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(54) **Reinforced foldable container for storing and transporting liquids**

(57) A prismatic container having an octagonal perimeter, comprising a main body and two lids (4, 6) having flat bases and octagonal perimeters, wherein the main body comprises two octagonal bodies (1, 2) having octagonal perimeters and with no assembled bases one inside the other. It further comprises an upper fastening sheet (3) divided into three planes by fold lines, a number of flaps (3.1) emerging from each plane. It further has a slot and another punched hole to secure a tank replaced as if were a plastic bag (8), also having a folding base (5) which is a laminar surface having an essentially octagonal perimeter which has flaps (5.2) to secure it to the lower part of the container by inserting the flaps (5.2) between the two octagonal bodies (1, 2), and finally it has a plastic bag (8) for storing liquids. The bag (8) is attached to the upper fastening (3). It can have two valves, one for filling and another for emptying the liquid. This prevents the bag (8) from slipping due to the bottoming out the lid (6) and the folding base (5).

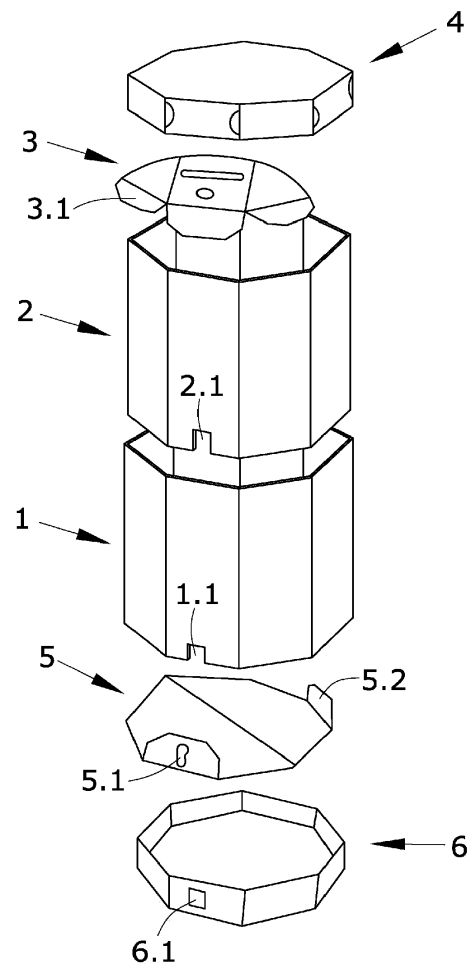


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The object of the invention herein, as outlined in the title of the invention, is a reinforced foldable container for storing and transporting liquids.

[0002] The container is characterised in that it takes up very little space when folded. It can further be reassembled quickly and easily, and when assembled and in use it prevents displacements inside the bag containing the liquid that is housed inside the container.

BACKGROUND OF THE INVENTION

[0003] Foldable containers for storing and transporting solids or liquids are widely known.

[0004] There are numerous configurations for these containers. It is easy to find cylindrical or prismatic containers with square bases and also octagonal bases, with different ways of being folded, some being folded vertically and others horizontally.

[0005] These containers are usually formed by a large number of parts. The containers are normally delivered to the customer with many of the component parts loose, and it is the customer who has to assemble most of the parts each time they wish to use the container. It is clear that a large number of parts means assembling the container is more cumbersome and slower.

[0006] One of the containers that is known is described in Spanish Utility Model published under number ES 1052606U. This container presents a relatively common problem, which is that the octagonal body tends to move relative to the lower lid when handling the container, as the only fastening between them are the windows through which the valve passes from the fluid-bag container which is housed in the inner space defined by the octagonal bodies.

[0007] The folding base acts in the relative displacement between the octagonal body and the lower lid, which is not attached to the octagonal body in its entirety, therefore it also tends to separate from the octagonal body due to the actual weight of the liquid contained in the bag.

[0008] In other words, as a consequence of the actual weight of the bag, the bottoming out of the lower lid and the folding base occurs with respect to the octagonal body, leaving an opening between this and the folding base, an opening generated in the sides of the folding base that are not attached to the octagonal body, a space through which the bag slides positioning it between the outer wall of the octagonal body and the lower lid, and the bag may even go beyond the upper edge of the thin wall of the lower lid.

