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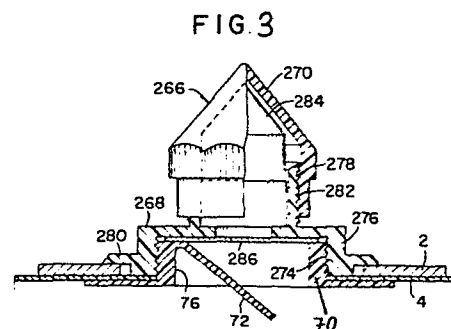
(71) Applicant: **DAI NIPPON INSATSU KABUSHIKI KAISHA**
12, Kaga-Cho 1-Chome Ichigaya Shinjuku-Ku
Tokyo 162(JP)

(72) Inventor: **Okushita, Masataka**
Tokiwa Paresu, 1-1-1207 Shimoochiai
Shinjuku-Ku Tokyo-To(JP)

(74) Representative: **Patentanwälte Dipl.-Ing. Klaus Behn**
Dipl.-Phys. Robert Münzhuber
Widenmayerstrasse 6/IV
D-8000 München 22(DE)

(54) **Bag-in-box package.**

(57) A bag-in-box package wherein a hermetically sealed bag (4) of flexible material is disposed within and secured to an outer box (2) in a state of being inflated into close internal contact with the box, and wherein a fitment (70) is attached to the bag (2) so as to project outwardly through the box, and a dispenser mechanism (266) is coupled to the fitment (70), which mechanism comprises a spout (268) firmly engaged with the fitment and a cap (270) removably engaged with the spout. A seal (286) is interposed between the fitment (70) and the spout (268) for sealingly closing the fitment (70), and an opener member (284) is removably housed in the dispenser member for opening the seal.



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Application No: 81 101 236.8 - Divisional Application

Applicant: Dai Nippon Insatsu K.K.

Our Ref: A 7483 B/1e

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NEW DESCRIPTION

BAG-IN-BOX PACKAGE

This invention relates to a bag-in-box package wherein a hermetically sealed bag of flexible material is disposed within a secured to an outer box in a state of being inflated into close internal contact with the box, said box having a set of four panels forming a rectangular tube, a set of four top flaps conjointly closing one end of the rectangular tube, and a set of four bottom flaps conjointly closing the other end of the rectangular tube, and wherein a fitment is attached to the bag so as to project outwardly through the box, and a dispenser mechanism is coupled to the fitment, which mechanism comprises a spout firmly engaged with the fitment and a cap removably engaged with the spout.

With regard to inflating the bag, it is known in the art (see e.g. FR-A-1 182 724) to inflate such bags into close internal contact with the surrounding box, particularly when the bag is not previously secured to the box in such a way that it automatically erects.

In bag-in-box (BIB) packaging, as heretofore practiced in the industry, a desired product is first filled into the bags, as through a fitment permanently attached thereto, and the filled bags are then placed in boxes. Dispenser mechanisms are fitted to the fitments projecting outwardly of the boxes.

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There is known a bag-in-box (BIB) package (GB-A-1 155 594) including a fitment attached to one of the layers of the bag and projecting outwardly of the box. The bag has a pouring nozzle projecting outwardly of the box and applied with a cap. In this package, dust tends to enter the bag through the pouring nozzle before the capping. This is not desirable.

It, therefore, is an object of the present invention to provide a bag-in-box (BIB) package as mentioned above in which dust can not enter the bag through the pouring nozzle before the capping.

The present invention seeks to overcome the above problem of the prior art.

In the bag-in-box package according to the invention a seal is interposed between the fitment and the spout of the dispenser mechanism for sealingly closing the fitment, and an opener member is removably housed in the dispenser mechanism for opening the seal. Accordingly there is no possibility of dust entering into the bag before the seal is broken. When dispensing the content of the package, the cap is removed and then the opener member is taken out and used to break the seal.

Preferably, the seal is a foil which can be made of metal.

Preferably, the opener member is disposed within a space between the seal and the cap. The opener member may have a pointed end and may be disposed in said space normally with its pointed end directed away from the seal.

The above and other features and advantages of this invention and the manner of attaining them will become more apparent, and the invention itself will best be understood, from the following description of illustrative embodiments thereof which is to be read with reference to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

Fig. 1 is an enlarged sectional view of a part of an BIB-package with a fitment attached to the bag, shown together with a punch for opening its end seal prior to its inflation;

Fig. 2 is an elevational view of an example of dispenser mechanism to be attached to the fitment of Fig. 1;

Fig. 3 is a sectional view, partly in elevation, of the dispenser mechanism of Fig. 2 as attached to the fitment of Fig. 1 and

Fig. 4 is a sectional view, partly in elevation, of a modified dispenser mechanism as attached to a correspondingly modified fitment on the bag.

Fig. 1 is an enlarged representation of the fitment 70 on the bag 4. The fitment is an integral molding of plastics material, in the shape of a short hollow cylinder having a breakable seal 72 closing its outer end and a flange 74 on its inner end. The fitment 70 defines a passageway 76 for the introduction and dispensation of a beverage or other desired fluid product into and out of the bag. The flange 74 adheres to the inside surface of the bag 4 along its edge defining an opening that receives the fitment 70. The fitment opens as its end seal 72 is punched and deflected as indicated by the dot-and-dash lines.

