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Verpackungseinsatz

Insert d'emballage

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Description

Field of the Invention

[0001] The present invention concerns a packing insert for secure packing of ice cones, the insert including shaped cavities, each adapted for receiving stacked ice cones.

Background of the Invention

[0002] Baked ice cones, e.g. in the form of circular flat wafers which are rolled into cones, are very difficult to package in a way such that the baked, crisp ice cones do not break and at the same time maintain their tasty, crispy character.

[0003] Very voluminous, space-consuming and relatively expensive packing inserts have hitherto been used, as described in DK 158296 B. By this invention, the cone stacks are placed in a support trough in a shaped body which includes upright parts by which superposed packings can be placed in a way that protects the cones. The material used for forming the packing inserts is a stiff lightweight material, like foamed polystyrene. This production method implies formation and emission to the atmosphere of much CO₂ why this production method is detrimental to the environment. Furthermore, disposal of packing items of polystyrene entail a serious environmental impact as well.

[0004] CA 1 142 897 A discloses a package for ice cream cones or similar articles of a fragile nature and like configuration in which the articles are disposed, in stacked and telescoped relation in an insert, formed of paperboard or similar material, which, when set up in the form of a tray to receive the cones, is adapted to be enclosed in an outer carton, and which includes spaced cross panel members for engaging the cones so as to form a cushioned restraint against axial movement and minimize the risk of breakage during handling of the package.

[0005] EP0 307 053 A2 discloses a shipping and sales packing for piled waffle cornets according to which it is customary that piled together waffle cornets are packed in rectangular cartons, which offer only moderate protection of the cornets. According to the invention the cornet piles are placed in a support groove in a block member of a stiff lightweight material, this block member having upstanding positions capable for supporting an overlying packing to thereby protect the cornet pile. The bottom of the block member is provided with through holes, which serve as ventilation holes for cooling of the hot waffle cornets received from a baking machine and also as carrier holes for supporting cornets in upright serving positions when the block member is turned upside-down into an inverted position in which it stand on the top ends of the formerly upstanding parts.

Object of the Invention

[0006] On this background, the invention has the purpose of indicating a new and improved packing insert for use in secure packing of baked, crisp ice cones.

[0007] A further object of the invention is to provide an insert which is an environmental product consisting of decomposable natural products.

10 Description of the Invention

[0008] This object is achieved by a packing insert for secure packing of ice cones, the insert including shaped cavities, each adapted for receiving stacked ice cones, wherein the insert is designed as a stackable shell, and where the insert consists of decomposable natural fibres.

[0009] The shaped cavities are formed in such a way that the stacked ice cones are supported along the part of the cone which is in contact with the cavity. In practice this means that the width of the cavity is adapted to the diameter at the top of the ice cones to be supported. It is hereby achieved that the mobility of the cones during transport and handling is reduced and fewer cones are destroyed. The wastage rate of the cones is reduced thereby.

[0010] In order to achieve optimal support for all types of cones, the shaped cavities will therefore vary in size, depending on the cone size they are intended for. This means that if the cone is large, the shaped cavity will also be large, but if the cone is small, the shaped cavity will be correspondingly small.

[0011] The insert is designed as a shell consisting of decomposable natural fibres. The decomposable natural fibres will be processed into a kind of paper pulp with a given thickness. Use of the decomposable natural fibres means that the insert can be reduced to vegetable mould. The insert therefore does not contain any artificial substances that are to be disposed in a special way, providing the insert as an environmentally friendly item.

[0012] "Paper" in this application is to be understood as a mass achieved by processing the decomposable natural fibres.

[0013] By "cones" and "ice cones" in the application is meant approximately conical cones in which ice can be placed.

[0014] Moreover, the use of decomposable natural fibres means that a CO₂-neutral product is achieved, making the insert further environmentally friendly.

[0015] The paper thickness of the shell is preferably 200-320 g/m², more preferred 230-290 g/m², most preferred 260 g/m².

[0016] The insert is made by compression moulding of the paper material for achieving the desired shell shape. Shell shape in this regard is to be understood such that the paper material is formed into a shell where elevations at the front side of the insert will entail depressions/hollows at the back side, and vice versa. By the front side of the insert is meant the side where the cones are ar-

ranged for packing whereas the back side will be the opposite side.

[0017] In an embodiment, the thickness of the paper for the insert will be approximately uniform for the entire insert.

[0018] Making of the paper pulp and compression moulding thereof can be effected by techniques known by the skilled in the art.

[0019] The design of the insert with several cavities entail that in spite of the choice of material there is achieved a rigidity of the material, including rigidity against twisting, such that the insert is not deformed during transport and handling and thereby continuously protects the ice cones.

