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(54) Container of flexible material, particularly for liquid, viscous or granular products

(57) A container of flexible material, particularly for liquid, viscous or granular products, comprising a base (2) from which two opposite walls (3) rise, joined around the perimeter to each other and to said base (2), in which at least one reinforcing element (10) is situated

inside said container (1) comprising at least one flexible membrane the ends of which are welded on the inside to said opposite walls (3) of the container (1), to determine the maximum separation between said walls (3).

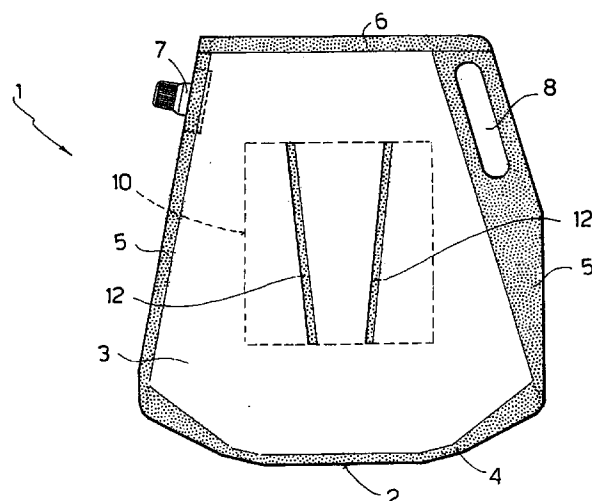


FIG. 1

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Description

The present invention relates to a container of flexible material, particularly for liquid, viscous or granular products.

Containers of the above type, made of flexible single-layer or multi-layer material, with one or both outer surfaces heat sealable, for example of polyethylene, are known and obtained by successive folding and sealing, normally from a double film.

These containers, also known as stand-up containers, normally have a widened, reinforced base and are tapered towards the top.

The main drawback of these containers, especially when they are used to contain liquid or viscous substances, is that they tend to swell because of the pressure exerted by the product contained inside them on the flexible side walls of the container.

This type of swelling or bulging is very unsightly and makes it difficult to read the writing on the package. Another drawback related to this problem is the increase in the crosswise measurement of the container. Moreover, the mechanical strength of the package can be reduced.

The aim of the invention is to eliminate the aforementioned drawbacks, providing a container of flexible material for liquid, viscous or granular products, that maintains a perfectly upright position under any condition, avoiding crosswise swelling.

A second aim of the invention is to provide the package with greater stability, both when it is full and during the subsequent emptying stage.

Another aim of the invention is to provide such a container that can be made simply and economically.

These aims are achieved with the container according to the invention which has the features of appended independent claim 1.

Preferred embodiments of the invention are described in the subsequent claims.

Substantially, the container according to the invention is prepared with at least one inner reinforcement, which prevents the opposite side walls from separating beyond a certain limit when the container is filled with product.

This reinforcement advantageously consists of a tubular element or sleeve, which is placed inside the container and fixed by means of two respective weld lines to each of the two opposite side walls of the container.

In a simplified form, each reinforcing element could consist of a diaphragm with the ends welded to the two opposite side walls of the container, diaphragm which lies folded inside the container when the container is in the flattened state, before filling, and spreads out, allowing a maximum widening of the container corresponding to its length, when the container is filled.

For large-sized containers, a plurality of reinforcing elements are placed, in order to avoid possible swelling

in areas at a distance from that where a single reinforcing element would be situated.

Further characteristics of the invention will be made clearer by the detailed description that follows, referring to a purely exemplary and therefore non-limiting embodiment, illustrated in the appended drawings, in which:

Figure 1 is a schematic side elevation of a container provided with a reinforcing element according to the invention, shown in the flattened state, before filling;

Figure 2 is an axonometric view of the container in Figure 1, after filling;

Figure 3 is a similar view to that in Figure 1, of a larger-sized container, provided with two reinforcing elements;

Figure 4 is an axonometric view of a reinforcing element of the container according to the invention, shown in the folded state;

Figure 5 is an axonometric view of the reinforcing element in Figure 4, in the opened state of use.

