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(54) **FOOD PRODUCT PACKAGING**

LEBENSMITTELBEHÄLTER

EMBALLAGE DE PRODUITS ALIMENTAIRES

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EP 1 456 100 B1

Description

[0001] This invention relates to packaging for food products including both savoury and sweet products which are typically dispensed at the point of sale or use as a slice or segment of a larger whole. Such products may be oven-baked in the manufacturing process and may be intended for re-heating before being consumed.

[0002] Savoury products such as pies, pizzas and quiches and confection products such as gateaux are generally prepared as circular or rectangular products and are traditionally dispensed at the point of sale as slices or segments cut from the whole. However, such products, especially gateaux which comprise layers of cream and layers of other materials including sponge, meringue, biscuit and flavoured fillings may be dimensionally unstable and tend not only to look messy when served to the customer but also to be wasteful in the cutting process and the transfer of the slice or segment to the plate. Indeed, largely for this reason, but also because visual deterioration of the product on display rapidly occurs, such products tend not to be sold in portion form in retail outlets for the customer to take away, sales of such products being conventionally largely confined to restaurants and other outlets where the customer consumes the product at the point of sale. Even in such establishments, however, the cutting and serving of such products involve problems with staff using incorrect knives, serving portions of inconsistent size, especially after being defrosted if initially frozen, in which case the product tends to collapse or, if pre-cut by the manufacturer, the products tend to be weakened by the pre-cutting process and, in order to withstand abuse during handling and transportation, are frequently made in such a way that they are dry and over-engineered. Additionally, food products that are not correctly refrigerated or stored are susceptible to bacterial growth as they are not protected against risks from cross-contamination of bacteria, odours and the like, all of which reduce shelf life and cause a hygiene risk.

[0003] FR-A-840045 which discloses the packaging for a sub-divided product of the preamble of claim 1, describes wrapping especially for blue cheese in portions, each portion being separately wrapped and hermetically sealed in a transparent film, the portions being retained in a juxtaposed disposition to reconstitute the cheese in its original form.

[0004] It is an object of the present invention to provide packaging for a food product and which avoids the problems as outlined above.

[0005] In one aspect, the present invention provides packaging for a sub-divided food product in separate containers, characterised in that each product container is defined by and consists essentially of an upstanding endless wall element, and in that a common outer retaining means maintains the containers as a close-packed array.

[0006] In use of the invention, each individual product container contains a portion of the food product, the portion being of pre-determined and uniform size. The product container can readily be removed from around the product portion with minimum spoilage and wastage for serving to a customer in a restaurant or, where the sale has taken place for example in a supermarket for consumption away from the point of sale, the product either having been frozen or sold chilled or at room temperature, the product container can be removed at the time of consumption.

[0007] Preferably, the array of containers constitutes a circular ring or shallow cylinder and the individual containers comprise sectors of a circle although, in another embodiment, the array may be rectangular and the containers may define individual slices. Within the overall shape of the array, for example circular or rectangular, the individual product containers could be triangular, rhomboidal, crescent-shaped or other shape or combination of shapes which, when in a mutually packed array, make up the shape of the whole.

[0008] Optionally, the packaging includes a unitary, for example circular, base with an upstanding rim or flange and, as a further option, an appropriately-shaped lid again with a flange which, however, is downwardly-depending.

[0009] The outer retaining means preferably extends the full height of the product containers so that, in use, it is engaged by the rim or flange of the base and/or lid, if present. If the array is circular, the retaining means comprises an annular collar whereas as, if the array is rectangular, the retaining means would itself be rectangular.

[0010] Each product container is preferably formed from a rectangular strip of plastics material, preferably polyvinyl chloride, formed to the appropriate shape by creasing at the edges, the free ends being joined together for example by spot-welding, by the use of suitable adhesives, interlocking tabs or by other means whereby the product may readily be removed or "popped" from the container for consumption by breaking the join.

