(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 044 889 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
31.03.2004 Bulletin 2004/14

(51) Int Cl.[7]: **B65D 77/04**

(21) Application number: **00201305.0**

(22) Date of filing: **11.04.2000**

(54) **Packaging container, manufacturing method thereof and use in aseptically packaging of products**

Verpackungsbehälter, Verfahren zu seiner Herstellung und seine Verwendung beim aseptischen Verpacken

Récipient d'emballage, méthode pour sa fabrication ainsi que son utilisation pour emballer des produits de manière stérile

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: **14.04.1999 NL 1011798**

(43) Date of publication of application:
18.10.2000 Bulletin 2000/42

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(56) References cited:
US-A- 3 717 274

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Description

[0001] The present invention relates to a double-walled packaging container for use as packaging in the aseptic packaging of products, in particular products which are susceptible to decay.

[0002] In today's hectic society, also under the influence of constantly progressing individualization, there is a need for food products which are easy to prepare and use and are supplied in disposable packaging. If possible, the packaging itself is used as a container for preparation and consumption. Packaging of this nature is used, for example, for packaging products which are susceptible to decay, such as soups, dairy drinks, baby food and pet food. Usually, the content is sufficient for one person or a small number of people.

[0003] A container for liquid food products which is known from JP-A-63-102935 comprises a double-walled container with an inner container which is made from multiple layers of polypropylene and is attached to the top edge of an outer support container made from propylene polymer containing inorganic filler, so that there is a space which is closed off from the atmosphere situated between the inner container and the support container. After it has been filled with the product, the inner container is sealed with an easy-to-open closure in order to protect the product situated in the inner container from undesirable external influences. This known container is used for packaging food products, such as soups, which are introduced into the inner container, after which the inner container is provided with the easy-to-open closure. Then, the product which has been packaged in this way is sterilized. The specific materials from which this known container is made provide it with a good heat resistance, as is required for (retort) sterilization and heating in a microwave oven, as well as good thermal insulation properties, so that it is easy to handle after heating.

[0004] According to today's state of the art, before containers of this nature are filled their inside has to be thoroughly cleaned and rinsed, which entails high costs, before they can be filled with the product in question. Furthermore, high demands are imposed on the material types and the structure of the containers, in order that they are able to withstand the influences of heat and pressure which occur during the sterilization.

[0005] The object of the present invention is to provide a packaging container which can be used as packaging in the aseptic packaging of products, in particular products which are susceptible to decay, and in which thorough cleaning prior to filling is no longer required, in particular for the inside of the packaging container.

[0006] To this end, the double-walled packaging container according to the invention comprises an outer support container with an open top side and an inner container which is closed on all sides and is made from one piece, the inner container being situated at least partially inside the support container and being attached, by means of a peripheral part, to the periphery of the open top side of the support container, so that there is a chamber which is closed to the environment located between the inside of the support container and the outside of the inner container.

[0007] The packaging container according to the invention comprises an outer support container, which may adopt all kinds of shapes. An inner container which is closed on all sides is attached to the open top side, with the result that a hermetically sealed space is formed between the inner walls and base of the outer support container and the outside of the inner container. A space of this nature is advantageous for the thermal insulation properties of the packaging container according to the invention, which thermal insulation is advantageous both for products which are to be heated in a microwave oven, for example, and for cooled products, such as dairy drinks. Since the inner container is closed on all sides and is made from a single piece, its inside does not have to be cleaned and rinsed after the inner container has been opened and before it is filled with a product, as will be explained in more detail below. One of the current techniques which can be used for manufacturing closed containers from a single piece, such as the closed inner container, is that of blow-moulding. The outer support container can be produced in a known manner, for example by injection-moulding and the like.

[0008] Since use is made of a closed inner container, it is impossible for any dust, insects or other vermin to nest in the inner container during storage and transportation to the manufacturer where the packaging container is processed further and filled with a certain product.

[0009] Advantageously, the top side of the support container comprises a horizontal peripheral surface, to which a peripheral part of the inner container is attached. Attaching the inner container to the support container in this way is advantageous for the further processing of the packaging container during aseptic packaging, in particular if the top section of the inner container projects above the open top side of the support container, so that this section is easy to remove, as will likewise be explained in more detail below.

