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(54) Package for storage of food products and method for sealing such a package.

Verpackung zur Lagerung von Lebensmitteln und Verfahren zum Verschließen einer solchen Verpackung

Emballage pour des produits alimentaires et procédé pour la fermeture d'un tel emballage.

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DescriptionTechnical Field

[0001] The present invention relates to a package for storing and transporting food products and primary produce for food products, such as processed meats and fish, comprising a stable outer element, which comprises a frame and a base. The package further comprises a flexible inner element, which has an upper, open end and a lower, closed end, the inner element being arranged in the outer element such that the inner element covers the interior of the outer element.

[0002] The invention further relates to a method for sealing a package intended for storing and transporting food products and primary produce for food products, such as processed meats and fish.

Technical Background

[0003] When storing and transporting food products and primary produce for food products, such as processed meats, strict food hygiene requirements stipulated by the Swedish National Food Administration, among others, have to be met.

[0004] In the industry today, standard boxes made, for example, of corrugated cardboard or paperboard are used, in which plastic bags containing processed provisions, such as meat, are placed (see CH 331 093). The boxes are then sealed by means of a lid, also the ones made of corrugated cardboard or paperboard. The boxes are folded from one piece of material and flaps are overlappingly arranged to form the bottom of the box. These boxes are not adapted to transporting more than 30 kg at the most and their primary use is therefore in distributing products to shops where the products are packaged by the piece and sold. The design of boxes of this kind is such that they are not suitable for high loads, which means that they would brake if they were made physically larger in order to hold greater quantities of processed provisions.

[0005] Instead, plastic containers are used to transport large quantities of processed meats, several hundred kilos, for instance between slaughter plants and processing plants. A disadvantage of such containers is that they require a considerable amount of supplementary work, at a high cost, to return the empty containers for refilling with new products and to clean the containers to meet hygiene requirements, the cleaning process having, as such, a detrimental impact on the environment.

[0006] Considering the alternatives available today, there is a need for a package in which large quantities, several hundred kilos, of processed meats can be stored and transported, which package should meet the stipulated hygiene requirements while being at the same time cost-efficient and requiring very little supplementary work.

Summary of the Invention

[0007] For the purpose of solving the above problems, a package of the kind specified in claim 1 is provided.

5 **[0008]** According to the invention as defined in said claim, a package is obtained which satisfies the stipulated hygiene requirements, since the upper portion of the inner element is arranged over the opening of the outer element, thereby protecting the products from dust and the like. The inner element also protects the products
10 contained in the package from entering into direct contact with the outer element, which means that less exacting food hygiene requirements are placed on the outer element, thus allowing use of a cheaper and less clean material for manufacturing the outer element. In addition,
15 there is no need for a separate lid, which saves material and is cost-effective. It is sufficient to seal the package by arranging the upper portion over the package opening and this also ensures that the package is not sealed too
20 tightly, which could damage the products.

[0009] By the package being sealed with the aid of a sealing means, such as adhesive tape, tightening straps or the like, a seal is obtained that satisfies the hygiene requirements for storing and transporting processed
25 meats and that is not so tight that there is a risk of the products being damaged. Processed meats give off a gas that needs to be gradually let out during transport to allow the best possible preservation of the products.

[0010] By the base being provided with a rim extending
30 along the circumference thereof and adapted to surround a lower portion of the frame, a stable structure suitable for heavy loads is obtained.

[0011] By each of the frame and the base being provided with a circumferentially extending stabilising belt,
35 an even more stable structure is obtained.

[0012] By the base being provided with at least one guiding flap, which is arranged on the circumferentially extending rim, it is easier to fit the frame in the base,
40 which facilitates mounting and, thus, saves time.

[0013] By the outer element being designed to have an angular cross-sectional shape, where each corner has an angle greater than 90 degrees, a package with a very
45 stable structure is obtained.

[0014] Advantageously, the package has an octagonal (eight-sided) cross-sectional shape.

[0015] By the outer element being made of a wood fibre-based material, such as corrugated cardboard, paperboard or the like, a hard-wearing, environmentally
50 friendly and recyclable package is obtained.

