

DESCRIPTION

BAG-IN BOX

Technical Field

[0001]

The present invention generally relates to a bag-in box in which an inner bag fitted with a liquid spout, is housed in a corrugated fiberboard outer box, and in particular, to a technique for facilitating attachment and detachment operations of a cap or a hose, which is detachably threadedly engaged with the liquid spout.

Background Art

[0002]

As a container for storing a liquid, as described in the publication of Japanese Registered Utility Model No. 3065167 (Patent Document 1), a bag-in box in which an inner bag fitted with a liquid spout is housed in an outer box has been widely used. As one example of such a bag-in box, there is one in which an approximately U-shaped notch formed from an upper part of one side face of an approximately rectangular parallelepiped shape outer box toward an upper face thereof is folded inward, and the liquid spout is fixedly fitted thereto. Moreover, in order to prevent foreign matter from coming into the liquid in the bag-in box, a cap is detachably threadedly engaged with the liquid spout, and in order to facilitate pouring of the liquid from the bag-in box, a hose with a bellows-like portion formed in an

intermediate part thereof is detachably threadedly engaged at its one end with the liquid spout.

Patent Document 1: Japanese Registered Utility Model Publication No. 3065167

Disclosure of the Invention

Problems to be Solved by the Invention

[0003]

However, since the liquid spout of the inner bag is fixedly fitted to the portion where a part of the outer box is folded inward, the liquid spout is fixed in a so-called cantilever state with respect to the outer box. Consequently, when the cap or the hose is attached or detached to/from the liquid spout, the liquid spout might be pushed into the inside of the outer box and collapse, thereby bringing about a difficulty in the operation for attachment/detachment of the cap and the hose.

Therefore, the present invention takes into consideration the above conventional problems, and has an object thereof to provide a bag-in box in which a slot in the shape of elongated hole into which an operator can insert his fingers is formed near the portion where the liquid spout is fixedly fitted, so that a part of the outer box in the cantilever state can be grasped together with a top part thereof, thereby preventing the collapse of the liquid spout.

Means of Solving the Problems

[0004]

Consequently, in the present invention, in a bag-in box in which an inner bag formed integrally with a liquid spout detachably threadedly engaged with a cap or a

hose is housed in an outer box of an approximately rectangular parallelepiped shape comprising; four side plates forming a body part, a top plate forming a double structure top part, and a bottom plate forming a double structure bottom part, an approximately U-shaped notch having a tip extending from a fold line located at a position apart by a prescribed distance from an upper edge of a side plate connected to a top plate positioned on an inside of the double structure towards the top plate, is folded inward about the fold line, a fixing hole for fixedly fitting therein the liquid spout, and a slot enabling it to insert operator's fingers, are formed in this order from the fold line in a part surrounded by the notch toward the tip, and further, perforations enabling cutoff of a portion facing the fixing hole and the slot are formed in a top plate positioned on the outside of the double structure.

Effect of the Invention

[0005]

According to the present invention, when the bag-in box is used for the first time, the perforations formed in the top plate positioned on the outside of the double structure are broken, and the portion facing the fixing hole and the slot is cut off. Then the fingers are inserted into the slot, and the cap or the hose is manipulated to be attached to or detached from the liquid spout, while grasping the top plate forming the top part of the double structure together with the portion where the liquid spout is fixedly fitted. In this manner, even if an external force pushing the liquid spout to the inside of the outer box acts, the liquid spout does not collapse because it is integrated with the top part, thereby enabling the attachment/detachment operation of the cap or the hose to be easily performed. Moreover, before using the bag-in box,

the fixing hole and the slot are hidden by the top plate positioned on the outside of the double structure, and hence it can be easily recognized that the bag-in box is unused.

Brief Description of the Drawings

[0006]

FIG. 1 is a perspective view showing an outer box of a bag-in box, which realizes the present invention;

FIG. 2 is a developed view of the outer box;

FIG. 3 is a partial perspective view showing details around a liquid spout;

FIG. 4 is a cross-sectional explanatory view showing an operation procedure 1 for detaching a cap from the liquid spout;

FIG. 5 is a similar cross-sectional explanatory view of an operation procedure 2 for detaching the cap from the liquid spout;

FIG. 6 is a perspective explanatory view showing an operation for threadedly engaging a hose to the liquid spout; and

FIG. 7 is a perspective explanatory view showing a liquid pouring operation.

