Sept. 6, 1966 R. V. BURT 3,271,357

DISPLAY PACKAGE FOR COLLAPSIBLE TUBES AND THE LIKE

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Fig. 1

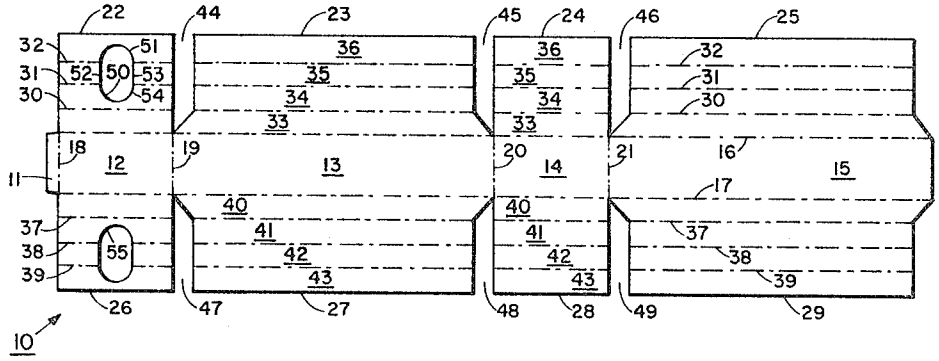


Fig. 2

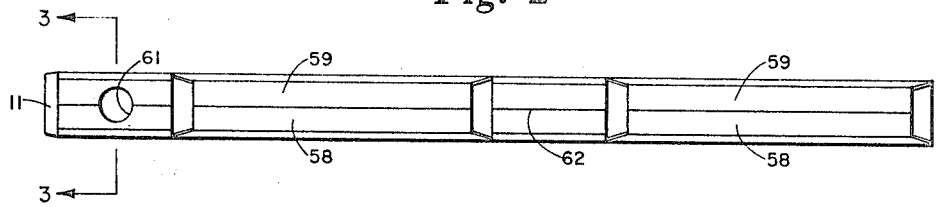
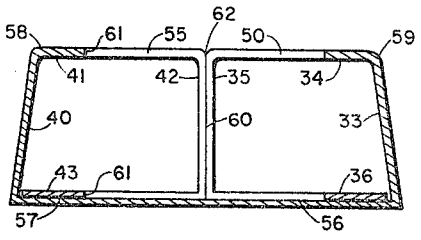


Fig. 3



INVENTOR.
Robert V. Burt

BY Fredrick H. Braun

ATTORNEY

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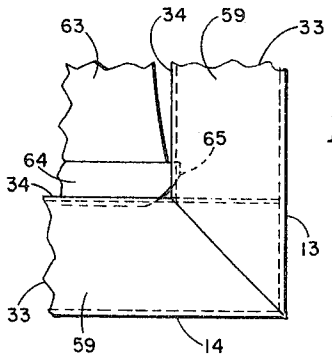


Fig. 5

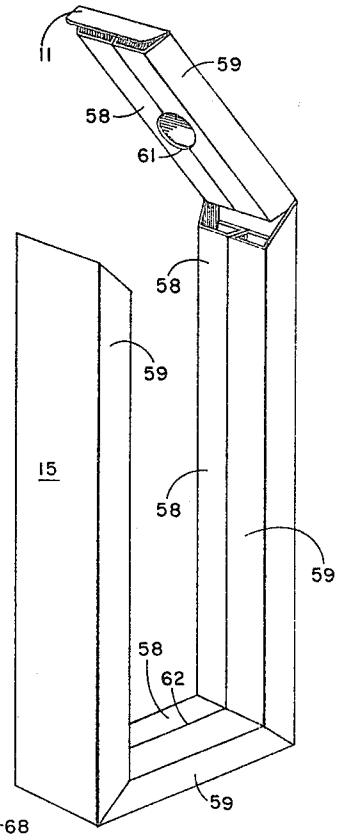
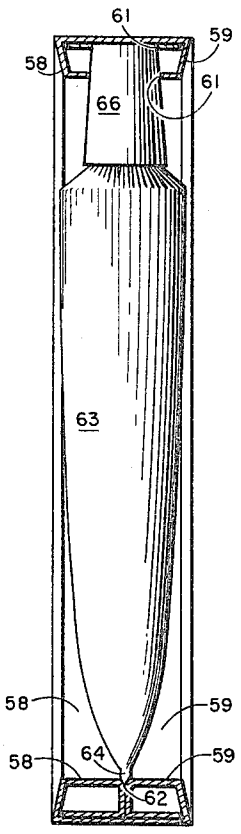