The bag 4 is still in a flat state, and its fitment 70 extends through the hole 40 in a bevel flap of the box.

Fig. 2 and 3 illustrate an example of a dispenser mechanism 266 to be attached to the fitment 70 of each BIB package after the filling of a beverage or any other desired commodity. The exemplified dispenser mechanism 266 comprises a spout 268 and a cap 270, both of plastics material. The spout 268 is shown

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as a stepped tubular member, including a large diameter portion 276 internally threaded at 274 for engagement with the external thread 272 (Fig. 1) of the fitment 70, and a small diameter portion 278 extending upwardly from the large diameter portion. The spout portion 276 may not necessarily make threaded engagement with the fitment 70 but may be pressfitted over, or otherwise firmly engaged with, the fitment. The spout portion 276 is flanged at 280, and the other spout portion 278 is externally threaded at 282 for engagement with the internally threaded portion of the cap 270. A seal 286, normally in the form of metal foil, is fitted between the two constituent portions 276 and 278 of the spout 268 for closing the fitment 70. For opening the seal 286, an opener member 284 having a pointed end is accommodated in a closed space bounded by the cap 270 and the spout portion 278.

Assembled as pictured in Fig. 2, the dispenser mechanism 266 is mounted in position on the filled BIB package, its spout portion 276 being threadedly or otherwise securely engaged with the fitment 70. The flange 280 on the spout portion 276 engages the encircling edges of the box 2 and bag 4 between itself and the flange 74 on the fitment 70.

For the dispensation of the product from within the BIB package, the consumer first unscrews the cap 270 from the spout 268. He or she then takes out the opener member 284 and, with its pointed tip, punctures the seal 286. The product can now be poured out of the package through the fitment 70 and the spout 268, the end seal 72 of the fitment having been punched open during the fabrication of the package, as in Fig. 1.

Fig. 4 shows another example of dispenser mechanism 266a together with a modified fitment 70a. The bag 4 for use with the modified fitment and dispenser mechanism is made, for example, of laminar film consisting of oriented polypropylene, vinylidene-coated, oriented nylon, and polyethylene.

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Considering first the fitment 70a, it will be noted that it has a flange 74a formed intermediate between its ends. The flange 74a is fused onto the outside surface of the bag 4 via an annular coupling member 500. The coupling member 500, which is preferably a poly-propylene casting, is to be employed if the outermost layer of the bag 4 has poor fusibility. This member may therefore be omitted if the fitment flange 74a is directly fusible onto the outside surface of the bag. Another similar member 502 secured to the inside surface of the bag 4 in register with the coupling member 500 is of two layers, one made of the same substance as the inmost layer of the bag or of a material readily fusible thereto, and the other made of a substance infusible thereto. In the illustrated embodiment of the invention the two layers of the member 502 are of polyester and polyethylene. This member serves the purpose of preventing the thermal fusion of the two opposed layers or walls of the bag to each other during the attachment of the fitment 70a thereto.

The fitment 70a is internally threaded at 274a. A rim 504 is formed at the inner end of the fitment.

The modified dispenser mechanism 266a comprises a spout 268a and a cap 270a. The spout 268a at its large diameter portion 276a is screwed into the fitment 70a and at its bottom abuts against the fitment rim 504 via the seal 286. The small diameter portion 278a of the spout is removably engaged with the cap 270a in any suitable manner. The cap 270a, and the opener member 284a housed in the dispenser mechanism, can be essentially identical with those described in connection with Figs. 2 and 3.

The fitment-dispenser combinations of Figs. 2 and 3 and of Fig. 4 both feature the fact that the dispenser mechanisms 266 and 266a can be attached to the fitments 70 and 70a, respectively, after the filling of the BIB package. Such delayed attachment of the dispenser mechanisms to the fitments is preferred because of the smaller space requirement of the packages until they are filled.

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PATENT CLAIMS

1. A bag-in-box package wherein a hermetically sealed bag (4) of flexible material is disposed within and secured to an outer box (2) in a state of being inflated into close internal contact with the box, said box having a set of four panels (6, 8, 10, 12) forming a rectangular tube, a set of four top flaps (30, 32, 34, 36) conjointly closing one end of the rectangular tube, and a set of four bottom flaps (52, 54, 56, 58) conjointly closing the other end of the rectangular tube, and wherein a fitment (70, 70a) is attached to the bag (2) so as to project outwardly through the box, and a dispenser mechanism (266, 266a) is coupled to the fitment (70, 70a), which mechanism comprises a spout (268, 268a) firmly engaged with the fitment and a cap (270, 270a) removably engaged with the spout, characterized in that a seal (286, 286a) is interposed between the fitment (70, 70a) and the spout (268, 268a) of the dispenser mechanism (266, 266a) for sealingly closing the fitment (70, 70a), and an opener member (284, 284a) is removably housed in the dispenser mechanism for opening the seal.

