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

(11) **EP 2 676 899 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.12.2013 Bulletin 2013/52

(51) Int Cl.:
B65D 85/36 *(2006.01)* ***B65D 65/46*** *(2006.01)*
B65D 1/36 *(2006.01)*

(21) Application number: **13172980.8**

(22) Date of filing: **20.06.2013**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **20.06.2012 DK 201270347**

(71) Applicant: **Frima Vafler A/S**
8260 Viby J (DK)

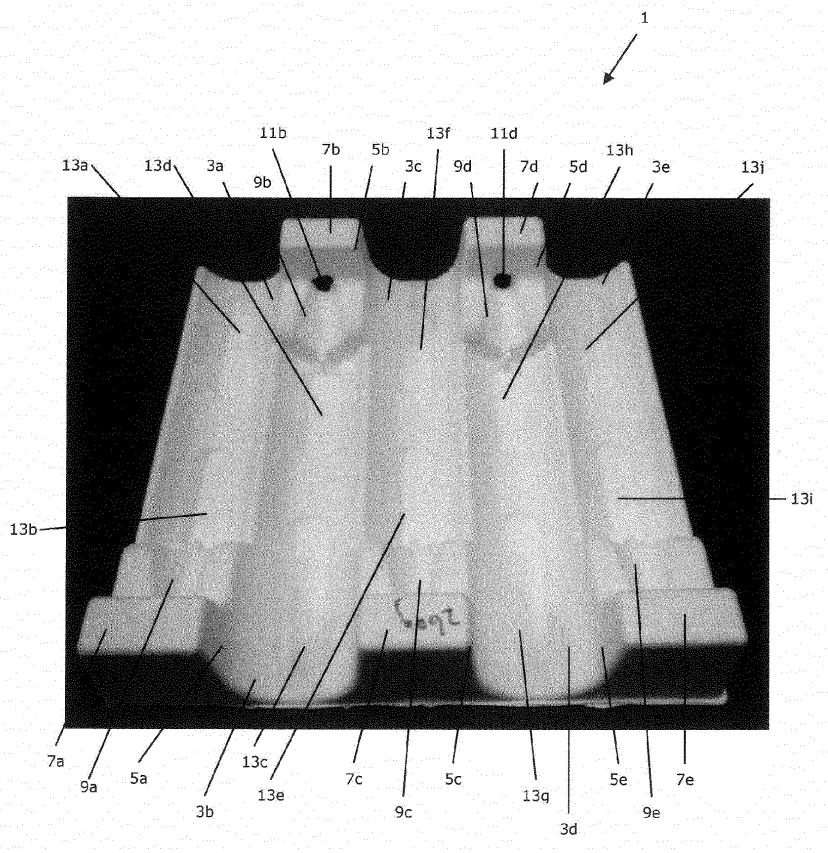
(72) Inventor: **Hoffmann, Carsten**
8361 Hasselager (DK)

(74) Representative: **Nielsen, Leif et al**
Patrade A/S
Fredens Torv 3A
8000 Aarhus C (DK)

(54) Packing insert

(57) The invention describes 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. The invention furthermore describes use of the insert for packing and transport of ice cones.

Fig. 2



EP 2 676 899 A1

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 CO_2 why this production method is detrimental to the environment. Furthermore, disposal of packing items of polystyrene entail a serious environmental impact as well.

Object of the Invention

[0004] 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.

[0005] A further object of the invention is to provide an insert which is an environmental product consisting of decomposable natural products.

Description of the Invention

[0006] 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.

[0007] 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.

[0008] 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.

[0009] 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.

[0010] "Paper" in this application is to be understood as a mass achieved by processing the decomposable natural fibres.

[0011] By "cones" and "ice cones" in the application is meant approximately conical cones in which ice can be placed.

[0012] Moreover, the use of decomposable natural fibres means that a CO_2-neutral product is achieved, making the insert further environmentally friendly.

[0013] The paper thickness of the shell is preferably 200-320 g/m^2, more preferred 230-290 g/m^2, most preferred 260 g/m^2.