[0010] If, once it has been filled, the packaging container according to the invention will also function as a drinking vessel, the inner container is advantageously situated entirely inside the support container and, by means of a peripheral section, is attached to the inside of the support container. After the inner container has been opened and filled, it will be impossible for the user to be hurt by the cut edge of the inner container while he is drinking, since a cut edge of this nature is situated on the inside of the support container.

[0011] This embodiment of the packaging container according to the invention, in which the inner container is situated entirely inside the support container, has the additional advantage that the risk of damage to the inner container, for example during transportation and storage prior to filling, is low since there are no projecting

parts of the inner container. Damage of this nature would affect the sterility of the inner container, which is undesirable. Furthermore, an additional advantage is that this embodiment is easy to stack and therefore to transport.

[0012] Preferably, the inner container is filled with an inert gas or sterilized air while it is being manufactured. Advantageously, the inner container is under excess pressure. This excess pressure provides a simple tool for checking, immediately prior to aseptic packaging, whether the inner container has been damaged during storage and transportation, causing the sterility to be lost.

[0013] Any suitable technique, such as hot-welding or conventional adhesive bonding, can be used to attach the inner container to the outer support container. This partly depends on the materials used for the support container and the inner container. If the product with which the container is to be filled has to be heated in order to be consumed, the packaging material is preferably able to withstand microwave radiation. Preferably, the various components of the packaging container according to the invention are made from plastics material, polyethylene being preferred as the material for the inner container, while (transparent) polyethylene terephthalate is preferred for the outer support container, so that a label or the like can be arranged in the closed chamber which is present between the two containers, on the inside of the outer support container, which label or the like cannot easily be damaged due to its protected position.

[0014] The shape of the support container is not critical, and nor is that of the inner container, provided that they allow a closed chamber to be present between the two containers. This means that every manufacturer of packaged products can select his own shape. Moreover, the shape can be adapted to the packaged product and/or the method of preparation and/or method of consumption. By way of example, for dairy drinks and soups the support container may be provided with a lug. While the shape of the inner container remains constant - in other words if the same blow mould is used for the manufacture of the inner container - various support containers are suitable and can each be manufactured by means of a different production technique. The advantages of this are, inter alia, the considerable freedom to choose both the manufacturing technology and the shape of the support container, also with regard to the production costs.

[0015] The packaging container according to the invention is suitable for many types of products. Specific examples of food products of this nature which may be mentioned are chicken, tomatoes, beans, mushrooms, etc.

[0016] The present invention also relates to a method for the manufacture of a packaging container according to the invention, as defined in claim 13.

[0017] The invention also relates to a method for the aseptic packaging of products in a packaging container according to the invention, which method comprises the following steps, carried out under aseptic conditions:

c) opening the inner container, so that the inner container becomes accessible,
d) filling the inner container with the product, and
e) sealing the inner container using a seal.

[0018] As has been explained above, this packaging method according to the present invention is carried out under aseptic conditions, i.e. there can and must be no contamination to the packaging, in particular the inner container and the product to be packaged, during the opening, filling and sealing. Devices which are suitable for this purpose are available, inter alia, from the present applicant.

[0019] In this method according to the invention, firstly the inner container is opened, preferably by the top section of the inner container being removed, during which process it is ensured that the closed chamber remains intact. In this way, the inner container is made accessible and is then filled with the appropriate product. After the desired quantity has been introduced into the inner container, the top side of the support container and inner container is sealed in a manner which is known per se to those skilled in the art, for example by sealing with a hot-weldable aluminium foil. If desired, a lid, for example a click-on lid, can be placed over this seal, in order to protect the vulnerable seal from damage.

[0020] Preferably, the packaging container according to the invention will undergo a number of preparatory steps, as defined in claim 16, prior to the aseptic filling by the manufacturer. To ensure that the packaging container according to the invention does not contain any contaminants, dust and the like, the outside of the packaging container is preferably cleaned with a sterilizing/disinfecting agent, such as hydrogen peroxide. It is then tested whether the closed inner container has remained leaktight during transportation and/or storage, for example by measuring the pressure in the inner container. If it is found that the excess pressure of the inner container has been lost or is lower than the original pressure applied during blow moulding, the packaging container is unusable and it is removed from the packaging process.