In Figures 1 and 2, the container according to the invention has been indicated as a whole with reference numeral 1. It is a container for liquid, viscous or granular products, also known as a stand-up container, made of flexible material in one or more layers, heat-sealable on at least one surface.

The container 1 has a standing base 2 and two opposite facing side walls 3, each welded to a respective half-perimeter 4 of the base 2, and welded to each other at the side edges 5 and the upper edge 6, after filling. The container 1 thus takes on an upward tapering shape.

In the example shown, the two opposite facing side walls 3 are not perfectly squared, that is with their side walls at right angles to the base, but slope inwards, so that the container 1, when filled, takes on a substantially conical shape.

In Figure 1, the container 1 is shown in the flattened form, that is with the base 2 folded and the two opposite side walls 3 touching each other, whilst in Figure 2 the container is shown in the condition of use, after filling.

The container 1 shown in figures 1 and 2 is a container for liquids, and for this purpose it is provided with a pouring nozzle 7 in the upper part of one of its side edges 5, whilst on the opposite side it is provided with a carrying handle 8, formed by making an opening in the corresponding welded strip 5, suitably wider than that in which the nozzle 7 is provided.

It is obvious that the type of container shown in Figures 1 and 2 is purely exemplary, and that other forms and constructions are possible, within the scope of the inventive solution that will be described below.

Thus, for example, Figure 3 shows a container hav-

ing a greater width than that of Figures 1 and 2, and provided with an upper handle. In Figure 3 the same reference numerals as in Figures 1 and 2 have been used to indicate similar or like elements. The essential difference between the two types of containers illustrated is that in the one in Figure 3 two reinforcing elements 10 are used, which will now be described, instead of one as in the embodiment in Figures 1 and 2.

According to the invention, in fact, to eliminate the problems set out in the introduction, related to swelling of the container, at least one reinforcing element 10 is provided, shown in isolation in Figures 4 and 5, and substantially shaped like a sleeve or tubular element, with two opposite surfaces 11, which are heat sealed by means of two respective weld lines 12, to the corresponding opposite walls 3 of the container 1, inside which said reinforcing elements 10 are housed.

The material forming the reinforcing elements 10 is also a flexible single-layered or multi-layered material, with at least one surface of heat-sealable material, such as polyethylene or the like, to allow welding to the corresponding walls 3 of the container 1.

The two weld lines 12 are advantageously arranged so as to diverge slightly towards the top, as shown in the appended figures, so as to allow the container a greater resistance to swelling.

As shown in Figure 4, when the container 1 is flattened, before filling, the reinforcing element 10 is also flattened, folding around two opposite fold lines 20 substantially positioned at the midline of the other two opposite surfaces 21 of the reinforcing element 10, causing the maximum separation between the two opposite side walls 3 of the container 1 during use.

Figure 5, on the other hand, shows the reinforcing element 10 in the open position, after filling of the container 1.

During filling of the container from above, that is before heat sealing along the upper edge 6 of the container, the tubular reinforcing element 10 does not cause any impediment to passage of the product, whether liquid, viscous or granular, whilst after filling, by taking on the shape shown in Figure 5, it prevents the opposite walls 3 of the container from separating from each other by a distance greater than that of the surfaces 21 of the reinforcing element 10, thus avoiding troublesome swelling or bulging of these types of containers.

By making the reinforcing elements 10 of a suitable shape, the container 1 can be made to take on the desired shape, after filling, always avoiding problems of swelling of the container.

In the embodiment in Figure 3 two reinforcing elements 10 arranged side by side are provided, because of the greater width of the container 1.

In a simpler embodiment, the reinforcing element can be replaced by a simple diaphragm or membrane, substantially corresponding to one of the surfaces 21 of the element illustrated in Figure 4 and 5, the opposite

ends of which are welded to the opposite walls 3 of the container 1.

