

Sept. 6, 1966

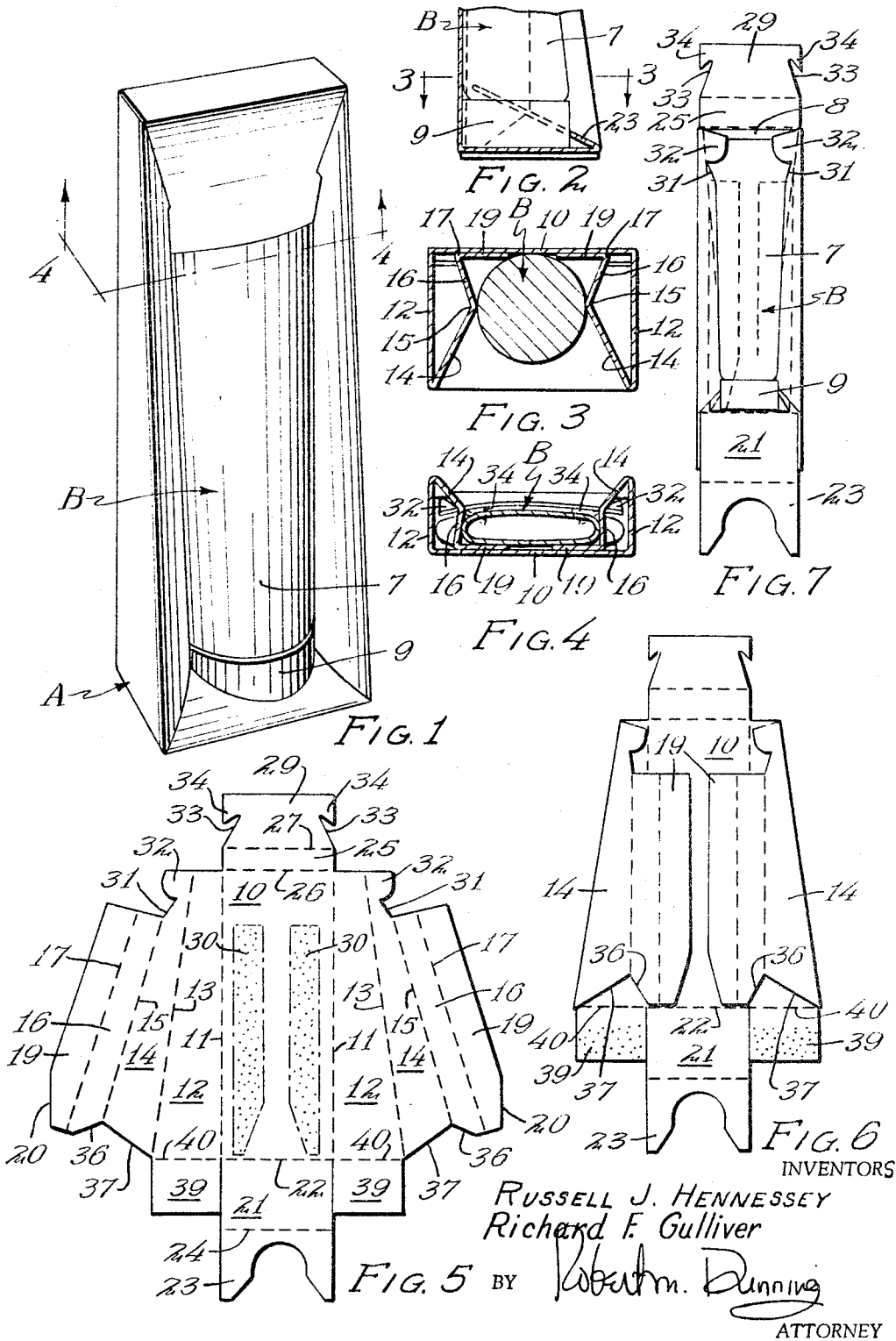
R. J. HENNESSEY ET AL

3,270,867

TUBE DISPLAY CARTONS

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2 Sheets-Sheet 1



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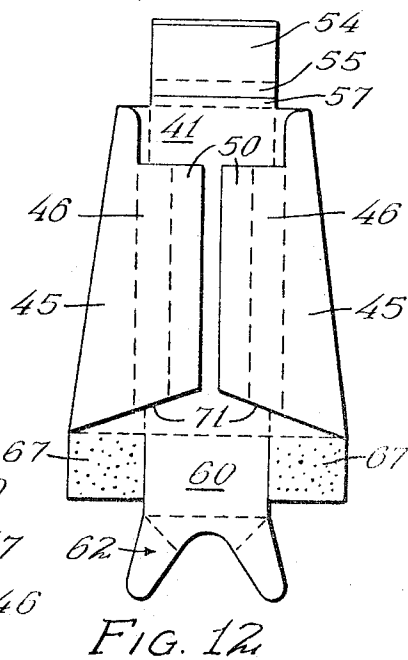