[0021] The removal of the top section of the inner container may be brought about using customary means, such as for example by cutting with a sharp blade.

[0022] It will be understood that the packaging container according to the invention is a product from which an object corresponding to the container in accordance with the above-described Japanese patent application can be manufactured.

[0023] The invention also relates to the use of a closed inner container manufactured from a single piece in the packaging container according to the invention, as defined in claim 19.

[0024] The invention will be explained below with ref-

erence to the appended drawing, in which:

Figures 1-3 show cross sections through various embodiments of a packaging container according to the invention.

[0025] Figure 1 shows a cross section through a first embodiment of a packaging container 1 according to the invention, which comprises an outer support container 2 with an open top side 3, into which an inner container 4, which is closed on all sides and is made from a single piece, has been placed. Using an adhesive bond (not shown), a peripheral part 5 of the inner container 4 is attached to the planar horizontal top edge 6 of the support container 2. Consequently, there is a closed chamber 7, which if desired can be filled with a gas, such as nitrogen or the like, between the support container 2 and the inner container 4. The support container 2 is also provided with a lug 8, making it easier to handle for the final user.

[0026] The closed inner container 4 is made from one piece by means of blow moulding, in which a body in the form of a bag, known as a parison, is blown from a continuous stream of plastics material, the free ends being pressed together and thus sealed at the end of the blowing operation.

[0027] As can be seen clearly from Figure 1, a top section 9 of the inner container 4 projects above the top edge 6 of the support container 2. During the aseptic packaging, this projecting section 9 is cut off along the peripheral edge 5 and 6, so that there remains a good attachment position for a seal which is to be fitted subsequently, after filling, and is not shown in Fig. 1. The cutting points are indicated by arrows A in the figure.

[0028] Fig. 2 shows a second embodiment of a double-walled packaging container according to the invention, the components of which are provided with the same reference numerals as in Fig. 1 + 20. With a view to the ease of stacking and user-friendliness for the final user, the packaging container 21, comprising a support container 22 and inner container 24, does not have any parts which project beyond the contours of the support container 22. The inner container 24 is situated entirely inside the support container 22 and is attached to the inside thereof in the vicinity of the top edge 26. To strengthen the inner container 24, its base 30 is attached to the base 31 of the support container 22 by means of adhesive bonding. A dashed line indicates a seal 32 which, after the top section 29 has been removed and the container has been filled with a product, is used to reclose the packaging container 21. The cutting points are in this case indicated by arrows B.

[0029] Fig. 3 shows a third embodiment of a packaging container according to the invention, the components of which are denoted by the same reference numerals as in Fig. 1 + 40. In addition to the different shape of both the inner container 44 and the support container 42 and the resultant different attachment of a peripheral section 45 to the open top side 43, in this embodiment support means 53 are provided in the chamber 47, for the purpose of supporting the base 50 of the inner container 44, so that the construction is rigid and strong.

Claims

1. Double-walled packaging container (1; 21; 41) for use as packaging in the aseptic packaging of products, in particular products which are susceptible to decay, which packaging container (1; 21; 41) comprises an outer support container (2; 22; 42) with an open top side (3; 23; 43) and an inner container (4; 24; 44) which is closed on all sides and is made from one piece, the inner container (4; 24; 44) being situated at least partially inside the support container (2; 22; 42) and being attached, by means of a peripheral part (5; 25; 45), to the periphery of the open top side (3; 23; 43) of the support container (2; 22; 42), so that there is a chamber (7; 27; 47) which is closed to the environment located between the inside of the support container (2; 22; 42) and the outside of the inner container (4; 24; 44).

2. Packaging container according to claim 1, **characterized in that** the top side of the support container (2) comprises a horizontal peripheral surface (6), to which a peripheral part (5) of the inner container (4) is attached.

3. Packaging container according to one of the preceding claims, **characterized in that** the top section (9) of the inner container (4) projects above the open top side (3) of the support container (2).

4. Packaging container according to claim 1, **characterized in that** the inner container (24) is situated entirely inside the support container (22) and is attached, by means of a peripheral section (25), to the inside of the support container (22).