Fig. 4

Fig. 7



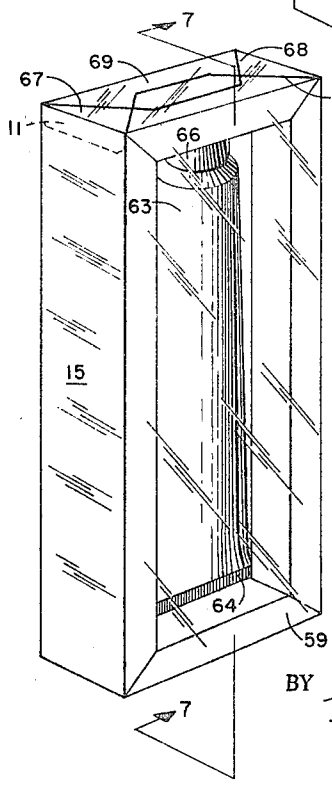


Fig. 6

INVENTOR.
Robert V. Burt

BY Fredrick H. Braun

ATTORNEY

United States Patent Office

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DISPLAY PACKAGE FOR COLLAPSIBLE TUBES AND THE LIKE

Robert V. Burt, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

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3 Claims. (Cl. 206—45.33)

The present invention relates to a display package which is particularly suited for packaging collapsible tubes and like objects. More particularly, it relates to a package composed of a rigid frame structure formed to support a collapsible tube or the like, said frame being overwrapped with a shrinkable transparent film to give the package added rigidity and to allow maximum display of the product therein.

As used herein, the term "collapsible tube" is broadly defined as a container of thin flexible metal, paper, films, plastics, etc., with integral shoulder and neck, provided with an appropriate size opening and with a closure, usually a screw cap made of plastic. The other end of the tube is closed by multiple folding of the bottom, or crimping with a metal clip or it can be welded tight.

The merchandising of products packaged in collapsible tubes is carried on in a number of different ways. Sometimes a product packaged in a collapsible tube is simply placed on display without the benefit of a wrapper of any kind. Other times the product is displayed in a carton so that no part of the collapsible tube can be visually inspected. In recent years, the use of display cartons has gained considerably in marketing products packed in collapsible tubes. One of the major deficiencies of present display packages is the fact that they use relatively large amounts of expensive paperboard material. They are also burdened with complex folding, tucking, and finishing procedures which add to their expense. In addition, present packages do not display products in collapsible tubes to their maximum advantage. Consequently, they do not permit a potential consumer to get a good visual impression of the product being sold.

It is a principal object of this invention to eliminate these deficiencies by providing an improved display package structure which is rigid while using a relatively small amount of paperboard or like material thereby achieving a very economical construction.

Another object of the invention is the provision of a new and improved display package structure which is particularly well suited for engaging and supporting objects in the form of collapsible tubes, the structure of the package being such that it can be formed on high speed packaging machinery thus making the package commercially feasible.

Still another object of the invention is the provision of a new display package concept whereby practically the entire surface of the packaged collapsible tube is visible to a potential consumer thus allowing inspection of the packaged product container at the point of purchase and giving the consumer an opportunity to compare and evaluate competitive products.

It is a further object of the invention to provide a package of the type heretofore set forth which is tamperproof, i.e. one from which the collapsible tube is not readily removed when on display.

The nature and substance of the invention can be briefly summarized as comprising a package made from a paperboard blank which is cut, scored, and folded into a frame member having tubular supports on either side of its four wall forming panels. An aperture is cut in the top surfaces of the tubular supports formed along the top end panel of the frame structure. The apertures are configured to receive the closure cap of the collapsible

tube being packaged. The apertures are cut so that the end of the collapsible tube is rigidly supported therein. The end of the collapsible tube which is crimped, welded or closed by suitable means is securely clamped between the tubular supports formed at the bottom end panel. Engaging the collapsible tube in this fashion provides a rigid supporting structure. As a frame is folded into rectangular form, the cap of the collapsible tube is inserted in the aperture cut in the tubular supports and the end of the tube is wedged between the tubular supports at the bottom end of the frame. An end flap extending from one end of the frame is secured to the opposite end of the frame to complete the frame around the collapsible tube. The frame is overwrapped with a transparent plastic film having heat shrinkable properties. The overwrap film is heated and shrunk to add substantially to the rigidity of the package structure and to assist in retaining the flap in the completed package. The collapsible tube filled with product has its surfaces almost entirely exposed through the two open sides of the frame so that it can be readily examined by a potential consumer.