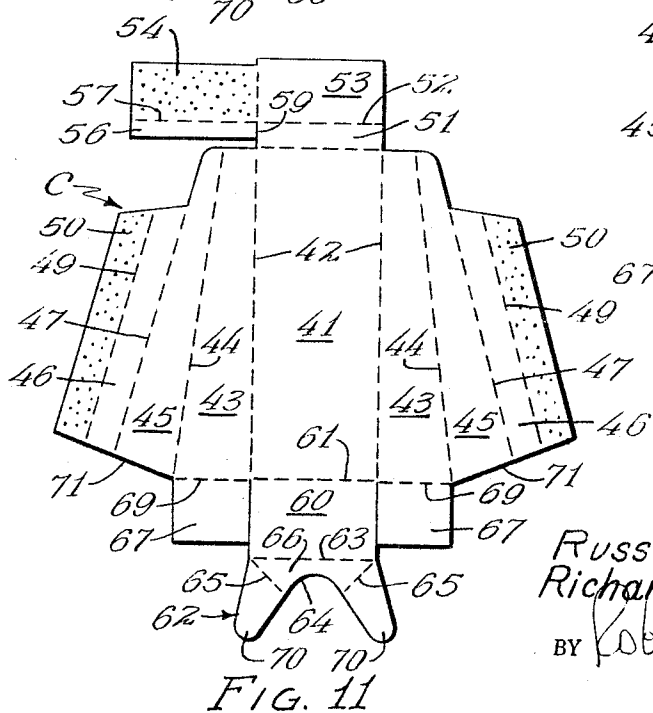
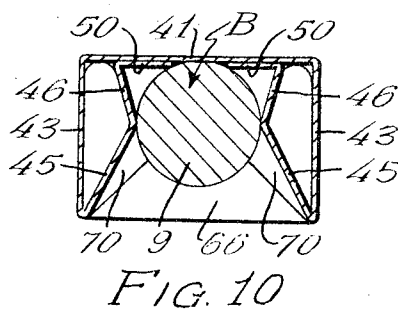
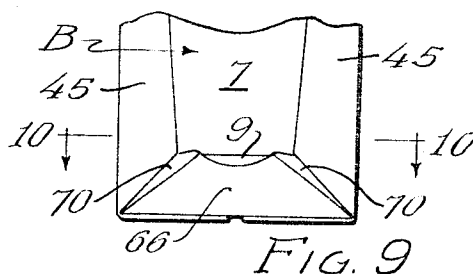
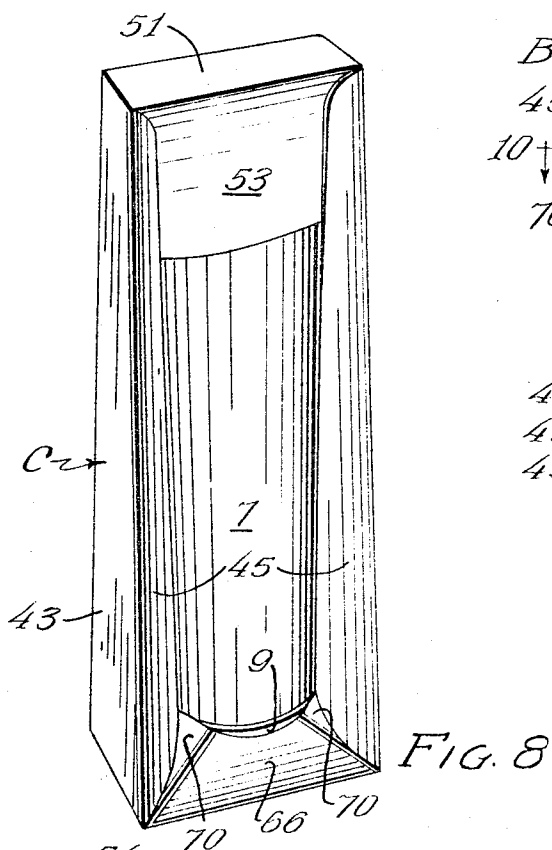
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TUBE DISPLAY CARTONS