[0014] 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 arranged for packing whereas the back side will be the opposite side.

[0015] In an embodiment, the thickness of the paper for the insert will be approximately uniform for the entire insert.

[0016] Making of the paper pulp and compression moulding thereof can be effected by techniques know by the skilled in the art.

[0017] 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.

[0018] 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.

[0019] In a further embodiment, the decomposable natural fibres are straw, sugar cane fibres, rice husks, reeds, or a mixture of one or more thereof.

[0020] 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.

[0021] Furthermore, the above materials are cheap and easy to procure.

[0022] 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.

[0023] In an embodiment, the straw is a mixture of straw from one or more cereals.

[0024] 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.

[0025] 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.

[0026] Hereby is achieved that no moisture is exchanged between the insert and the ice cones placed in the insert.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] By residual humidity is meant the amount of liquid left in the end product.

[0031] 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 humidity in the insert being 0.1-1%, including in particular residual humidity 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.

[0032] 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.

[0033] In a further embodiment, the cavities include an upright support part at at least one end.

[0034] 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.

[0035] 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.

[0036] 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).

[0037] 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.

[0038] 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.

[0039] In a second embodiment, the part of the support part including the shaped depression is at a level above the shaped cavity.

[0040] 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.

[0041] The pointed end of the ice cone is hereby protected by being located at a higher level than the rest of the ice cone.

[0042] 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.

[0043] 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.

[0044] 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.

[0045] 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.

[0046] 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. The modification can e.g. be done by changing the structure of the surface into a more coarse one.

[0047] Alternatively, the surface of the support faces can also be modified as described for the support points.

[0048] 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.

[0049] 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.

[0050] 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.

[0051] 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.

[0052] 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.

[0053] In a further embodiment, the support parts are arranged alternatingly 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.

[0054] 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.

[0055] 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.

[0056] This invention furthermore describes use of an insert as described above for packing and transporting ice cones.

[0057] 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.

[0058] 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

[0059]

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

[0060] 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.

[0061] 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.

[0062] 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.

[0063] 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.

[0064] 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.

[0065] 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.

[0066] 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.

[0067] 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) for secure packing of ice cones, 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.

2. Insert (1) according to claim 1, **characterised in that** the decomposable natural fibres are straw, sugar cane fibres, rice husks, reeds, or a mixture of one or more thereof.

3. Insert (1) according to claim 1, **characterised in that** the decomposable natural fibres are 100% biologically decomposable.

4. Insert (1) according to claim 1-3, **characterised in that** a residual humidity in the insert is 0.01 - 5%.

5. Insert (1) according to claim 1, **characterised in that** the shaped cavities (3a,b,c,d,e) are arranged in parallel with each other.

6. Insert (1) according to claim 5, **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.

7. Insert (1) according to claim 5-6, **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).

8. Insert (1) according to claim 7, **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).

9. Insert (1) according to claim 8, **characterised in that** the support parts (5a,b,c,d,e) are arranged alternatingly at opposite sides of the insert (1).

10. Insert (1) according to claim 1-9, **characterised in that** the shaped cavities (3a,b,c,d,e) include recesses (13a,b,c,d,e,f,g,h,i,j).

