panels of the cover skirt may be glued to the corresponding outer panels in FIGURE 1, but if panel **35***a* is fastened, it will hold the others due to flaps **63**, **30**, **31**, **33**, **34** and **64**. In FIGURE 3, however, panels **23**, **36** and **29** hold the cover in place without glue by means of their mitered corners which abut. The cover shown in FIGURE 4 is very similar to that of the blank in FIGURE 3 except that panels **23** and **29** of the latter have a somewhat different cut in FIGURE 4 at the end nearest the hinge. This cut, shown in panel **23***a* of FIGURE 4, permits the tabs **19** and **20** of FIGURE 3 to be lengthened as in **19** *b* of FIGURE 4 so that the fold covers a greater part of the opening edge similar to that of **19***a* of FIGURE 1.

Referring once more to the cover, in FIGURE 3 the main cover panel **26** is joined to skirt outside panels **25**, **32** and **27** by scored lines. In the case of FIGURES 3 and 4, these outside panels are joined to the corresponding skirt inside panels **24**, **35** and **28** by scored fold lines **51**, **55** and **59** shown in FIGURE 4 as the skirt folded edges. The skirt outside panels **25** and **27** are connected to the skirt front outside panel **32** by means of two triangular corner-fold panels on each side, panels **30** and **31** joining **25** and **32** and panels **33** and **34** joining **27** and **32**. Similar but individual triangular tabs, **63** at the end of panel **24** and **64** at the end of panel **28** serve as locking tabs. The relationship of corner tabs **30** and **31** and tab **63** to skirt outside front panel **32** and skirt inside front panel

35 is shown in FIGURE 4. These triangular tabs fit between panels 32 and 35. The tabs on the other side fit similarly. FIGURE 1 is similar except that the skirt inside panels have cut edges which abut the main cover panel 26. These panels in FIGURE 1 have been designated with the number followed by the letter *a* to distinguish them from similar panels of FIGURES 3 and 4 which have folded edges on both sides.

It is obvious with the triangular tabs in place between inside panel 35*a* of FIGURE 1 and its corresponding outside panel, that fastening these two panels together either with glue or a staple will hold the cover skirt in place. However, in the tops illustrated in FIGURES 3 and 4, the cover skirt is held in place by locking panels 23, 36 and 29 of FIGURE 3 due to the abutment of their 45° beveled ends. This can be seen in FIGURE 4 where the beveled end of panel 23*a* would abut the beveled end of panel 36 both lying flat against cover panel 26.

It may be desirable to cut off the tips of the cover skirt panels 23, 24, 25 and 27, 28 and 29 adjacent the cover hinge so that panels 19 and 20 may be elongated, thus providing folded edges along the entire top side edges of the container. Thus 19*a* in FIGURE 1 and 19*b* in FIGURE 4 are substantially similar excepting for the tongue 82*a* on the latter. In order to provide the panel 19*b* in its indicated length, however, it is necessary to cut off not only the tips of the skirt side panels as was done in FIGURE 1 but also to modify the width of the nearest adjacent locking skirt panel of the cover blank as is indicated by 23*a*, FIGURE 4.

In the front panel of FIGURES 1, 3, 4 and 5 is a slit 66. There is a corresponding slit 65 or 65*a* in the skirt inside front panel. When the cover is pushed down to the point where the two slits pass one another, the slit edges tend to engage forming a retaining latch. When the front panel is pressed prior to flipping the cover open, the latch is released. But even without such a latch, the cover tends to wedge against the inclined sides of the container proper in closing thus being retained by the sides after closure. Alternatively, the front edge of the opening, instead of being folded inwardly, may be folded outwardly in a narrow edge extending across the front. This edge will catch a slit in the top, such as 65 or 65*a*.

In FIGURES 4 and 5, a typical platform is shown in place. The platform illustrated is designed to dispense coiled cotton which is pulled out progressively through the hole 81 in the platform 71 in small tufts, the force necessary to pull a tuft free of the coil being sufficient to advance the next tuft portion of the coil through the hole. In practice the platform is supported by panels 72 and 87 which preferably conform in shape to the inside of the panels of the container against which they rest, extending to the container bottom. The panel strips 73, 74, 75 and 76 tend to stabilize the platform. The platform 71 also has flaps 77 and 78 turned down at the rear and front respectively. In addition, the platform contains slots 79, 80 and 86 into which fit tongues 82, 83 and 84 of the panels 19, 20 and 21 of FIGURE 3 or as illustrated in FIGURE 4, the tongues 82*a*, 83*a* and 84. This interlocking not only further stabilizes the platform but also retains the inner panels of the container opening against the respective main panels.