[0020] Moreover, the shell will be designed in such a way that the inserts can be stacked as the compression moulding entails that elevations at the front side will result in hollows at the back side. This means that elevations from a first insert will fit into hollows on another insert, and vice versa. This causes that each insert during stacking will only fill a volume corresponding to the thickness of the paper. The shell is therefore very space-saving, in particular with regard to storage of unused inserts.

[0021] In a further embodiment, the decomposable natural fibres are straw, sugar cane fibres, rice husks, reeds, or a mixture of one or more thereof.

[0022] Material from straw, sugar cane fibres, rice husks and reeds can easily be suspended in water for achieving a paper-like pulp which can be used for compression moulding of the insert.

[0023] Furthermore, the above materials are cheap and easy to procure.

[0024] The straw can e.g. be straw from durum wheat, wheat, rye, barley and/or from oats. Straw from other cereals can be used as well.

[0025] In an embodiment, the straw is a mixture of straw from one or more cereals.

[0026] In a further embodiment, the decomposable natural fibres are 100% biologically decomposable. By this is meant that all components in the insert are biologically decomposable. The insert therefore does not contain e.g. additives which are not biologically decomposable. This has great significance to the decomposition of the insert as now it can be decomposed completely, for example in the nature or at disposal sites.

[0027] In a further embodiment, there is a residual humidity in the insert which is about the same as a residual humidity in the ice cones.

[0028] Hereby is achieved that no moisture is exchanged between the insert and the ice cones placed in the insert.

[0029] If the residual humidity is higher in the insert than in the ice cones, moisture will be transported from the insert to the cones for equalising the difference due to the contact between the cones and the insert. The humidity of the cones will rise hereby, and the cones become soft. The quality of the crisp cones thus cannot be maintained.

[0030] If the residual humidity is higher in the cones than in the insert, moisture will be transported from the cones to the insert for equalising the difference in humidity. The humidity of the cones will drop hereby, and the cones will crack. The cones will therefore be destroyed.

[0031] Use of a material in the form of decomposable natural fibres shaped into paper will enable controlling of the residual humidity of the paper as the drying process during the compression moulding can be adapted such that a given residual humidity is attained.

[0032] By residual humidity is meant the amount of liquid left in the end product.

[0033] In an embodiment, there is a residual humidity in the insert of 0.01-5%. The residual humidity in the insert is preferably 0.01-5%, including residual moisture in the insert being 0.1 %- 1%, including in particular residual moisture in the insert of about 0.5%. Hereby is achieved approximately the same residual humidity in the insert as in the ice cones, providing that no moisture is exchanged between the insert and the ice cones placed in the insert.

[0034] In a further embodiment, the shaped cavities are arranged in parallel with each other. Hereby, utilisation of the insert is optimised for packing as many cones as possible per insert.

[0035] In a further embodiment, the cavities include an upright support part at at least one end.

[0036] The upright support part means that several inserts filled with cones can be stacked upon each other without destroying the cones. This is achieved in that during stacking, the projecting support part will provide spacing between a first insert with the projecting support part and a second insert which is superposed the first insert, as the upright support part supports the back side of the second insert. Spacing is thereby created between the first and second insert whereby the cones do not come into contact with the second insert.

[0037] In a further embodiment, the projecting support part is designed with a support face and a depression adapted in shape in continuation of the shaped cavity.

[0038] The shaped depression is adapted to the outermost cone in the stack why the entire cone is outermost and is to be supported. This means that the adaptation in shape will consist of a narrowing from the diameter corresponding to the top of the ice cone to the tip of the ice cone (the pointed end).

[0039] The support face of the support part on the first insert bears on the back side of the second insert. This part of the insert will be elevated relative to the part of the support part which includes the shaped depression. Hereby is achieved spacing from the outermost cone in the first insert to the back side of the second insert.

[0040] In a first embodiment, the part of the support part including the shaped depression is at the same level as the shaped cavity. Hereby is achieved that the stacked cones lie at the same level. It is hereby prevented that the cones in the stack are twisted within themselves such that the cones more easily break, for example in that

pieces are broken off along the upper edge of the cone.

[0041] In a second embodiment, the part of the support part including the shaped depression is at a level above the shaped cavity.

[0042] In a third embodiment, the part of the support part including the shaped depression starts at the same level as the shaped cavity, but the pointed end of the ice cone ends at a level above the shaped cavity.

[0043] The pointed end of the ice cone is hereby protected by being located at a higher level than the rest of the ice cone.

[0044] This is particularly advantageous in connection with the presence of an aperture in the support part through which the pointed end is arranged as described below as the pointed end will be elevated to a level in the cavity such that it does not easily interfere with other inserts during stacking, and thereby put in danger of breaking off.

[0045] In an embodiment, the support face is designed with a straight surface for placing the second insert in a stable way. The filled inserts are hereby stacked in a simple way and can easily be removed from each other again.