[0016] By the outer element being made of strong corrugated cardboard, with high flexural rigidity, such as double-wall corrugated cardboard, a hard-wearing and stable package suitable for storing and transporting large
55 quantities of products, about 500 kg, is obtained.

[0017] By the flexible inner element being made of a plastic material, a hygienic package is obtained that is not harmful to the environment since the outer element and the inner element can be easily separated and re-

cycled independently of one another.

[0018] For the purpose of solving the above problems, a method of the kind set out in claim 10 is also provided.

[0019] The above method ensures that the package can be sealed in a convenient and hygienic manner.

[0020] A safe and hygienic seal is obtained by providing a method that further comprises the step of

- arranging the folded-down portion overlappingly in such a manner that the package is sealed.

Brief Description of the Drawings

[0021] The invention will be described in greater detail below, reference being made to the accompanying drawings.

[0022] Fig. 1 is an exploded view schematically illustrating the parts of a package according to the invention.

[0023] Fig. 2 is an exploded view schematically illustrating how the parts of a package according to the invention are assembled.

[0024] Fig. 3 is a perspective view schematically illustrating how the parts of a package according to the invention are fastened together by means of a fastening element.

[0025] Fig. 4 is a perspective view schematically illustrating how a package according to the invention is sealed.

[0026] Fig. 5 is a perspective view schematically illustrating how a package according to the invention is sealed.

Description of a Preferred Embodiment

[0027] With reference to the drawings, a package 1 according to the present invention is described. The package 1 comprises an outer element. The outer element is made up of a frame 2 and a base 3. The frame 2 is made in one piece and has the shape of a tube with two open ends. The base 3 consists of an essentially plane surface, which is provided with a rim 3a extending along the circumference thereof. Advantageously, the base 3 can be provided with one or more guiding flaps 3b. Extensions of the rim 3a form the guiding flaps 3b. The guiding flaps 3b facilitate the insertion of the frame in the base 3 when assembling the outer element. No fastening elements are needed to hold the frame 2 and the base 3 together, since the fitting qualities are such as to ensure connection between the elements 2 and 3.

[0028] In one embodiment of the invention, the frame 2 and the base 3 are made in one piece.

[0029] To further stabilise the frame 2 and the bottom 3, circumferential stabilising bands 4 are arranged along the outside circumference of the frame 2 and the base 3, respectively, see for instance Figs 1 and 5. The stabilising bands 4 can, for example, be some kind of tightening straps made of a plastic, textile or glass fibre material or any other suitable material.

[0030] Advantageously, the frame 2 and the base 3 each has a substantially octagonal (eight-sided) cross-sectional shape, but may also have other cross-sectional shapes. However, to obtain a stable structure, the corners of the frame 2 and the base 3 should not have an angle of less than 90 degrees. The frame 2 and the base 3 can also have a cylindrical cross-sectional shape, which also affords a stable structure.

[0031] Preferably, the frame 2 and the base 3 are made of corrugated cardboard. Corrugated cardboard is made up of both corrugated layers and flat layers. To obtain a stable package, strong corrugated cardboard, with high flexural rigidity, is preferably used, for example double-wall corrugated cardboard or a stronger alternative. A double-wall corrugated cardboard consists of five layers, two corrugated layers and three flat layers. Using a starting material with a thickness of about 0.2 mm, a double-wall corrugated cardboard having a grammage of about 0.7-2.0 kg per square metre and a thickness of about 6.5-9 mm is obtained. For the package to be able to carry several hundred kilos, advantageously about 500 kg, the material must have a flexural rigidity of about 20 Nm (newton metre), advantageously about 30 Nm, or more.

[0032] Alternatively, a triple-wall corrugated cardboard can be used, which comprises three corrugated layers and four flat layers, or an even stronger material.

[0033] The outer element 2 and 3 can also be made of other wood fibre materials, such as a strong solid fibreboard/carton material (consisting of flat layers only and no corrugated layers) or the like. Moreover, the frame 2 and the base 3 can be made of different types of plastic materials.

