Oct. 4, 1966 W. H. RASMUSSEN 3,276,665

TEAR STRIP CONTAINERS

Filed May 28, 1965

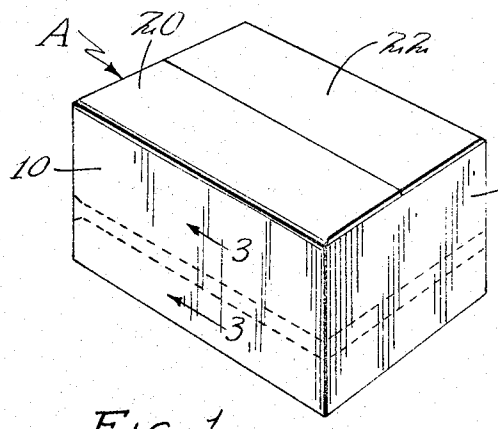


FIG. 1

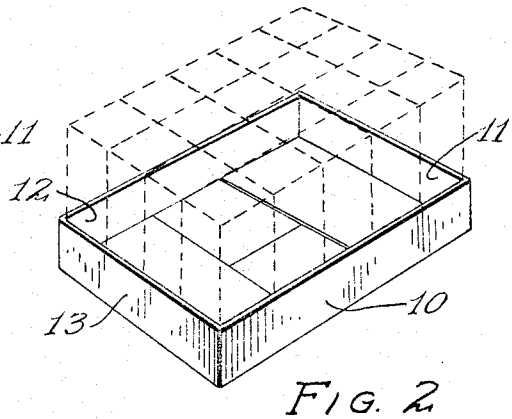


FIG. 2

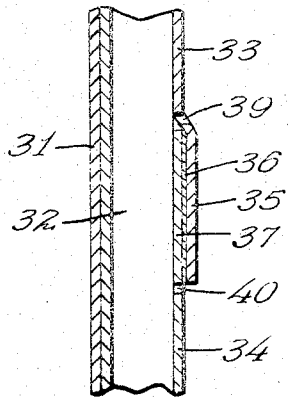


FIG. 3

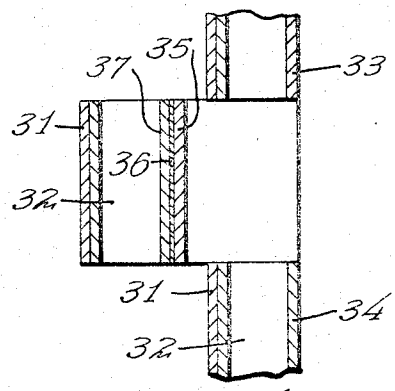


FIG. 4

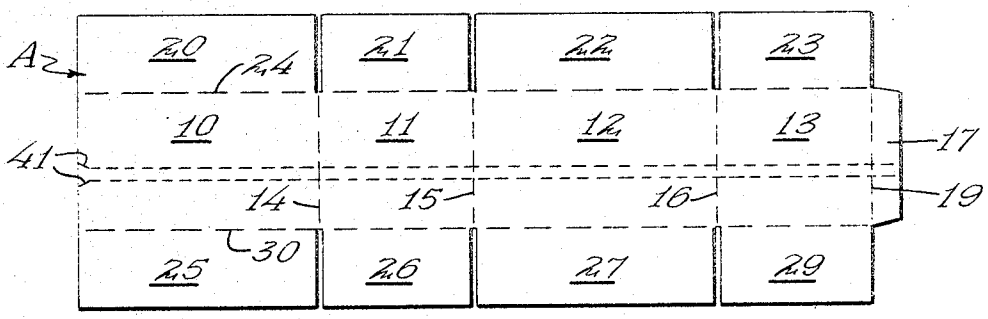


FIG. 5

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TEAR STRIP CONTAINERS

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This invention relates to an improvement in tear strip containers and deals particularly with a container having a removable tear strip encircling the container capable of separating the container into an upper section and a lower section. By removing the upper section, the lower section may be used to support the container contents.

In U.S. Patent 2,706,076 issued April 12, 1955, to Reynolds Guyer, a novel type of tear strip for use in corrugated paperboard was disclosed. According to the terms of this patent, the inner liner of the corrugated board was slit or similarly weakened without impairing the strength of the corrugated medium. As a result, a separable band was formed in the inner liner, the end of which could be grasped and the tear strip removed.