Explanation of the Reference Symbols

[0007]

10 Bag-in box

12 Body part

12A - 12D Side plate

14 Top part

14A - 14D Top plate members
16 Bottom part
16A - 16D Bottom plate members
18 Outer box
20 Fold line
22 Fixing hole
24 Slot
26 Perforations
28 Notch
30 Mounting hole
32 Hooking hole
36 Handle
38 Cap
40 Liquid spout
42 Hose

Best Mode for Carrying Out the Invention

[0008]

Hereunder is a detailed description of the present invention with reference to the accompanying drawings.

Figure 1 is a perspective view showing an outer box of a bag-in box, which realizes the present invention.

A bag-in box 10 is one in which an inner bag (not shown) formed integrally with a liquid spout detachably threadedly engaged with a cap or a hose, is housed in

an outer box 18 of an approximately rectangular parallelepiped shape having; four side plates forming a body part 12, a top plate forming a top part 14 provided therein with a double structure, and a bottom plate forming a bottom part 16 provided therein with a double structure. An approximately U-shaped notch having a tip extending from a fold line 20 at a position apart by a prescribed distance D from an upper edge of a side plate connected to a top plate positioned on the inside of the double structure towards the top plate, is folded inward about the fold line 20, and a fixing hole 22 for fixedly fitting the liquid spout, and a slot 24 enabling it to insert the fingers of an operator, are formed in this order from the fold line 20 in the part surrounded by the notch toward the tip. Moreover, perforations 26 enabling the cutoff of a portion facing the fixing hole 22 and the slot 24 are formed in a top plate positioned on the outside of the double structure.

[0009]

As shown in the development drawing shown in FIG. 2, the specific configuration of the outer box 18 is such that four top plate members 14A through 14D and four bottom plate members 16A through 16D are respectively connected to the upper edges and bottom edges of four side plates 12A through 12D, whose adjacent edges are connected to each other, so as to form top plates and bottom plates facing each other and positioned on the inside and outside of the double structure in pairs. Moreover, the fold line 20 is formed at a position apart by a prescribed distance D from the upper edge of the side plate 12C connected to one top plate member 14C which forms the top plate positioned on the inside of the double structure, and an approximately U-shaped notch 28 is formed with a tip extending from the fold line 20 toward the direction of the top plate member 14C.

Here, the prescribed distance D is preferably set to be larger than the height of the cap so that when the outer box 18 is assembled as shown in FIG. 1, the cap threadedly engaged with the liquid spout is housed between the fold line 20 and the top plate member 14C. Moreover, in a portion surrounded by the approximately U-shaped notch 28, the fixing hole 22 for fixedly fitting the liquid spout, and the slot 24 enabling it to insert the fingers of the operator, are formed in this order from the fold line 20 toward the tip of the surrounded portion. Furthermore, perforations 26 enabling the cutoff of a portion facing the fixing hole 22 and the slot 24 when the outer box 18 is assembled, and a pair of mounting holes 30 for fixedly fitting both end portions of a handle formed in an approximately arcuate shape, are respectively formed in the top plate members 14B and 14D forming the top plate positioned on the outside of the double structure. In addition, a hooking hole 32 for hooking a finger of the operator is formed in one bottom plate member 16A forming the bottom plate positioned on the outside of the double structure in order to make it easy to hold the bottom of the outer box 18.

[0010]

An approximately trapezoidal member 34 connected to the side plate 12D positioned rightmost in the drawing, is a joint flap for allowing connecting or bonding of the side plates.

The operation of the bag-in box 10 having such a configuration is described below.

When the liquid stored in the bag-in box 10 is initially poured therefrom, the perforations 26 formed in the top plate members 14B and 14D positioned on the outside of the double structure are broken at the first time, and the portion facing the

fixing hole 22 and the slot 24 is cut off. As a result, the cap 38 threadedly engaged with the liquid spout integrally formed with the non-illustrated inner bag, and the slot 24 can be exposed to the outside. This operation needs to be performed only once when starting to use the bag-in box 10. At this time, before use of the bag-in box 10, since the cap 38 and the slot 24 are hidden by the top plate members 14B and 14D positioned on the outside of the double structure, it can be easily recognized that the bag-in box is unused. Moreover, in order to facilitate holding the outer box 18 and reduce the labor required for extracting the liquid from the bag-in box 10 by pouring, the both end portions of a handle 36 as shown in FIG. 3, are fixedly fitted to the pair of mounting holes 30 formed in the top plate members 14B and 14D.