[0046] Alternatively, the support face can be designed with e.g. a depression which can engage a projection at the back side of the second insert. Hereby is achieved a simple reversible fastening ensuring that the second insert does to slide relative to the first insert, whereby the stack of filled ice cone inserts can overturn, causing destruction of ice cones.

[0047] In a further embodiment, the shaped cavities include recesses which due to the compression moulding will act as elevations at the back side of the insert. The elevations or some of the elevations can function as support points for the support face. Hereby, additional spacing is created between two inserts stacked upon each other.

[0048] In a further embodiment, the compression moulding is performed in such a way that the surface of the support points is modified so that greater friction is attained between the support points and the support faces. Hereby is achieved that the two inserts stacked upon each other will have more difficulty in slipping in relation to each other.

[0049] The modification can e.g. be done by changing the structure of the surface into a more coarse one.

[0050] Alternatively, the surface of the support faces can also be modified as described for the support points.

[0051] In a further embodiment, the support part has an aperture for receiving a pointed end of the stacked ice cones in continuation of the shaped depression.

[0052] The aperture is disposed and is of such size that the pointed end of the cone can be placed in the aperture. The size of the aperture will therefore depend on the size of the cone and on how far the pointed end is to be put into the aperture, meaning if it is only the outermost part of the pointed end or e.g. a third of the pointed end.

[0053] By putting the pointed end through the aperture, the position of the stacked cones can be retained in relation to the shaped cavities during transport and handling.

5 **[0054]** In order to achieve correct support of the cone, it is important that the aperture is situated in such a way that the cone rests in the shaped depression and the shaped cavity when the pointed end is located in the aperture. If this is not the case, the cone may easily be destroyed during transport and handling.

10 **[0055]** In an embodiment, the part of the pointed end passed through the aperture will be disposed in a hollow formed by the support part. The hollow is formed due to the shell shape of the insert and by a part of the support part being at a different level than the part including the shaped depression, and which includes the support face. Hereby is achieved protection of the pointed end such that it does not break off during transport and handling.

15 **[0056]** In a further embodiment, the support parts are arranged alternately at opposite sides of the insert. The stacked cones are hereby disposed in opposing directions such that the pointed ends of two rows placed in the shaped cavities beside each other will not be placed at the same side.

20 **[0057]** This means that if the insert includes five shaped cavities, there will be two support parts along one side and three support parts along the opposite side, but if there are six shaped cavities, there will be three support parts along one side and three support parts along the opposite side etc.

25 **[0058]** When the inserts are stacked, the second insert is turned 180° relative to the first insert before the second insert is disposed upon the first insert in order that it will be possible for the support faces to rest against the back side of the second insert and hereby create spacing between the inserts. If no turning of the second insert relative to the first insert is performed, the projecting support parts will be situated at the same place, and the support part of the first insert will be introduced in the hollow formed by the support part on the second insert. The second insert will hereby bear directly on the stacked cones in the first insert, and spacing will not be formed between the inserts and the cones will consequently break more easily.

30 **[0059]** This invention furthermore describes use of an insert as described above for packing and transporting ice cones.

35 **[0060]** The insert is designed such that it can be stacked in a space-saving way in the storeroom before use. It is usually a problem to find sufficient storage space for the present space-consuming inserts for packing ice cones why the shell shape design of the insert is very advantageous.

40 **[0061]** In an embodiment, the insert is adapted to a cardboard box such that inserts filled with stacked cones can be put into standard cardboard boxes for packing. The ice cones will thus be packed and protected during handling and transport.

Description of the Drawing

[0062]

- Fig. 1 illustrates the front side of an embodiment of an insert, as seen from a first side;
 Fig. 2 illustrates the front side of an embodiment of an insert, as seen from a second side;
 Fig. 3 illustrates the back side of an embodiment of an insert, as seen from the second side;
 Fig. 4 illustrates the back side of an embodiment of an insert, as seen from the first side.

Detailed Description of Embodiments of the Invention

[0063] Figs. 1-2 illustrate the front side of an embodiment of an insert 1 as seen from opposite sides. Figs. 3-4 illustrate the back side of the same embodiment of an insert 1, as seen from opposite sides, where Figs. 1 and 4 and Figs. 2 and 3 show the insert 1 from the same side.

[0064] The insert 1 includes five parallel rows of shaped cavities 3a,b,c,d,e. Each cavity 3a,b,c,d,e includes at one end an upright support part 5a,b,c,d,e which includes a support face 7a,b,c,d,e and a shaped depression 9a,b,c,d,e. The support face 7a,b,c,d,e in this embodiment is an approximately horizontal surface. Furthermore, the support part 5a,b,c,d,e includes an aperture 11a,b,c,d,e for locating the pointed end of the cone.

