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(54) **A TRAY FOR FOODS**

(57) The present invention relates to a tray for foods, in particular, a tray provided with a draining bottom.

In particular, the invention relates to a tray (1) for foods, in particular for red and white meats and fish, comprising a bottom (2), side walls (3a, 3b, 3c, 3d), which

extend in height from the bottom (2), and a peripheral edge (4), characterized in that the bottom (2) comprises a plurality of elevations (7), comprising a side surface (8) and an upper surface (9), wherein the upper surface (9) comprises one or more grooves (10).

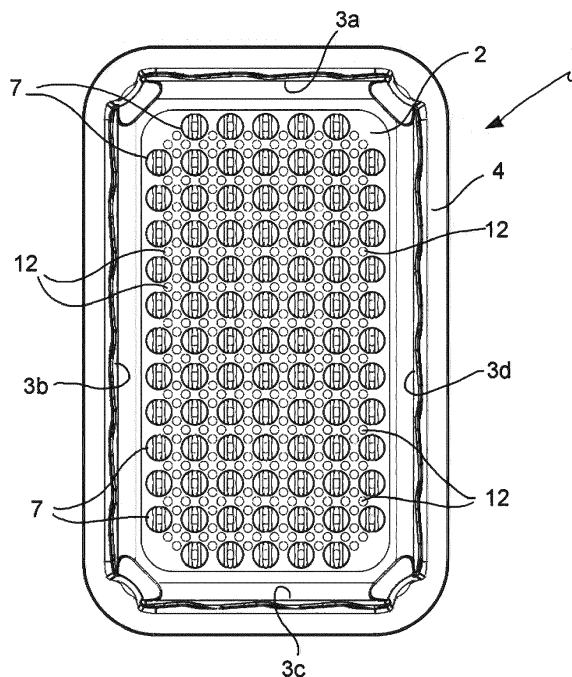


FIG. 1C

Description

[0001] The present invention relates to a tray for foods, in particular, a tray provided with a draining bottom.

[0002] Fresh foods are known to be sold by large retailers, packed in special tubs or trays, which can be made of polystyrene foam or, more and more often, of polypropylene (PP), polyethylene terephthalate (PET), and similar materials.

[0003] The packaging of fresh meat and fish or foods, which release liquids presents particular problems for all operators, both in the sector of industry and retail, as well as for the final consumer. The liquid released by the meat, for example, particularly by red meat, creates the following problems in contact with the meat:

- deterioration of the product's organoleptic qualities, and also a reduction in the shelf-life, particularly for products packed in a modified atmosphere, which is evidenced by the release of unpleasant smells on opening the pack; clearly, the problem is evidenced even further by the approaching of the expiry date,
- irreversible, or partially irreversible darkening of the meat in contact with the bottom of the tray,
- substandard overall visual appearance.

[0004] The use of an absorbent pad on the bottom reduces the drawbacks reported above, but it doesn't overcome them completely and in any case it makes the container non-recyclable.

[0005] Thus, a tray has been proposed to the market with a bottom, generally called a "mechanical bottom", formed by a multitude of small cells or containers, which retain, by capillarity, the exudate therein, preventing the same from spilling onto the bottom of the tray or leaking when the pack is opened.

[0006] However, such solution does not allow the problem of a reduced shelf life, the deterioration of the organoleptic qualities, in particular, the development of unpleasant smells, or the darkening of the meat in contact with the bottom to be overcome, however, it makes the tray recyclable.

[0007] Therefore, the problem targeted by the present invention is to provide a tray for foods, in particular, a tray for packaging fresh meat and other food products, which release liquids, which can be recycled and preserves the organoleptic qualities of the food for longer, preventing, or reducing the problem of the darkening of the product, in contact with the surface of the tray, or the development of an unpleasant smell on opening the pack, improving the shelf life thereof.

[0008] Such problem is overcome by a tray for foods, as defined in the accompanying claims, the definitions of which form an integral part of the present description.

[0009] Thus, a tray for foods is an object of the present invention, in particular, for red and white meats and for fish, comprising a bottom, side walls, which extend in height from the bottom, and a peripheral edge, charac-

terized in that the bottom comprises a plurality of elevations, comprising a side surface and an upper surface, wherein the upper surface comprises one or more grooves and wherein the tray preferably comprises a plurality of blind holes, or wells, for collecting the liquids on the bottom of the tray.

[0010] Further features and advantages of the present invention will become clearer from the description of various embodiments, illustrated below by way of nonlimiting examples, with reference to the following figures:

Figure 1A shows a perspective view of a first embodiment of the tray according to the invention;

Figure 1B shows a perspective view of a detail of the tray in figure 1A;

Figure 1C shows a plan view from above of the tray in figure 1A;

Figure 2A shows a perspective view of a second embodiment of the tray according to the invention;

Figure 2B shows a plan view from above of a detail of the tray in figure 2A;

Figure 3A shows a perspective view of a third embodiment of the tray according to the invention;

Figure 3B shows a plan view from above of a detail of the tray in figure 3A;

Figure 4A shows a perspective view of a fourth embodiment of the tray according to the invention;

Figure 4B shows a plan view from above of a detail of the tray in figure 4A;

Figure 5A shows a perspective view of a fifth embodiment of the tray according to the invention;

Figure 5B shows a plan view from above of a detail of the tray in figure 5A;

Figure 6A shows a perspective view of a sixth embodiment of the tray according to the invention;

Figure 6B shows a plan view from above of a detail of the tray in figure 6A;

Figure 7A shows a perspective view of a seventh embodiment of the tray according to the invention;

Figure 7B shows a plan view from above of a detail of the tray in figure 7A;

Figure 8A shows a perspective view of an eighth embodiment of the tray according to the invention;

Figure 8B shows a perspective view of a detail of the tray in figure 8A;

Figure 9 shows a plan view from above of a ninth embodiment of the invention;

Figure 10 shows a plan view from above of a tenth embodiment of the invention.