[0034] The outer element 2 and 3 may advantageously be used for the standard pallet size 1200 mm x 800 mm.

[0035] The inner element 5 of the package 1 consist of a flexible part having an open end 5a and a closed end 5b.

[0036] Advantageously, the inner element 5 is a bag. The bag 5 may advantageously be made of any form of plastic material, such as polyethylene. A conventional plastic bag 5 that is sufficiently hard-wearing and that satisfies the hygiene requirements for storing and transporting processed meats, such as meat, may advantageously be used. The choice of material can be adapted to the type of products to be distributed. Also bags made of other types of flexible materials can be used, for example fibre fabric, aluminium foil, plastic fibre materials, plastic-coated textiles or the like.

[0037] The bag 5 has an upper portion 5c adjacent the open end 5a, which extends a certain distance downwards along the bag.

[0038] When assembling the package 1, the bag 5 is inserted into the outer element 2, 3 with the closed end 5b first. The upper portion 5a is then folded over the upper edge of the frame 2. A circumferential fastening element 6 is fastened over and along the frame 2 and the folded-down portion 5c of the bag 5. The fastening element 6 may advantageously be a tightening strap of the conven-

tional kind.

[0039] When sealing the package, the folded-down portion 5c of the bag 5 is pulled back upwards in such a manner that the fastening element 6 is surrounded on both sides by the upper portion 5c of the bag 5, see Fig. 4. In this way, "flaps" of the upper portion 5c can be overlappingly arranged on top of the package to seal the package, see Fig. 4. Alternatively, the package can be sealed by pulling tight the part of the upper portion that has been pulled back upwards and closing this upper part with the aid of a rope or some kind of conventional adhesive tape. The package 1 is then sealed with the aid of a sealing means 7, for example in the form of an adhesive tape of conventional kind, or a glass fibre tape. The package 1 can also be sealed by welding, for example, or by means of closing straps of some kind or any similar method suited to the needs.

[0040] When emptying the package, different methods can be used. For example, the package can be lifted up by means of a crane arrangement of some kind and then tipped on its side to discharge its contents. Because the bag 5 is fastened to the frame 2 by means of the fastening elements 6, the package can be emptied in a handy manner without holding the bag 5.

[0041] When the package has been emptied, the bag 5 can be easily separated from the frame 2 by cutting off the fastening elements, and the parts can then be recycled independently of one another.

[0042] The food products and primary produce for food products stored and transported in the package according to the present invention may advantageously be cooled, but not frozen.

[0043] The package can be modified in many different ways within the scope of the appended claims.

Claims

1. A package for storing food products and primary produce for food products, such as processed meats and fish, the package comprising:

a stable outer element (2,3), which outer element (2, 3) comprises a frame (2) and a base (3), and
 a flexible inner element (5), which has an upper, open end (5a) and a lower, closed end (5b),
 the inner element (5) being arranged in the outer element (2, 3) such that the inner element (5) covers the interior of the outer element (2, 3),
 an upper portion (5c) of the inner element (5), adjacent the open end (5a) thereof, is adapted to be folded about the upper edge of the frame (2) such that the folded-down portion (5c) covers part of the upper portion of the frame exterior,
 and that the outer element (2, 3) and the inner element (5) are adapted to be fastened together by means of at least one fastening element (6)

adapted to be fastened along the frame (2) over the folded-down portion (5c),

characterised in that the package (1) is adapted to be sealed by means of the upper portion (5c) of the inner element (5) in such a manner that part of the upper portion (5c) of the inner element (5) surrounds the fastening element (6) with the package (1) sealed, and that part of the folded-down portion (5c) is adapted to be folded back, upwards such that the fastening element (6) is surrounded by the folded-down portion (5c) and the package is sealed.