In this case, a larger number of reinforcing elements will normally be necessary to ensure that the container keeps its shape, without swelling.

The reinforcing elements 10 according to the invention are inserted in the container during the production cycle thereof, between the two films destined to form the two opposite walls 3 of the container, and the weld lines 12 are advantageously made from the outside of the container.

The reinforcing elements 10 give the container greater stability thanks to the beam effect attributable to the inner connection between the two opposite walls 3.

From what is described the advantages of the arrangement proposed by the invention are clear, though it must not be considered restricted to what is described and illustrated above, but solely to the content of the claims that follow.

Claims

1. A container of flexible material, particularly for liquid, viscous or granular products, having a standing base (2) from which rise at least two opposite walls (3) joined around the perimeter to each other and to said base (2), characterized in that it comprises on its inside at least one reinforcing element (10) fixed to said opposite walls (3), the length of said reinforcing element (10) determining the greatest separation of said walls (3) with respect to each other in the area in which it is situated.
2. A container according to claim 1, in which said reinforcing element (10) comprises a flexible membrane made of sheet material, the ends of which are welded to said opposite walls (3) of the container (1) along respective weld lines (12) extending substantially in the direction of the height of the container (1).
3. A container according to claim 1, in which said reinforcing element (10) comprises a sleeve or tubular element of flexible sheet material, having two opposite surfaces (11), welded to the corresponding walls (3) of the container (1) by means of two respective weld lines (12) which extend essentially along the height of the container (1), said opposite surfaces (11) being connected one to the other by means of a further pair of opposite surfaces (21), starting from said weld lines (12).
4. A container according to claim 3, characterized in that each pair of weld lines (12) between a surface (11) of the reinforcing element (10) and the corresponding wall (3) of the container (1) is arranged so as to diverge slightly towards the top.

5. A container according to claim 3 or 4, characterized in that said reinforcing element (10) lies flattened inside the container 1, before filling, folded around fold lines (20) situated substantially at the midlines of said surfaces (21) connecting said opposite surfaces (11). 5
6. A container according to any one of claims 3 to 5, characterized in that said surfaces (21) of the reinforcing element (10) have an upward tapering shape. 10
7. A container according to any one of the preceding claims, characterized in that it is provided with a carrying handle (8). 15
8. A container according to any one of the preceding claims, characterized in that it is provided with a pouring nozzle (7). 20
9. A reinforcing element for containers of flexible material for liquid, viscous or granular products, comprising a base (2) and at least two opposite walls (3) rising from the perimeter of said base (2) and joined to each other around the perimeter, characterized in that it comprises a sleeve or tubular element housed inside said container (1) and having two opposite surfaces (11) welded, by means of two respective weld lines (12) extending substantially upwards, to said opposite walls (3) of the container (1), and joined to each other by two respective opposite surfaces (21) the width of which determines the maximum permissible separation for said walls (3) of the container (1). 25 30 35
10. A reinforcing element according to claim 9, characterized in that each pair of said welding lines (12), which join one surface (11) of the reinforcing element (10) to the corresponding wall (3) of the container (1), diverges slightly towards the top. 40