11. Use of an insert (1) according to claims 1 - 10 for packing and transport of ice cones.

Fig. 1

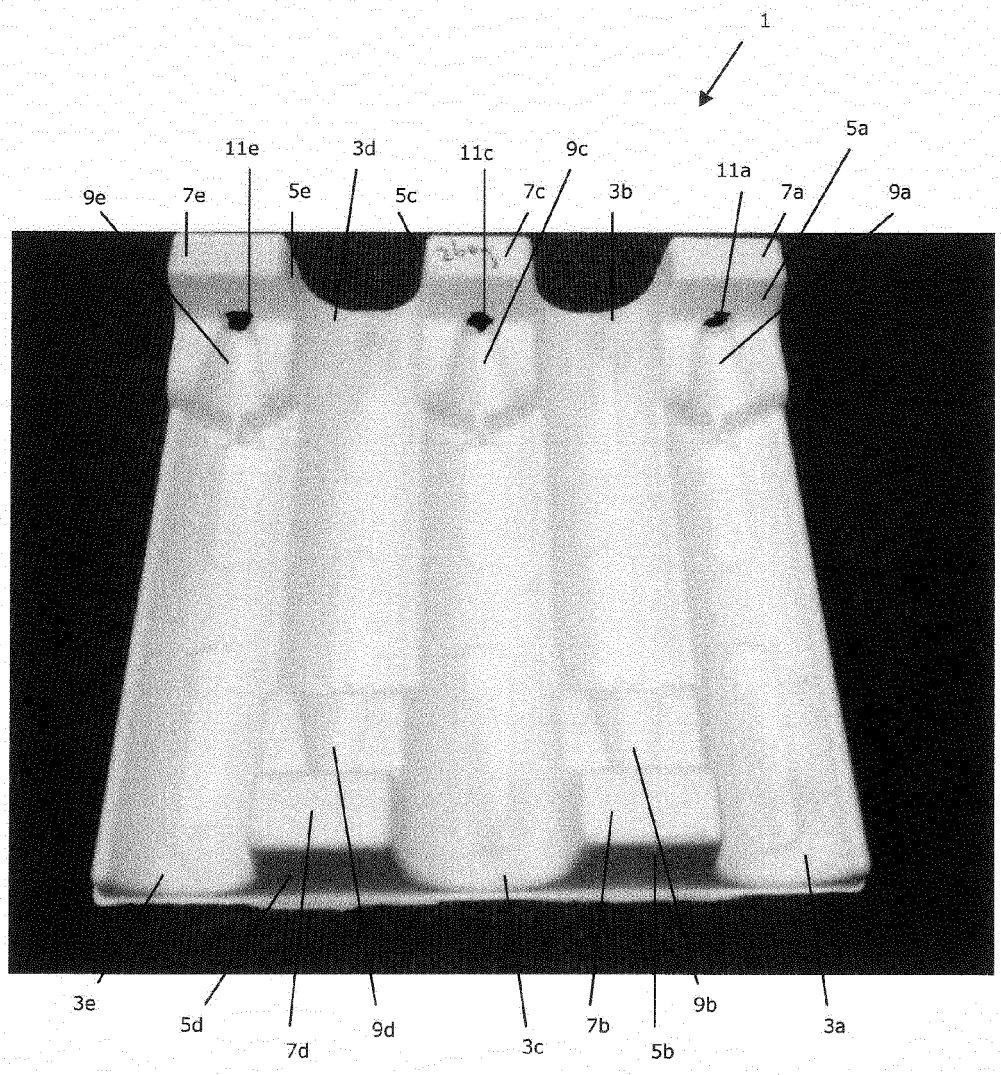

1
11e
3d
11c
9c
5a
11a
9e
7e
5e
5c
7c
3b
7a
9a