[0009] As a result of the bag being arranged in such an undesirable manner, additional problems are created. On the one hand, the bag could get damaged if the lower edge of the octagonal body rests thereon and, on the other hand, the container loses its verticality and balance

on being over-elevated on the side where the bag has been inserted into the opening between the octagonal body and the folding base.

[0010] Therefore, it is an object of the invention herein to develop a reinforced foldable container for storing and transporting liquids which overcomes the drawbacks pointed out, such as the bag sliding due to the bottoming out of the lid and the folding base and the consequences outlined, developing a container such as that described below and the essential nature of which is contained in the first claim.

DESCRIPTION OF THE INVENTION

[0011] The present invention consists of a foldable container, preferably of corrugated cardboard, for storing and transporting liquids.

[0012] It is a prismatic container having an octagonal perimeter, essentially consisting of a main body and two lids having flat bases and an octagonal perimeter separate from the main body, wherein the main body is in turn made up of:

- Two octagonal bodies. They are two prismatic bodies having an octagonal perimeter and no bases. These bodies are assembled one inside the other and a space is thereby defined between them for flaps to be subsequently inserted.
- Upper fastening sheet. A sheet is divided into three planes by fold lines. Flaps intended to be inserted into the space between the two octagonal bodies and the upper part protrude from each plane. It also has a slot and another punched hole in order to secure a tank replaced as if were a plastic bag.
- Folding base. It is a laminar surface having an essentially octagonal perimeter that has a number of flaps to secure it at the lower part of the container inserting the flaps between the two octagonal bodies.
- A plastic bag for storage of liquids. The bag is attached to the upper fastening. It can have two valves, one for filling and another for emptying the liquid.

[0013] The elements listed are manufactured in a laminar material, preferably corrugated cardboard (except for the plastic bag).

[0014] The tank is formed, therefore, by a set of elements which when assembled are reduced essentially to three main components: a main body, an upper lid and a lower lid. In this manner, when the tank is supplied to the consumer, the latter only needs to assemble the three main components: the main body and the two lids. The same occurs when the tank is empty and disassembled. Only three components are obtained: the two lids and the main body which is collapsible, thereby minimising the space required for storing the folded tank.

[0015] As already indicated, the main body is formed by two octagonal bodies, an upper fastening, a folding base and a plastic bag.

[0016] The special configuration of the upper fastening, the folding base and the fold of the plastic bag enables the main body to be folded as a whole and not only in individual components (as is usually the case).

[0017] Each octagonal body is a rectangular sheet on which fold lines have been made, such that the sheet can be folded along these lines and once folded, it acquires the octagonal prismatic configuration. One of the octagonal bodies is inserted into the other, such that a space is left between them. The upper fastening flaps and the corresponding flaps of the folding base are inserted into this space.

[0018] In order to avoid the relative displacement of the fluid-bag container, namely the bottoming out of the bag by the lower base and folding bottom moving in respect of the octagonal container, support means of the folding base are arranged on the prismatic body having an octagonal perimeter that prevent the movement of this base and, consequently, the movement of the inner bag thereby preventing the bottoming out of the interior.

[0019] These supporting means, in one possible embodiment, may be made by suitably arranged flaps offering resistance and a bearing surface so that the folding base is not displaced by the weight of the fluid-bag container.

[0020] These flaps can be foldout flaps, like the entire assembly and can be arranged in a facing manner such that the carrying capacity is sufficient.

DESCRIPTION OF THE DRAWINGS

[0021] As a complement of the description being made and for a better understanding of the characteristics of the invention, according to an example of a practical preferred embodiment thereof, attached as an integral part of the aforementioned description is a set of drawings where, for purposes of illustration and in a non-limiting manner, the following is shown:

Figure 1 is an exploded view of the container where the different elements forming part thereof can be seen, except the support means of the folding base, which have not been shown.

Figure 2 is a plan view of the assembled container and as a cross section of the two octagonal bodies, wherein the problem is shown which is presented in the embodiments of the prior art, and now aims to be resolved.

Figure 3 is a representation of the support means and the folding base and the process of unfolding.

PREFERRED EMBODIMENT OF THE INVENTION

[0022] In view of the figures, a preferred embodiment of the proposed invention is described below.