5. Packaging container according to one of the preceding claims, **characterized in that** the inner container (4; 24; 44) is attached to the outer support container (2; 22; 42) by means of an adhesive bond.

6. Packaging container according to one of the preceding claims, **characterized in that** the packaging container (41) is provided with support means (53) for supporting the inner container (44) in the support container (42).

7. Packaging container according to one of the preceding claims, **characterized in that** the inner container (4; 24; 44) is produced by means of blow-moulding.

8. Packaging container according to one of the preceding claims, **characterized in that** the inner container (4; 24; 44) is filled with an inert gas or sterilized air.

9. Packaging container according to one of the preceding claims, **characterized in that** the inner container (4; 24; 44) is under excess pressure.

10. Packaging container according to one of the preceding claims, **characterized in that** the support container (2; 22; 42) and inner container (4; 24; 44) are made from plastic.

11. Packaging container according to one of the preceding claims, **characterized in that** the support container (2; 22; 42) consists of polyethylene terephthalate.

12. Packaging container according to one of the preceding claims, **characterized in that** the inner container (4; 24; 44) consists of polyethylene.

13. Method for manufacturing a packaging container (1; 21; 41) according to one of the preceding claims, which method comprises the steps of providing an outer support container (2; 22; 42), providing an inner container (4; 24; 44), which is closed on all sides and is made from a single piece, and attaching a peripheral part (5; 25; 45) of the inner container (4; 24; 44) to the entire periphery of the open top side (3; 23; 43) of the support container (2; 22; 42), in such a manner that a closed chamber (7; 27; 47) is formed between the inside of the support container (2; 22; 42) and the outside of the inner container (4; 24; 44).

14. Method for the aseptic filling and packaging of products in a packaging container (1; 21; 41) according to one of the preceding claims 1-12, which method comprises the following steps, which are carried out under aseptic conditions:

    c) opening the inner container (4; 24; 44), so that the inner container (4; 24; 44) becomes accessible,
    d) filling the inner container (4; 24; 44) with the product, and
    e) sealing the inner container (4; 24; 44) using a seal (32).

15. Method according to claim 14, **characterized in that** step c) comprises the removal of the top section (9; 29; 49) of the inner container (4).

16. Method according to claim 14 or 15, **characterized in that** the method comprises the preparatory steps, carried out prior to step c), of

    a) exposing the packaging container (1; 21; 41) to a sterilizing/disinfecting agent, and
    b) checking the leaktightness of the inner container (4; 24; 44).

17. Method according to one of the preceding claims 14-16, **characterized in that** the method comprises the additional step of placing a cover over the seal (32).

18. Method according to one of the preceding claims, **characterized in that** the seal (32) consists of aluminium foil which is hot-welded to the peripheral edge (6; 26; 46) of the top side of the support container (2; 22; 42) and/or the peripheral edge (5; 45) of the inner container (4; 44).

19. Use of a Closed inner container (4; 24; 44) manufactured from one piece in a packaging container (1; 21; 41) according to one of claims 1-12.

20. Use of a Container according to claim 19, **characterized in that** the container (4; 24; 44) is filled with an inert gas or sterilized air.

21. Use of a Container according to claim 19 or 20, **characterized in that** the container (4; 24; 44) is under excess pressure.

Patentansprüche

1. Doppelwandiger Verpackungsbehälter (1; 21; 41) zum Gebrauch als Verpackung beim aseptischen Verpacken von Produkten, insbesondere Produkten, die zersetzungsanfällig sind, wobei der Verpakkungsbehälter (1; 21; 41) einen äußeren Stützbehälter (2; 22; 42) mit einer offenen Oberseite (3; 23; 43) und einen inneren Behälter (4; 24; 44) aufweist, der allseitig geschlossen und aus einem Stück hergestellt ist, wobei sich der innere Behälter (4; 24; 44) zumindest teilweise im Inneren des Stützbehälters (2; 22; 42) befindet und durch ein Umfangsteil (5; 25; 45) am Umfang der offenen Oberseite (3; 23; 43) des Stützbehälters (2; 22; 42) angebracht ist, so daß sich eine Kammer (7, 27; 47), die gegenüber der Umgebung geschlossen ist, zwischen der Innenseite des Stützbehälters (2; 22; 42) und der Außenseite des inneren Behälters (4; 24, 44) befindet.