3e
5d
7d
9d
3c
7b
5b
9b
3a

Fig. 2

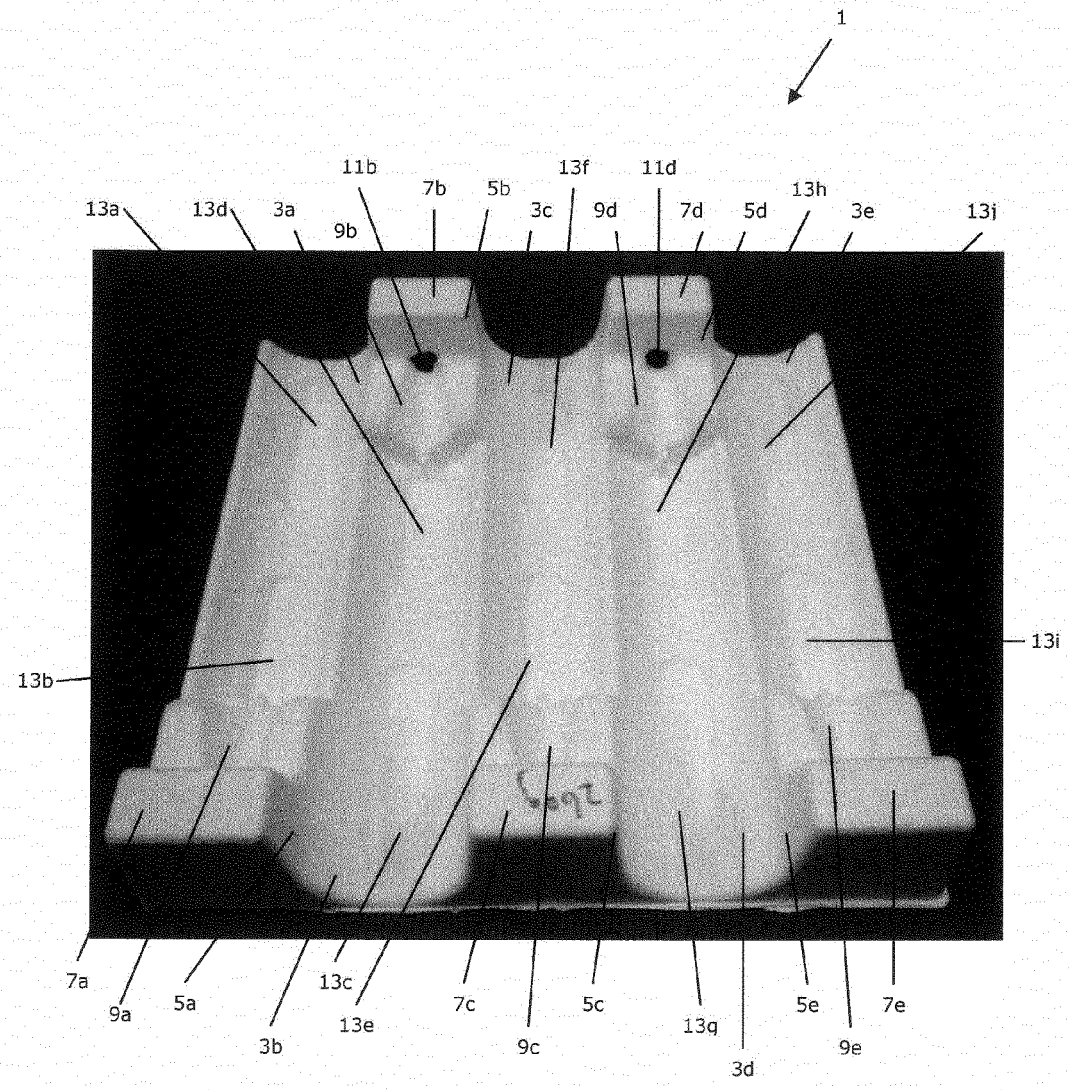

1
13a
13d
3a
11b
9b
7b
5b
3c
13f
9d
11d
7d
5d
13h
3e
13j
13b
13i
7a
9a
5a
3b
13c
13e
7c
9c
5c
13g
3d
5e
9e
7e

