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## (54) FOLDABLE CONTAINER

(71) I, RENE ERB, of 4 rue du Dr. Schneider, 67320 Drulingen, France, a French citizen, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a foldable container made of flexible material, adapted to be introduced into a foldable semi-rigid support, and adapted to contain powdery, granular or similar products.

Known containers of this kind have a generally cubic shape defined by two identical shells which are assembled to each other by welding in a diagonal plane. Generally these known containers are folded about the weld, or welded joint, produced when assembling the two pre-manufactured shells. The manufacture of these known containers is comparatively expensive due to the fact that a welding operation is required. Furthermore, these known containers, when in the folded, or collapsed, state have the form of a comparatively bulky pyramid.

The present invention is aimed at eliminating the drawbacks of the known containers of the above-described kind.

Consequently the present invention provides a foldable container made of a flexible material and adapted to be introduced into a foldable semi-rigid support and to contain liquid, powdery or granular products, or the like, said container having the shape of a rectangular parallelepiped having two parallel square or rectangular bases one of which at least comprises at least one filling or evacuating aperture, said container further comprising four rectangular side walls, wherein two first mutually opposed side walls are each provided with a longitudinal median rib extending over at least a portion of the height of the side wall measured between said two bases, and wherein at least one of two second side walls, placed between said first side walls, is provided with transverse ribs,

said longitudinal and transverse ribs being so located that each one of said two first side walls can be folded longitudinally and outwardly about the associated longitudinal rib and that said first side walls and said second side walls can be folded about said transverse ribs to allow said bases to be folded on the folded side walls, whereby a plurality of thus collapsed containers can be stacked in a flat collapsed condition.

The container according to the invention can be manufactured by an extrusion-blowing process which is comparatively inexpensive and enables the production of reinforcing ribs for facilitating the folding of the container.

The invention will be described in a more detailed manner herein below with reference to the appended Figures which are given by way of illustration, but not of limitation.

Fig. 1 shows, in perspective, a container according to the invention.

Fig. 2 shows the container of Fig. 1 in a partially folded, or collapsed, condition.

Fig. 3 shows a plurality of containers of the kind illustrated in Figs. 1 and 2 these containers being in their entirely folded or collapsed condition and stacked one upon the other.

As shown in Fig. 1, the exemplary container according to the invention is constituted by a structure in the form of a pocket 1, preferably made of polyethylene and produced by an extrusion-blowing process, said pocket 1 having the shape of a rectangular parallelepiped. The upper base 2 of the parallelepiped container is provided with a filling or evacuating spout 3 which may be fixed to the container by gluing or welding, or which may be produced in the form of an element integral with pocket 1. The walls of pocket 1 are flexible and the container constituted by said walls is adapted to be introduced into a foldable semi-rigid support, such as a cardboard box, prior to filling the container.

With a view to facilitating the folding of the container, in the manner illustrated in

Fig. 2, pocket 1 is provided on two parallel mutually opposed side walls with longitudinal ribs 4 and 5 located in a median (i.e. central) plane of the container. The length of these ribs is preferably equal to the height of the container less, at each end of each rib, half of the width of the corresponding side wall. It is possible, of course, to provide ribs extending over the entire length of the side walls, and even through the bases or end walls, such as 2, of the container so as to end in the vicinity of the central filling and evacuating orifice of the upper base, which is associated with an inviolable spout. The above-mentioned side walls also comprise transverse ribs 6, 7, 8 and 9 defining two transverse planes in which are also located ribs 10 and 11 arranged parallel to each other on one of the remaining side walls which is located between the two first-mentioned opposed side walls.

As shown in Fig. 2, the transverse ribs 7, 9 and 10 are in line with each other when container 1 is folded around the longitudinal ribs 4 and 5. Similarly ribs 6, 11 and 8 (not shown) are in line with each other. Due to this arrangement, it is possible to fold over easily the two bases, or base walls, i.e. the upper and the lower base walls of the container in such a manner that they engage the side walls each one of which has already been folded, as shown in Fig. 3.