[0065] The shaped cavities 3a,b,c,d,e have a size which is adapted to the size of the stacked cones so that the cones are supported by the cavity 3a,b,c,d,e and are thereby protected during transport and handling. More specifically, this means that the size of the cavity corresponds to the size of the diameter at the top of the ice cones. The last ice cone of the stacked ice cones will be completely exposed. In order to support the conical structure of the last ice cone, the shaped depressions 9a,b,c,d,e are designed corresponding to the conical structure of the ice cone.

[0066] The insert 1 is designed as a shell wherein the material thickness is approximately the same for the entire insert 1. This means, among others, that the upright support parts 5a,b,c,d,e will be designed as hollows 17a,b,c,d,e as seen from the back side. As seen on Figs. 3 and 4, the aperture 11a,b,c,d,e in the support part will provide that the pointed end of the cone is located in the hollow 17a,b,c,d,e, why the pointed end is protected against destruction.

[0067] In this embodiment, the shaped cavities 3a,b,c,d,e include depressions 13a,b,c,d,e,f,g,h,i,j (Figs. 1 and 2) which at the back side form elevations 15a,b,c,d,e,f,g,h,i,j in part acting as support points (Figs. 3 and 4) for the support face 7a,b,c,d,e.

[0068] During the stacking of the inserts 1 after being filled with ice cones, an insert 1 as depicted in Fig. 1 will be placed upon an insert 1 as depicted in Fig. 2, meaning

that the two inserts 1 are turned 180° in relation to each other. The support faces 7a,b,c,d,e at the lowermost insert 1 can hereby rest on the support points 15a,b,c,d,e at the back side of the upper insert 1 and thereby prevent the cones from being crushed between the two inserts 1.

[0069] Before the ice cones are filled into the inserts 1, the inserts 1 are stacked in that two superposed inserts are not rotated relative to each other. The support parts 5a,b,c,d,e from the lower insert 1 will be disposed in the hollows 17a,b,c,d,e in the upper insert 1, why an insert 1 in a stack of inserts 1 will only fill the material thickness of the insert 1.

[0070] The invention is not limited to the embodiments shown in the Figures and described above. Other embodiments with other shapes of the insert may be envisaged within the scope of this invention and the subsequent claims.

Claims

1. A packing insert (1) being prepared for use as secure packing of ice cones by a drying process during compressing moulding, the insert (1) including shaped cavities (3a,b,c,d,e), each adapted for receiving stacked ice cones, **characterised in that** the insert (1) is designed as a stackable shell and that the insert (1) consists of decomposable natural fibres in the form of straw, sugar cane fibres, rice husks, reeds, or a mixture of one or more thereof, and that the insert (1) has a residual humidity of 0.01 - 5 %.
2. Insert (1) according to claim 1, **characterised in that** the decomposable natural fibres are 100% biologically decomposable.
3. Insert (1) according to claim 1, **characterised in that** the shaped cavities (3a,b,c,d,e) are arranged in parallel with each other.
4. Insert (1) according to claim 3, **characterised in that** the cavities (3a,b,c,d,e) include an upright support part (5a,b,c,d,e) at at least one end.
5. Insert (1) according to claim 3-4, **characterised in that** the upright support part (5a,b,c,d,e) is designed with a support face (7a,b,c,d,e) and a shaped depression (9a,b,c,d,e) in continuation of the shaped cavity (3a,b,c,d,e).
6. Insert (1) according to claim 5, **characterised in that** the support part (5a,b,c,d,e) has an aperture (11a,b,c,d,e) for accommodating a pointed end of the stacked ice cones in continuation of the shaped depression (9a,b,c,d,e).
7. Insert (1) according to claim 6, **characterised in that** the support parts (5a,b,c,d,e) are arranged alternat-

ingly at opposite sides of the insert (1).

8. Insert (1) according to claim 1-7, **characterised in that** the shaped cavities (3a,b,c,d,e) include recesses (13a,b,c,d,e,f,g,h,i,j).
9. Use of an insert (1) according to one or more of the claims 1-8 for packing and transport of ice cones.