2. A package according to claim 1, wherein the package is adapted to be sealed by means of a sealing device (7), such as adhesive tape, tightening straps or the like.
3. A package according to any one of claims 1-2, wherein the frame (2) and the base (3) are each provided with a circumferentially extending stabilising band (4).
4. A package according to any one of claims 1-3, wherein the base (3) is provided with a rim (3a) extending along the circumference thereof, the rim (3a) being adapted to surround a lower portion of the frame (2).
5. A package according to claim 4, wherein the base (3) is provided with at least one guiding flap (3b) arranged on the rim (3a) to facilitate the insertion of the frame (2) in the base (3).
6. A package according to any one of claims 1-5, wherein the frame (2) and the base (3) have an angular cross-sectional shape, each corner having an angle greater than 90 degrees.
7. A package according to claim 6, wherein the frame (2) and the base (3) have an octagonal cross-sectional shape.
8. A package according to any one of claims 1-7, wherein the outer element (2, 3) is made of a wood-fibre-based material.
9. A package according to claim 8, wherein the outer element (2, 3) is made of strong corrugated cardboard, with high flexural rigidity, such as double-wall corrugated cardboard.
10. A method for sealing a package according to claim 1, **characterised in that** the method comprises the steps of
 - folding an upper portion (5c) of the inner element (5) about the upper edge of the frame (2)

such that the folded-down portion (5c) covers part of the upper portion of the frame (2) exterior,
 - fastening a fastening element (6) along the frame (2) over the folded-down portion (5c),
 - folding back the folded-down portion (5c) upwards such that the fastening element (6) is surrounded by the folded-down portion (5c) and the package is sealed.

11. A method according to claim 10, wherein the method further comprises the step of

- arranging the folded-down portion (5c) overlappingly in such a manner that the package (1) is sealed.

Patentansprüche

1. Verpackung zum Lagern von Lebensmittelprodukten und Primärerzeugnissen für Lebensmittelprodukte, wie zum Beispiel verarbeitetes Fleisch und verarbeiteter Fisch, wobei die Verpackung Folgendes umfasst:

ein stabiles äußeres Element (2, 3), wobei das äußere Element (2, 3) einen Rahmen (2) und eine Basis (3) umfasst, und
 ein flexibles inneres Element (5), das ein oberes, offenes Ende (5a) und ein unteres, geschlossenes Ende (5b) aufweist,
 wobei das innere Element (5) dergestalt in dem äußeren Element (2, 3) angeordnet ist, dass das innere Element (5) die Innenseite des äußeren Elements (2, 3) bedeckt, wobei ein oberer Abschnitt (5c) des inneren Elements (5), neben dem offenen Ende (5a), dafür ausgelegt ist, dergestalt über den oberen Rand des Rahmens (2) gefaltet zu werden, dass der herabgefaltete Abschnitt (5c) einen Teil des oberen Abschnitts des Rahmenäußeren bedeckt, und wobei das äußere Element (2, 3) und das innere Element (5) dafür ausgelegt sind, mit Hilfe mindestens eines Befestigungselements (6) aneinander befestigt zu werden, das dafür ausgelegt ist, entlang des Rahmens (2) über dem herabgefalteten Abschnitt (5c) befestigt zu werden,

dadurch gekennzeichnet, dass die Verpackung (1) dafür ausgelegt ist, mittels des oberen Abschnitts (5c) des inneren Elements (5) dergestalt verschlossen zu werden, dass ein Teil des oberen Abschnitts (5c) des inneren Elements (5) das Befestigungselement (6) bei verschlossener Verpackung (1) umgibt, und dass ein Teil des herabgefalteten Abschnitts (5c) dafür geeignet ist, dergestalt nach oben umgeschlagen zu werden, dass das Befestigungselement (6) von dem herabgefalteten Abschnitt (5c)

umgeben ist und die Verpackung verschlossen ist.

2. Verpackung nach Anspruch 1, wobei die Verpackung dafür ausgelegt ist, mit Hilfe eines Verschlussmittels (7), wie zum Beispiel eines Klebebandes, Schließkordeln oder dergleichen, verschlossen zu werden.

3. Verpackung nach einem der Ansprüche 1-2, wobei der Rahmen (2) und die Basis (3) mit einem umfänglich verlaufenden Stabilisierungsband (4) versehen sind.