Fig. 3

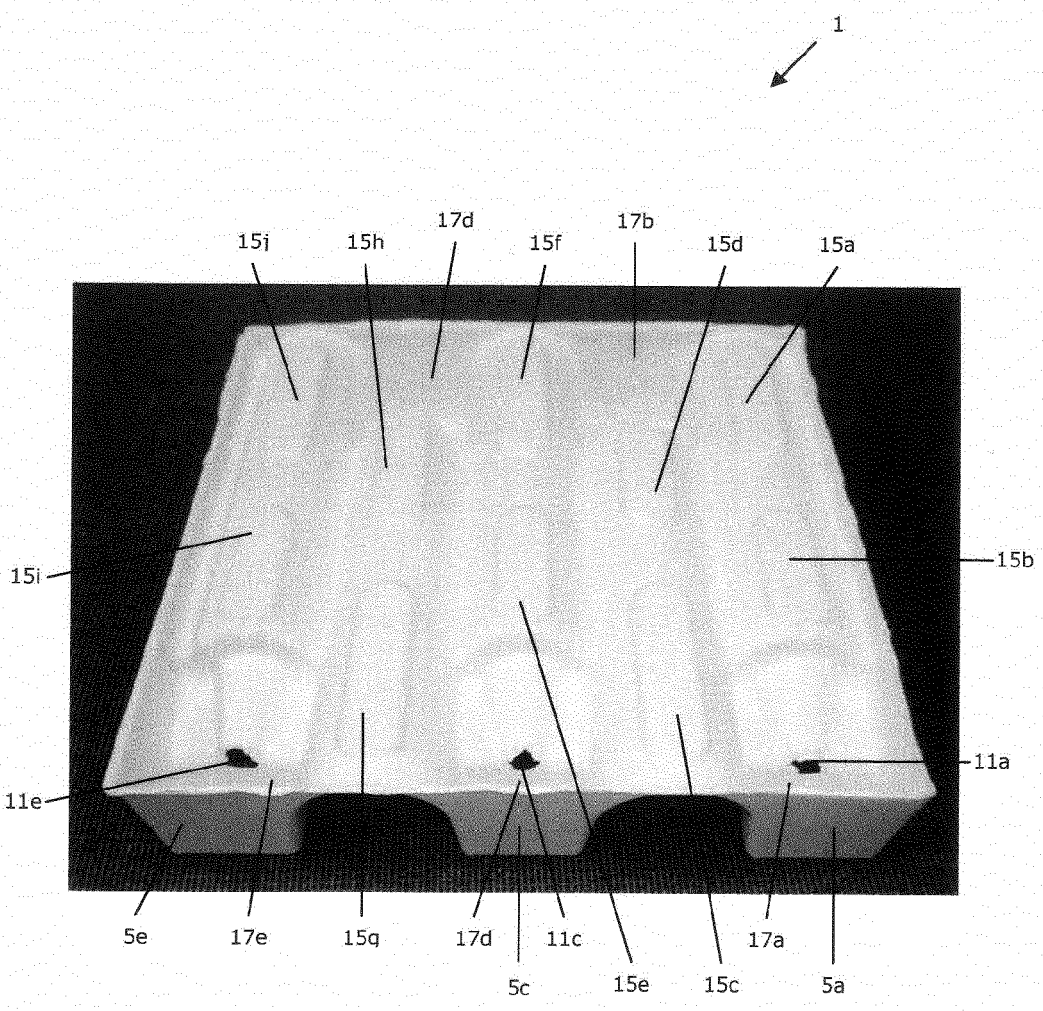
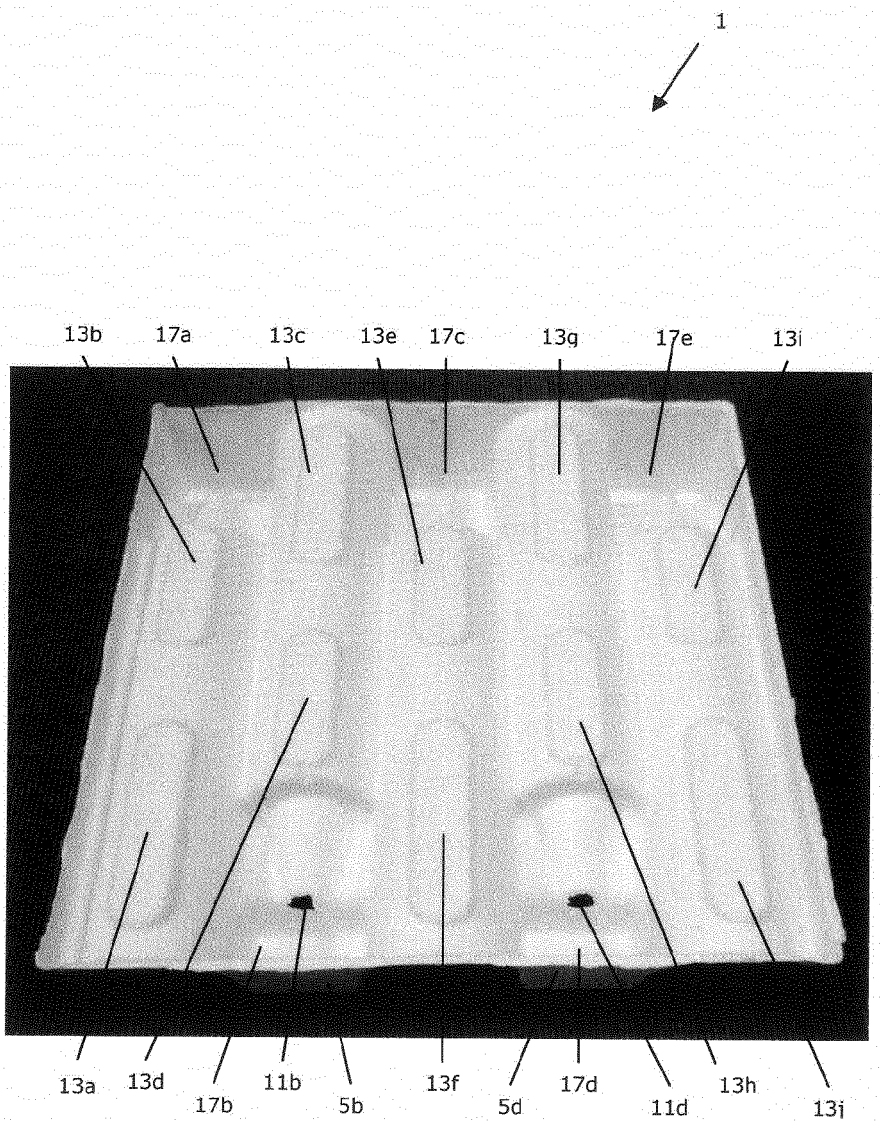