Patentansprüche

1. Verpackungseinsatz (1), der zur Verwendung als sichere Verpackung von Eiswaffeln durch ein Trocknungsverfahren während des Formpressens hergestellt ist und geformte Höhlungen (3a, b, c, d, e) aufweist, die jeweils zum Aufnehmen gestapelter Eiswaffeln vorgesehen sind, **dadurch gekennzeichnet, dass** der Einsatz (1) als eine stapelbare Schale gestaltet ist, und dass der Einsatz (1) aus abbaubaren Naturfasern in Form von Stroh, Zuckerrohrfasern, Reishülsen, Schilf oder einer Mischung von einem oder mehreren dieser Materialien besteht, und dass der Einsatz (1) eine Restfeuchtigkeit von 0,01-5% aufweist.
2. Einsatz (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die abbaubaren Naturfaser 100% biologisch abbaubar sind.
3. Einsatz (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die geformten Höhlungen (3a, b, c, d, e) parallel zueinander angeordnet sind.
4. Einsatz (1) nach Anspruch 3, **dadurch gekennzeichnet, dass** die Höhlungen (3a, b, c, d, e) einen aufrechten Stützteil (5a, b, c, d, e) an mindestens einem Ende aufweisen.
5. Einsatz (1) nach Anspruch 3-4, **dadurch gekennzeichnet, dass** der aufrechte Stützteil (5a, b, c, d, e) mit einer Stützfläche (7a, b, c, d, e) und einer geformten Vertiefung (9a, b, c, d, e) als Verlängerung der geformten Höhlung (3a, b, c, d, e) vorgesehen ist.
6. Einsatz (1) nach Anspruch 5, **dadurch gekennzeichnet, dass** der Stützteil (5a, b, c, d, e) eine Öffnung (11a, b, c, d, e) in Verlängerung von der geformten Vertiefung (9a, b, c, d, e) zum Aufnehmen eines spitzen Endes der gestapelten Eiswaffeln aufweist.
7. Einsatz (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** die Stützteile (5a, b, c, d, e) an gegenüberliegenden Seiten des Einsatzes (1) wechselweise angeordnet sind.
8. Einsatz (1) nach Anspruch 1-7, **dadurch gekennzeichnet,**

zeichnet, dass die geformten Höhlungen (3a, b, c, d, e) Eintiefungen (13a, b, c, d, e, f, g, h, i, j) aufweisen.

- 5 9. Verwendung eines Einsatzes (1) nach irgendeinem der Ansprüche 1-8 zur Verpackung und Beförderung von Eiswaffeln.

10 Revendications

1. Un insert d'emballage (1) étant préparé pour être utilisé comme emballage sécurisé de cônes de glace par un procédé de séchage au cours du moulage par compression, l'insert (1) comprenant des cavités façonnées (3a,b,c,d,e), chacune étant conçue pour recevoir des cônes de glace empilés, **caractérisé en ce que** l'insert (1) se présente sous la forme d'une coque empilable et que l'insert (1) se compose de fibres naturelles décomposables sous forme de paille, de fibres de canne à sucre, de balles de riz, des roseaux, ou un mélange d'un ou de plusieurs de ceux-ci, et **en ce que** l'insert (1) a une humidité résiduelle de 0,01 à 5 %.
2. Insert (1) selon la revendication 1, **caractérisé en ce que** les fibres naturelles décomposables sont biologiquement dégradables à 100 %.
3. Insert (1) selon la revendication 1, **caractérisé en ce que** les cavités façonnées (3a,b,c,d,e) sont disposées en parallèle les unes par rapport aux autres.
4. Insert (1) selon la revendication 3, **caractérisé en ce que** les cavités (3a,b,c,d,e) comprennent une partie de support verticale (5a,b,c,d,e) au niveau d'au moins une extrémité.
5. Insert (1) selon la revendication 3-4, **caractérisé en ce que** la partie de support verticale (5a,b,c,d,e) est conçue avec une face de support (7a,b,c,d,e) et une dépression profilée (9a,b,c,d,e) dans la continuité de la cavité façonnée (3a,b,c,d,e).
6. Insert (1) selon la revendication 5, **caractérisé en ce que** la partie de support (5a,b,c,d,e) présente une ouverture (11a,b,c,d,e) pour recevoir une extrémité pointue des cônes de glace empilés dans le prolongement de la dépression façonnée (9a,b,c,d,e).
7. Insert (1) selon la revendication 6, **caractérisé en ce que** les parties de support (5a,b,c,d,e) sont disposées en alternance sur des côtés opposés de l'insert (1).
8. Insert (1) selon la revendication 1-7, **caractérisé en ce que** les cavités façonnées (3a,b,c,d,e) comprennent des évidements (13a,b,c,d,e,f,g,h,i,j).

9. L'utilisation d'un insert (1) selon une ou plusieurs des revendications 1 à 8 pour l'emballage et le transport de cônes de glace.