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter regarded as forming the present invention, it is believed the invention will be better understood from the following description taken in connection with the accompanying drawings in which:

FIGURE 1 is a plan view of the frame blank of this invention in flat form.

FIGURE 2 is a plan view of the frame blank of this invention after the tubular supports have been formed.

FIGURE 3 is a cross section taken on the line 3—3 of FIGURE 2 showing the apertures in the tubular supports which are provided to receive the end of the closure cap of the collapsible tube.

FIGURE 4 is a perspective view of the frame showing the side panels erected with respect to the bottom end panel wherein the frame is in position to receive a collapsible tube.

FIGURE 5 is a fragmentary corner of the frame showing the interlocking construction of the tubular support elements on adjoining wall panels.

FIGURE 6 is a perspective view of the finished package containing a collapsible tube wherein the frame has been overwrapped with a heat shrinkable film which has been heated and shrunk.

FIGURE 7 is a cross section taken on the line 7—7 of FIGURE 6 showing the manner in which the sealed end of the collapsible tube and the closure cap thereof are held in the frame. For convenience of illustration the outer wrapper has been removed.

Reference will now be made to the drawings in describing the mode of carrying out the invention. A frame blank **10** in flat condition is illustrated in FIGURE 1. The frame blank **10** is formed by cutting and scoring a suitable packaging material such as cardboard, paperboard, cartonboard, plastic, thin metal or the like. The frame blank **10** is divided successively into a flap **11**, a top end panel **12**, a side panel **13**, a bottom end panel **14** and a side panel **15** by means of spaced horizontal parallel score lines **16** and **17** and vertical parallel transverse score lines **18**, **19**, **20** and **21**. Extending portions **22**, **23**, **24** and **25** project upwardly from the score line **16**. Similarly, extending portions **26**, **27**, **28** and **29** extend downwardly from the score line **17**.

Each of the extending portions **22**, **23**, **24** and **25** are sub-divided by means of the horizontal score lines **30**, **31** and **32** into an inner area **33**, an inner intermediate area **34**, an outer intermediate area **35** and an outer area **36**. Similarly, the extending portions **26**, **27**, **28** and **29** are sub-divided by the horizontal score lines **37**, **38** and

39 into an inner area 40, an inner intermediate area 41, an outer intermediate area 42 and an outer area 43.

Angular relief cut-outs 44, 45 and 46 are provided between the extending portions 22, 23, 24 and 25 . Similarly, angular cut-outs 47, 48 and 49 are provided between the extending portions 26, 27, 28 and 29. The angular relief cut-outs are formed by making a straight cut on the edges of the extending portions 22, 24, 26 and 28 projecting from the end panels 12 and 14, the cuts being aligned with the transverse scores 18, 19, 20 and 21. On the other hand, the extending portions 23, 25, 27 and 29 projecting from the side panels 13 and 15 are provided with a beveled cut extending in each case from the horizontal parallel scores 16 and 17 to the horizontal scores 30 and 37, respectively. The extending portions 23, 25, 27 and 29 are cut substantially perpendicular to the horizontal scores 30 and 37 outwardly of the aforesaid bevel cuts.

The extending portion 22 has an aperture 50 cut therein. The aperture is formed by an arcuate cut 51 extending into the outer area 36 from the score line 32. The aperture 50 is further formed by the short straight cuts 52 and 53 extending transversely across the outer intermediate area 35 from the score line 32 to the score line 31. An arcuate cut 54 wholly within the inner intermediate area 34 and identical to the arcuate cut 51 completes the apertures 50. An aperture 55 having the identical shape as the aperture 50 is cut into the extending portion 26. The configuration of the arcuate cuts 51 and 54 are primarily to receive a circular closure cap as usually provided on a collapsible tube. Thus, it will be apparent that the apertures can be cut into any configuration depending entirely on the cross sectional shape of the closure cap to be held therein. The extending portions 22 and 26 are geometrically identical as are the extending portions 23 and 27; 24 and 28; and also 25 and 29.