[0011] Figures 1A-1C show a first embodiment of the tray for foods of the invention. The tray, globally denoted with number 1, comprises a bottom 2, side walls 3a, 3b, 3c, 3d, which extend in height from the bottom 2, and a peripheral edge 4, which extends outwards from the upper end of the side walls 3a, 3b, 3c, 3d, on a plane substantially parallel to the plane of the bottom 2.

[0012] The side walls 3a, 3b, 3c, 3d have a typically

flared shape and are joined by angular portions 5, preferably with a rounded or curvilinear shape. The side walls 3a, 3b, 3c, 3d can have raised decorations 6 or be smooth, or have ribs or channels, which will be shown below.

[0013] The bottom 2 comprises a plurality of elevations 7, which, in the embodiment in figures 1A-1C, have a substantially cylindrical shape. As is shown better in figure 1B, the elevations 7 comprise a side surface 8 and an upper surface 9, which is slightly convex, but which, according to one variation, can also be flat.

[0014] The upper surface 9 has two basically parallel grooves 10. Preferably, the elevations 7 have an ordered arrangement, for example, along parallel rows, so as to arrange a homogeneous supporting surface for the food, typically a portion of meat, at the same time giving the tray an attractive appearance. Nonetheless, in variations of the tray, a different arrangement of the elevations 7 can be comprised.

[0015] In the spaces comprised between one elevation 7 and the adjacent ones, the bottom 2 further comprises a plurality of blind holes, or wells 12. The wells 12 form containers for storing and retaining, by capillarity, the exudates released by the food.

[0016] As said, the elevations 7 constitute a supporting surface for the food, which is thus kept separate from the bottom 2. The presence of the grooves 10 contributes to reducing the supporting surface to a minimum. Thus, the spaces between the elevations 7 and the grooves 10 of the elevations form channels for circulating the air, or the mixture of protective gas, which allows a good oxygenation of the food, in the case of a packaging with stretch film made of PE or PVC, or protective gases in the case of a packaging in a modified atmosphere, in particular, of the portion of meat, an essential element for preserving the intense color of the meat and preventing the darkening thereof. At the same time, the grooves 10 constitute channels for draining the liquids released by the food.

[0017] In a second embodiment shown in figures 2A and 2B, the tray 1 is similar to the embodiment in figures 1A-1C, with the difference that the elevations 7 comprise a side surface 8, an upper surface 9, which is preferably slightly convex, and a single groove 10 arranged centrally.

[0018] Figures 3A and 3B show a third embodiment similar to the embodiment in figures 2A-2B, but with the difference that the portions of upper surface 9, which flank the central groove 10, comprise respective notches 11. The notches 11 preferably have a smaller depth than the depth of the groove 10.

[0019] Figures 4A and 4B show a fourth embodiment, totally similar to the embodiment in figures 2A-2B, but with the difference that the elevations 7 do not have a cylindrical shape, but a substantially square or rectangular plan, wherein the groove 10 joins two opposite sides. Preferably, the elevations 7 have rounded corners.

[0020] A fifth embodiment is shown in figures 5A and 5B. Such embodiment is totally similar to the embodiment

in figures 4A-4B, but with the difference that the surface 9 has a substantially square plan and the groove 10 is placed along the diagonal thereof. In this case, too, preferably, the elevations 7 have rounded corners.

[0021] Figures 6A-6B and 7A-7B show a sixth and a seventh embodiment, totally similar to the embodiment in figures 2A-2B, but with the difference that the elevations 7 have an elliptical, instead of a circular plan. The groove 10 can connect the vertices of the ellipses, as in figures 6A-6B, or be arranged with a different orientation (figures 7A-7B).

[0022] Figure 10 shows an embodiment, wherein the elevations 7 have a substantially square plan and are furrowed, in a cross, by a groove 10 and a notch 11. The groove 10 and the notch 11 join respective opposite sides of the elevation 7, but in different embodiments, they can also join the respective opposite vertices.

[0023] Also in such embodiments, the notches 11 can have a depth, which is smaller than the grooves 10, or they can have the same depth.

[0024] The elevations 7 can have a plan shape, which is square, as shown in figure 10, rectangular or with a different geometry.

[0025] In such embodiment, preferably, the upper surface 9 of the elevations 7 is flat.

[0026] Whereas, figures 8A and 8B show a different embodiment. In such embodiment, the side walls 3a, 3b, 3c, 3d and the bottom portion 2 adjacent thereto, comprise channels 13, which, in the example in the figures, are arranged in a condition of parallelism, wherein said channels 13 join the peripheral edge 4 to the bottom 2, close to the elevations 7. In variations of such embodiment, the channels 13 end at the junction point of the side walls 3a, 3b, 3c, 3d with the bottom 2. In other variations, they are arranged obliquely or crosswise. Although figures 8A-8B show the elevations 7 with the shape in figure 3A-3B, it is understood that channels 13 can also be present in any one of the embodiments in figures 1A-1C, 2A-2B, 4A-4B, 5A-5B, 6A-6B and 7A-7B.

[0027] The channels 13 have the function of reducing the contact surface between the side walls and the food to a minimum, when the latter, for example, a piece of meat, has elevated dimensions to fill the whole tray 1. Furthermore, the channels 13 allow both the airing of the surface of the food and the draining of the fluids released therefrom.