1
15j
15h
17d
15f
17b
15d
15a
15i
15b
11e
11a
5e
17e
15g
17d
11c
5c
15e
15c
17a
5a

Fig. 4


1
13b
17a
13c
13e
17c
13g
17e
13i
13a
13d
17b
11b
5b
13f
5d
17d
11d
13h
13j

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 13 17 2980

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	CA 1 142 897 A1 (FEDERAL PAPER BOARD CO INC) 15 March 1983 (1983-03-15) * page 2, lines 5-25; figures 1-3 *	4 1-3,5-9, 11	INV. B65D85/36 B65D65/46 B65D1/36
Y	EP 0 307 053 A2 (MADSEN FRITZ VIGGO FRIBERG) 15 March 1989 (1989-03-15) * abstract; figures 1-7 *	1,5-9,11	
Y	JP H10 324322 A (OBARA MASAHIKO; OBARA YOSHITERU; KONDO YASUSHI; KANEKO KIMINORI) 8 December 1998 (1998-12-08) * abstract *	2,3	
A	GB 2 474 272 A (VERNACARE LTD [GB]) 13 April 2011 (2011-04-13) * abstract; figure 1 *	1-11	
A	US 4 349 571 A (DAVIS PAUL ET AL) 14 September 1982 (1982-09-14) * abstract; figures 1-12 *	1-11	

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	16 September 2013	Visentin, Mauro

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 17 2980

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-09-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CA 1142897 A1	15-03-1983	NONE	
EP 0307053 A2	15-03-1989	DE 3876729 D1	28-01-1993
		DK 463687 A	28-01-1988
		EP 0307053 A2	15-03-1989
		US 4899884 A	13-02-1990
JP H10324322 A	08-12-1998	JP 3857386 B2	13-12-2006
		JP H10324322 A	08-12-1998
GB 2474272 A	13-04-2011	GB 2474272 A	13-04-2011
		WO 2011042754 A1	14-04-2011
US 4349571 A	14-09-1982	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DK 158296 B **[0003]**