Dec. 7, 1965 R. J. ZOELLER ETAL 3,221,975

CARTON

Filed Sept. 30, 1963

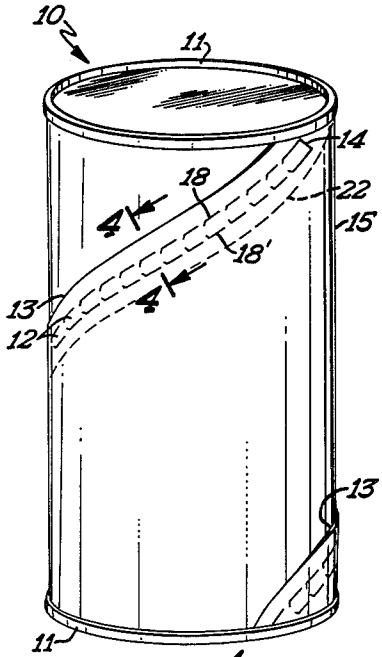


Fig 1

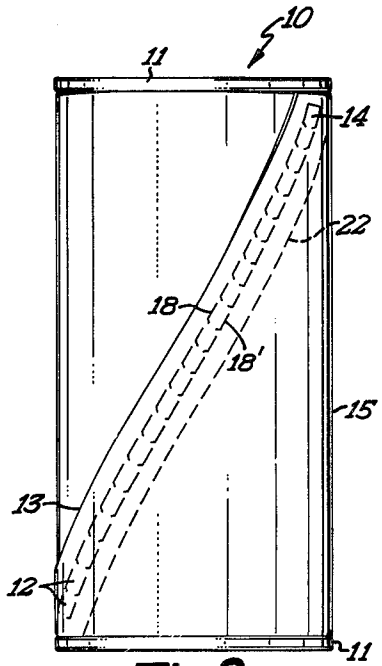


Fig 2

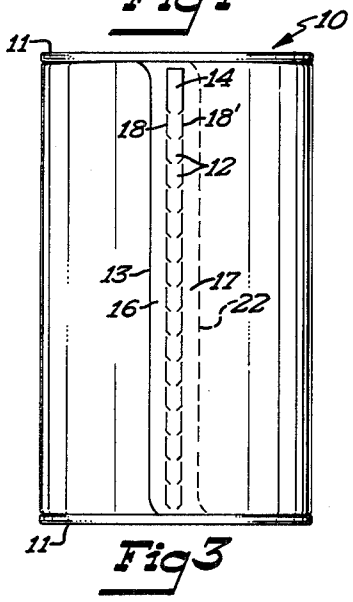


Fig 3

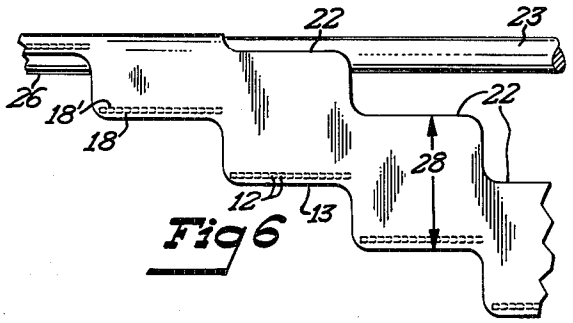


Fig 6

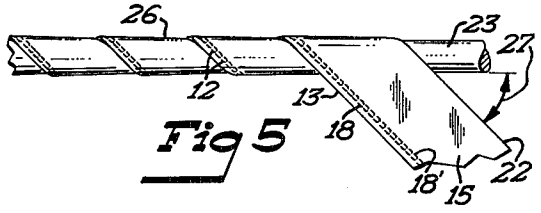


Fig 5

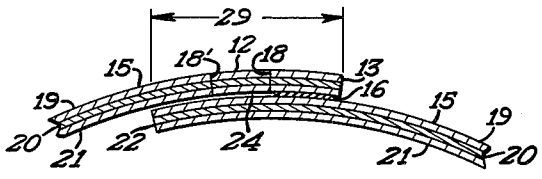


Fig 4

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CARTON

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4 Claims. (Cl. 229—51)

This invention relates to a spirally-wound, fibrous-core, tubular container. More particularly, the invention is directed to such a container having a longitudinal joint formed by overlapping opposite marginal portions of the fibrous core, and tear means aligned in the overlap area capable of penetrating the complete thickness of the fibrous core.

