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(54) **Tubular containers**

(57) A tubular container for perishable goods, having a tubular body made of a single sheet (1) of barrier coated card rolled into tubular form with barrier coating material on the inside and with its opposite edges (5) sealed together lengthwise of the tube, and hermetically sealed at its ends by suitable end closures (6,7).

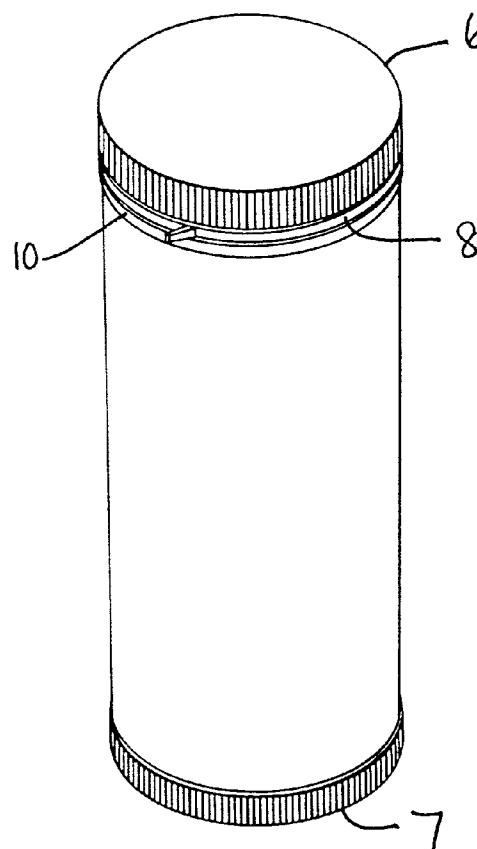


FIG. 3.

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Description

This invention relates to lightweight disposable tubular containers, particularly but not exclusively for direct primary packaging of perishable goods such as foodstuffs, for example biscuits, and made of barrier coated card. By barrier coated card we mean cardboard, paperboard or similar lightweight semi-rigid sheet material having on at least one face a coating or layer of a metallic and/or plastics hermetic sealing material such as aluminium foil and/or polyethylene.

Viewed from one aspect the present invention provides a tubular container for perishable goods, having a tubular body made of a single sheet of barrier coated card made into tubular form with coating material on the inside and with its opposite edges sealed together lengthwise of the tube, and hermetically sealed at its ends by suitable end closures.

Viewed from another aspect the invention provides a method of making such a tubular container, comprising taking a sheet of barrier coated card, printing desired subject matter on one side, then wrapping the sheet around forming means with the printing on the outside and coating material on the inside, then sealing the opposite edges of the sheet together lengthwise to form a tubular body, and then applying hermetically sealed closures to both ends. The contents will of course be inserted at an appropriate stage, usually after one end closure has been applied. The said forming means may however be constituted by the contents, around which the sheet is wrapped. Alternatively it may be wrapped around a mandrel.

Preferably the said opposite edges of the sheet are overlapped. They may then be sealed together in any convenient fashion, such as ultrasonically or by means of hot melt adhesive.

Preferably the said end closures are plastics caps applied over the ends of the tube and hermetically sealed thereto in any convenient fashion, such as ultrasonically or by hot melt adhesive. At least one of the end closures is arranged to be readily openable by an end user. In the case of a plastics cap such a facility may be provided by means of a tear strip extending around the side wall of the cap, which when removed releases a lid portion thereof which may then be removed and replaced as desired. Such a lid portion could be a clip fit on the tubular body. Alternatively at least one of the end closures could be made of barrier coated card like the tubular body, hermetically sealed to the latter. Other alternatives are to provide end closures in the form of metal caps, or to use a metal or paper diaphragm sealed to the tubular body and covered by a push on cap.

As an alternative to using barrier coated card, the tubular body of a container according to the invention could be made of sheet plastics material, in which case it would not of course be necessary to provide it with a separate coating of hermetic sealing material.