[0011] By use of the invention, cutting of the food product is not required and each portion, for example of a wedge shape, is of uniform and intended size without wastage and can be removed when frozen so as to stagger shelf life and minimise further waste. Liquid sauces or soft mixtures may be applied to the top of the product so that, once popped from the container, the sauce forms a coulis which enrobes the product and gives the appearance of the product having been freshly made, since the sauce would be flowing from the top and down the sides of the product to give a home-made appearance. Hygiene is enhanced in that the product is encased in the container until it is dispensed for use and can thus be handled without risk of cross-contamination during transportation or at the point of service. Furthermore, the packaging retards bacterial and microbiological growth and, since airflow is restricted, the risk of cross-contamination is reduced. Individual product portions in a container have greatly increased strength for transportation and storage purposes irrespective of whether the product is

in the fresh or frozen state. The presence of the lid will also enhance hygiene and will also reduce freezer burn and thus avoid the need to place the food product in a plastic bag, which is the conventional method to avoid freezer burn but tends to damage any decoration on the product, or at least to cause food components to adhere to the bag and thus to create wastage. The lid in conjunction with the product container effectively cocoons the product and prevents transportation/storage damage even to fragile decoration.

[0012] The invention also includes, in another aspect, a packaging containing a packaged sub-divided food product, the product being segmented and each segment being contained in a product container defined by and consisting essentially of an upstanding endless wall element, the segments thus contained being maintained as a close-packed array by a common outer retaining means.

[0013] In use, individual containers may be filled with food product in various ways. For example and according to one method, a whole product may be initially prepared on a base with an upstanding peripheral rim or flange and an array of product containers may be urged downwardly from above whereby the walls of the containers cut through the product until, with the lower edges of the product containers in contact with the base, each container has therein a portion of product for subsequent transportation and storage as part of the array, with an outer retaining means holding the array of containers together until individual product portions are required for sale. In another method, an array of containers may be provided in mutually-packed relationship on a base and previously-segmented solid, for example sponge, product ingredients can be added to each container with cream or other semi-solid product ingredient being added to each container through suitable dispensing means. Any dry ingredients, for example in powder or flake form, can also be added via suitable dispensing means. Whichever method is used, a lid may then be added over the entire array for transportation and storage, whether the product is to be frozen or is to be maintained fresh.

[0014] Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, of which:

Figure 1 is an exploded view of packaging according to the invention; and

Figure 2 is a perspective view of an individual segment of the packaging, filled with a gateaux product.

[0015] With reference firstly to Figure 1, the packaging, shown generally at 10, includes sixteen segments 11 which, in a mutually-packed array, constitute a cylindrical configuration. Each segment is formed from semi-rigid PVC of thickness 200 microns, as shown more clearly with reference to Figure 2, and the array has a PVC base 12 having a peripheral upstanding rim 13 and a similarly-dimensioned PVC lid 14. The segments are maintained in a packed array to annular collar 15 which surrounds the segments, the upper and lower edges being within the rim of the lid and base, respectively. When the segments are intended to cut through a pre-formed product to form individual portions, the PVC should be thicker and heavier-duty, for example 400-500 microns or, especially where the packaged product is intended to be baked or re-heated before consumption, the segments may be formed from a heat-resistant plastics material such as partially crystallised polyethylene terephthalate (CPET), optionally with an amorphous outer layer to enhance the sealing properties and provide a glossy finish.

[0016] With reference to Figure 2, a segment 11 has straight side walls 16 a rear wall 17 and contains a layered gateaux product 18 with a cream and fruit or sauce surface and decoration 19. The container is formed from a strip of PVC material suitably configured by creasing, the end regions being spot-welded at 20 and one end forming a tab 21 to enable the container to be removed from the gateaux product. As can clearly be seen from Figure 2, the wall of the container is sufficiently deep to accommodate the surface decoration on the gateaux product without damage being occasioned thereto on application of the lid.

[0017] The array of segments is held together by a outer annular collar of substantially the same depth as the containers, whereby the lower edge of the collar is located within the upstanding rim 13 of the base and the upper edge of the collar is located within the depending rim of the lid.

[0018] Product may be provided in the containers by various methods according to the nature of the product.

[0019] The following method is given by way of example, where the product has a denser layer at the bottom and a softer layer at the top and would be sold as a shallow tart like product such as a flan, cheesecake, open-top pie, open cake, quiche or pizza. The array of containers is used as a cutter for the pre-formed whole product although optionally a liquid or a semi liquid mixture may be deposited above into the individual containers, the mixture setting after a period of time.