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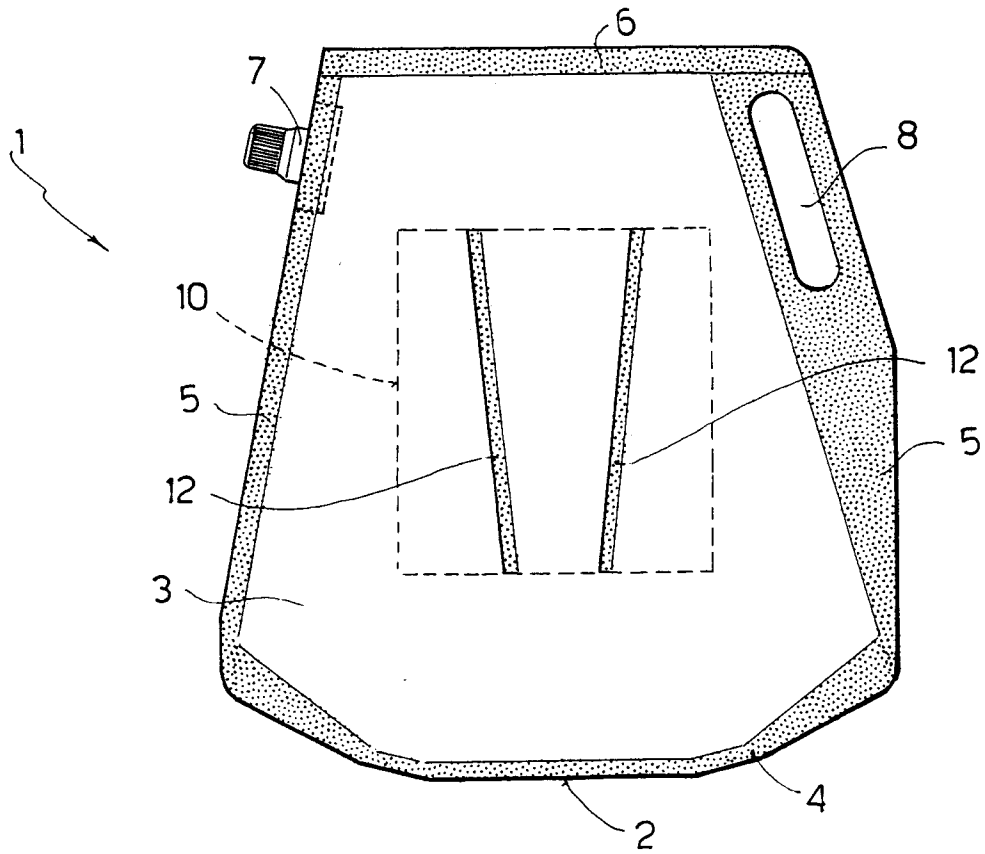


