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TRAY-FORMING CONTAINERS

Filed May 28, 1965

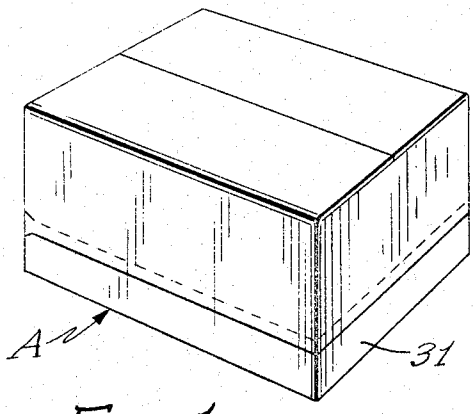

FIG. 1

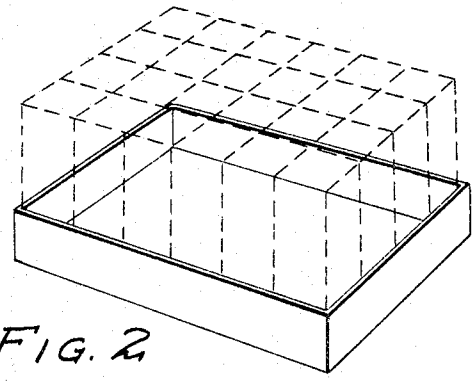

FIG. 2

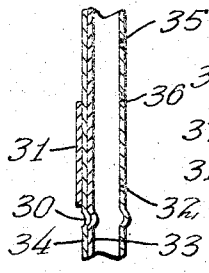

FIG. 4

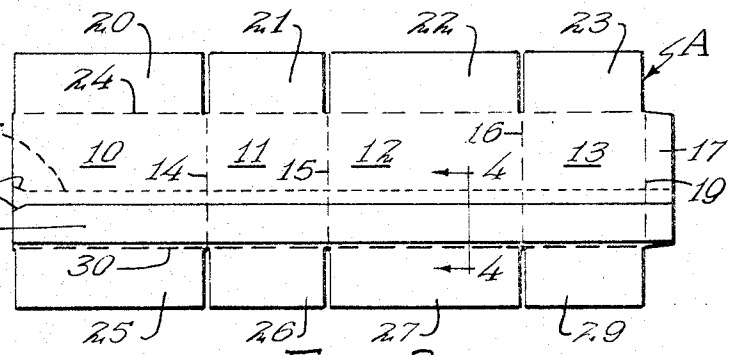

FIG. 3

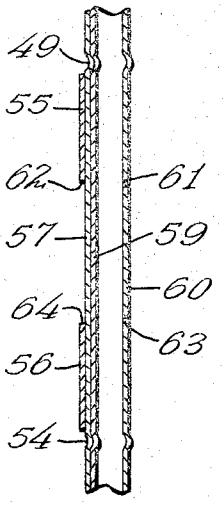

FIG. 6

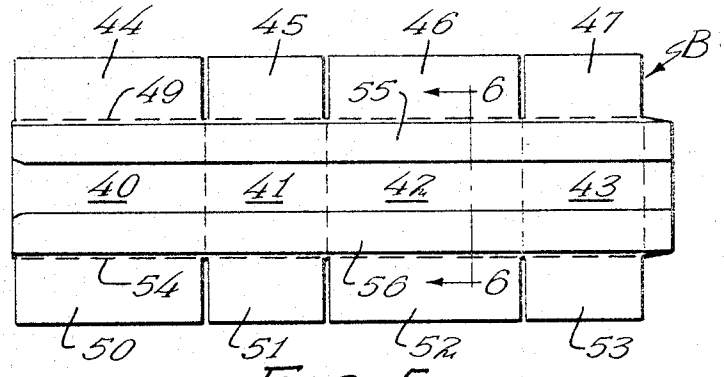

FIG. 5

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TRAY-FORMING CONTAINERS

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This invention relates to an improvement in tray-forming containers and deals particularly with a container including a removable tear strip capable of dividing the container into two separate portions of tray-shaped form.