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Fig. 1

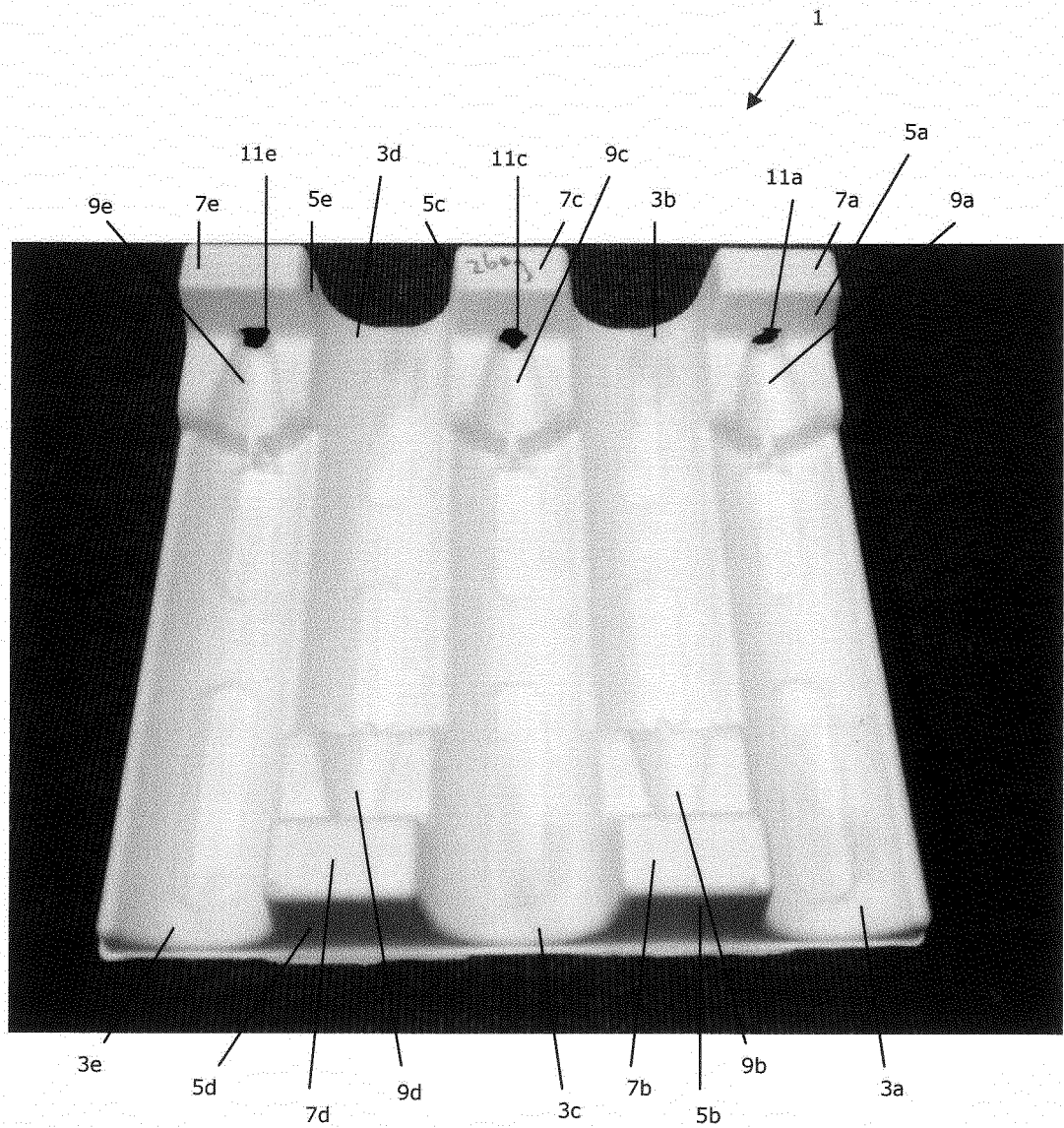


Fig. 2

