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

(57) The present invention relates to a package for storing food products and primary produce for food products, such as processed meats and fish. The package comprises 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. 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 turned-down portion (5c). Furthermore, 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.

The invention also concerns a method for sealing a package intended for storing food products and primary produce for food products, such as processed meats and fish.

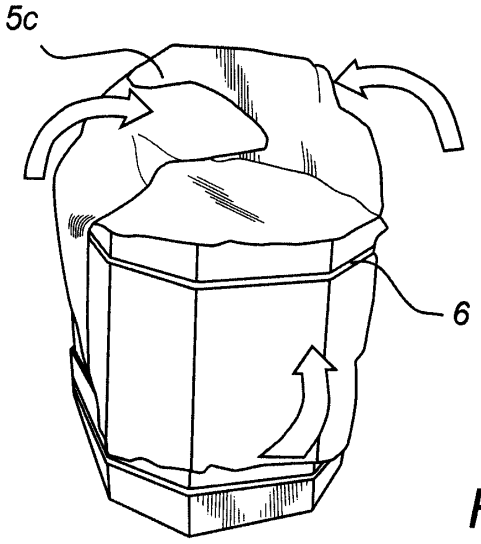

Fig. 4

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Description

Technical 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. 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 the preamble of claim 1 is provided, which package is characterised in that an upper portion of the inner element, adjacent the open end thereof, is adapted to be folded over the upper edge of the frame such that the folded-down portion covers part of upper portion of the frame exterior, and that the outer element and the inner element are adapted to be fastened together by means of at least one fastening element adapted to be fastened along the frame over the folded-down portion, and that the package is adapted to be sealed by means of the upper portion of the inner element in such a manner that part of the inner element surrounds the fastening element with the package sealed.

[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 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, 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 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 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 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, 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, 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 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 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 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 recycled independently of one another.

[0018] For the purpose of solving the above problems, a method of the kind set out in the preamble of claim 11 is also provided, the method being characterised in that it comprises the steps of

- folding an upper portion of the inner element about the upper edge such that the folded-down portion covers part of the upper portion of the frame exterior,
- fastening a fastening element along the frame over the folded-down portion,
- folding back part of the folded-down portion upwards such that the fastening element is surrounded by the folded-down portion and the package is sealed.

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

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

[0019] The invention will be described in greater detail below, reference being made to the accompanying drawings.

[0020] Fig. 1 is an exploded view schematically illustrating the parts of a package according to the invention.

[0021] Fig. 2 is an exploded view schematically illustrating how the parts of a package according to the invention are assembled.

[0022] 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.

[0023] Fig. 4 is a perspective view schematically illustrating how a package according to the invention is sealed.

[0024] Fig. 5 is a perspective view schematically illustrating how a package according to the invention is sealed.

Description of a Preferred Embodiment

[0025] 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.

[0026] In one embodiment of the invention, the frame 2 and the base 3 are made in one piece.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] Alternatively, a triple-wall corrugated cardboard can be used, which comprises three corrugated layers and four flat layers, or an even stronger material.

[0031] 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.

[0032] The outer element 2 and 3 may advantageously be used for the standard pallet size 1200 mm x 800 mm.

[0033] The inner element 5 of the package 1 consist

of a flexible part having an open end 5a and a closed end 5b.

[0034] 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.

[0035] The bag 5 has an upper portion 5c adjacent the open end 5a, which extends a certain distance downwards along the bag.

[0036] 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 conventional kind.

[0037] 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.

[0038] 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.

[0039] 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.

[0040] 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.

[0041] 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),
characterised in that 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), and 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.

2. A package according to claim 1, wherein the package is arranged in such a manner 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.

3. A package according to claims 1 and 2, wherein the package is adapted to be sealed by means of a sealing device (7), such as adhesive tape, tightening straps or the like.

4. A package according to any one of claims 1-3, wherein the frame (2) and the base (3) are each provided with a circumferentially extending stabilising band (4).

5. A package according to any one of claims 1-4, 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).

6. A package according to claim 5, 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).

7. A package according to any one of claims 1-6, wherein the frame (2) and the base (3) have an angular cross-sectional shape, each corner having an angle greater than 90 degrees.

8. A package according to claim 7, wherein the frame (2) and the base (3) have an octagonal cross-sectional shape.

9. A package according to any one of claims 1-8, wherein the outer element (2, 3) is made of a wood-fibre-based material.

10. A package according to claim 9, wherein the outer element (2, 3) is made of strong corrugated cardboard, with high flexural rigidity, such as double-wall corrugated cardboard.

11. A method for sealing a package intended 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),
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.