Containers made in accordance with the above-mentioned patent have been successfully produced for some years. However, corrugated paperboard differs very materially in its composition. The liners vary widely in weight and in strength. The corrugated medium similarly varies in weight and in strength. Relatively weak and light-weight paperboards are used for producing containers for certain types of goods where the strength of the board is relatively unimportant. Where more protection is required, the corrugated board is formulated of considerably stiffer and stronger paperboards. The two liners often vary in weight and strength depending upon the goods to be shipped. Where a tear strip container is made in corrugated board having a relatively light and relatively weak inner liner material, while the corrugated medium is made of stronger or heavier paper, tear strips of the type described in the above-mentioned patent have a tendency to break off and are therefore not very effective.

In the past, containers have been made including a tape adhered to the inner liner which is designed to be drawn through the corrugated medium and outer liner in opening the case. Some such tapes work very effectively, but they add materially to the cost of the container. When such tapes are applied between slits on the inner liner, the tear strip is even more effective.

It is an object of the present invention to provide a container having on its inner surface a reinforced tear strip area which is very inexpensive to produce. This is provided by supplying the inner liner from two separate rolls so that the liners overlap. Normally if this were tried on the corrugator, the overlapping areas would not be adhered together because of the fact that the adhesive is applied to the flutes of the corrugated medium rather than to the liners. By providing a separate adhesive applicator capable of applying a narrow strip of adhesive adjoining one of the overlapped edges, the overlapping areas may be adhered together to provide a two-ply layer which is of a width depending upon the amount of overlap of the two liners. Just before the overlapped liners are attached to the corrugated medium, they are slit or perforated, the weakened lines of separation lying on opposite sides of the reinforced area. As a result, the inner liner of the container is provided with a strip of double thickness defined on either side by a weakened line of separation so that this area may be used as the tear strip. This tear strip may be pulled through the corrugated medium and the outer liner. Due to the double thickness of the tear strip, this strip is capable

of cutting through the corrugated medium and an outer liner even though these webs are stronger than a single thickness of the inner liner.

A further feature of the present invention resides in the fact that, if desired, one of the liner sheets or webs may be substantially stronger than the other. For example, if the tear strip is designed to extend about the periphery of the container near the top or bottom end thereof, one of the liners may be relatively narrow as compared to the other. By making the narrow liner of stronger paperboard, the tear strip is greatly increased in strength while the cost may be substantially less than the cost of containers having their entire liners of the heavier material.

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 and sealed condition.

FIGURE 2 is a perspective view of the lower portion of the container showing the container contents in dotted outline.

FIGURE 3 is an enlarged vertical sectional view parallel to the flutes of the corrugated board, the position of the section being indicated by the line 3—3 of FIGURE 1.

FIGURE 4 is a view similar to FIGURE 3 and showing the tear strip in partially removed condition.

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

The container A which is illustrated in the drawings includes a side wall panel **10**, an end wall panel **11**, a second side wall panel **12**, and a second end wall panel **13**, which are hingedly connected along parallel fold lines **14**, **15**, and **16**. A glue or stitch flap **17** is hinged to an edge of the second end wall panel **13** along a fold line **19** which is parallel to the previously-described fold lines. In forming the container, the stitch flap **17** is secured in face contact with an edge of the side wall panel **10** to form a tubular container.

Top closing flaps **20**, **21**, **22**, and **23** are hingedly connected to the upper edges of the side wall panels **10**, **11**, **12**, and **13** along a fold line **24** which intersects the previously-described fold lines at right angles. Bottom closure flaps **25**, **26**, **27**, and **29** are hingedly connected to the lower edges of the side wall panels **10**, **11**, **12**, and **13**, respectively, along a fold line **30**. The container thus formed is obviously conventional. As is also usual practice, the flutes of the corrugated board extend vertically or parallel to the fold lines **14**, **15**, **16**, and **19**.

The corrugated board from which the container is formed is illustrated in enlarged form in FIGURES 3 and 4 of the drawings. The corrugated board includes an outer liner **31** which forms the exterior surface of the container, a corrugated medium **32**, and a pair of liner sheets **33** and **34**. The outer liner **31** is adhered to the flutes of the corrugated board in a conventional manner. The liner sheet **34** is also adhered to the corrugated medium throughout its area in the usual manner. The liner sheet **33** is adhered to the flutes of the corrugated board throughout the area thereof which is in contact with the flutes. The lower edge **35** of the sheet **33** overlaps the outer surface of the liner **34**. Adhesive **36** is applied either to the outer surface of the liner **34** or to the inner surface of the liner **33** so as to adhere the overlapping areas of the two liners in face contact.