4. Verpackung nach einem der Ansprüche 1-3, wobei die Basis (3) mit einer Krempe (3a) versehen ist, die sich entlang ihres Umfangs erstreckt, wobei die Krempe (3a) dafür ausgelegt ist, einen unteren Abschnitt des Rahmens (2) zu umgeben.

5. Verpackung nach Anspruch 4, wobei die Basis (3) mit mindestens einer an der Krempe (3a) angeordneten Führungslamelle (3b) versehen ist, um das Einsetzen des Rahmens (2) in die Basis (3) zu erleichtern.

6. Verpackung nach einem der Ansprüche 1-5, wobei der Rahmen (2) und die Basis (3) eine gewinkelte Querschnittsform aufweisen, wobei jede Ecke einen Winkel von größer als 90 Grad aufweist.

7. Verpackung nach Anspruch 6, wobei der Rahmen (2) und die Basis (3) eine achteckige Querschnittsform aufweisen.

8. Verpackung nach einem der Ansprüche 1-7, wobei das äußere Element (2, 3) aus einem Material auf Holzfaserbasis besteht.

9. Verpackung nach Anspruch 8, wobei das äußere Element (2, 3) aus fester Wellpappe mit hoher Biegesteifigkeit, wie zum Beispiel doppelwandiger Wellpappe, besteht.

10. Verfahren zum Verschließen einer Verpackung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Verfahren folgende Schritte umfasst:

- Falten eines oberen Abschnitts (5c) des inneren Elements (5) um den oberen Rand des Rahmens (2) in einer solchen Weise, dass der heruntergefaltete Abschnitt (5c) einen Teil des oberen Abschnitts der Außenseite des Rahmens (2) bedeckt,
 - Befestigen eines Befestigungselements (6) entlang des Rahmens (2) über dem heruntergefalteten Abschnitt (5c),
 - Umschlagen des heruntergefalteten Ab-

schnitts (5c) nach oben in einer solchen Weise, dass das Befestigungselement (6) von dem heruntergefalteten Abschnitt (5c) umgeben wird und die Verpackung verschlossen ist.

11. Verfahren nach Anspruch 10, wobei das Verfahren des Weiteren Folgenden Schritt umfasst:

- überlappendes Anordnen des heruntergefalteten Abschnitts (5c) in einer solchen Weise, dass die Verpackung (1) geschlossen wird.

Revendications

1. Emballage pour le stockage de produits alimentaires et de produits primaires pour produits alimentaires, tels que des viandes et des poissons conditionnés, l'emballage comprenant:

un élément extérieur stable (2,3), lequel élément extérieur (2,3) comprend une armature (2) et une base (3), et

un élément extérieur flexible (5), lequel comporte une extrémité supérieure ouverte (5a) et une extrémité inférieure fermée (5b),

l'élément intérieur (5) étant disposé dans l'élément extérieur (2,3) de telle sorte que l'élément intérieur (5) couvre l'intérieur de l'élément extérieur (2,3), une portion supérieure (5c) de l'élément intérieur (5), adjacente à l'extrémité ouverte (5a) de celui-ci, est adaptée afin d'être pliée autour du bord supérieur de l'armature (2) de sorte que la portion pliée vers le bas (5c) couvre une partie de la portion supérieure de l'extérieur d'armature, et que l'élément extérieur (2,3) et l'élément intérieur (5) soient adaptés afin d'être fixés conjointement au moyen d'au moins un élément de fixation (6) adapté afin d'être fixé le long de l'armature (2) par dessus la portion pliée vers le bas (5c),

caractérisé en ce que l'emballage (1) est scellé au moyen de la portion supérieure (5c) de l'élément intérieur (5) d'une manière telle que une partie de la portion supérieure (5c) de l'élément intérieur (5) entoure l'élément de fixation (6) avec l'emballage scellé.