[0011]

Then, as shown by an arrow in FIG. 4, the fingers are inserted into the slot 24, and thereafter as shown in FIG. 5, the cap 38 is detached from the liquid spout 40, while grasping the top plate members 14A through 14D forming the top part of the double structure together with the portion where the liquid spout 40 is fixedly fitted. At this time, even if an external force pushing the liquid spout 40 to the inside of the outer box 18 acts, the liquid spout 40 does not collapse because it is integrated with the top part 14, thereby enabling the detachment operation of the cap 38 to be easily performed. After the detachment operation of the cap 38 is complete, as shown in FIG. 6, the hose 42 is threaded to the liquid spout 40 according to the same procedure, and as shown in FIG. 7, the outer box 18 is inclined to pour the liquid, while grasping the handle 36 and the hooking hole 32 formed in the bottom plate member 16A. On the other hand, when the pouring operation of the liquid finishes,

the hose 42 is detached and the cap 38 is instead threadedly engaged sequentially according to the same procedure.

[0012]

Consequently, according to the bag-in box 10, the top part 14 of the double structure can be grasped together with the portion where the liquid spout 40 is able to be fixedly fitted, with the fingers inserted into the inside of the slot 24. That is to say, the part 14 and the liquid spout 40 fitting portion can be grasped as one integral part. Therefore, even if an external force pushing the liquid spout 40 to the inside of the outer box 18 acts at the time of the attachment and detachment operations of the cap 38 or the hose 42, collapse of the liquid spout 40 can be prevented. Accordingly, the attachment and detachment operations of the cap 38 or the hose 42 can be easily performed.

[0013]

As shown in FIG. 4 and FIG. 5, if a base of the liquid spout 40 is formed with a larger diameter than the fixing hole 22, the base can be supported by the fingers inserted into the inside of the slot 24 when the surroundings of the liquid spout 40 are broken due to repeated use of the bag-in box 10, so that this can prevent the collapse thereof. Moreover, as shown in FIG. 4, since there is a gap between the top plate members 14A and 14C forming the top plate positioned on the inside, and the portion where the liquid spout 40 is fixedly fitted, then by inserting the fingers therein, the bag-in box 10 can be easily carried. In addition, since the cap 38 threadedly engaged with the liquid spout 40 is housed, as shown in FIG. 3 through FIG. 5, between the fold line 20 and the top plate members 14A and 14C positioned

on the inside, the cap 38 does not protrude upward from the upper face of the outer box 18, and for example, the bag-in box 10 can be piled up and stored.

[0014]

The outer box 18 is not limited to the configuration shown in FIG. 2, and the outer box 18 can have any configuration, so long as the top part 14 and the bottom part 16 have the double structure.

CLAIMS

1. A bag-in box in which an inner bag formed integrally with a liquid spout detachably threadedly engaged with a cap or a hose is housed in an outer box of an approximately rectangular parallelepiped shape comprising; four side plates forming a body part, a top plate forming a double structure top part, and a bottom plate forming a double structure bottom part,

wherein an approximately U-shaped notch having a tip extending from a fold line at a position apart by a prescribed distance from an upper edge of a side plate connected to a top plate positioned on the inside of the double structure towards the top plate, is folded inward about the fold line, a fixing hole for fixedly fitting the liquid spout, and a slot enabling it to insert an operator's fingers, are formed in this order from the fold line in a part surrounded by the notch toward the tip, and perforations enabling cutoff of a portion facing the fixing hole and the slot are formed in a top plate positioned on the outside of the double structure.

2. A bag-in box according to claim 1, wherein the prescribed distance is set greater than a height of the cap.

3. A bag-in box according to claim 1, wherein a base of the liquid spout is formed with a larger diameter than the fixing hole.

4. A bag-in box according to claim 1, wherein a pair of mounting holes for fixedly fitting both end portions of a handle in an approximately arcuate shape, are formed in the top plate positioned on the outside of the double structure.

5. A bag-in box according to claim 1, wherein a hooking hole for hooking a finger of an operator, is formed in the bottom plate positioned on the outside of the double structure.