During recent years, the number and size of supermarkets has materially increased. Because of keen competition, it is important that the goods display for sale be handled as expeditiously as possible. As a result, many items of canned goods and cartoned goods are being shipped in containers including a tray, or separate trays provided for containing the goods. The use of separate trays or trays contained in containers obviously increases the cost of the containers and does not materially reduce the cost of handling unless the goods are packaged in the trays during shipment.

Containers of various types have been formed with removable tear strips. These tear strips are sometimes in the form of weakened lines of separation which extend about the periphery of the walls of the container so that by removing the tear strip, the container is divided into an upper portion and a lower portion. By discarding the upper portion, the lower portiton may be used as a tray so that the goods may be handled as a unit. In some instances, two layers of the product are provided in superposed relation, so that by removing the tear strip area, two trays are formed, each of which contains one layer of the product.

There are few types of tear strips which may be used in containers and which are acceptable for rail and truck shipment. One such acceptable tear strip is disclosed in U.S. Patent 2,706,076 issued April 12, 1955, to Reynolds Guyer. This patent shows a corrugated blank including an outer liner, an inner liner, and an intermediate corrugated medium. The flutes of the corrugated board are adhered to the liners in the conventional manner. In one form of construction, the tear strip is formed by two spaced side-by-side weakened lines of separation which extend transversely of the corrugations, defining a removable strip in the inner liner. By grasping the end of this strip and pulling outwardly, the separable strip is designed to tear through the corrugated medium and outer liner. A modified form of construction disclosed includes opposed weakened lines of separation in the outer liner to prevent the spreading of the tear strip and to define a neat-appearing edge.

The modified form of construction described above does normally form a neat, well-defined edge which may serve as the upper edge of a display tray. Unfortunately, however, when both liners are slit, there is a danger of weakening the container to the extent where it will not be accepted for truck and rail shipment. When the weakened lines of separation are formed in the inner liner only, the outer liner will not tear along a straight line so that the edges of the tear strip tend to be somewhat uneven and ragged, and detract from the appearance of the tray.

I have found that by applying a reinforcing strip to the outer surface of the container, with the edge of the reinforcing strip in opposed relation to one of the weakened lines of separation in the inner liner, this reinforcing tape or strip provides a smooth, straight edge along which the outer liner tears, resulting in a neat-appearing edge. Not only is the shipping container reinforced, but the container, after opening, may be used as a display tray for the contents, the edge of the tear strip being straight enough not to detract from the appearance. In the same manner, by applying two spaced reinforcing tapes or strips to the outer surface of the container with an edge of each strip in opposed relation to a corresponding edge of the tear strip, the corrugated board will tear evenly along both edges, resulting in the formation of two separate trays useful in displaying of two layers of the product.

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 container in closed condition.

FIGURE 2 is a view of the container after the tear strip has been removed and the upper portion of the container discarded.

FIGURE 3 is a diagrammatic view of the blank from which the container shown in FIGURES 1 and 2 is formed.

FIGURE 4 is an enlarged section view through a detailed portion of the container, the position of the section being indicated by the line **4—4** of FIGURE 3.

FIGURE 5 is a diagrammatic view of a modified form of blank.

FIGURE 6 is an enlarged sectional view through a detailed portion of the blank shown in FIGURE 5, the position of the section being indicated by the line **6—6** of FIGURE 5.

The container A is generally of conventional form. The container includes a first side wall **10**, a first end wall **11**, a second side wall **12**, and a second end wall **13** which are connected in series along parallel fold lines **14**, **15**, and **16**. A stitch or glue flap **17** is hingedly connected to the end of the end wall **13** along a fold line **19** which is parallel to the previously described fold lines.