The invention is particularly useful for packaging refrigerated biscuits, rolls, doughntus and the like. Although in the foregoing examples pressure is exerted on the inside of the container due to the leavening of the dough, the container may be used with contents that exert no pressure.

The prior art reveals various tubular containers for packaging dough. Although many different containers are disclosed, for example U.S. Pat. Nos. 2,793,126, 2,891,714, 2,901,162, 3,021,047, 3,035,753, 3,036,502, no known prior art discloses a tubular container having a longitudinal lap joint and tear means aligned therein as hereafter described.

It is, therefore, an object of this invention to provide a simply-constructed, easy-opening, tubular container having a longitudinal lap joint and tear means aligned therein.

FIGURE 1 is a perspective view showing the preferred embodiment of the container.

FIGURE 2 is an elevational view of a specific embodiment wherein the longitudinal lap joint extends around only part of the circumference.

FIGURE 3 is an elevational view of a specific embodiment wherein the longitudinal lap joint extends around no part of the circumference, having a length equal to the height of the cylindrical container.

FIGURE 4 is an enlarged partial sectional view taken along the line 4—4 in FIGURE 1.

FIGURE 5 is a top view showing a mandrel with a body member being wound thereon to form the container of FIGURES 1 and 2.

FIGURE 6 is a top view showing a mandrel with the body member being wound thereon to form the container of FIGURE 3.

The preferred embodiment of the novel tubular container **10** appears in FIGURE 1. The container **10** consists of a body member **15** spirally wound with opposite edges **13** and **22** overlapped. The body member **15** consists of an outer label **19**, a fibrous core **20**, and an inner liner **21**. The three have their opposite edges in registration as best seen at **13** and **22** in FIGURE 4. Both the inner liner **21** and outer label **19** consist of aluminum foil laminated to kraft paper. The fibrous body **20** consists of standard paper board stock of about .026 inch tthickness. The outer label **19**, fibrous core **20** and inner liner **21** are adhered together.

External edge **13** and internal edge **22** of body member **15** are overlapped to form an overlap area **29**. That portion of fibrous core **20** extending from external edge **13** for distance **29** is referred to as the external marginal portion. That portion of fibrous core **20** extending from internal edge **32** for distance **29** is referred to as the internal marginal portion. The overlap **29** extends helically around the complete circumference of the container, the full length of the container. The amount of overlap **29** is uniform throughout the length and is about ¾ inch.

Tear strip **12** is aligned in the overlap area **29** and extends substantially the full length of the overlap area and is about ¼ inch wide. It is formed by a plurality of perforations which completely penetrate the external marginal portion of fibrous core **20** the inner liner **21** and outer label **19**. This is best seen at **18** and **18'** in FIGURE 4. The perforations **18** and **18'** are discontinuous and parallel. Because they are discontinuous they allow the transmission of stress across the overlap area in the external marginal portion in spite of the fact that they penetrate the external marginal portion. Starting tab **14** is provided for ease of tearing.

Body member **15** is secured in its tubular form by glue line **16**. Glue line **16** lies between external edge **13** and perforation **18** and extends continuously substantially the full length of the overlap area.

To prevent wicking of moisture or grease throughout the interior edge **22**, a wax seal **25** is provided. It extends the full length of internal edge **22**.

After the tubular container is filled with dough or other contents and end closures **11** are attached, it is easily opened. By grasping tab **14** tear strip **12** may be removed by tearing along perforations **18** and **18'**. The removal of the tear strip, a continuous severing of body member **15**, destroys the effect of glue line **16** leaving only the structural rigidity imparted by end closures **11**. By grasping the ends of the container and twisting them in opposite directions the container may be opened along external edge **22** and perforation **18'**, allowing removal of the contents without mutilation.