[0020] In more detail, especially for a confection product, a slice of sponge is placed on a substrate and the array of containers as a whole is placed on top of the sponge. Pressure is applied to the top of the array, whereby the array acts as a guillotine, segmenting and depositing a triangle of sponge in each container, creating a lock for enhancing stability. As an alternative, a soft biscuit-like product (for example digestive biscuit crumb mixed with butter which is normally used for a cheesecake base, the material being pliable enough when the butter is warm, but hardening in the container, creating a solid base) may be used. Cream, fillings, dry ingredients and so on, such as meringue, are deposited in each segment on the base, thus creating outward pressure on each wall, thereby increasing the overall strength of the product and pressuring the segments maintaining an

equal overall shape and structure. A slice of sponge is then placed on top of the array and pressure is applied to the sponge, creating a reverse guillotine action whereby triangles of sponge are deposited in each container. The exercise can be repeated to create further layers. A liquid sauce or fruit in a viscous state can then be deposited to create a seal, thus protecting the product with a more dense and seamless flush surface and offering a moist enrobing advantage when serving.

[0021] Alternatively, a decoration of cream may be deposited simultaneously to act as an anchor for a fragile or visually delicate decoration that is protected by the outer walls of the segment. The packaging offers a major advantage in commercially producing product that is fragile, that is, breakable, brittle or otherwise structurally intrinsically weak or dimensionally unstable. Such products have hitherto not been achieved in a packaged and protected environment.

[0022] As a further alternative, the product could be manufactured without decoration or soft sauce. When serving the product, it could be turned upside down thus reversing the product and creating in effect an 'upside down cake' thus offering another benefit.

[0023] For a savoury product such as a pizza, the product may be prepared, either in the cooked or uncooked state, on a circular base and an array of product containers, each in the form of a sector of a circle and the array constituting a whole circular shape, is placed on the upper surface of the product and urged downwardly, downward pressure being exerted by a circular disk or pressure plate acting against the upper edges of the containers. The radial portion walls thus cut through the product to create individual product portions each contained in a discrete sector-shaped container, the arcuate outer wall corresponding with and bounding the arcuate periphery of the product. If the containers are formed from CPET, the product can subsequently be baked by the manufacturer, by the retailer or by the customer at home. Individual portions can be baked as and when required, leaving the remainder of the portions in the frozen or fresh condition for subsequent baking. If it is desired to dispense or consume the product cold, it can be left to cool down in the container, the container acting to prevent the product drying at the edge regions.

[0024] For food products such as savoury or sweet pies, a pre-formed circular disk or layer of rolled-out pastry may be placed over the array of containers and urged downwardly using a pressure plate having depending therefrom an array of dies which correspond with and are complementary to the product containers in the array but are slightly undersized in relation thereto, whereby the individual dies urge a portion of the pastry downwardly into each container to occupy the base area thereof and to extend upwardly at the side regions. The pie filling material can then be applied to each individual container and, if necessary according to whether the pie is intended to be open or closed, a further thinly rolled layer of pastry can be applied from above and urged into each container, the walls thereof acting to cut the pastry into the appropriately-shaped segments, to form individual pie portions in each container, each pie portion having a pastry wall around all sides, whereby the filling does not leak from the pie once the container has been removed for dispensing purposes.

[0025] In the case of pre-prepared meals such as lasagnes and cottage pies, which have little or no intrinsic shape-stability, the containers act as separators to hold and maintain the shape of individual product portions. The array of containers can either be used to cut the product, before baking, into individually-sized portions or ingredients can be deposited from above into the array of containers which can then be individually handled and reheated for consumption, removal of the container being carried out with the heated product on the serving plate, so as not to disturb the appearance of the product as typically happens when such products have to be scooped from conventional containers.

[0026] Savoury starters or buffet savouries may also be prepared in containers according to the invention and again are capable of being stored either in the fresh, chilled or frozen state and dispensed onto a serving plate at the time of consumption with no or minimum disturbance to the appearance thereof.

Claims

1. Packaging for a sub-divided food product in separate containers (10) comprising a common outer retaining means (15) to maintain the containers as a close-packed array; **characterised in that** each product container (11) is defined by and consists essentially of an upstanding endless wall element.

2. Packaging according to claim 1, in which the array of containers (11) constitutes a circular ring or shallow cylinder and the individual containers comprise sectors of a circle.

3. Packaging according to claim 1, in which the array is rectangular and the containers (11) define individual slices.

4. Packaging according to any preceding claim, in which the packaging (10) includes a unitary base (12) with an upstanding rim or flange (13).