The frame blank 10 of FIGURE 1 is folded and formed into the shape as shown in FIGURE 2. This is accomplished by folding the extending portions 22, 23, 24 and 25 on the score lines 16, 30, 31 and 32 so that the outer area 36 on each of the extending portions lies in contiguous relationship to its respective panel 12, 13, 14 or 15. The extending portions 26, 27, 28 and 29 are similarly folded so that the outer area 43 on each of the extending portions is also contiguous to its respective panel 12, 13, 14 or 15. When so folded, the cross section of the frame will be shaped as shown in FIGURE 3.

The outer areas 36 and 43 are adhered at 56 and 57, respectively, to the end panel 12 as shown in FIGURE 3. The outer areas 36 and 43 on all the extending portions are similarly adhered to their respective panels. The folding and adherence of the extending portions provides tubular supports 58 and 59 which lie, respectively, along each edge of the side and end panels 12, 13, 14 and 15. These tubular supports 58 and 59 are abutted along the outer intermediate areas 35 and 42 and are adhered at 60 (FIGURE 3). This provides a substantially rigid structure by the nature of its construction depending in part on the rigidity of the material from which it is made.

As seen in FIGURES 2 and 3, the apertures 50 and 55 are cut to provide a circular opening 61 extending to the top end panel 12 for receiving the closure cap secured to a collapsible tube. As also shown in FIGURE 3, a small wedge-shaped trough 62 is formed at the inner juncture of the tubular supports 58 and 59 because of the manner in which the frame material bends on the score lines 31 and 38. The purpose and utility of the wedge-shaped trough 62 will be more apparent as the description proceeds.

The completed frame of FIGURE 2 may be erected by folding and forming into the configuration shown in FIGURE 4. In doing so, the side panel 15 is folded up at right angles with respect to the bottom end panel 14, and the side panel 13 is folded up into parallel relationship with respect to the side panel 15. After the collapsible tube 63 is placed in the frame, the top end panel 12 can then be folded on the score line 19 into closed position and the flap 11 tucked inside the side panel 15. The tucked position of the flap 11 is shown in broken lines in FIGURE 6. The flap 11 can be adhered by means of an adhesive if necessary or it can be unadhered depending on the requirements of the particular package. As an alternate construction, the flap 11 can be placed against the outside of the panel 15 and adhered thereto by means of an adhesive. It will also be apparent that the flap 11 can extend from either end of the frame blank of FIGURE 1 without detracting from the advantages of the package structure.

FIGURE 5 illustrates the corner structure of the frame and the manner in which the sealed end of the collapsible tube is securely held. It will be noted that the angular relief cut-out provided in the frame blank provides a structure wherein one of every two adjoining tubular supports is formed with a bevel edge. On erection, this provides a structure whereby the tubular supports 58 and 59 formed on the end panels 12 and 14 fit within the tubular supports 58 and 59 formed on the side panels 13 and 15. The ends of the tubular supports on the end panels 12 and 14 abut the side panels 13 and 15. An example is illustrated in FIGURE 5 with respect to the corner between the side panel 13 and the bottom panel 14. This provides added rigidity at the corners. It also insures a substantially square corner at each of the four corners of the package.

FIGURE 7 illustrates the manner in which a collapsible tube with a closure cap is supported in the package for maximum display after the top end panel 12 is folded in place and the flap 11 tucked as heretofore described. It will be noted that the collapsible tube 63 has a sealed end 64 which may be closed by multiple folding, crimping with a metal clip, welding or the like. As seen in FIGURE 5, the sealed end 64 may have a projecting portion 65. A similar projecting portion (not shown) may be formed at the other end of the seal 64. The sealed end 64 is placed in the wedge-shaped trough 62 formed at the inner juncture of the tubular supports 58 and 59 at the bottom end panel 14 (FIGURES 5 and 7). When the side panels 13 and 15 are squared up, the trough 62 at the inner juncture of the tubular supports 58 and 59 engages the projection portion 65 of the sealed end 64 as well as the other projecting portion (not shown). A collapsible tube may be formed in which the sealed end 64 does not have projecting portions. In that case, the end edges of the sealed end 64 will be engaged by the tubular supports 58 and 59.

The cap 66 is received in the opening 61 formed in the tubular supports 58 and 59. It will be seen that the opening 61 in the tubular supports 58 and 59 securely holds the cap 66 of the collapsible tube 63 at one end while the sealed end 64 is firmly engaged by the trough 62 formed between the tubular supports 58 and 59.