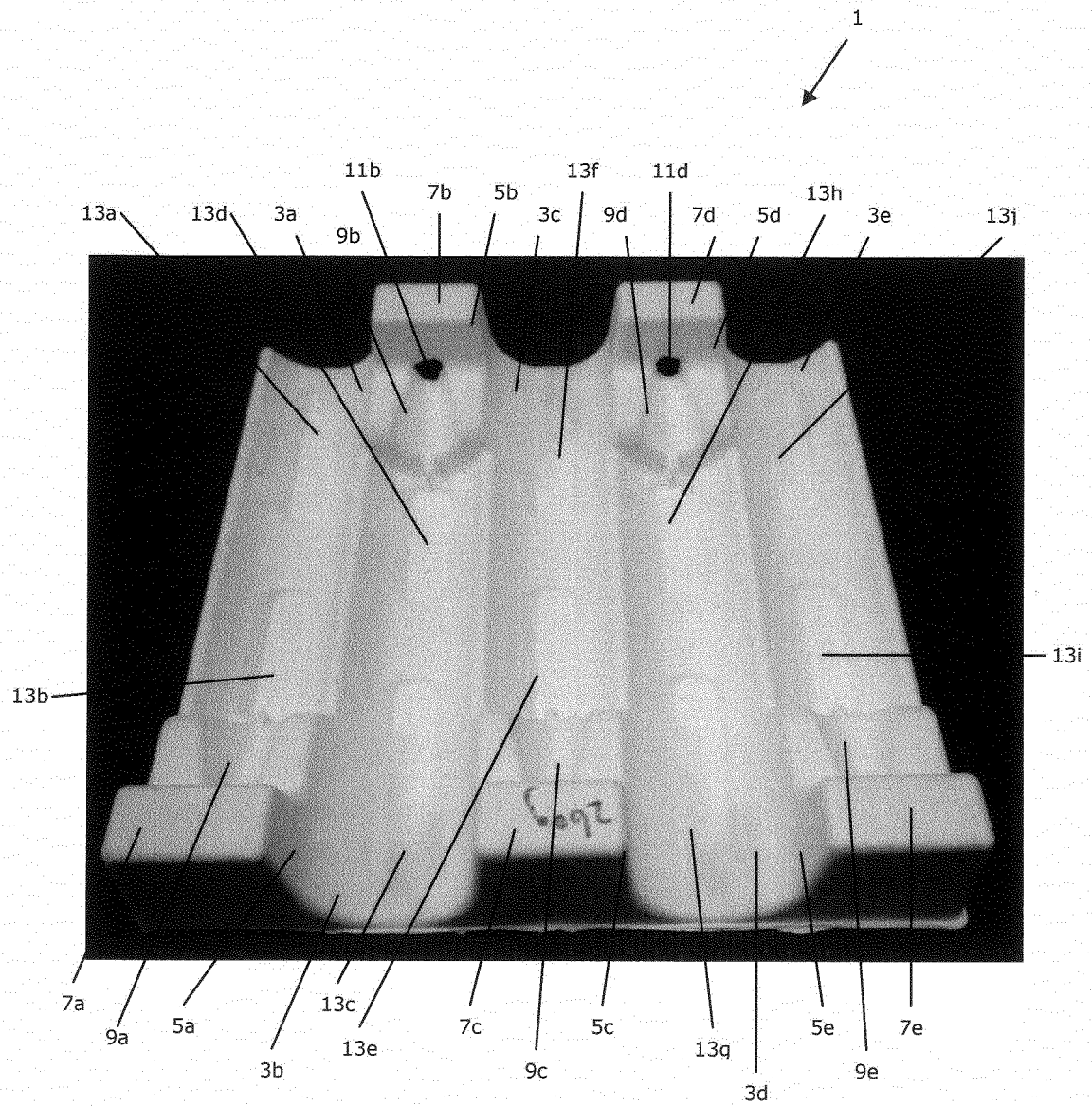


Fig. 3

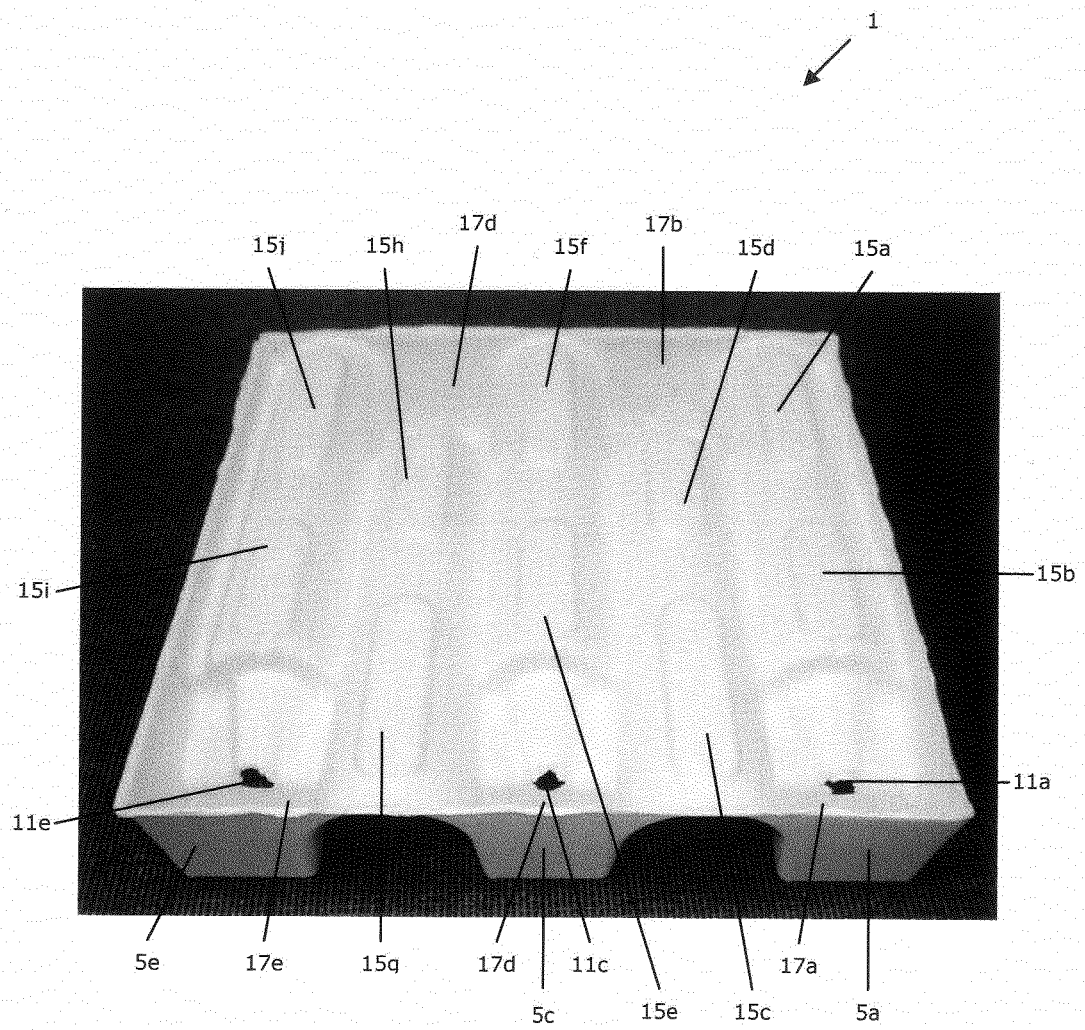
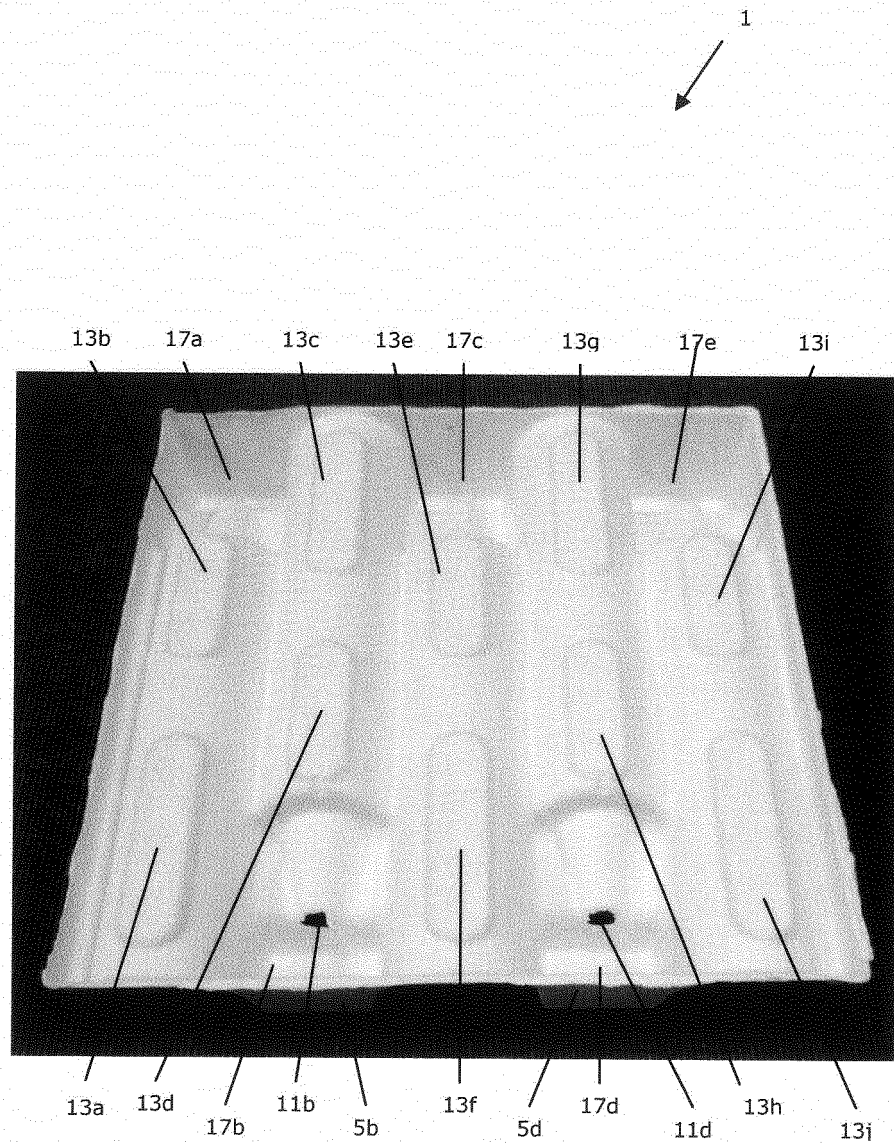


Fig. 4



REFERENCES CITED IN THE DESCRIPTION

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