5. Packaging according to any preceding claim, in which the packaging includes a lid (14) with a downwardly-depending flange.

6. Packaging according to any preceding claim and formed from a plastics material comprising PVC or CPET, optionally with an amorphous outer layer.

7. Packaging according to any preceding claim, in

which each product container (11) is formed from a rectangular strip (16, 17) of plastics material, formed to the appropriate shape by creasing, the free ends being releasably joined together (20), whereby the product may readily be removed from the container for consumption by breaking the join.

8. Packaging according to any preceding claim, containing a sub-divided food product, the product being segmented, each segment (18) being contained in a product container (11) defined by and consisting essentially of an upstanding endless wall element, the segments thus contained being maintained as a close-packed array by a common outer retaining means.

9. Packaging according to claim 8, in which the food product (18) is fragile, in that it is breakable, brittle or otherwise structurally intrinsically weak or dimensionally unstable.

10. A method of preparing and packaging a food product to provide packaging according to claim 8 or claim 9, **characterised in that** the method comprises preparing a food product on a base and urging an array of product containers (11) each consisting essentially of an upstanding endless wall element downwardly from above such that the walls of the containers cut through the product whereby, with the lower edges of the product containers in contact with the base, each container (11) has therein a portion of product for subsequent transportation and storage as part of the array, a common outer retaining means (15) holding the array of containers together in a close-packed array.

11. A method according to claim 10, further including placing a slice of solid food product over the array and applying pressure thereto, creating a reverse guillotine action whereby segments of solid food product are deposited in each container and adding a liquid sauce or fruit in a viscous state to create a seal.

Patentansprüche

1. Verpackung für ein aufgeteiltes Lebensmittelprodukt in einem unterteilten Behälter (10), mit einem allgemein bekannten äußeren Mittel (15) zur Aufbewahrung, das aus einzelnen Produktbehältern zu einer geschlossenen Behälteranordnung zusammengehalten ist, **dadurch gekennzeichnet, dass** jeder einzelne Produktbehälter (11) abgegrenzt und definiert ist und im Wesentlichen aus einem aufrecht stehenden endlosen Wandelement besteht.

2. Verpackung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Anordnung der einzelnen Produktbehälter (11) einen kreisförmigen Ring oder flachen Zylinder bildet und die einzelnen Produktbehälter die Sektoren eines Kreises umfassen.

3. Verpackung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Anordnung rechtwinklig ist und durch die einzelnen Produktbehälter (11) einzelne Stücke voneinander abgegrenzt sind.

4. Verpackung nach einem vorangehenden Anspruch, **dadurch gekennzeichnet, dass** die Verpackung (10) eine gemeinsame Bodenplatte (12) mit einem aufrecht stehenden Rand oder einer Bördelung (13) umfasst.

5. Verpackung nach einem vorangehenden Anspruch, **dadurch gekennzeichnet, dass** der unterteilte Behälter (10) einen Deckel (14) mit einer abwärts gerichteten Bördelung umfasst.

6. Verpackungsbehälter nach einem vorangehenden Anspruch, ausgebildet aus einem Plastikmaterial, beispielsweise aus PVC oder CPET bestehend, das optional mit einer nicht kristallinen äußeren Beschichtung versehen ist.

7. Verpackung nach einem vorangehenden Anspruch, **dadurch gekennzeichnet, dass** jeder einzelne Produktbehälter (11) aus einem rechteckigen Streifen (16, 17) aus einem Plastikmaterial besteht, der eine geeignete, durch Faltungen bildete Form aufweist, deren freien Enden (20) lösbar zusammen gefügt sind, wobei das Lebensmittel zum Verzehr dem einzelnen Produktbehälter unter Auslösung der Verbindung leicht entnommen werden kann.

8. Verpackungsbehälter nach einem vorangehenden Anspruch, zur Aufnahme von vorher unterteilten Lebensmittelprodukten, die Produkte segmentiert sind, jedes Segment (18) einzeln in einem Produktbehälter (11) beinhaltet ist, der einzelne Produktbehälter ein definiertes, im Wesentlichen ein aufrecht stehendes endloses Wandelement umfasst, und die so verpackten Segmente mit allgemein bekannten äußeren Mitteln zu einer geschlossenen Anordnung zusammengehalten sind.