FIGURE 6 illustrates the frame structure overwrapped with a transparent plastic film material. The film material is preferably of the heat shrinkable type such as, for example, biaxially oriented polyvinyl chloride, polyethylene, polypropylene and the like. The overwrap material is cut to size and then wrapped around the frame. It is sealed longitudinally along one side panel whereupon the tucks 67 and 68 are made. The final folds 69 and 70 are then formed and sealed against the end of the package. The other end of the package (not shown) has the ends of the wrapper similarly formed. The finished package is then subjected to sufficient heat to cause the overwrap film to shrink thereby greatly increasing the rigidity of the finished package structure and also retaining the flap 11 in the completed package. The use of a shrink film overwrap also makes possible the use of a frame element in which the flap

11 has been eliminated. The use of a transparent plastic shrink film allows inspection of the entire bottle from the two sides of the open frame.

While particular embodiments of the invention have been illustrated and described it will be obvious to those skilled in the art that various changes and modification can be made without departing from the spirit and scope of the invention and it is intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed as new is:

1. A package for a collapsible tube comprising a frame, said frame being formed from a frame blank made of paperboard material and generally configured in the form of an elongated strip, said frame blank having two spaced parallel scores running longitudinally from one end of said elongated strip to the other end thereof, a plurality of transverse scores at intervals along the said frame blank and being substantially perpendicular to said parallel longitudinal scores thereby dividing the central portion of the frame blank into four panels including two side panels and two end panels, said side and end panels being alternately spaced along said frame blank, a flap articulated to and extending beyond the panel at one end of said frame blank, an extending portion projecting laterally outwardly from each of the longitudinal scores which define the edge portions of the said panels, each of said extending portions being at least partially separated by angular relief cut-outs outwardly of each of said transverse scores, each of said extending portions having three score lines all of which are parallel to the parallel scores running longitudinally from one end of said elongated strip to the other, said three score lines dividing the extending portions into an inner area, an inner intermediate area, an outer intermediate area and an outer area, each of said extending portions being folded into a tubular support with the outer area of each extending portion being adhered to its adjoining panel so that each side and end panel has a pair of substantially rigid tubular supports in parallel abutting relationship alongside the longitudinal scores forming the upper and lower extremities of said side and end panels, said tubular supports being formed so that the outer intermediate area of each is substantially perpendicular to the side and end panels, said outer intermediate areas of said tubular supports being adhered together and having a wedge-shaped trough formed at the inner juncture thereof, a collapsible tube having a closure cap at one end and a sealed end at the other end, an opening cut from both tubular supports extending from the upper end panel, said opening being

shaped to receive the closure cap of the collapsible tube, said wedge-shaped trough being shaped to receive and engage the sealed end of the collapsible tube, said side and end panels being folded into a substantially rectangular frame by folding the said frame blank on said transverse scores so that the said tubular supports face inwardly and said cap of said collapsible tube is supported in said opening and said sealed end of said collapsible tube is engaged in the wedge-shaped trough at the inner juncture of the tubular supports at the bottom end panel and the side panels, said flap at one end of said frame blank being secured to the panel at the opposite end of said frame blank to complete the frame structure around said collapsible tube, said frame structure being overwrapped with a flexible and heat shrinkable plastic film, said film being heated and shrunk on said frame structure to impart greater rigidity to said frame structure and to retain said secured flap in the completed package.

2. A package as claimed in claim 1 wherein the openings cut in the tubular supports comprise an aperture cut in each of two abutting tubular supports, each of said apertures having an arcuate cut in the outer area extending from the score line separating the outer area and the outer intermediate area, an arcuate cut in the inner intermediate area extending from the score line separating the inner intermediate area and the outer intermediate area and a pair of straight cuts through the outer intermediate area interconnecting the ends of said arcuate cuts.

3. A package as claimed in claim 2 wherein the angular relief cut-outs are cut in a straight line extending from the transverse scores on each of the extending portions projecting from the top end panel and the bottom end panel, the other side of the angular relief cut-out being cut on a line running at a bevel from the longitudinal horizontal scores to the score separating the inner area from the inner intermediate area, said second line being parallel to the transverse scores beyond the score line separating the inner area from the inner intermediate area.

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THERON E. CONDON, *Primary Examiner.*

W. T. DIXSON, *Assistant Examiner.*