2. Verpackungsbehälter nach Anspruch 1, **dadurch gekennzeichnet, daß** die Oberseite des Stützbehälters (2) eine horizontale Umfangsoberfläche (6) aufweist, an der ein Umfangsteil (5) des inneren Behälters (4) angebracht ist.

3. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet,**

daß der obere Abschnitt (9) des inneren Behälters (4) über die offene Oberseite (3) des Stützbehälters (2) vorspringt.

4. Verpackungsbehälter nach Anspruch 1, **dadurch gekennzeichnet, daß** sich der innere Behälter (24) vollständig im Inneren des Stützbehälters (22) befindet und durch einen Umfangsabschnitt (25) an der Innenseite des Stützbehälters (22) angebracht ist.

5. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der innere Behälter (4; 24; 44) durch eine Haftverbindung an dem äußeren Stützbehälter (2; 22; 42) angebracht ist.

6. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der Verpackungsbehälter (41) mit einer Stützeinrichtung (53) zum Stützen des inneren Behälters (44) in dem Stützbehälter (42) versehen ist.

7. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der innere Behälter (4; 24; 44) durch Blasformen hergestellt ist.

8. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der innere Behälter (4; 24; 44) mit einem Inertgas oder steriler Luft gefüllt ist.

9. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der innere Behälter (4; 24; 44) unter Überdruck steht.

10. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der Stützbehälter (2; 22; 42) und der innere Behälter (4; 24; 44) aus Kunststoff bestehen.

11. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der Stützbehälter (2; 22; 42) aus Polyethylenterephthalat besteht.

12. Verpackungsbehälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der innere Behälter (4; 24; 44) aus Polyethylen besteht.

13. Verfahren zum Herstellen eines Verpackungsbehälters (1; 21; 41) nach einem der vorhergehenden Ansprüche, wobei das Verfahren die folgenden Schritte aufweist: Vorsehen eines äußeren Stützbehälters (2; 22; 42), Vorsehen eines inneren Behälters (4; 24; 44), der allseitig geschlossen und aus einem einzigen Stück hergestellt ist, und Anbringen eines Umfangsteils (5; 25; 45) des inneren Behälters (4; 24; 44) am gesamten Umfang der offenen Oberseite (3; 23; 43) des Stützbehälters (2; 22; 42) derart, daß eine geschlossene Kammer (7; 27; 47) zwischen der Innenseite des Stützbehälters (2; 22; 42) und der Außenseite des inneren Behälters (4; 24; 44) gebildet wird.

14. Verfahren zum aseptischen Befüllen und Verpakken von Produkten in einem Verpackungsbehälter (1; 21; 41) nach einem der vorhergehenden Ansprüche 1 bis 12, wobei das Verfahren die folgenden Schritte aufweist, die unter aseptischen Bedingungen ausgeführt werden:

c) Öffnen des inneren Behälters (4; 24; 44), so daß der innere Behälter (4; 24; 44) zugänglich wird;
d) Befüllen des inneren Behälters (4; 24; 44) mit dem Produkt, und
e) dichtes Verschließen des inneren Behälters (4; 24; 44) unter Verwendung einer Abdichtung (32).

15. Verfahren nach Anspruch 14, **dadurch gekennzeichnet, daß** Schritt c) das Entfernen des oberen Abschnitts (9; 29; 49) des inneren Behälters (4) aufweist.

16. Verfahren nach Anspruch 14 oder 15, **dadurch gekennzeichnet, daß** das Verfahren die folgenden Vorbereitungsschritte aufweist, die vor Schritt c) ausgeführt werden:

a) der Verpackungsbehälter (1; 21; 41) wird einem Sterilisation-/Desinfektionsmittel ausgesetzt, und
b) die Leckdichtheit des inneren Behälters (4; 24; 44) wird geprüft.

17. Verfahren nach einem der vorhergehenden Ansprüche 14 bis 16, **dadurch gekennzeichnet, daß** das Verfahren den folgenden zusätzlichen Schritt aufweist: Anordnen einer Abdeckung über der Abdichtung (32).