FIG. 1

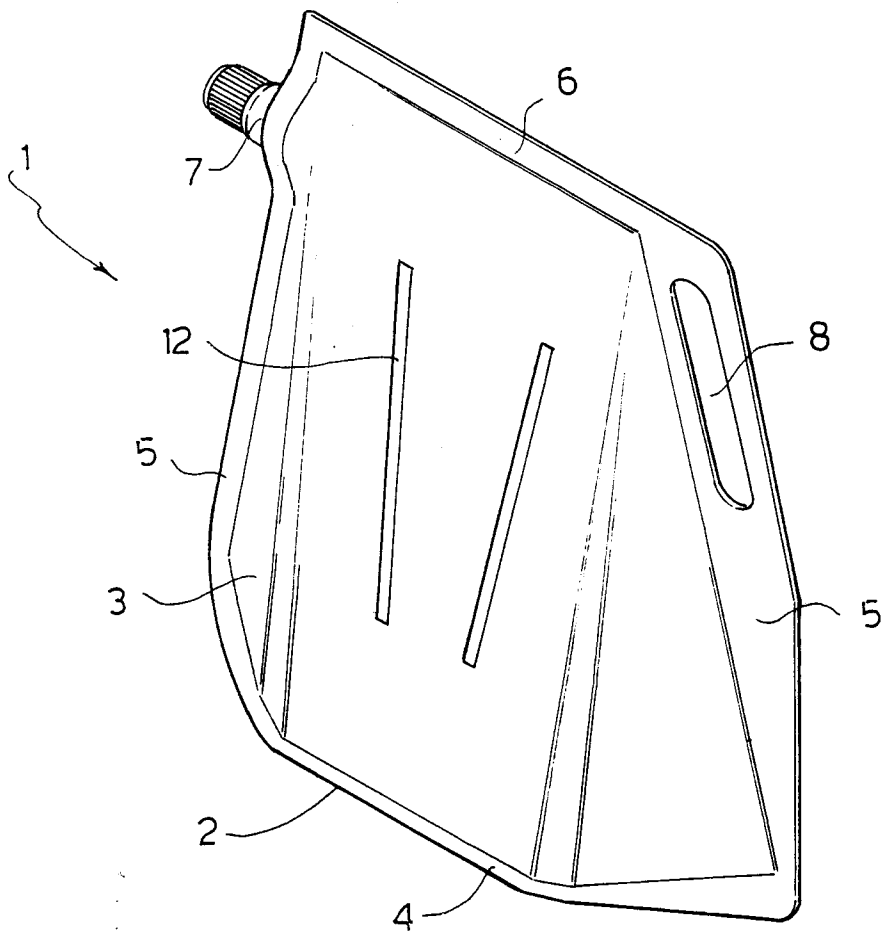
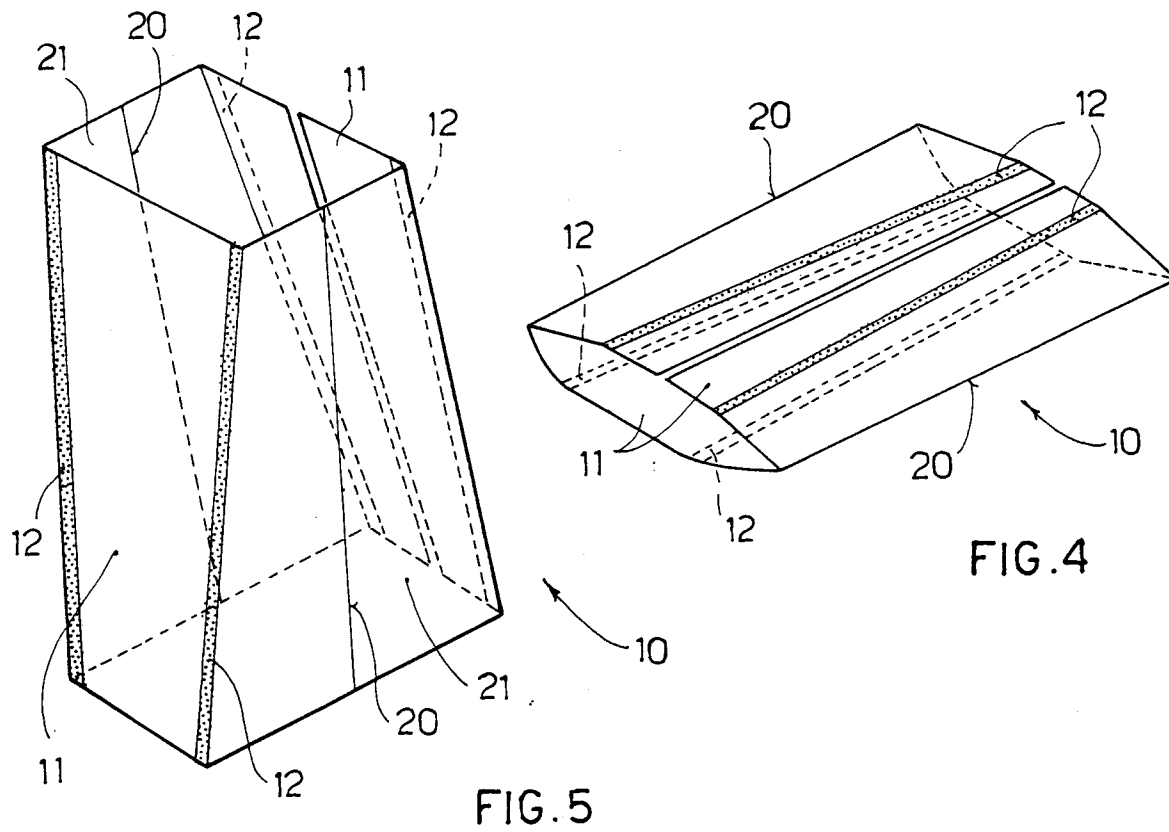
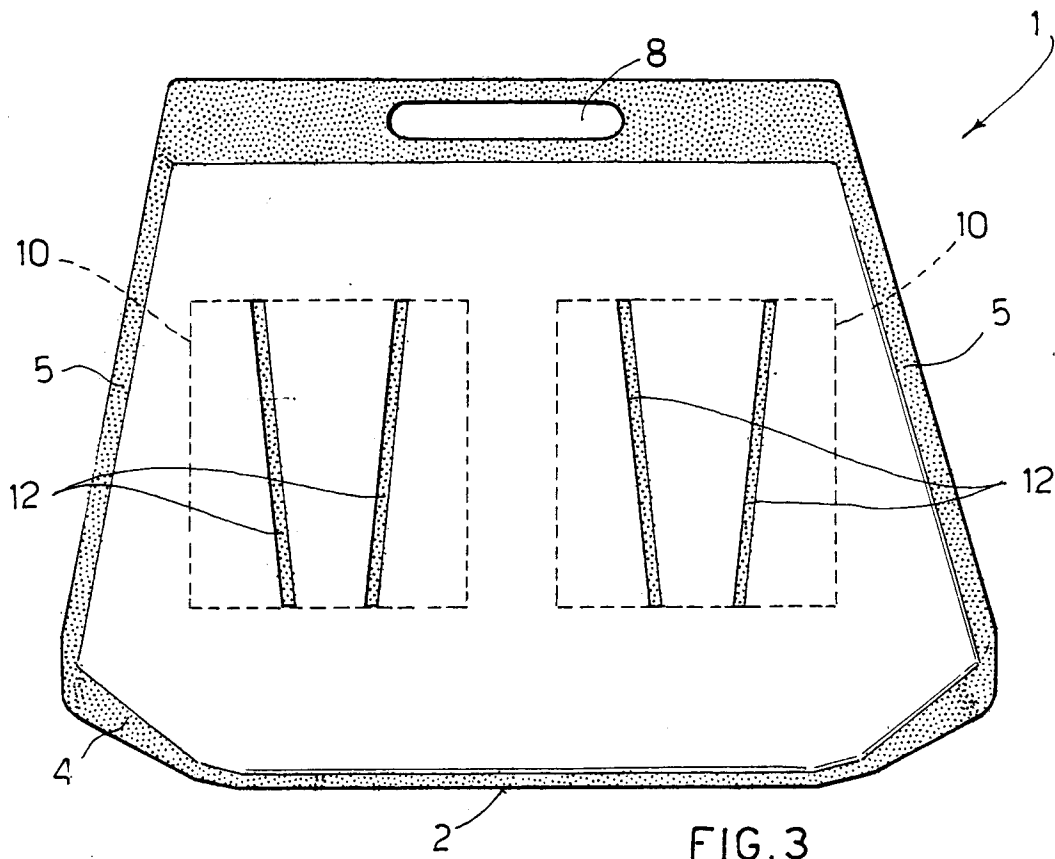


FIG. 2





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EUROPEAN SEARCH REPORT

Application Number
EP 97 83 0110

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)
Y	US 4 978 025 A (FOUGERES MICHEL) 18 December 1990 * column 3, line 43 - line 48 * * column 6, line 21 - line 56 * * figures 1-10 *	1,2,7,8	B65D75/00
Y	US 4 312 473 A (HOELLER HANS) 26 January 1982	1,2,7,8	
A	* column 1, line 21 - column 2, line 8 * * figure 1 *	4,6,9,10	
X	EP 0 311 824 A (KOCHSIEK MASCHINENBAU SOLTAU G) 19 April 1989	9	
A	* column 2, line 18 - line 38 * * figures 1-5 *	3,5	
A	EP 0 626 319 A (PROCTER & GAMBLE) 30 November 1994 * page 3, line 3 - page 4, line 33 * * figure 1 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	US 3 700 018 A (GOGLIO LUIGI) 24 October 1972 * column 3, line 40 - column 4, line 27 * * figure 8 *	1	B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 August 1997	Examiner Wennborg, 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			

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