Top closure flaps **20**, **21**, **22**, and **23** are hingedly connected to the upper edges of the panels **10**, **11**, **12**, and **13** along a fold line **24**. Bottom closure flaps **25**, **26**, **27**, and **29** are hingedly connected to the lower edges of the lower edges of the panels **10**, **11**, **12**, and **13** along a fold line **30**.

An elongated strip of tape **31** is adhered to the outer surface of the container near the lower edges of the side and end walls. As indicated in FIGURE 4 of the drawings, the container is formed of corrugated paperboard including an inner liner **32**, a corrugated medium **33**, and an outer liner **34**. The tape strip **31** is adhered longitudinally of the blank to extend across the side and end walls transversely of the flutes of the corrugated medium. In the particular arrangement illustrated, the tape strip **31** has its lower edge substantially coinciding with the fold line **30**. However, the width of the tape strip **31** may be varied. The tape strip may be of paper, paperboard, fabric, plastic, or other suitable material.

As is indicated in FIGURE 4 of the drawings, the inner liner **32** is provided with a pair of weakened lines of separation **35** and **36**. The weakened line **36** is located inwardly of the upper edge of the tape strip **31**. The weakened line **35** is spaced above the line **36** a distance sufficient to provide a tear strip which is wide enough to sustain a pulling force. The weakened lines **35** and **36** are usually slits through the liner which are interrupted at intervals so that the strip is maintained in position while the liner is adhered to the corrugated medium. However, the weakened line may comprise perforations, cut scores, or other such means.

A pair of converging slits **37** are provided in the edge of the panel **10** with their inner ends substantially on the weakened lines **35** and **36**. These slits provide a tab at the edge of the blank which may be grasped to pull the tear strip outwardly. When pulled outwardly, the lower edge of the tear strip tears off evenly along the upper edge of the reinforcing strip **31**. In other words, the tape strip **31** acts much in the manner of a ruler placed upon a sheet of paper along which the paper may be torn.

The blank B illustrated in FIGURE 5 of the drawings includes panels **40**, **41**, **42**, and **43** which are similar to the panels **10**, **11**, **12**, and **13** of the container A. These panels **40**, **41**, **42**, and **43** are hingedly connected as in the container A and are provided with top and bottom closing flaps, the top flaps **44**, **45**, **46**, and **47** being connected to the upper edge of the wall panels along a fold line **49** and the bottom closing flaps **50**, **51**, **52**, and **53** being secured to the lower edges of the wall panels along a fold line **54**. The container B differs from the container A only that it is provided with two reinforcing tape strips **55** and **56** in place of the single strip attached to the container A.

As is indicated in FIGURE 6, the container B is also made of corrugated paperboard, with the flutes of the corrugated medium extending at right angles to the longitudinal edges of the tape strips. The corrugated board includes an outer liner **57**, a corrugated medium **59**, and an inner liner **60**. As indicated in FIGURE 6, a weakened line of separation **61** is provided in the inner liner **60** in opposed relation to the lower edge **62** of the reinforcing strip **55** while a second weakened line of separation **63** is in opposed relation to the upper edge **64** of the lower reinforcing strip **56**. The area of the inner liner between the slits **61** and **63** acts as a tear strip to pull through the corrugated medium **59** and outer liner **57** as in the previous construction. With the arrangement shown in FIGURE 6, the paperboard tears smoothly and evenly along the lower edge **62** of the upper strip **55** and the upper edge **64** of the lower reinforcing strip **56**, forming an upper and lower tray. A tear strip of this type may be used advantageously where two layers of the product are contained within the container. By inverting the upper portion of the container and the upper layer of contents, two separate trays full of the product are provided.