[0028] Figure 9 shows a different embodiment, similar to those in figures 6A-6B, but wherein the bottom 2 comprises one or more portions 14 devoid of the elevations 7 and holes or wells 12 and one or more portions 15 (in figure, three portions 15) devoid of only the holes or wells 15.

[0029] The portions 14, 15, which are substantially smooth, allow the adhesion of various types of labels. In fact, in the case of using the tray for packaging in a modified atmosphere, it is necessary to affix a relatively large adhesive label, below the surface of the container, to provide additional information about the product, in ad-

dition to that present on the upper sealing film, which is directly visible by the consumer. In order to be able to have an adequate adhesion of the label, it is necessary to comprise smooth, flat areas on the bottom.

[0030] The shape and number of portions 14, 15 can vary as desired. In particular, in one preferred embodiment, the bottom 2 will comprise only a plurality of portions 15 devoid of only the holes or wells 12, so as to ensure a homogenous support over the whole support surface of the food.

[0031] In all of the previously described embodiments, it is preferable that the whole support surface of the food, i.e. the whole surface deriving from the sum of the single upper surfaces 9 of the elevations 7, without the portion occupied by the grooves 10 and, where present, by the notches 11, is from 35% to 45% of the total surface of the bottom 2.

[0032] Preferably, each elevation will have an upper surface 9 from 80 to 100 mm² and a side surface 8 of height from 3 to 7 mm.

[0033] The tray 1 can be made of a plastic material normally used for this type of applications, for example, polypropylene or polyethyleneterephthalate and it can be made by hot molding (thermoforming) or injection.

[0034] The tray 1 according to the invention allows a better preservation of the organoleptic qualities and shelf life of the food product, especially in the case of red meats, but also for white meats and fish. In fact, packs of red and white meats or fish, kept in a fridge for a period of 2 - 3 days (average shelf life time in large retail for foods packed in sales points with a stretch film) showed no traces of darkening (phenomenon particularly visible in traditional packs of red meats) and, surprisingly, nor did they show any significant alteration in the characteristic smell of the fresh product.

[0035] Clearly, only some particular embodiments of the present invention have been described, to which a person skilled in the art can make all of the necessary changes for the adaption thereof to particular applications, without thereby departing from the scope of protection of the present invention.

Claims

1. A tray (1) for foods, in particular for red and white meats and fish, comprising a bottom (2), side walls (3a, 3b, 3c, 3d), which extend in height from the bottom (2), and a peripheral edge (4), **characterized in that** the bottom (2) comprises a plurality of elevations (7), comprising a side surface (8) and an upper surface (9), wherein the upper surface (9) comprises one or more grooves (10).
2. A tray (1) according to claim 1, wherein the upper surface (9) of the elevations (7) comprises one or more notches (11), preferably having a smaller depth than that of the one or more grooves (10).

3. A tray (1) according to claim 1 or 2, wherein the elevations (7) have a substantially cylindrical shape or an oval, square or rectangular plan shape.
4. A tray (1) according to any one of claims from 1 to 3, wherein the upper surface (9) of the elevations (7) comprises two grooves (10) arranged parallel to each other.
5. A tray (1) according to any one of claims from 1 to 4, wherein the elevations (7) have an ordered arrangement, such as along parallel rows.
6. A tray (1) according to any one of claims from 1 to 5, wherein the bottom (2) comprises, in the spaces between one elevation (7) and the adjacent ones, a plurality of blind holes, or wells (12) configured to retain, by capillarity, the fluids released by the food.
7. A tray (1) according to any one of claims from 1 to 6, wherein the side walls (3a, 3b, 3c, 3d) comprise channels (13).
8. A tray (1) according to claim 7, wherein said channels (13) are arranged in a condition of parallelism, being arranged vertically or obliquely, or the channels (13) are arranged crosswise.
9. A tray (1) according to claim 7 or 8, wherein said channels (13) join the peripheral edge (4) to the bottom (2) close to the elevations (7) or end at the junction point of the side walls (3a, 3b, 3c, 3d) to the bottom (2).
10. A tray (1) according to any one of claims from 1 to 9, wherein the bottom (2) comprises one or more portions (14) devoid of elevations (7) and holes or wells (12), and/or one or more portions (15) devoid of only holes or wells (12).
11. A tray (1) according to any one of claims from 1 to 10, wherein the total food-supporting surface, intended as the total surface deriving from the sum of the single upper surfaces (9) of the elevations (7), without the portion occupied by the grooves (10) and by the notches (11), where present, is from 35% to 45% of the total surface of the bottom (2).
12. A tray (1) according to any one of claims from 1 to 11, wherein the elevations (7) have an upper surface (9) from 80 to 100 mm² and a side surface (8) of height from 3 to 7 mm.
13. A tray (1) according to any one of claims from 1 to 12, wherein the elevations (7) have a square plan shape and comprise a groove (10) and a notch (11) placed in a cross, wherein the notch (11) has the same depth as the groove (10), or a smaller depth.

14. A tray (1) according to claim 13, wherein the groove (10) and the notch (11) join respective opposite sides of the elevation (7).