Tubular containers according to the invention may

be of any desired shape in transverse cross section but will generally (but not essentially) be of rounded shape, e.g. circular, or elliptical, or with three or more straight sides and rounded corners.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings, in which:-

Figure 1 is a plan view of a blank of barrier coated card for making the body of a tubular container for biscuits;

Figure 2 is a view illustrating a stage in the formation of such tubular body;

Figure 3 is a view of the finished, closed, container; and

Figure 4 is a view of the container when opened.

The sheet 1 of barrier card shown in Figure 1 is plastics coated on its top side and has already been printed on that side in an area indicated at 2, the areas 3 being left unprinted to enable them to be sealed as described hereinafter. The other side of the sheet is coated with aluminium foil and plastics in well known fashion.

Referring now to Figure 2, the sheet 1 is wrapped around a circular cylindrical mandrel 4 and its overlapping edges 5 (being parts of the area 3) are sealed together ultrasonically to form a tubular body.

Figure 3 shows a finished container fitted with top and bottom end closures 6 and 7 respectively, each comprising a plastics cap engaged over an end of the tubular body and hermetically sealed thereto by ultrasonics, or by adhesive or tape. The top closure 6 incorporates a tear strip 8 which when removed as shown in Figure 4 enables the lid portion 9 of the closure to be removed and replaced as desired. Of course, only the region 10 of the top closure, below the tear strip 8, is sealed to the tubular body, so as to leave the tear strip and the lid portion 9 free for removal.

The end closures could alternatively fit inside the tube, for example to form a recessed base.

Claims

1. A tubular container for perishable goods, having a tubular body made of a single sheet (1) of barrier coated card (as hereinbefore defined) made into tubular form with barrier coating material on the inside and with its opposite edges (5) sealed together lengthwise of the tube, and hermetically sealed at its ends by suitable end closures (6,7).
2. A container as claimed in claim 1, wherein the said sheet (1) is barrier coated on both sides.
3. A container as claimed in claim 2, wherein the said sheet (1) is coated with plastics on its outside and with aluminium foil and plastics on its inside.

4. A container as claimed in any of claims 1 to 3, wherein the said opposite edges (5) of the card are sealed together along a substantially straight line parallel to the length of the tube. 5
5. A container as claimed in any preceding claim, wherein the said end closures (6,7) are plastics caps applied over the ends of the tube and hermetically sealed thereto. 10
6. A method of making a tubular container as claimed in claim 1, comprising taking a sheet (1) of barrier coated card (as hereinbefore defined), printing desired subject matter (2) on one side, then wrapping the sheet around forming means (4) with the printing on the outside and coating material on the inside, then sealing the opposite edges (5) of the sheet together lengthwise to form a tubular body, and then applying hermetically sealed closures (6,7) to both ends. 15 20
7. A method as claimed in claim 6, wherein the contents of the container are the said forming means. 25
8. A method as claimed in claim 6, wherein the said forming means is a cylindrical mandrel. 25