12. A method according to claim 11, 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.

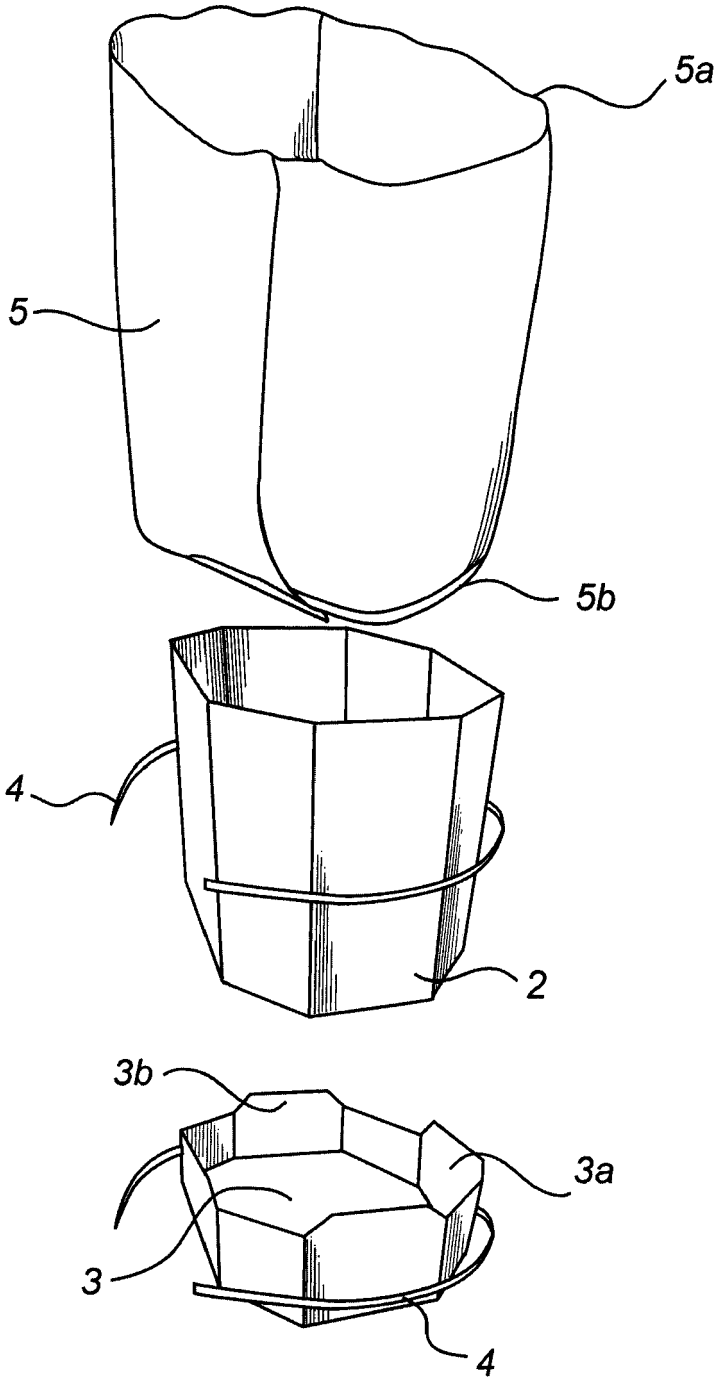

Fig. 1

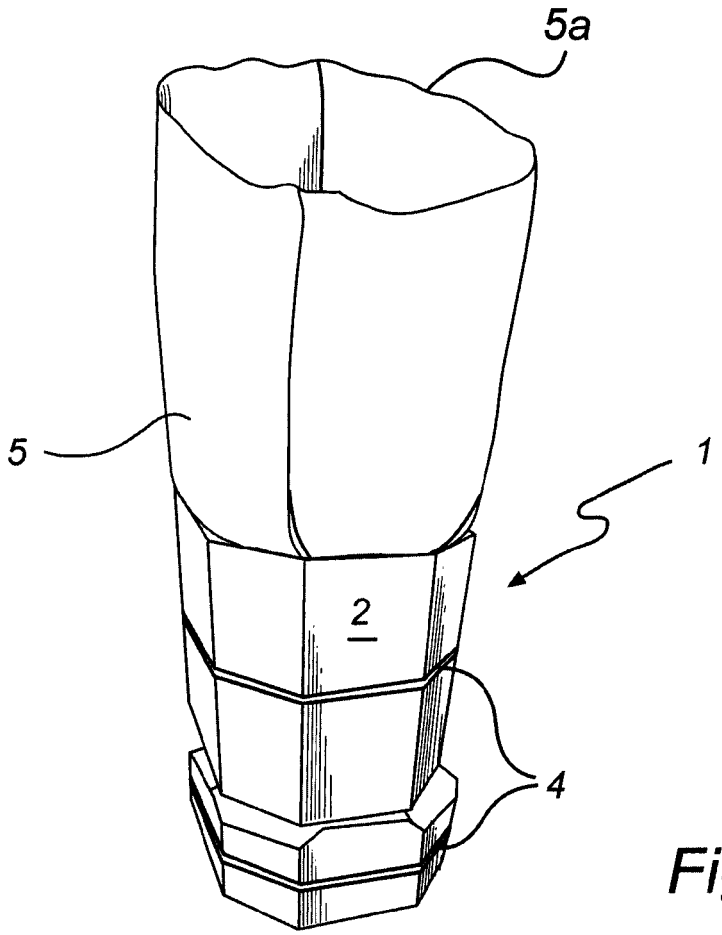

Fig. 2

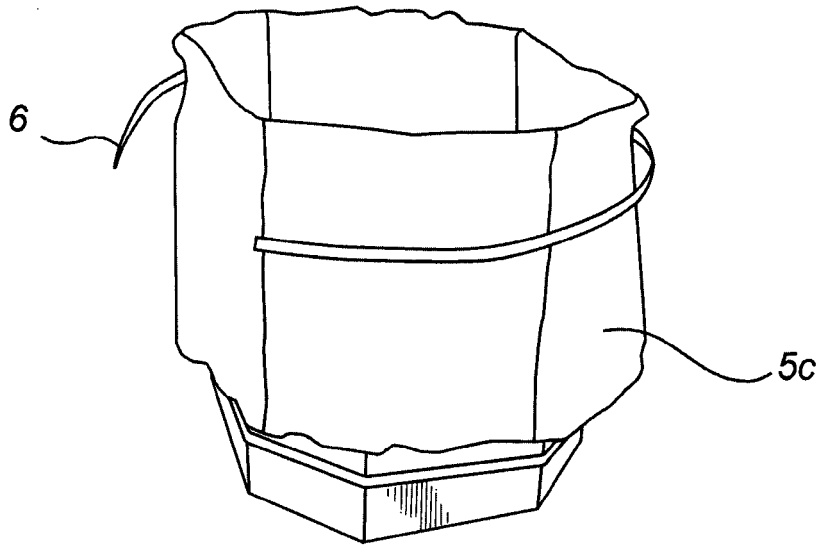

Fig. 3

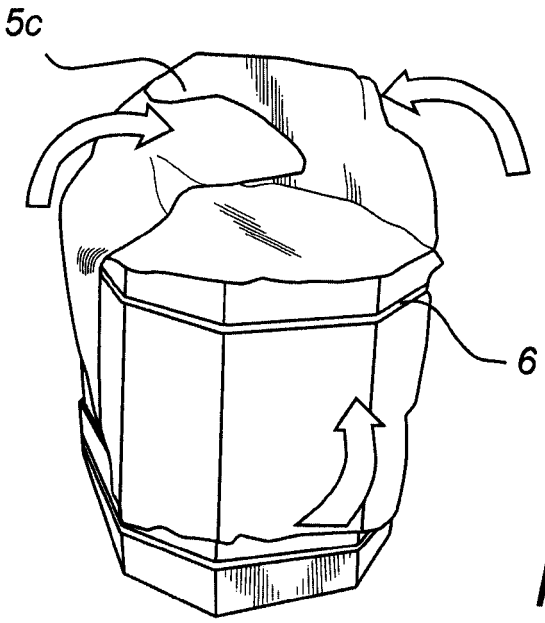