15. A tray (1) according to claim 13 or 14, wherein the upper surface (9) of the elevations (7) is flat. 5

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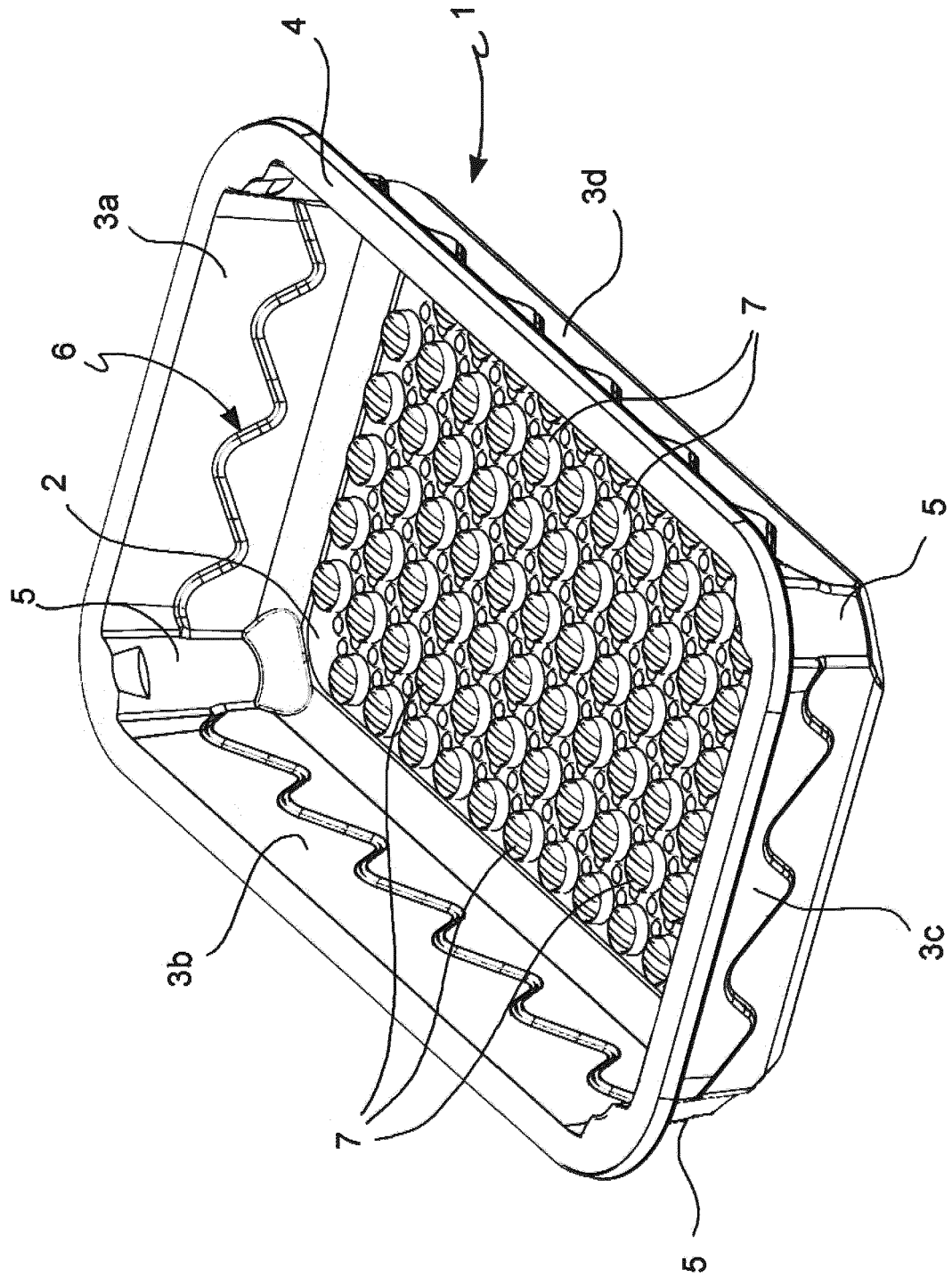