9. Verpackungsbehälter nach Anspruch 8, **dadurch gekennzeichnet, dass** das Lebensmittel fragil ist, nämlich in dem es zerbrechlich, brüchig, weich oder in einer anderen strukturellen Weise in seiner Form instabil ist.

10. Ein Verfahren zum Herstellen und Verpacken eines Lebensmittelproduktes durch Bereitstellen einer Verpackung nach Anspruch 8 oder Anspruch 9, **dadurch gekennzeichnet, dass** das Verfahren die

Bereitstellung eines Lebensmittelproduktes auf einer Basisplatte umfasst, die mit einer Anordnung von einzelnen Produktbehältern (11) besteht, von denen jeder im Wesentlichen aus einem aufrecht stehenden endlosen Wandelement besteht, das abwärts treibbar ist, so dass die Seitenwände des Produktbehälters durch das Produkt schneiden, wobei die unteren Enden des Produktbehälters in Kontakt mit der Basis treten, wobei jeder einzelne Produktbehälter (11) eine Portion des Produktes zum abschließenden Transport und zur Lagerung in einem Teil der Anordnung beinhaltet, mit allgemein bekannten äußeren Mitteln (15) zur Aufbewahrung, die die Anordnung der Behälter in einer geschlossenen Verpackungsanordnung zusammenhalten.

11. Verfahren nach Anspruch 10, weiterhin umfassend die Aufnahme von Stücken eines haltbaren Lebensmittelproduktes in der Anordnung, durch Aufbau eines Drukkes zur Bildung eines reversierbaren Schneidvorganges, wobei je ein Segment des haltbaren Lebensmittelproduktes und eine flüssige Soße oder Frucht, die in einem viskosen Stadium eine Versiegelung bilden, in jedem Behälter beinhaltet sind.

Revendications

1. Conditionnement pour produit alimentaire subdivisé dans des récipients séparés (10), comprenant un dispositif commun (15) de retenue externe destiné à maintenir les récipients sous forme d'un arrangement regroupé, **caractérisé en ce que** chaque récipient de produit (11) est délimité par un élément à paroi sans fin qui remonte et est essentiellement constitué par cet élément.

2. Conditionnement selon la revendication 1, dans lequel l'arrangement de récipients (11) constitue un anneau circulaire ou un cylindre peu profond, et les récipients individuels constituent des secteurs d'un cercle.

3. Conditionnement selon la revendication 1, dans lequel l'arrangement est rectangulaire et les récipients (11) délimitent des tranches individuelles.

4. Conditionnement selon l'une quelconque des revendications précédentes, dans lequel le conditionnement (10) comporte une base unitaire (12) ayant un rebord ou flasque qui remonte (13).

5. Conditionnement selon l'une quelconque des revendications précédentes, dans lequel le conditionnement comprend un couvercle (14) ayant un flasque qui dépasse vers le bas.

6. Conditionnement selon l'une quelconque des revendications précédentes, formé d'une matière plastique comprenant du PVC ou CPET, éventuellement avec une couche externe amorphe.

7. Conditionnement selon l'une quelconque des revendications précédentes, dans lequel chaque récipient de produit (11) est formé à partir d'une bande rectangulaire (16, 17) de matière plastique mise à la forme convenable par plissage, les extrémités libres étant raccordées mutuellement (20) de façon amovible, de sorte que le produit peut être facilement retiré du récipient pour être consommé par rupture du raccord.

8. Conditionnement selon l'une quelconque des revendications précédentes, contenant un produit alimentaire subdivisé, le produit étant segmenté, chaque segment (18) étant contenu dans un récipient de produit (11) délimité par un élément à paroi sans fin qui remonte et étant constitué essentiellement de cet élément, les segments ainsi contenus étant maintenus sous forme d'un arrangement regroupé par un dispositif externe commun de retenue.

9. Conditionnement selon la revendication 8, dans lequel le produit alimentaire (18) est fragile, et tel qu'il est cassable, friable ou à structure intrinsèquement peu résistante ou dimensionnellement instable d'une autre manière.