2. Emballage selon la revendication 1, dans lequel l'emballage est adapté afin d'être scellé au moyen d'un dispositif de scellement (7), comme un ruban adhésif, des sangles de serrage ou similaire.

3. Emballage selon une quelconque des revendications 1 à 2, dans lequel l'armature (2) et la base (3) sont chacune pourvues d'une bande stabilisatrice (4) s'étendant circonférentiellement.

4. Emballage selon une quelconque des revendications 1 à 3, dans lequel la base (3) est pourvue d'une couronne (3a) s'étendant le long de la circonférence de celle-ci, la couronne (3a) étant adaptée afin d'entourer une portion inférieure de l'armature (2).

5. Emballage selon la revendication 4, dans lequel la base (3) est pourvue d'au moins un rabat de guidage (3b) disposé sur la couronne (3a) afin de faciliter l'insertion de l'armature (2) dans la base (3).

6. Emballage selon une quelconque des revendications 1 à 5, dans lequel l'armature (2) et la base (3) ont une forme de section transversale angulaire, chaque coin ayant un angle supérieur à 90 degrés.

7. Emballage selon la revendication 6, dans lequel l'armature (2) et la base (3) ont une forme de section transversale orthogonale.

8. Emballage selon une quelconque des revendications 1 à 7, dans lequel l'élément extérieur (2,3) est constitué d'un matériau à base de fibres de bois.

9. Emballage selon la revendication 8, dans lequel l'élément extérieur (2,3) est constitué d'un carton ondulé solide, avec une haute rigidité en flexion, tel qu'un carton ondulé à double paroi.

10. Procédé de scellement d'un emballage selon la revendication 1, **caractérisé en ce que** le procédé comprend els étapes consistant à :

- plier une portion supérieure (5c) de l'élément intérieur (5) autour du bord supérieur de l'armature (2) de telle sorte que la portion pliée vers le bas (5c) couvre une partie de la portion supérieure de l'extérieur d'armature (2),
- fixer un élément de fixation (6) le long de l'armature (2) par-dessus la portion pliée vers le bas (5c),
- plier à nouveau la portion pliée vers le bas (5c) vers le haut de telle sorte que l'élément de fixation (6) soit entouré par la portion pliée vers le bas (5c) et que l'emballage soit scellé.

11. Procédé selon la revendication 10, dans lequel le procédé comprend en outre l'étape consistant à :

- disposer la portion pliée vers le bas (5c) de manière superposée de telle sorte que l'emballage (1) soit scellé.