FIG. 1A

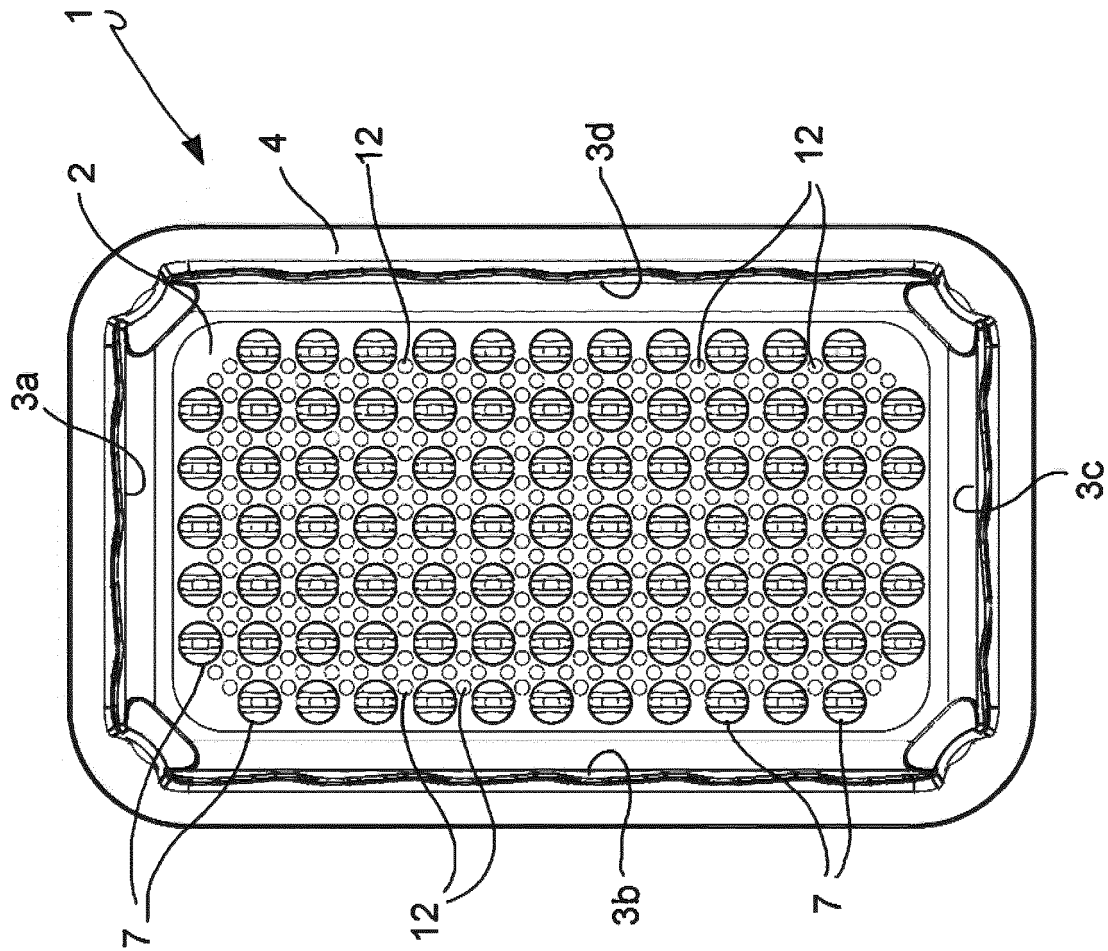


FIG. 1C

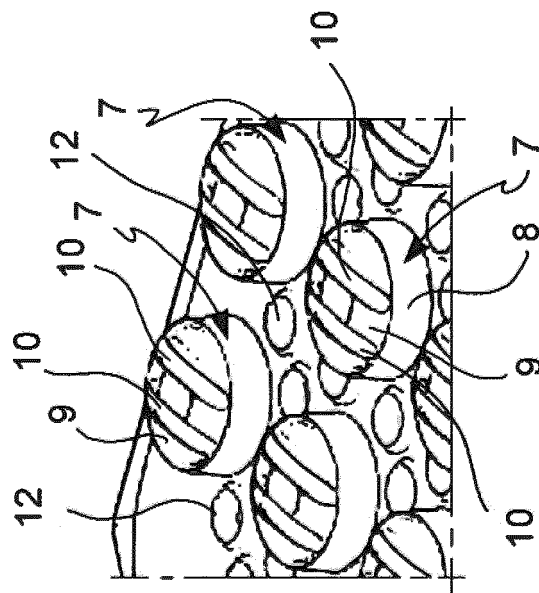
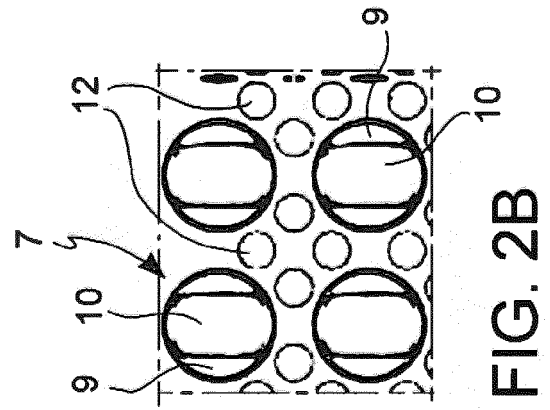
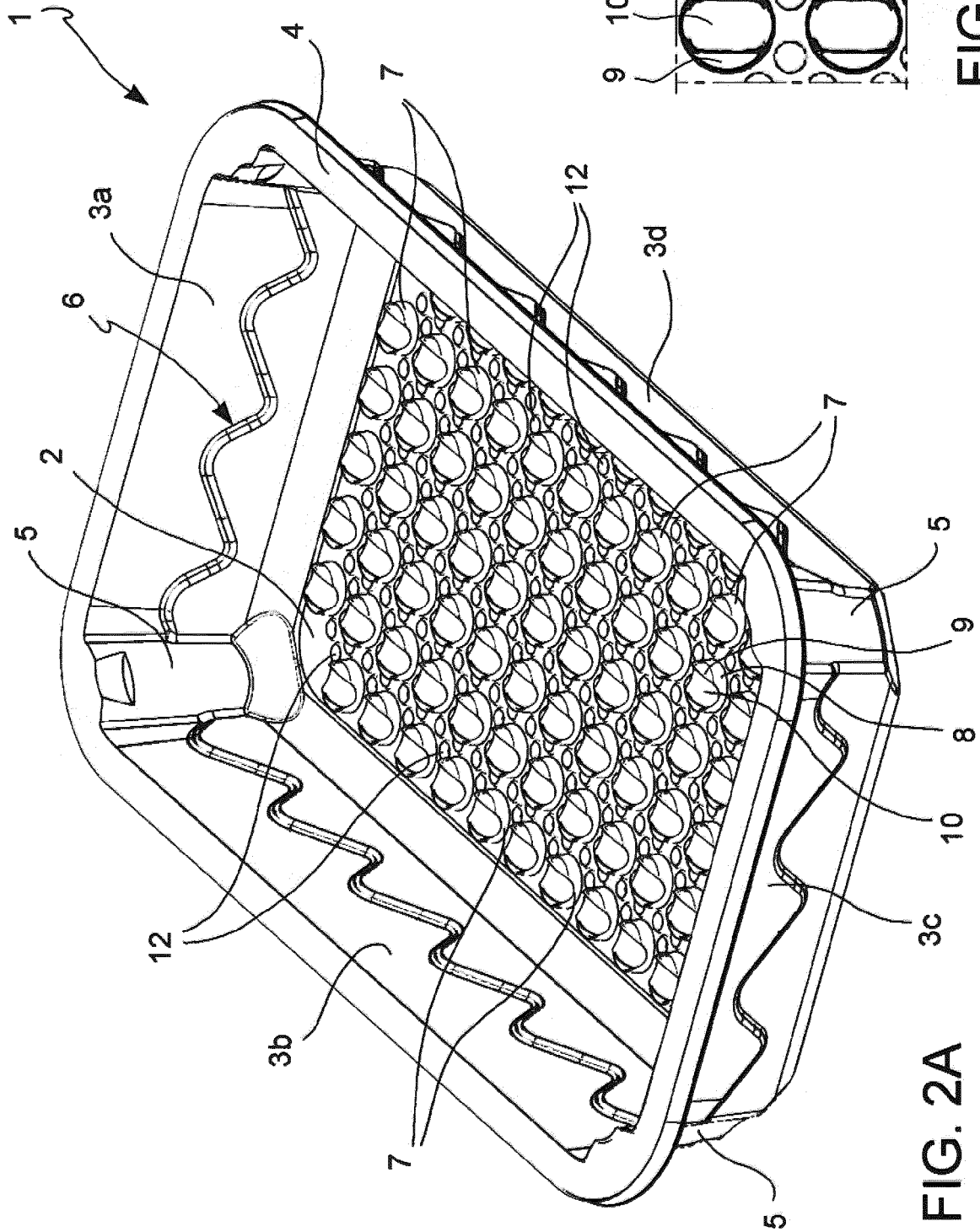