The particular shape of container 1 such as described hereinabove and the manner of folding said container, which folding is facilitated by the provision of the described longitudinal and transverse ribs, allows to fold a plurality of containers in such a way that each container requires, in the folded or collapsed state, only a minimum of storage volume, whereby it is possible to stack and store a great number of such containers in a minimum storage space.

Another advantage of the exemplary container according to the invention resides in the fact that the pocket 1 is made of polyethylene and obtained by an extrusion-blowing process which eliminates any subsequent operation such as assembling two identical half-shells, which was current practice up to now when manufacturing containers of the above-described known type. Consequently the novel container can be produced at a considerably reduced cost, and furthermore the novel container exhibits a considerably increased rupture strength and thus a considerably increased safety in practical use, as compared to the conventional containers of the type in question.

The invention is not limited to the embodiments described herein before and shown in the Figures. Many variants and modifications may be envisaged by any person skilled in the art without departing from the scope of the invention as defined in the appended claims.

#### WHAT I CLAIM IS:—

1. A foldable container made of flexible material and adapted to be introduced into a foldable semi-rigid support and to contain liquid, powderous or granular products, or the like, said container having the shape of a rectangular parallelepiped having two parallel square or rectangular bases one of which at least comprises at least one filling or evacuating aperture, said container further comprising four rectangular side walls, wherein two first mutually opposed side walls are each provided with a longitudinal median rib extending over at least a portion of the height of the side wall measured between said two bases, and wherein at least one of two second side walls, placed between said first side walls, is provided with transverse ribs, said longitudinal and transverse ribs being so located that each one of said two first side walls can be folded longitudinally and outwardly about the associated longitudinal rib and that said first side walls and said second side walls can be folded about said transverse ribs to allow said bases to be folded on the folded side walls, whereby a plurality of thus collapsed containers can be stacked in a flat collapsed condition.

2. The container of claim 1, wherein the length of each longitudinal rib is at least substantially equal to the side wall wherein the longitudinal rib is located, minus, at each end of such longitudinal rib, half of the width of the related side wall.

3. The container of claim 1 or claim 2, which is made of a synthetic material, preferably of a thermoplastic material, such as polyethylene.

4. The container of claim 3, which is manufactured by an extrusion blowing process.

5. The container of any preceding claim, further comprising a spout integral with one of the bases of the container and defining said filling or evacuating aperture.

6. A method of folding a container according to any of claims 1 to 5, comprising the steps of outwardly folding said first side walls about said longitudinal ribs, so that the second side walls engage each other, and folding said side walls about

said transverse ribs so as to place said bases  
onto one surface of said folded side walls.

7. A foldable container substantially as  
described hereinabove and shown in the  
5 appended drawing.

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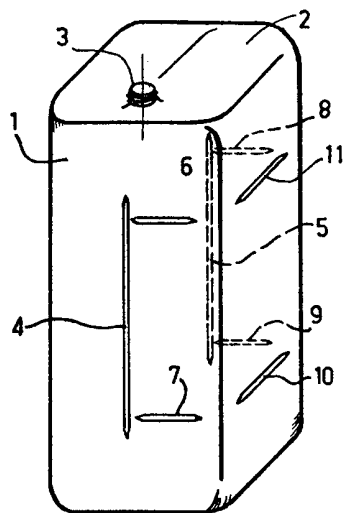


FIG.1

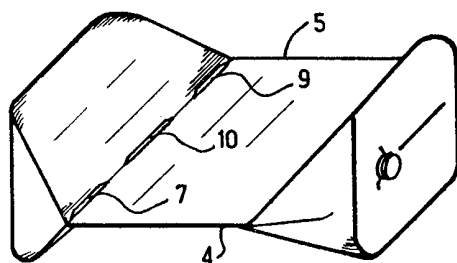


FIG.2

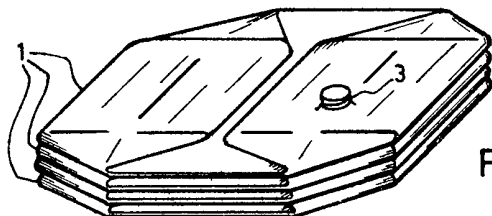


FIG.3