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2 Sheets-Sheet 2



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TUBE DISPLAY CARTONS

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12 Claims. (Cl. 206—45.14)

This invention relates to an improvement in tube display cartons and deals particularly with a carton designed to contain and display a collapsible tube of a product.

Collapsible tubes are usually contained in rectangular tuck-end cartons designed to provide an advertising display and also to prevent the tubes from becoming disfigured by becoming dented or kinked. Much of the danger of disfigurement has been eliminated by forming the tubes out of plastic rather than thin metal. Tubes made of plastic may be printed to have an attractive appearance, and these tubes tend to expand to their original shape after they have been collapsed. Thus, in some instances, it is desirable to provide an enclosure for the tube which provides the necessary advertising space, but which also displays a substantial portion of a surface of the tube so that the design printed on the tube forms a part of the display.

An object of the present invention resides in the provision of a tube display carton which may be furnished in the flat form, and which may be set up either wholly or partially by machine. In forming the display package, the tube may be placed upon the flat blank, the side walls may be folded up to center the tube on the blank, and one end wall of the tube may be folded up and locked in position to hold the flat end of the tube in place. The other end wall may be folded up and a locking flap folded to overlie a portion of the cap of the tube to hold this end of the tube in place. The side walls are provided with corner flaps which may either interlock together if the carton is set up by hand, or may be glued to the end wall if the cartons are set up by machinery.

A further feature of the present invention resides in the provision of a display of the type described in which approximately one half of the circumference of the body of the tube is visible to the perspective purchaser, and the major portion of the length of the tube from the cap to a point spaced from the flat end thereof is visible.

A further feature of the present invention resides in the provision of a display of the type described in which locking flaps overlie both ends of the tube to hold the tube in proper relation to the main panel of the display so that the tube is securely locked from pilferage.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

FIGURE 1 is a perspective view of the tube display in upright display position with the cap end of the tube lowermost.

FIGURE 2 is a vertical sectional view through the lower portion of the display as viewed in FIGURE 1.

FIGURE 3 is a horizontal sectional view through the display, the position of the section being indicated by the line 3—3 of FIGURE 2.

FIGURE 4 is a horizontal view through the tube and the display, the position of the section being indicated by the line 4—4 of FIGURE 1.

FIGURE 5 is a diagrammatic view of the blank from which the display is formed.

FIGURE 6 discloses the flat blank after the completion of the first folding operation.

FIGURE 7 is a plan view of the package in partially-assembled position.

FIGURE 8 is a perspective view of a slightly modified form of display carton.

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FIGURE 9 is a front elevational view of the lower portion of the display illustrated in FIGURE 8.

FIGURE 10 is a horizontal sectional view through the upright display, the position of the section being indicated by the line 10—10 of FIGURE 9.

FIGURE 11 is a diagrammatic view of the blank from which the display carton of FIGURE 8 is formed.

FIGURE 12 is a view of the flat blank of FIGURE 11 at the completion of the first folding operation.

The display A is designed to support and display a tube B. The tube B includes an elongated cylindrical body 7 which is flattened at one end as indicated at 8 (FIGURE 7) and which is provided at its opposite end with a neck, not illustrated in the drawings, which supports a threaded cap 9. In the arrangement illustrated, the outer diameter of the cap 9 is substantially equal to that of the body 7 of the tube.

The display is formed from the blank illustrated in FIGURE 5 of the drawings. The blank includes a rectangular back panel 10 hingedly connected along opposite parallel fold lines 11 to trapezoidal side walls 12. The side walls 12 are preferably tapered in width, being relatively wide at their lower ends and relatively narrow at their upper ends. The outer or forward edges of the side walls 12 are hingedly connected along upwardly converging fold lines 13 to generally trapezoidal front liner panels 14. The front liner panels 14 are connected along upwardly converging fold lines 15 to rear liner panels 16. The rear liner panels 16 are trapezoidal in form, being slightly wider at the lower ends than at their upper ends.