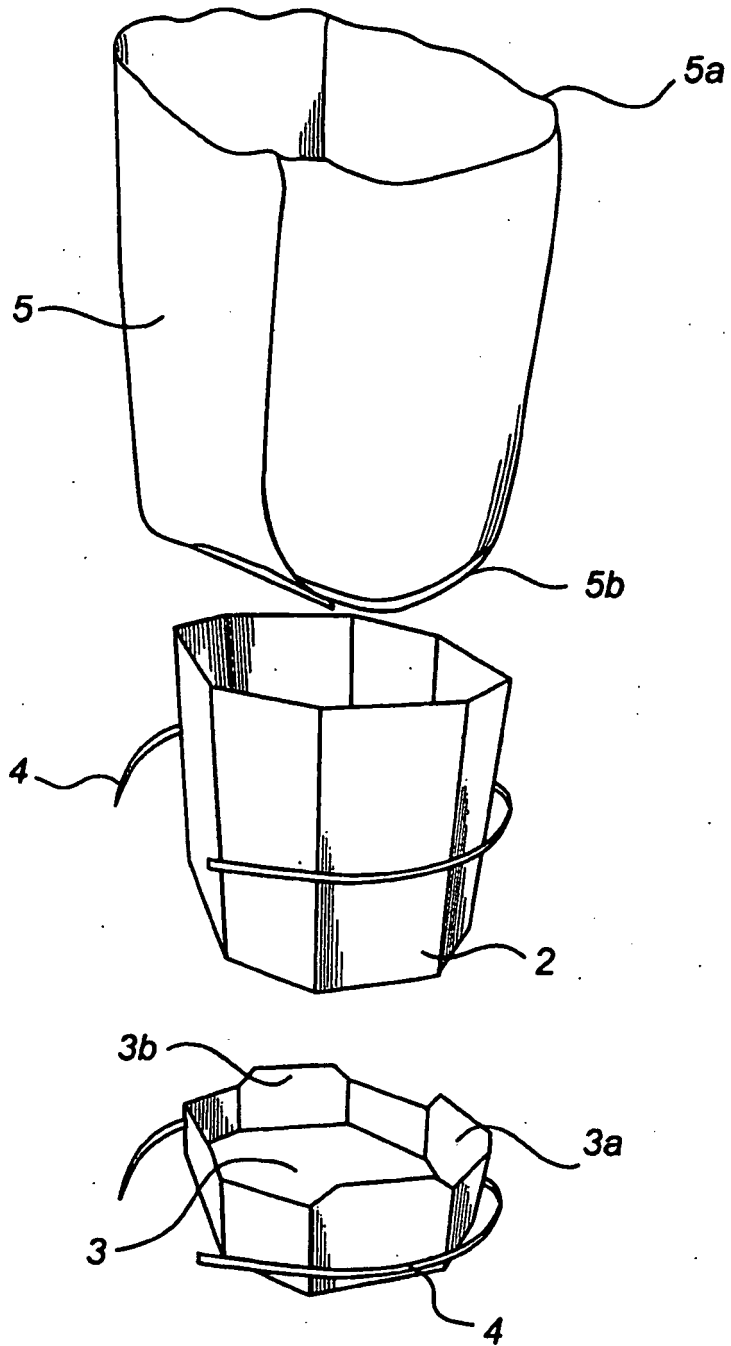


Fig. 1

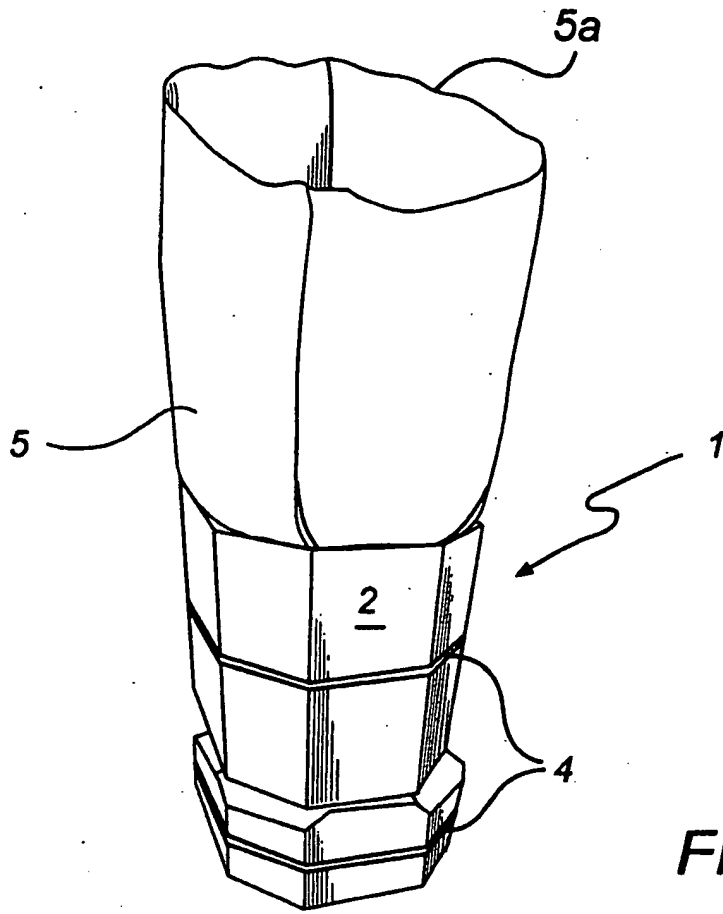


Fig. 2

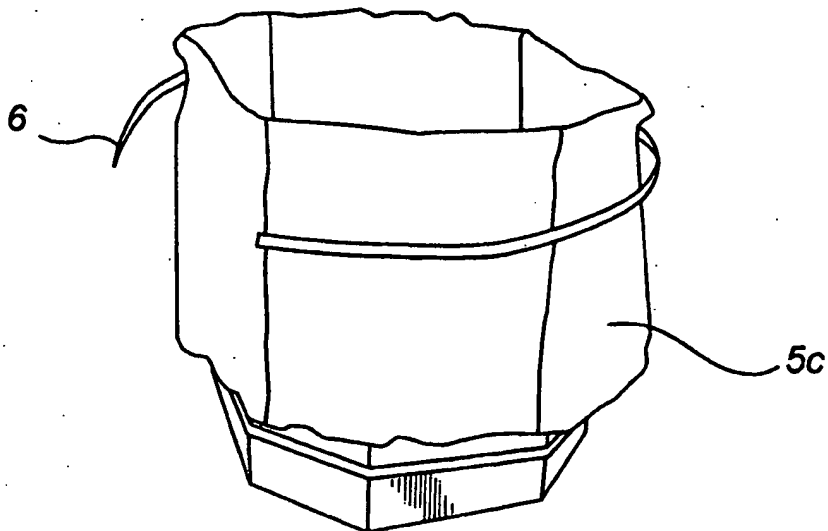