The carton sleeve is made by gluing or sealing the flap 22 to the panel 11 so that edge 62 is parallel to and closely adjacent folded edge 40. In assembling the carton from the sleeve, the following procedure may be carried out:

Opposite edges of the sleeve are pressed to open the sleeve. The platform (if any) is inserted platform first and front to front into the bottom of the open sleeve and pushed in until nothing projects beyond the container bottom. In a like manner, the contents are inserted. The bottom is then closed by turning panel 16 inwardly followed by panels 15 and 17 and finally by panel 18. The

bottom is pushed gently in until the bottom panels interlock (which they do automatically) as in FIGURE 2. The container is then set on its bottom and the platform is locked in place by turning in the panels 19, 20 and 21 or the corresponding panels of FIGURE 4 and inserting the tongues of these panels in the corresponding slots in the platform. Obviously, if there is no platform to lock, the panels are simply turned in and fastened as with a spot of glue. Obviously, also, where no platform is involved, the cartons can be made up and filled later. In forming the cover, folds are made along fold lines 54 and 55 with the wings being folded in at 90° to panel 26 toward the container opening. Folds along lines 45, 53 and 58 are then made simultaneously so that the cover skirt is defined and the triangular tabs 30, 31, 33 and 34 project inwardly and lie flat against panel 32 which is now roughly perpendicular to panels 25, 26 and 27. At this point, the inner side skirt panels 24 and 28 are folded over and against panels 25 and 27 respectively with the triangular tabs 63 and 64 flat against the tabs 30 and 34 respectively and with panels 23 and 29 flat against panel 26. Panel 35 is then folded over panel 32 to lie flat against it so far as the corner tabs will allow. Panel 36 snaps into place so that its mitered corners abut against the mitered corners of panels 23 and 29 or against the corresponding mitered corners of panels such as 23*a* in FIGURE 4. In other words, where mitered corner panels are used, no other method of fastening the top is necessary.

Likewise, if a platform is used, the entire carton may be assembled from the sleeve and from the platform blank without using any other fastening means than the interlocking of the panels. This feature is conducive to very rapid assembly.

It is to be understood that the cover of the cartons of this invention should be slightly larger than the openings over which they fit. In other words, panel 26 should be slightly larger in width than the tops of panels 12 and 14 and slightly longer than the tops of panels 11 and 13, other panels of the top corresponding.

It is obvious that cartons of this invention may be made tall or short without departing from the invention. Likewise, the invention is not limited to cartons whose cross-sections are squares. Referring to FIGURES 6 and 7, a schematic representation of the square bottom is shown by the solid lines and dotted lines. Thus, panel 15 is hinged along fold 41; panel 16 is hinged along fold 42; panel 17 is hinged along fold 43 and panel 18 is hinged along fold 44. When the side panels 11 and 12 are increased in width at the base, the fold lines 41 and 43 necessarily are increased in length as the construction lines of FIGURE 6 indicate. This causes alteration in the panels 15, 16, 17 and 18 as indicated by the construction lines. Panel 15 is thus increased in area by the rectangular area 15*a* and by the triangular area between the dotted line leading to fold 37 and the construction line leading to fold 37*a*. Similarly, on the other side, panel 17 is increased in area by the rectangular area 17*a* and by the triangular area between the dotted line leading to fold 38 and the construction line leading to fold 38*a*. With regard to panel 16, it is altered only by moving its hinge fold to 42*a* and increasing its area by the rectangle 16*a*. Panel 18 has its hinge fold moved to 44*a* thus adding an isosceles trapezoidal area adjacent the hinge and removing two triangular areas between dotted line 39 and construction line 39*a* on one side and between dotted line 40 and construction line 40*a* on the other.

In a somewhat similar manner, when front and back panels 12 and 14 are increased in width at the base, the fold lines 42 and 44 are necessarily increased in length as the construction lines of FIGURE 7 indicate. The hinges for side panels 15 and 17 are thus indicated as at 41*b* and 43*b*, respectively. The slanting edge of panel 15 as represented by the dotted line leading to fold 37 is altered to that represented by the construction line

leading to fold 37*b*. Likewise, the slanting edge of panel 17 as represented by the dotted line leading to fold 38 is modified to that represented by the construction line leading to fold 38*b*. At the opposite end of these side panels 15 and 17, the panels meet the hinge at an angle of 90 degrees, the areas 15*b* and 17*b* being added. In the construction represented by this figure, the panel 16 has an added rectangular area 16*b* added at each side extending from the hinge line 42 the full length of the panel. Panel 18 by this construction has, added to it, a triangular portion 18*b* between the dotted line leading to fold 39 and the construction line leading to fold 39*b*. A similar triangle is added at the other side between the dotted line leading to fold 40 and the construction line leading to fold 40*b*.