While the drawing illustrates the lower edge **35** as overlapping and lying outwardly of the upper edge of the liner **34**, obviously the upper portion **37** of the liner **34** could overlap and lie outwardly of the lower edge

35 of the liner 33. In either event, the overlapped edges of the two liners provide a reinforced strip which extends throughout the length of the blank.

In order to provide a tear strip, a weakened line of separation 39 extends through the liner 33 just above the double thickness area, and a second weakened line of separation 40 extends through the liner 34 just below the double thickness area. These weakened lines of separation are usually formed in the liners before the liners are attached to the corrugated medium, and, in preferred form, are slits which are interrupted at intervals so as to provide small areas of connection between the edge of the liner and the main body of the liner. These slits may be formed either before or after the two liners are adhered in face contact. If the slits are formed after the two edges have been adhered together, the slits may extend through both liners and the overlapped or reinforced area may be wider than the removable tear strip.

A pair of slits 41 are provided in the edge of the panel 10 preferably converging toward the weakened lines of separation 39 and 40. These slits provide a tab at the end of the blanks which may be grasped when the container is to be opened.

In the foregoing description, the tear strip is shown encircling the body of the container. However, it should be understood that this reinforced area could extend across the flaps or in any location so long as the reinforced area extends transversely of the corrugations. In actual practice, this is the only way the reinforced area could be readily formed, as the liner webs normally extend transversely of the corrugations.

In the particular arrangement illustrated, the tear strip extends circumferentially about the container and, when removed, divides the container into an upper portion and a lower portion both of which are of tray-shaped form. As a result, when the tear strip has been removed and the upper portion of the container discarded, the lower portion may serve as a tray to support the contents as is indicated in FIGURE 2 of the drawings.

Adhering the overlapping areas of the two liners 33 and 34 in face contact more than doubles the strength of a strip formed in either liner alone. The two individual layers combined with the strength imparted by the adhesive provides a strong area capable of tearing through the corrugated medium and the outer liner as indicated in FIGURE 4 of the drawings. If desired, one of the liners may be made of the usually employed weight of paperboard and the other may be made of materially stronger paperboard. If the tear strip is reasonably near an edge of the blank, usually a relatively narrow web of stronger material will not greatly increase the cost of the containers, and, in any event, they will be considerably less expensive than containers having heavy paperboard as a liner extending entirely across the blank. If the container is to be formed into two trays, the tear strip is centrally located, and may be as wide as desired.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in tear strip 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 tear strip container blank comprising
a sheet of corrugated paperboard including
an outer liner adapted to form the outer surface of the container,
a corrugated medium,
a pair of inner liners overlying the side of said corrugated medium opposite said outer liner,
said inner liners having overlapping edges extending across said sheet at right angles to the flutes of the corrugated medium,
means adhering the inner and outer liners in face contact with said corrugated medium,
adhesive means adhering the overlapping edges of said inner liners in face contact, and
parallel side-by-side weakened lines of separation extending through said inner liners near opposite longitudinal edges of said overlapping edges and defining a two-ply inner liner strip therebetween.

2. The structure of claim 1 and in which said blank is creased parallel to the flutes of the corrugated medium to define hingedly connected wall panels.

3. A container including
a sheet of corrugated paperboard cut and creased to provide a series of hingedly connected wall panels,
flaps hingedly connected to at least one edge of said wall panels and adapted to fold into superposed relation,
said sheet including
an outer liner adapted to form the outer surface of said wall panels and flaps,
a corrugated medium,
a pair of inner liners in edge overlapping relation providing a two-ply strip extending throughout the length of the blank at right angles to the flutes of the corrugated medium,
means adhering said liners in face contact with opposite sides of said corrugated medium,
means adhering said overlapping edges of said inner liners in face contact, and
parallel side-by-side weakened lines of separation through said inner liners near opposite longitudinal edges of said overlapping edges to define a two-ply inner liner strip therebetween.

4. The structure of claim 3 and in which said weakened lines of separation extend across said wall panels.

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