18. Verfahren nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** die Abdichtung (32) aus Aluminiumfolie besteht, die mit dem Umfangsrand (6; 26; 46) der Oberseite des Stützbehälters (2; 22; 42) und/oder dem Umfangsrand (5; 45) des inneren Behälters (4; 44) heißverschweißt ist.

19. Verwendung eines geschlossenen inneren Behälters (4; 24; 44), der aus einem Stück hergestellt ist,

in einem Verpackungsbehälter (1; 21; 41) nach einem der Ansprüche 1 bis 12.

20. Verwendung eines Behälters nach Anspruch 19, **dadurch gekennzeichnet, daß** der Behälter (4; 24; 44) mit einem Inertgas oder steriler Luft gefüllt ist.

21. Verwendung eines Behälters nach Anspruch 19 oder 20, **dadurch gekennzeichnet, daß** der Behälter (4; 24; 44) unter Überdruck steht.

Revendications

1. Récipient d'emballage à double paroi (1 ; 21 ; 41) adapté pour être utilisé en tant qu'emballage dans le conditionnement aseptique de produits, en particulier de produits susceptibles de pourrir, ledit récipient d'emballage (1 ; 21 ; 41) comprenant un récipient externe de support (2 ; 22 ; 42) avec un côté supérieur ouvert (3 ; 23 ; 43) et un récipient interne (4 ; 24 ; 44) qui est fermé de tous les côtés et qui est fait d'une seule pièce, le récipient interne (4 ; 24 ; 44) se trouvant au moins en partie à l'intérieur du récipient de support (2 ; 22 ; 42), et étant fixé, au moyen d'une partie périphérique (5 ; 25 ; 45) à la périphérie du côté supérieur ouvert (3 ; 23 ; 43) du récipient de support (2 ; 22 ; 42) de manière à ce qu'il y ait une chambre (7 ; 27 ; 47) qui soit fermée à l'air ambiant se trouvant entre l'intérieur du récipient de support (2 ; 22 ; 42) et l'extérieur du récipient interne (4 ; 24 ; 44).

2. Récipient d'emballage selon la revendication 1, **caractérisé en ce que** le côté supérieur du récipient de support (2) comprend une surface périphérique horizontale (6), à laquelle est fixée une partie périphérique (5) du récipient interne (4).

3. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** la section supérieure (9) du récipient interne (4) fait saillie au-dessus du côté supérieur ouvert (3) du récipient de support (2).

4. Récipient d'emballage selon la revendication 1, **caractérisé en ce que** le récipient interne (24) se trouve entièrement à l'intérieur du récipient de support (22) et est fixé, au moyen d'une section périphérique (25), à l'intérieur du récipient de support (22).

5. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient interne (4 ; 24 ; 44) est fixé au récipient externe de support (2 ; 22 ; 42) au moyen d'un lien adhésif.

6. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient d'emballage (41) est équipé de moyens de support (53) pour supporter le récipient interne (44) à l'intérieur du récipient de support (42)

7. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient interne (4 ; 24 ; 44) est produit par moulage par soufflage.

8. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient interne (4 ; 24 ; 44) est rempli d'un gaz inerte ou d'air stérilisé.

9. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient interne (4 ; 24 ; 44) se trouve sous surpression.

10. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient de support (2 ; 22 ; 42) et le récipient interne (4 ; 24 ; 44) sont en plastique.

11. Récipient d'emballage selon l'une des revendications précédentes, **caractérisé en ce que** le récipient de support (2 ; 22 ; 42) est fait de polyéthylènetéréphtalate.

12. Récipient d'emballage selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le récipient interne (4 ; 24 ; 44) est fait de polyéthylène.

13. Procédé de fabrication d'un récipient d'emballage (1 ; 21 ; 41) selon l'une des revendications précédentes, le procédé comprenant les étapes consistant à réaliser un récipient externe de support (2 ; 22 ; 42), à réaliser un récipient interne (4 ; 24 ; 44), qui est fermé de tous les côtés et qui est fait d'une seule pièce, et à fixer une partie périphérique (5 ; 25 ; 45) du récipient interne (4 ; 24 ; 44) à toute la périphérie du côté supérieur ouvert (3 ; 23 ; 43) du récipient de support (2 ; 22 ; 42), de sorte à former une chambre fermée (7 ; 27 ; 47) entre l'intérieur du récipient de support (2 ; 22 ; 42) et l'extérieur du récipient interne (4 ; 24 ; 44).