[0023] Figure 1 shows an exploded view of the foldable

container for liquids. This figure shows two octagonal prismatic bodies (1) and (2) that are assembled one inside the other, the prismatic body (2) being housed inside the prismatic body (1), which is outside. Each of these bodies (1) and (2) is a rectangular sheet, preferably of corrugated cardboard, on which fold lines have been made, which allow the sheet, once assembled, to acquire its octagonal prismatic shape, and to be subsequently folded.

[0024] A small window (1.1, 2.1) can also be seen in the lower part of one side of each of the octagonal bodies (1) and (2). This window (1.1, 2.1) enables a drain valve of a plastic bag (8) (Figure 2) to pass through, thereby making it possible to assemble.

[0025] Another of the elements that comprise the container is a folding base (5) or lower support sheet of the container. It is a flat laminar surface, preferably of corrugated cardboard, which has a substantially octagonal shape. The dimensions of this octagonal surface are essentially the same as those of the perimeter of the inner octagonal body (2). A fold line between two of its opposite vertices has been provided such that the folding base (5) can be folded. It also has two flaps (5.2) that are in the second sides from one of the vertices where the fold line ends.

[0026] One of the flaps (5.2) of the folding base (5) has a punched hole (5.1) to allow the drain valve of the plastic bag to pass through.

[0027] During assembly, this punched hole (5.1) will coincide with the windows of the octagonal bodies (1.1) and (2.1).

[0028] The next element that forms the main body (1) of the container is the upper fastening (3) or upper closure sheet. It is a flat laminar surface, preferably of corrugated cardboard. This sheet (3) is fixed on the upper part of the octagonal bodies (1) and (2) by means of a number of flaps (3.1).

[0029] For the upper fastening to fit well in place, the perimeter of this sheet (3) that is in contact with the octagonal bodies (1) and (2), has precisely the geometry of these, namely the geometry of three contiguous sides of a octagon has the same dimensions as the perimeter of the inner body (2).

[0030] The foldable container further has two lids: an upper lid (4) and a lower lid (6). These lids are made of a laminar material, essentially corrugated cardboard. The geometry of the lids (4) and (6) is that of a flat surface having an octagonal perimeter. The perimeter of the surface of the lids (4) and (6) is similar to those of the outer octagonal perimeter of the octagonal body (1). The lids (4) and (6) provide greater stability and support to the assembly.

[0031] The lower lid (6) further has an orifice (6.1) in one of its panels to allow the drain valve of the plastic bag to pass through.

[0032] Figure 2 illustrates the problem that arises with a container such as the one described without any reinforcement means ensuring the relative position of the

folding base in respect of the prismatic body, namely when the bottoming out of the container occurs, whereby it can be seen that the bag (8) can slip through an opening that is created between the outer face of the prismatic body and the folding base (5) which would cause part of the bag to get damaged on supporting the bottom edge of the prismatic body, in addition to the entire container losing verticality.

[0033] In order to avoid this problem, foldable flaps emerge inwardly (7) over the inner prismatic body (1) and near to its lower edge, as shown in Figure 3.

[0034] Said flaps (7) are preferably arranged in a facing manner, facing each other, having two lobes (7.1) and (7.2) separated by a fold line (7.3) corresponding with one of the vertices of the octagonal prismatic body, such that when folding and unfolding this inner octagonal prismatic body (2), the folding and unfolding of the flaps (7) occurs simultaneously.

[0035] These flaps (7) act as a support to the folding base and prevent the bottom from falling out of the container, making the plastic bag contained therein stay in place and not protrude between the lower end of the octagonal prismatic body and the folding base, thereby avoiding the problems noted above.

[0036] Having sufficiently described the nature of this invention and how to implement it, it is noted that, within its essential nature, it may be applied in other embodiments that differ in detail from that shown, by way of example, and which will also be covered by the protection sought, provided its fundamental principle is not altered, changed or modified.

Claims

1. A reinforced foldable container for storing and transporting liquids comprising:

- two prismatic bodies (1) and (2), wherein the prismatic body (1) is arranged and housed inside the outer prismatic body (2),
- an upper closure of the assembly formed by an upper fastening sheet (3) and an upper lid (4)
- a lower closure of the assembly formed by a folding base (5) and a lower lid (6)

characterised in that a number of support means of the folding base (5) emerge inwardly from the inner prismatic body (1) and near to its lower edge.