Fig. 4

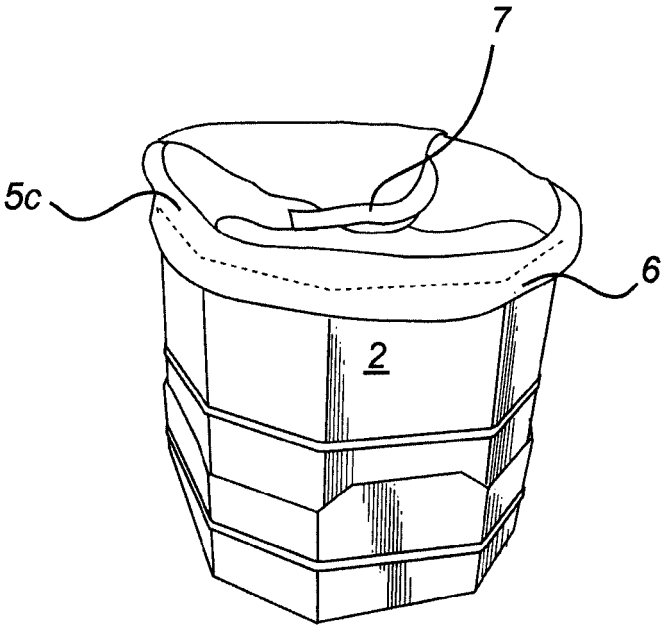

Fig. 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 12 1060

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 March 2008	Jervelund, Niels

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