2. The bag-in-box package according to claim 1, wherein the seal (286, 286a) is a foil.

3. The bag-in-box package according to claim 2, wherein the foil is made of metal.

4. The bag-in-box package according to claim 1, wherein the

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opener member (284, 284a) is disposed within a space between the seal (286, 286a) and the cap (270, 270a).

5. The bag-in-box package according to claim 4, wherein the opener member (284, 284a) has a pointed end and is disposed in said space normally with its pointed end directed away from the seal (286, 286a).

FIG. 1

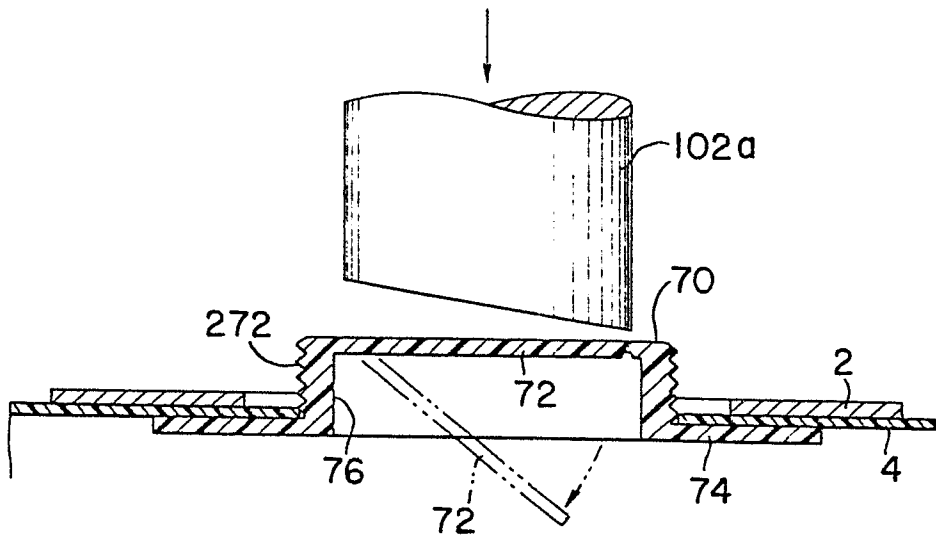


FIG. 4

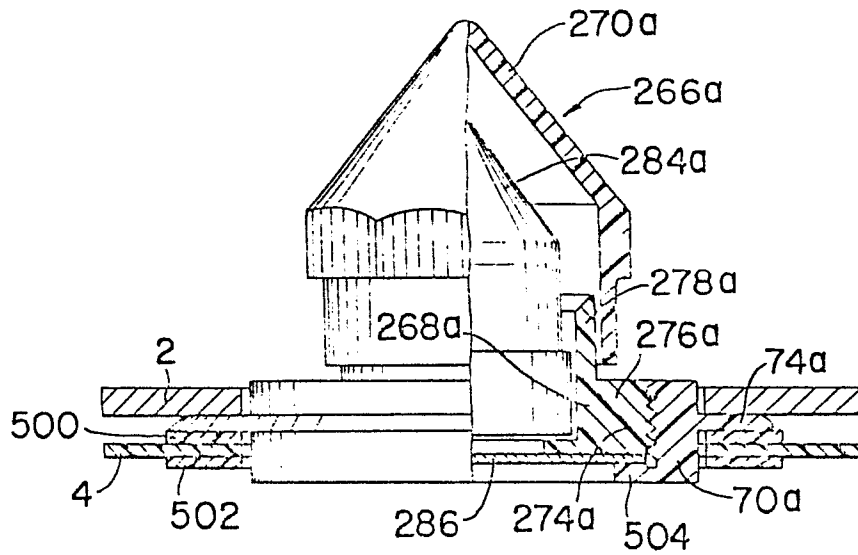


FIG. 2

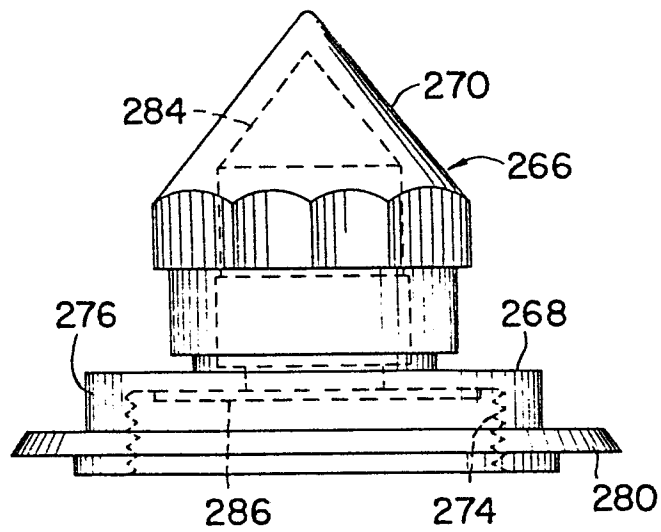


FIG. 3