Fig. 3

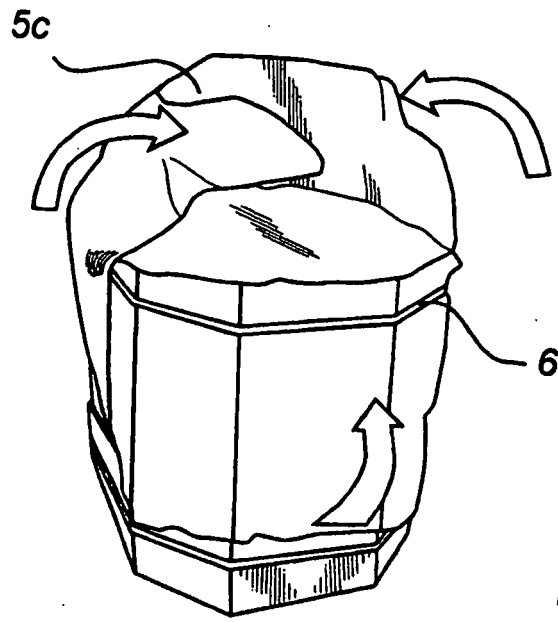


Fig. 4

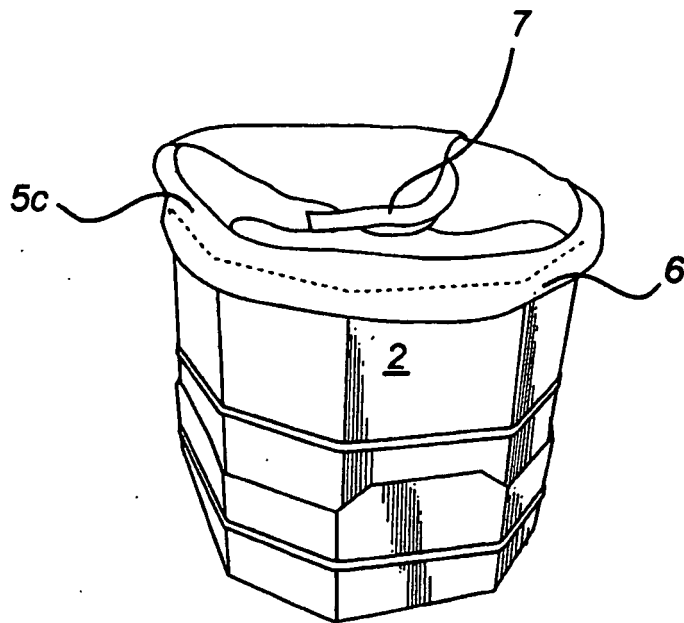


Fig. 5