FIG. 1B



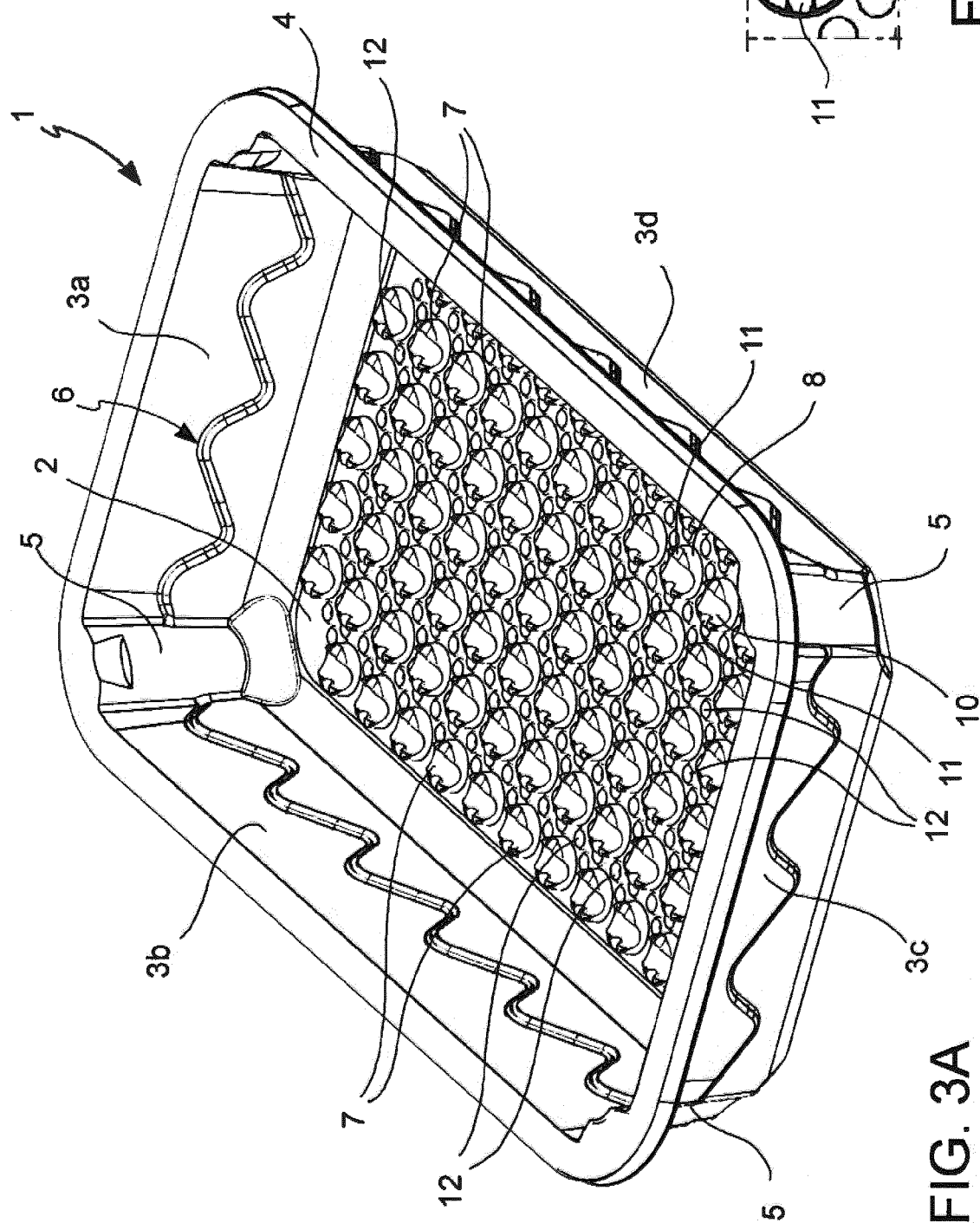


FIG. 3A

FIG. 3B