The rear liner panels 16 are connected along fold lines 17 to anchoring flanges 19. From a structural standpoint, the anchoring flanges may be rectangular. The lower corners of these flanges have been cut away as indicated at 20 to provide parallel guide portions and also to reduce the width of the blank to some extent.

The lower end wall 21 is hingedly connected to the lower end of the back wall 10 along the fold line 22. A tube anchoring flap 23 is connected to the end wall 21 along a fold line 24 which is parallel to the fold line 22. The top end panel 25 is hingedly connected along a fold line 26 to the upper edge of the back panel 10, and the top end panel 25 is hingedly connected along a parallel fold line 27 to a second tube locking flap 29 designed to overlie the flattened end of the tube B.

In the formation of the blanks, the blanks are folded along the converging fold lines 13 so that the anchoring flaps 19 overlie portions of the back panel 10. In FIGURE 5, the back panel 10 is shown with areas of adhesive 30 for connecting the anchoring flanges 19 to the back panel 10. Obviously, the adhesive could be applied to the anchoring flanges 19 if preferred. In either event, the anchoring flanges 19 are adhered to the back panel 10 in the manner illustrated in FIGURE 6 of the drawings. As is also indicated in FIGURE 5 of the drawings, the rear liner panels 16 and anchoring flanges 19 do not extend the full height of the back panel 10 and are cut off short of the top of the back panel. The front liner panels are notched as indicated at 31 and the edges of these forward liner panels are provided with projecting ears 32. The tube-locking flap is also notched at opposite sides as indicated at 33 providing generally hook-shaped locking tongues 34. The locking tongues 34 hook over the ears 32 as is perhaps best illustrated in FIGURE 4 of the drawings.

As noted in this FIGURE 4, as well as in FIGURE 3 of the drawings, when the side walls 12 are erected into parallel relation and at right angles to the back panel 10, the outer liner panels 14 converge inwardly in a direction toward the longitudinal center of the back panel 10 until the edges of these panels, along the fold lines 15, are spaced apart a distance substantially equal to the

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diameter of the tube B. The rear liner panels 16 diverge outwardly toward opposite side edges of the back panel 10 as shown in these figures to their fold lines 17 connecting these rear liner panels to the anchoring flanges 19. Thus the forward or outer liner panels 14 are supported to incline inwardly to the surface of the tube B.

In closing the carton A, the tube B is placed upon the back panel 10, and the side walls 12 are folded toward right angular relation thereto, or toward the position shown in FIGURE 7 of the drawings. As the walls 12 near this position, the top end wall 25 is folded into right angular relation to the back panel 10 and the tube retaining flap 29 is folded over the flattened end 11 of the tube B. The notches 31 and 33 are brought together, the hook-shaped locking tongues 34 engaging the laterally-extending ears. Thus the tube retaining flap 29 remains locked over the flattened end of the tube as long as the side walls 12 remain in parallel relation.

To complete the closing operation, the lower end wall 21 is folded forwardly into right angular relation to the rear panel 10 and the tube retaining flap 23 is folded to partially encircle the cap 12 of the tube B. It will be noted that the liner flaps 14 and 16 are provided at their lower ends with V-shaped notches 36, the apex of each V-shaped notch being at the fold line 15. Because of these notches, the lower edges 37 of the front liner panels 14 converge upwardly and inwardly in folded condition of the blank as viewed in FIGURE 6. In folding the end panel 21 and tube retaining panel 23 forwardly, the tube retaining flap 23 is folded to lie against the edges 37 of the liner panels 14, this tube retaining flap straddling the cap 12 of the tube B in the manner illustrated in FIGURE 2 of the drawings. Thus the cap end of the tube is retained in place by the flap 23.