10. Procédé de préparation et de conditionnement d'un produit alimentaire pour la formation d'un conditionnement selon la revendication 8 ou 9, **caractérisé en ce que** le procédé comprend la préparation d'un produit alimentaire sur une base et la poussée d'un arrangement de récipients de produits (11), constitués chacun essentiellement d'un élément à paroi sans fin qui remonte, vers le bas depuis le haut afin que les parois des récipients coupent le produit de sorte que, avec les bords inférieurs des récipients de produit au contact de la base, chaque récipient (11) comporte à l'intérieur une partie du produit en vue de son transport et de son stockage ultérieur sous forme d'une partie de l'arrangement, un dispositif externe commun de retenue (15) maintenant l'arrangement de récipients en coopération sous forme d'un arrangement regroupé.

11. Procédé selon la revendication 10, comprenant en outre la disposition d'une tranche d'un produit alimentaire solide sur l'arrangement et l'application d'une pression sur lui, avec création d'un effet de guillotine inverse de sorte que des segments du produit alimentaire solide sont déposés dans chaque récipient, et l'addition d'une sauce liquide ou de fruits à l'état visqueux pour la création d'un joint d'étanchéité.

FIG 1

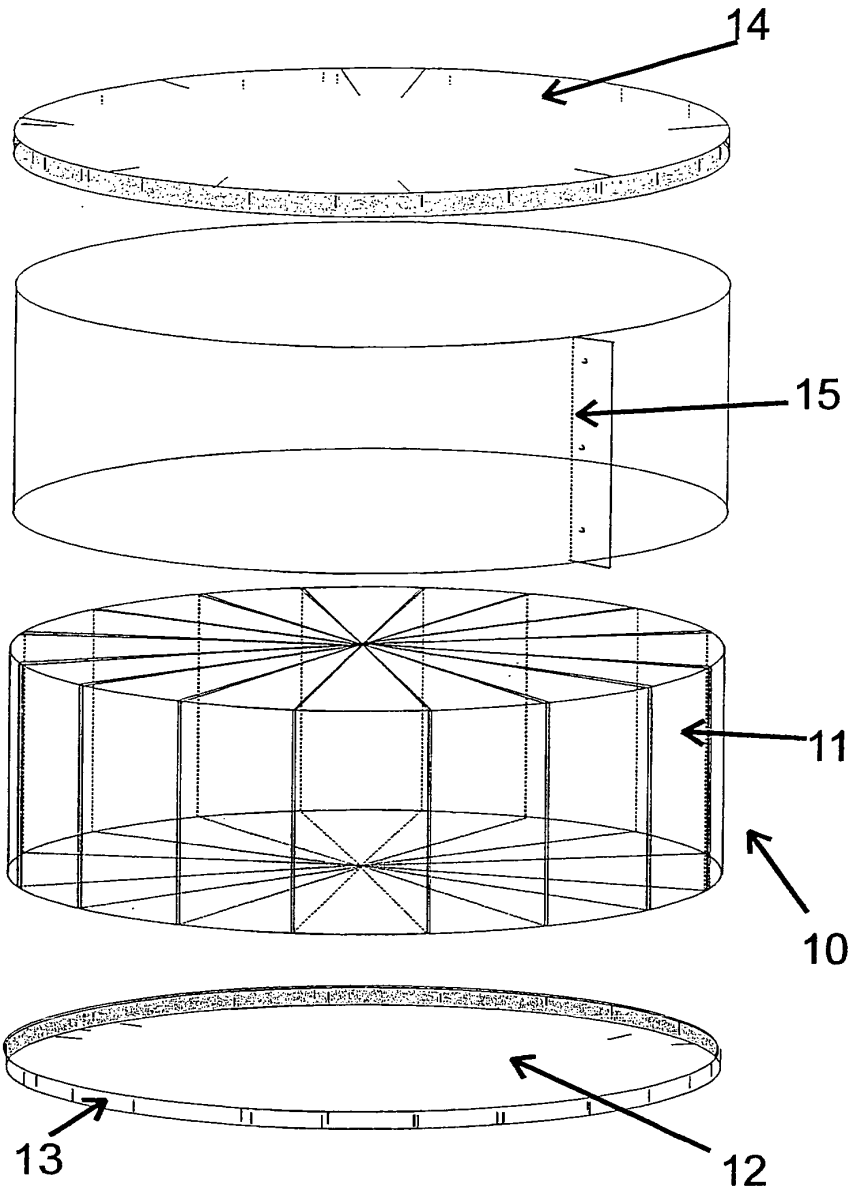


FIG 2