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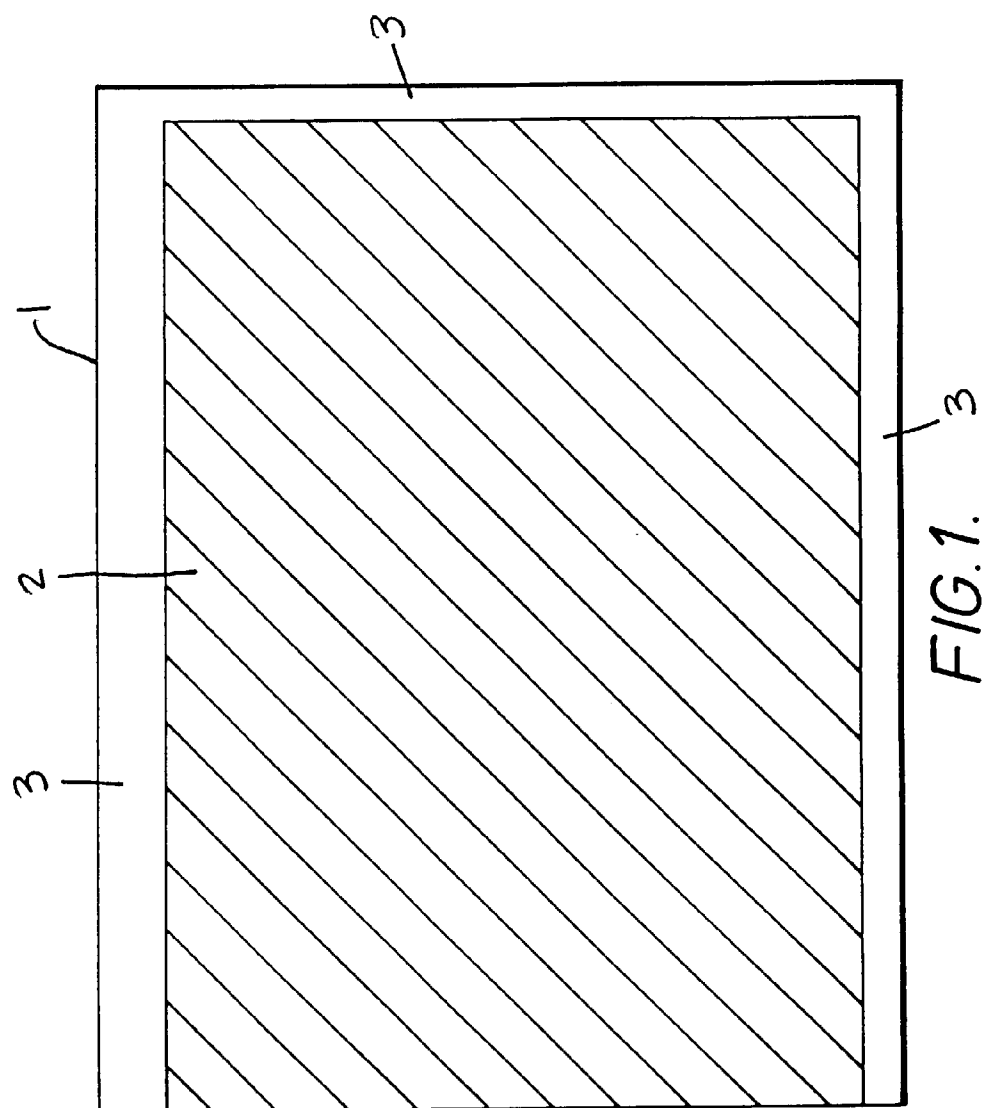
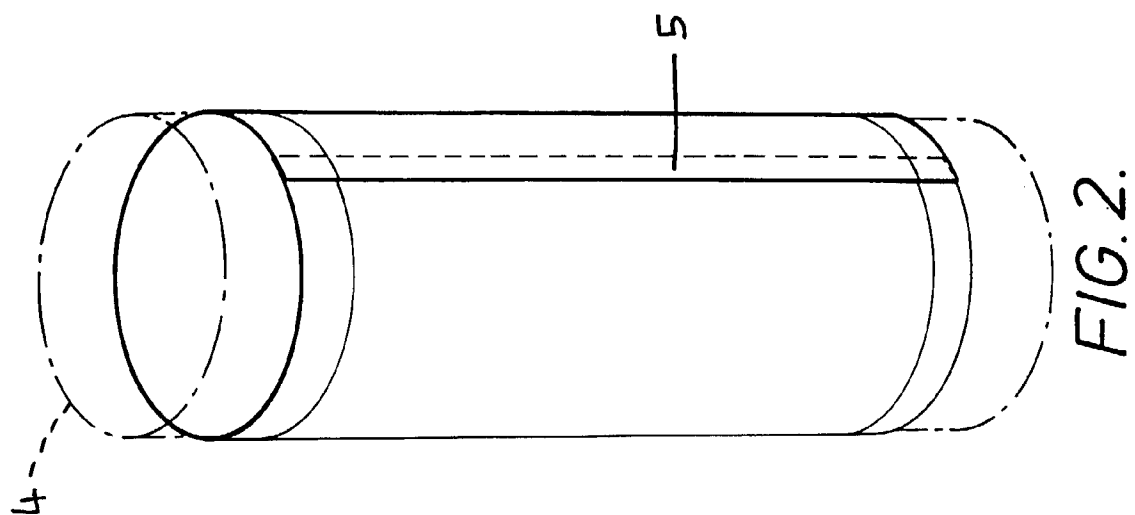
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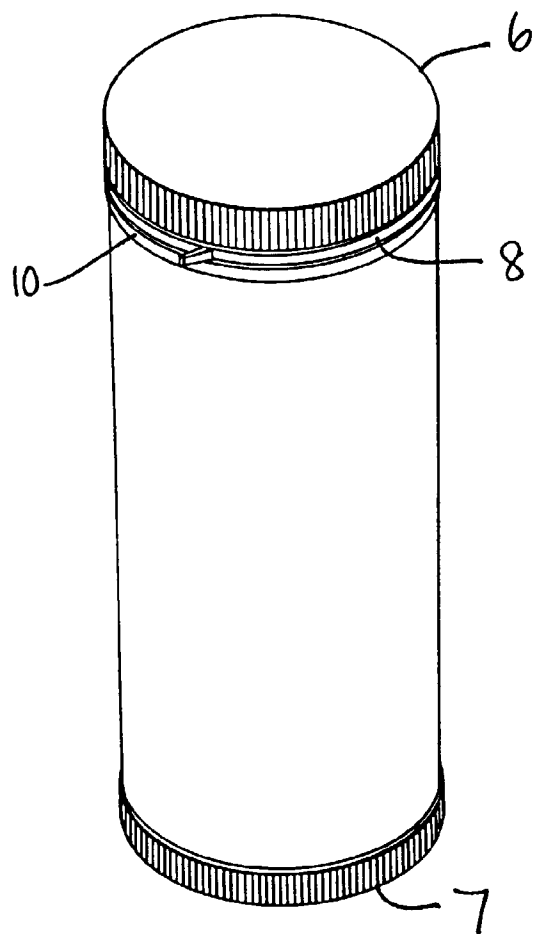