To complete the assembly of the carton, the lower end panel 21 is secured in right angular relation to the back panel 10. This is accomplished by corner flaps 39 hinged to the lower ends of the side walls 12 along fold lines 40 which are substantially extensions of the fold line 22. In the arrangement illustrated, adhesive is applied to the flaps 39 and they are adhered to the undersurface of the end panel 21. In structures where the tubes are to be packaged by hand, these corner flaps 39 may be elongated sufficiently to overlap, and these flaps may then be interlocked together.

The display carton C illustrated in FIGURES 8 through 12 of the drawings is very similar to the carton A and differs therefrom mainly in the manner in which the tube retaining flaps are locked in closed position. The carton C includes a rectangular back panel 41 which is hingedly connected along parallel fold lines 42 to trapezoidal side walls 43. The side walls 43 are foldably connected along upwardly converging fold lines 44 to front liner panels 45. The front liner panels 45 are connected to rear liner panels 46 along fold lines 47. The rear liner panels 46 are connected by upwardly and inwardly converging fold lines 49 to anchoring flanges 50.

In this construction, the front liner panels 45 extend the full height of the back panel 41 while the rear liner panels 46 and anchoring flanges 50 are cut short of the upper ends of the front liner panels 45 as illustrated.

The upper end of the rear wall 41 is connected to an upper end wall 51 which is in turn connected along a fold line 52 to the tube retaining flap 53. A reinforcing flap 54 for the tube retaining flap 53 is hingedly connected along a side edge of the tube retaining flap 53 along a fold line 56 which is substantially aligned with one of the fold lines 42. A top end wall reinforcing flap 55 may also be provided. The flaps 54 and 55 are hingedly connected along a fold line 57 which is substantially a continuation of the fold line 52. To simplify the folding operation, the end wall reinforcing flap 55 is separated from the end wall 51 along a cut line 59.

A lower end wall 60 is hingedly connected to the lower end of the back wall 41 along a fold line 61, and a tube

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retaining flap 62 is connected to the forward edge of the bottom panel 60 along a fold line 63. The tube retaining flap is generally U-shaped, being provided with a central notch 64 adapted to engage against the tube cap 9. Converging fold lines 64 emanate from the ends of the fold line 63 across the generally U-shaped tube retaining cap 64 to permit the end portions 70 of this flap to fold into angular relation to the intermediate portion of the flap indicated by the number 66. Corner flaps 67 are foldably connected to the lower edges of the side walls 43 along fold lines 69 which are substantially aligned with the fold line 61.

In the forming of the carton blank C, the blank is folded along the fold lines 44 to bring the anchoring flaps 50 into contact with the rear wall panel 41. Adhesive is applied to hold the anchoring flanges 50 in face contact with the rear wall 41. The reinforcing flaps 54 and 55 are also folded along the fold line 56 and the reinforcing flap 54 is adhered to the surface of the tube retaining flap 53 to serve as a reinforcement therefor. The flap 55 is preferably free of attachment to the top wall 5.

In completing the package, the tube B is placed upon the rear panel 41. The top end panel 51 is folded upwardly into right angular relation to the rear panel 41 and the tube retaining flap 53 and its reinforcing flap 54 are folded to overlie the flattened end 11 of the tube. When the side walls 43 are folded into right angular relation with the back panel 41, the opposite side edges of the tube retaining flap 53, 54 extend beneath the ends of the front liner panels 45 as indicated in FIGURE 8 of the drawings, the tube retaining flaps being held in tube retaining position as long as the side walls 43 are in parallel relation. The end wall 60 is then folded into right angular relation to the rear panel 41, and by bending the end portions 70 of the tube retaining flap 62 along the diagonal fold lines 65, as well as by folding the central portion 66 of this flap along the fold line 63, the tube retaining flap 62 may be inserted to straddle the cap 12, the surface of the end portions 70 lying along the lower edges 71 of the front liner panels 45 as may be seen in FIGURES 8 and 9 of the drawings. The corner flaps 67 may then be adhered to the bottom end wall 60 or may interlock together to complete the assembly operation.

In the foregoing description, the panels 10 and 41 have been described as back panels, the panels 25 and 51 have been described as top panels, and the panels 21 and 60 have been described as bottom panels. Obviously, this description only applies if the display is used in an upright position as in FIGURES 1 and 8 of the drawings. It is believed obvious that the carton could also serve as a display in horizontal position with the so-called rear panels arranged horizontally. Thus the terminology which has been employed is merely for the purpose of reference to describe the carton in its normal display position.