14. Procédé pour le remplissage et le conditionnement aseptique de produits dans un récipient d'emballage (1 ; 21 ; 41) selon l'une des revendications précédentes 1 à 12, le procédé comprenant les étapes suivantes, qui sont exécutées dans des conditions d'asepsie, les étapes consistant à :

c) ouvrir le récipient interne (4 ; 24 ; 44), de manière à ce que le récipient interne (4 ; 24 ; 44)

devienne accessible,
d) remplir le récipient interne (4 ; 24 ; 44) de produit, et
e) sceller le récipient interne (4 ; 24 ; 44) au moyen d'un dispositif d'étanchéité (32).

15. Procédé selon la revendication 14, **caractérisé en ce que** l'étape c) comprend le retrait de la section supérieure (9 ; 29 ; 49) du récipient interne (4).

16. Procédé selon la revendication 14 ou 15, **caractérisé en ce que** le procédé comprend les étapes préparatoires, exécutées avant l'étape c), ces étapes consistant à

a) exposer le récipient d'emballage (1 ; 21 ; 41) à un agent stérilisant/ désinfectant, et
b) vérifier l'étanchéité du récipient interne (4 ; 24 ; 44).

17. Procédé selon l'une quelconque des revendications précédentes 14 à 16, **caractérisé en ce que** le procédé comprend l'étape supplémentaire consistant à placer un couvercle sur le dispositif d'étanchéité (32).

18. Procédé selon l'une des revendications précédentes, **caractérisé en ce que** le dispositif d'étanchéité (32) est fait de papier aluminium qui est soudé à chaud à l'extrémité périphérique (6 ; 26 ; 46) du côté supérieur du récipient de support (2 ; 22 ; 42) et/ou à l'extrémité périphérique (5 ; 45) du récipient interne (4 ; 44).

19. Utilisation d'un récipient interne fermé (4 ; 24 ; 44) fabriqué d'une seule pièce dans un récipient d'emballage (1 ; 21 ; 41) selon l'une quelconque des revendications 1 à 12.

20. Utilisation d'un récipient selon la revendication 19, **caractérisé en ce que** le récipient (4 ; 24 ; 44) est rempli d'un gaz inerte ou d'air stérilisé.

21. Utilisation d'un récipient selon la revendication 19 ou 20, **caractérisé en ce que** le récipient (4 ; 24 ; 44) est sous surpression.