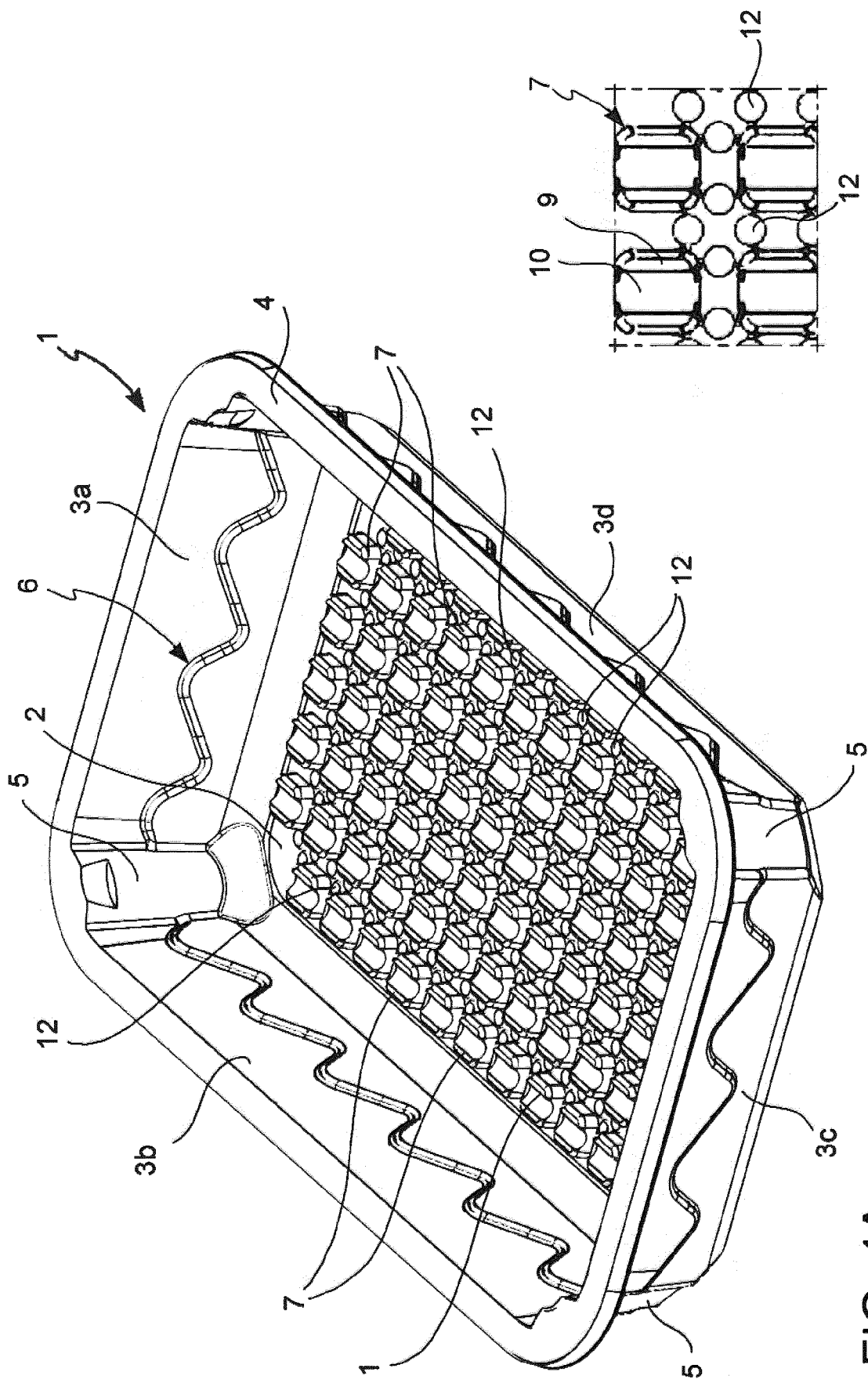


FIG. 4A

FIG. 4B

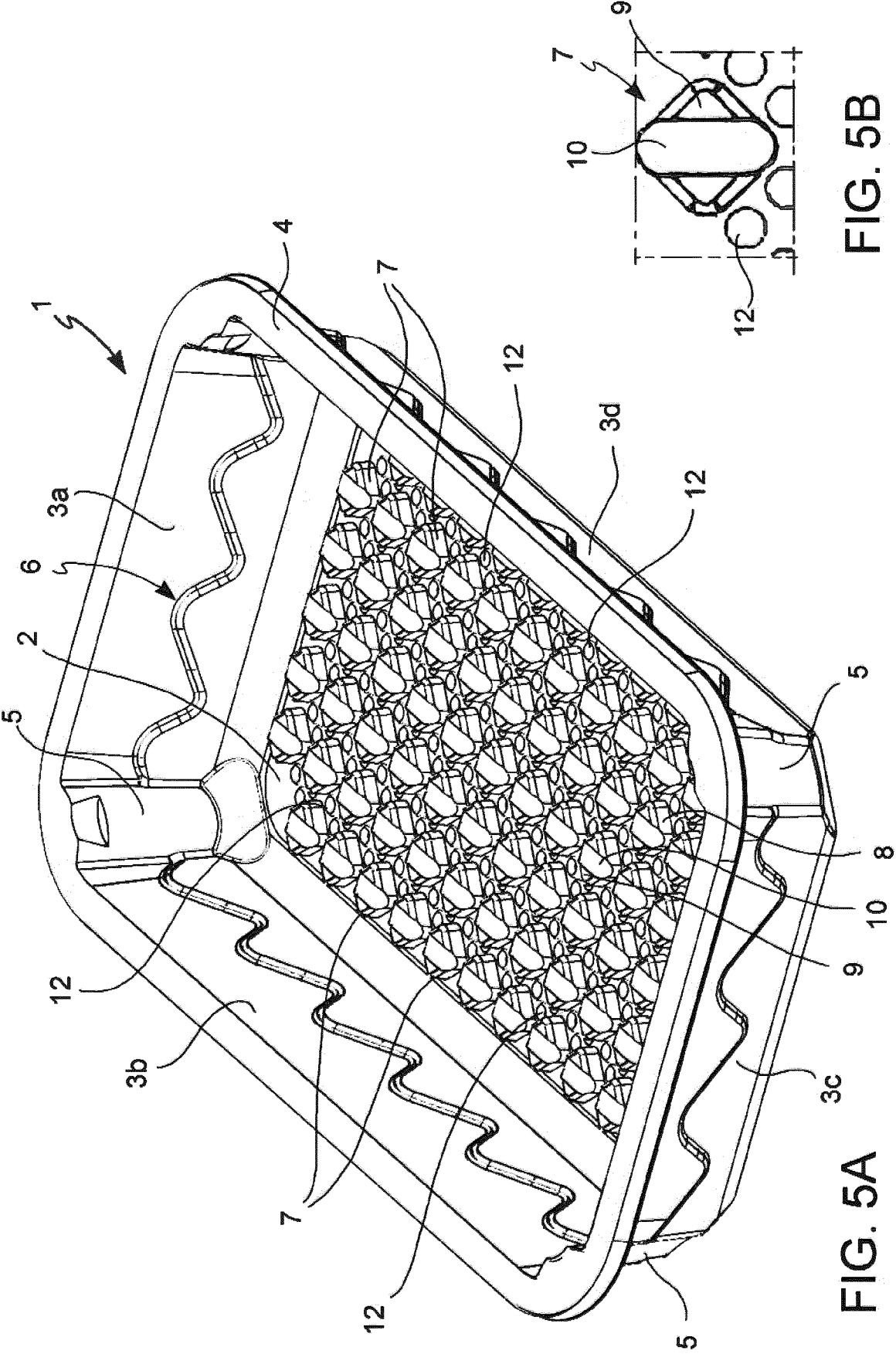