A feature of this structure lies in the fact that the tape **31** or the tapes **55** and **56** may be of a color which contrasts with the outer liners **34** or **57**, identifying the case as a tray-forming case.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in tray-forming containers; while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A tray-forming container including:

a body of corrugated paperboard including rectangularly arranged side and end walls connected in tubular relation,

closing flaps hinged to the lower edges of said side and end walls and folded into superposed relation to form a bottom closure,

said paperboard including an outer liner, a corrugated medium, and an inner liner adhered together, the flutes of the corrugated medium extending parallel to the lines of fold connecting said walls in tubular relation,

a tape secured in face contact with said outer liner having its longitudinal edges parallel to the hinge lines connecting said walls to said closing flaps, the upper edge of said tape being spaced above said hinge lines and below the upper edges of said walls, and

two side-by-side weakened lines of separation in said edge extending parallel with, and spaced above, the the upper edge of said tape and the other of which is spaced above said one weakened line,

whereby when the area between said weakened lines is grasped and pulled outwardly, the portion of said inner liner between said weakened lines will tear through said corrugated medium and said outer liner to remove an area of said walls along the upper edge of said tape to divide said walls into a removable upper portion and a tray.

2. The structure of claim **1** and including top closure flaps hingedly connected to the upper edges of said walls.

3. A tray-forming container including:

parallel rectangular side walls and parallel end walls connected together in tubular relation,

closure flaps secured to the opposed parallel edges of said side and end walls along parallel fold lines and foldable into superposed relation to form end closures for said tubularly connected walls,

said walls and flaps being formed of corrugated paperboard including an inner liner, a corrugated medium, and an outer liner secured together, the flutes of the corrugated medium extending normal to said fold lines,

a reinforcing member secured to said outer liner spaced between said fold lines and parallel thereto,

a detachable strip formed in said inner liner defined by two side-by-side parallel weakened lines of separation extending parallel to said fold lines,

one said weakened line extending in opposed relation to the edge of said reinforcing member most remote from one said fold line and the other said weakened line being at a greater distance from said one fold line.

4. The structure of claim **3** and in which said reinforcing member comprises a tape secured in face contact with said outer liner.

5. A tray-forming container including:

parallel rectangular side walls and parallel end walls connected together in tubular relation,

closure flaps secured to the opposed parallel edges of said side and end walls along parallel fold lines and foldable into superposed relation to form end closures for said tubularly connected walls,

said walls and flaps being formed of corrugated paperboard including an inner liner, a corrugated medium, and an outer liner secured together, the flutes of the corrugated medium extending normal to said fold lines,

a pair of reinforcing members secured to said outer liner in spaced relation, and extending parallel to said fold lines,

a detachable strip in said inner liner defined by spaced side-by-side weakened lines of separation, said detachable strip being in opposed relation to the area of said outer liner between said reinforcing members, and said weakened lines being in opposed relation to the edges of said reinforcing members.

6. The structure of claim **5** and in which said reinforcing members comprise tapes secured in face contact with said outer liner.

7. A tray-forming container including:

a body of corrugated paperboard including rectangularly arranged side and end walls connected in tubular relation,

closing flaps hinged to the lower edges of said side and end walls and folded into superposed relation to form a bottom closure,

said paperboard including an outer liner, a corrugated medium, and an inner liner adhered together, the flutes of the corrugated medium extending parallel to the lines of fold connecting said walls in tubular relation,

an extra lamination of paperboard overlying the lower portion of said side and end walls and having an edge extending parallel with, and spaced above, the lower edges of said side and end walls,

two side-by-side weakened lines of separation in said inner liner, one of which is in opposed relation to the upper edge of said extra lamination edge and the other of which is spaced above said one weakened line,

whereby when the area between said weakened lines is grasped and pulled outwardly, the portion of the inner liner between said weakened lines will tear through said corrugated medium and said outer liner to remove an area of said walls along the said edge of said extra lamination to divide said walls into a removable upper portion and a tray.

References Cited by the Examiner

UNITED STATES PATENTS

2,706,076	4/1955	Guyer	229—51
2,751,964	6/1956	Guyer	229—51
3,136,474	6/1964	Schaus et al.	229—51
3,203,618	8/1965	Andrews et al.	229—51 X

FOREIGN PATENTS

458,375	12/1936	Great Britain.

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