The foregoing is a description of the preferred embodiment of the invention. It may take other forms.

The overlap area need not necessarily extend helically around the circumference of the container. It may extend only partially around the circumference as in FIGURE 2, or it may not extend around the circumference at all, being parallel to the longitudinal axis as in FIGURE 3. The design shown in FIGURE 3 provides the maximum amount of columnar strength, little reliance being placed on glue line **16** for the transmission of such stress. This design, when being opened, requires tearing body member **15** from end closure **11** as opposed to twisting the ends in opposite directions as in the container shown in FIGURES 1 and 2.

Glue line **16** may take the form of a strip as opposed to a line and may cover the entire external overlap area to the right of strip **12** as seen in FIGURE 4.

The tear means may take other forms. It may be formed by two parallel lines of circular perforations or be only one line of perforations. In the case of only one line, the container might be opened by a tear string lying in the overlap area coincidental with the perforations. No matter what tear means is utilized, the perforations need not necessarily completely penetrate body member **15**. A complete penetration of fibrous core **20** alone is sufficient. Outer label **19** and inner liner **21** are not so strong as to prevent removal of the tear strip and subsequent rupture of the container respectively in the absence of perforations in the label and liner.

The width of the overlap area can be varied as desired to alter the strength of the container. When greater strength is desired, the width can be increased to give a greater gluing area.

Body member **15** need not necessarily include an outer label **19** and inner liner **21**. The inner liner might be replaced by a lacquer spray or wax seal making the inside of the container impervious to moisture and grease. When the container is used in connection with dry contents, the impervious layer may be omitted entirely. The outer label might be omitted, it not being essential to the invention.

The container of FIGURES 1 and 2 is formed by providing body member **15** with tear strip **12** as shown in

FIGURE 5. Body member **15** is wound on stationary mandrel **23** by the well-known method of utilizing a figure-eight belt. By adjusting the feed angle, the amount of overlap **29** may be varied.

The container of FIGURE 3 is formed in a similar manner. The form of body member **15** varies, however, prior to its passage about a mandrel **23** as best seen in FIGURE 6. Body member **15** is passed about mandrel **23** as described above. The distance **23** between internal edge **22** and external edge **13** is in excess of the circumference of the mandrel in an amount equal to the width **29** of the overlap area.

Just prior to passage about mandrel **23**, glue line **16** is applied to body member **15**. It may be applied to the underside of the external marginal portion of the overlap or to the top side of the inner marginal portion of the overlap in the area lying between external edge **13** and perforation **18.**

After tube **26** is formed on the mandrel **23**, it is cut into appropriate lengths and one end closure **11** is secured to one end. Dough or other contents are then placed into the container, the other end closure is secured and the complete container and contents are provided.

We claim:

1. A tubular container comprising a substantially cylindrical fibrous core having a label adhered to the outer surface thereof and a liner adhered to the interior thereof so as to transmit forces between the liner and label through the core, an internal and external edge and an internal marginal portion adjacent said internal edge and an external marginal portion adjacent said external edge, said external marginal portion overlapping said internal marginal portion to form an overlap area extending the full length of said core, tear means extending the full length of said overlap area aligned in said overlap area

for continuously severing said external marginal portion, adhesive in said overlap area between said tear means and said external edge, the free edge of the internal marginal portion on the other side of the tear means from said external edge being detached from the overlying portion of the external marginal portion and at least one end closure secured to at least one end of said core, whereby removal of the tear means will entirely disconnect the overlapped marginal portions.

2. The container of claim **1** wherein said overlap area extends helically around at least a portion of the circumference of said core.

3. The container of claim **1** wherein said overlap area is equal in length to the height of said core and extends around no part of the circumference of said core.

4. The container of claim **1** wherein said tear means comprises a tear strip formed by a series of short, closely spaced, lineal perforations, said perforations lying in two parallel lines and penetrating said external marginal portion.

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