In addition to the variations illustrated in FIGURES 6 and 7, the tops of the panels may be similarly varied. It is essential, however, that when the blank is folded along line 38 or alternately along lines 37 and 39 that edge 62 be parallel to and closely adjacent fold 40 in order that the sleeve may be in flat form when it is made up from the blank. It thus becomes apparent that the two side panels may be rectangular while the front and back panels are isosceles trapezoids in which case the carton would have vertical front and back walls and sloping side walls or the reverse might be true with the front and back panels rectangular and sloping and the side panels vertical isosceles trapezoids. Obviously, the cover main panel and its auxiliary panels must be adjusted in size accordingly as will be readily apparent. The main cover panel 26 should always be substantially square or rectangular with the side edges slightly larger than the top edges of panels 11 and 13 and with the top and bottom edges slightly larger than the top edges of panels 12 and 14.

For purposes of this invention, "isosceles trapezoidal" panels or shapes are defined as those having the shape of a quadrilateral, two of whose sides are parallel and the other two of which are equal in length. By this definition, it is intended to include parallelograms, rectangles and squares as special forms of "isosceles trapezoids" as well as isosceles trapezoids in which the parallel sides are unequal in length.

Likewise, for purposes of this invention, the term "rectangle" is defined as a parallelogram whose angles are right angles. Hence, right-angled parallelograms whose sides are equal and constitute a square as well as parallelograms whose adjacent sides are not equal are included.

I claim:

1. An integral carton comprising a cut and scored blank of four main panels at least two alternate main panels varying in width from top to bottom, two of said main panels having similar isosceles trapezoidal shapes constituting opposite side panels, a front panel and a back panel having similar isosceles trapezoidal shapes separated in the blank by one of said side panels, an outer of said main panels having a longitudinal scored edge in common with a fastening flap, means fastening said flap to the outer longitudinal edge of the other outer main panel to form a flat sleeve, the outer longitudinal edges of said outer panels being substantially parallel and in close proximity, said sleeve being expandable to a four-sided tube whose walls are said main panels, bottom edges of said main panels being in a common plane when said tube is open, tab panels, each having a scored edge in common with the bottom edge of one of said main panels, constituting, when interconnected, an interlocking bottom, a cover for said tube comprising a main cover panel and integral therewith three pairs of auxiliary cover panels constituting inner and outer paired panels of a depending skirt extending from said main cover panel on three sides thereof, said main cover panel having in common with the top edge of said main back panel, a scored edge constituting a hinge for said cover, each outer auxiliary panel of said skirt having a scored edge in common with said main cover panel and a scored edge in common with its respective paired inner panel, said latter scored edges constituting the exterior edge fold of said skirt when said cover is assembled, auxiliary paired cover panels of said skirt projecting to cover top edge portions of the front main panel being rectangular, auxiliary paired cover panels projecting to cover top edge portions of the respective side main panels being substantially triangular and sloping toward the hinge of said cover, the outer rectangular auxiliary panel being joined with the outer triangular panel on each side by an integral gusset unfolded between inner and outer auxiliary cover panels.

2. The carton of claim 1 wherein the front main panel and the rectangular inner auxiliary cover panel have substantially horizontal slits therein which are so positioned that when the cover is closed the edges of the slits interlock.

3. The carton of claim 1 wherein the front and side main panels have top edges in common with the scored edges of tab panels which enfold to provide folded edges around the top of said tube.

4. The carton of claim 1 wherein the rectangular inner auxiliary cover panel has a scored line in common with an isosceles trapezoidal-shaped panel whose non-parallel equal ends make internal angles of 45° with said score line and wherein the substantially triangular auxiliary side cover panels also have scored lines in common with parallel-sided panels having inclined front ends which make internal angles of 45° with their respective scored lines, said panels with 45° ends constituting locking panels which lie flat against the main cover panel with the 45° ends of the side panels abutting the 45° ends of the other such panel whereby said cover may be assembled without other fastening means.

5. The carton of claim 1 wherein the carton is of paperboard.

6. The carton of claim 1 wherein the bottom is substantially square.

7. A carton, readily assemblable from a longitudinally seamed flat sleeve, comprising an interlocking bottom of the snap assembly type, walls upstanding from said bottom constituting the front panel, opposing side panels and the back panel of said carton, at least two of the opposite walls of said carton making internal angles less than 90° with said bottom and a quadrilaterally-shaped cover integrally hinged to said back panel and having a depending skirt on three sides extending to cover edge portions of said front and side panels when said cover is closed, a unitary U-shaped insert positioned within said carton including a flat dispensing platform whose periphery is closely adjacent the carton interior when the platform is in operating position, and a planar support member having a bottom edge contacting said carton bottom and projecting downwardly from each of two opposite sides of said platform, the front and side panels of said carton having top edges in common with scored edges of tabs which fold inwardly and are held in place by projecting through slits in the edge of said platform.

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