2. A reinforced foldable container for storing and transporting liquids according to claim 1, **characterised in that** the support means of the folding base (5) comprise a number of foldable flaps (7).

3. A reinforced foldable container for storing and transporting liquids according to claim 2, **characterised in that** the flaps (7) have two lobes (7.1) and (7.2),

separated by a fold line (7.3) corresponding with one of the vertices of the octagonal prismatic body.

4. A reinforced foldable container for storing and transporting liquids according to claim 1, **characterised in that** the support means of the folding base are arranged in a facing manner on the inner perimeter of the prismatic body (1).

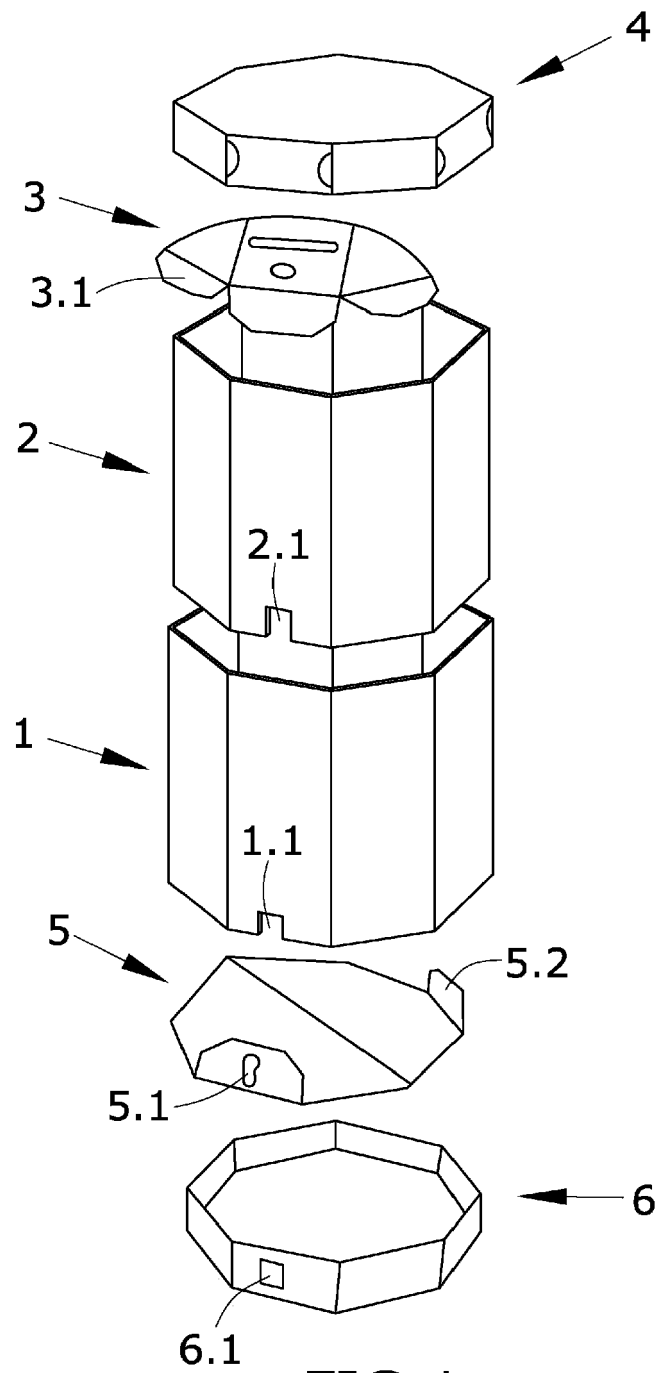


FIG.1

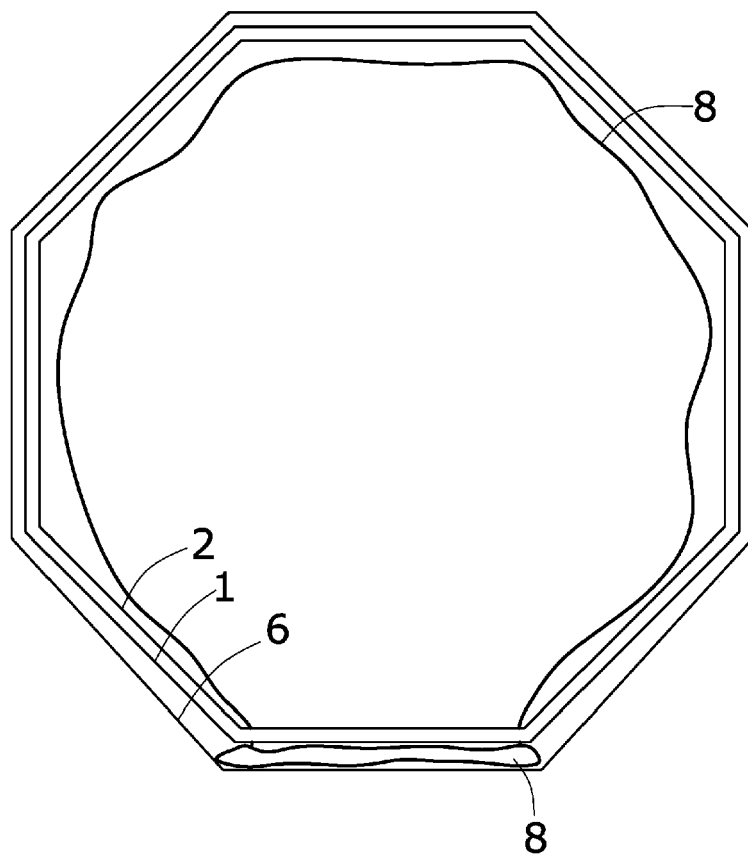


FIG.2

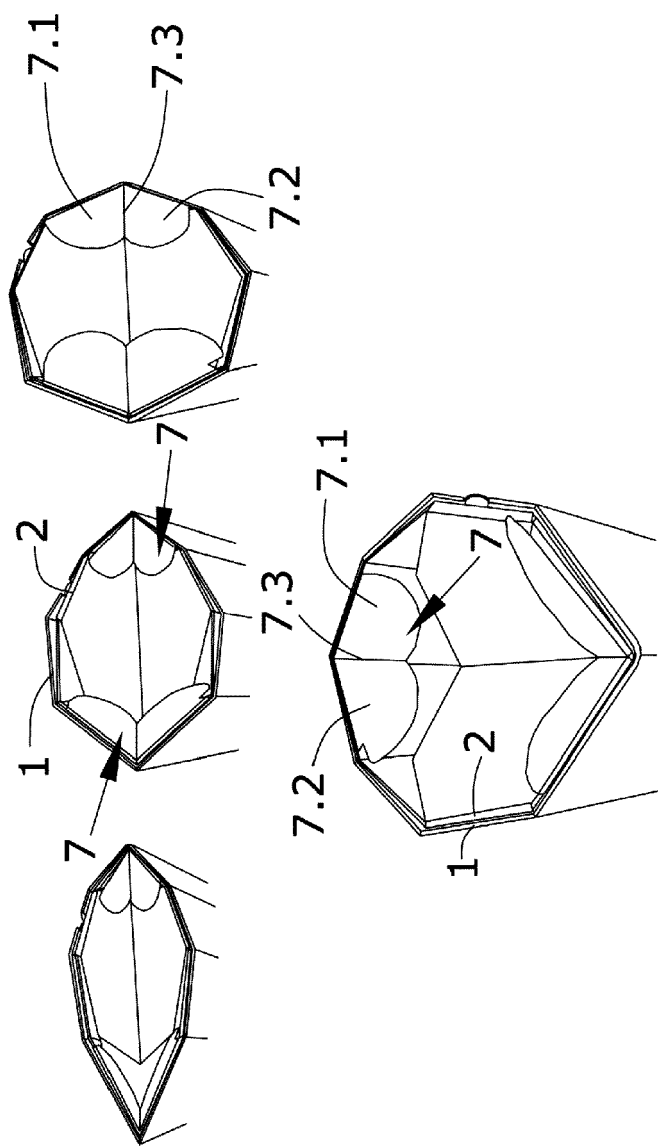


FIG.3



EUROPEAN SEARCH REPORT

Application Number
EP 13 38 2372

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 15 January 2014	Examiner Piolat, Olivier
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 13 38 2372

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