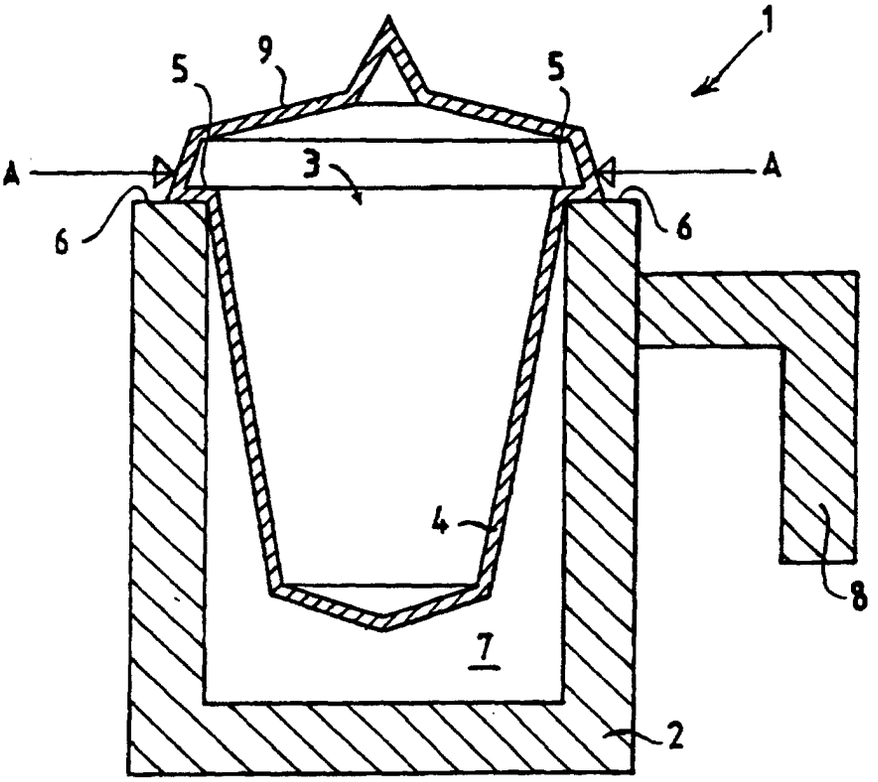

Fig. 1.

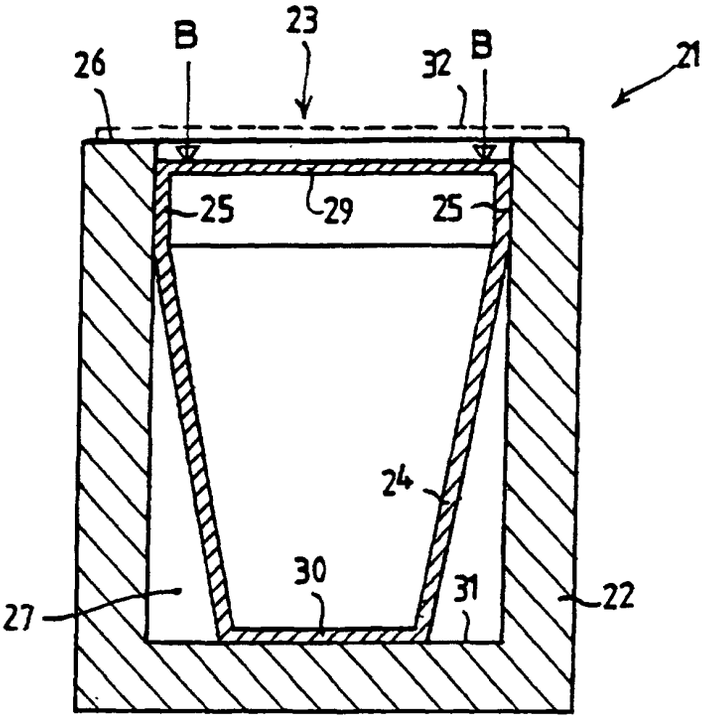
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Fig. 2.

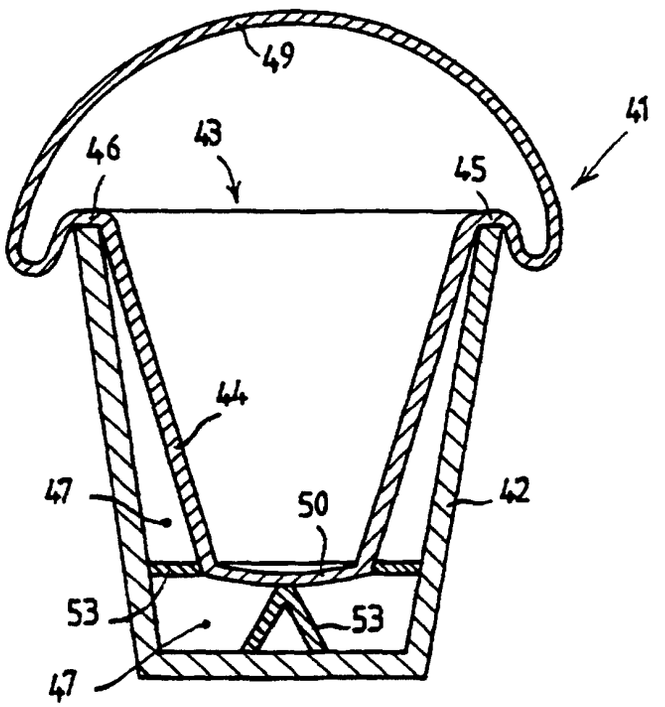
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Fig. 3.