FIG. 3.

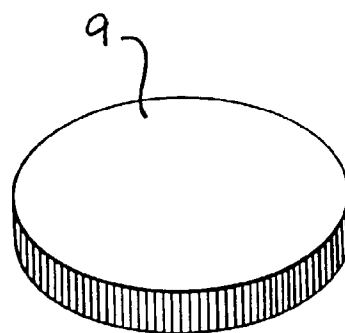


FIG. 4.



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EUROPEAN SEARCH REPORT

Application Number
EP 97 30 5886

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE 30 23 835 A (TOPPAN PRINTING CO.) 29 January 1981 * page 5, line 32 - page 6, line 19; figures 1-5 *	1-4,6	B65D3/22 B65D3/12
X	CH 491 788 A (FR. HESSER MASCHINENFABRIK AKT.) 31 July 1970 * column 3, line 28-38; figures 1-17 *	1-4	
Y	GB 2 104 443 A (NIHON SEIKAN CO.) 9 March 1983 * page 1, line 56-63; figures 1-6 *	1-5	
Y	EP 0 096 826 A (TETRA PACK DÉV.) 28 December 1983 * page 12, line 23 - page 14, line 24; figures 1-13 *	1-5	
A	US 2 185 227 A (ROSE) 2 January 1940 * column 1, line 45-49; figures 1-5 *	5	
X	US 1 619 727 A (HILL) 1 March 1927 * page 1, line 80-103; figures 1-5 *	6,7	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B65D
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 November 1997	Examiner Vollering, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/82 (P4/C01)