In accordance with the patent statutes, we have described the principle of operation and construction of our tube display carton and while we have endeavored to set forth the best embodiments thereof, we desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of our invention.

We claim:

1. A carton adapted for use as a display for a collapsible tube having a flattened end and a neck end bearing a tube cap, said carton comprising a generally rectangular back panel, side walls hinged to opposite edges of said back panel and extending forwardly therefrom, front liner panels hingedly connected to said side walls and converging rearwardly toward the back panel, rear liner panels hinged to the rear edges of said front liner panels, anchoring panels hinged to the rear edges of said rear

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- liner panels and secured in face contact to said back panel,
 the lines of connection between said front and rear liner panels being spaced apart a distance substantially equal to the diameter of the tube adapted to be displaced,
 a top wall extending forwardly from the upper edge of said back panel,
 a tube end retaining flap hinged to the forward edge of said top wall and adapted to be folded against the flattened end of the tube,
 cooperable means on said retaining flap and on said liner panels for holding the flap locked in tube retaining position,
 a bottom wall hinged to the lower edge of said back panel and extending forwardly therefrom,
 a tube cap retaining flap hinged to the forward edge of said bottom wall and having a notched end adapted to straddle the tube cap, and
 corner flaps holding said side walls and said bottom wall connected.
2. The structure of claim 1 and in which the side walls are trapezoidal and narrower at their upper edges than at their lower edges.
3. The structure of claim 2 and in which the front liner panels are also trapezoidal and wider at their lower edges than at their upper edges.
4. The structure of claim 1 and in which said rear liner panels diverge outwardly and rearwardly toward said back panel.
5. The structure of claim 1 and in which said corner flaps are hinged to the lower edges of said side walls.
6. The structure of claim 5 and in which said corner flaps are secured in face contact with said bottom wall.
7. The structure of claim 1 and in which said cooperable means comprise interengaging notches in said front liner panels and tube end retaining flap, and locking tongues adjoining said notches.
8. The structure of claim 1 and in which said tube end retaining flap underlies the end portions of said front liner panels to comprise said cooperable means.
9. The structure of claim 1 and in which said tube cap retaining flap is divided by a pair of diagonal fold lines converging from the ends of the fold line connecting this flap to said bottom wall toward the free end of this flap into a center portion and two end portions adapted to engage opposite sides of a tube cap.
10. A tube display package in combination with an elongated collapsible tube having a flattened end and a

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- neck end bearing a tube cap, the package including an enclosing carton comprising:
- a generally rectangular back panel,
 a pair of trapezoidal side walls hinged to opposite vertical edges of said back panel and being wider along their lower edges than along their upper edges,
 a pair of trapezoidal front liner panels hinged to the forward edges of said side walls and converging inwardly and rearwardly to substantially contact the sides of the tube which is centered along said back panel,
 a pair of rear liner panels hinged to the rear edges of said front liner panels and extending rearwardly to said back panel,
 a pair of anchoring flanges hinged to the rear edges of said rear liner panels and secured in face contact to said back panel,
 said rear liner panels terminating in spaced relation to the upper ends of said front liner panels,
 a top wall hinged to the upper end of said back panel and extending forwardly therefrom,
 a tube end retaining flap hinged to the forward edge of said top wall and partially underlying the upper ends of said front liner panels and lying forwardly of the flattened end of said tube holding the same against said back panel,
 the lower edges of said liner panels inclining upwardly from the forward edges thereof,
 a bottom wall hinged to the lower edge of said back panel and extending forwardly therefrom,
 a tube cap retaining flap hinged to the forward edge of said bottom wall and having a notched end partially encircling said tube cap, said cap retaining flap engaging the inclined lower edges of said liner panels, and
 corner flaps hinged to the lower edges of said side walls and secured underlying said bottom wall.
11. The structure of claim 10 and in which said tube end retaining flap and said front liner panel include cooperable interlocking means.
12. The structure of claim 10 and in which said cap retaining flap is divided by a pair of diagonally extending fold lines converging from the ends of the fold line connecting this flap to said bottom wall into a center portion overlying the front of the cap and side portions extending along opposite sides of said cap.

No references cited.

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