FIG. 5B

FIG. 5A

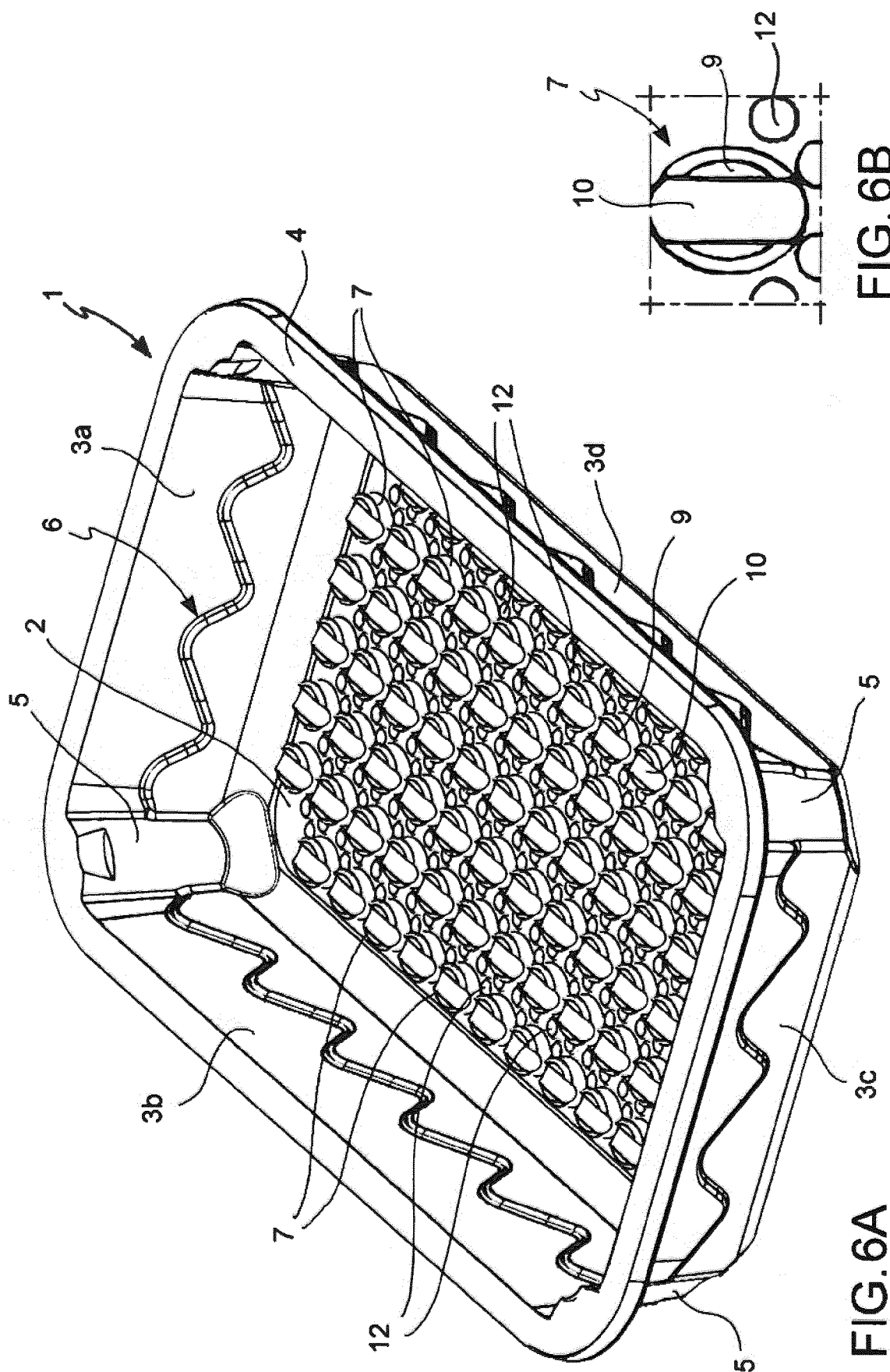


FIG. 6A

FIG. 6B

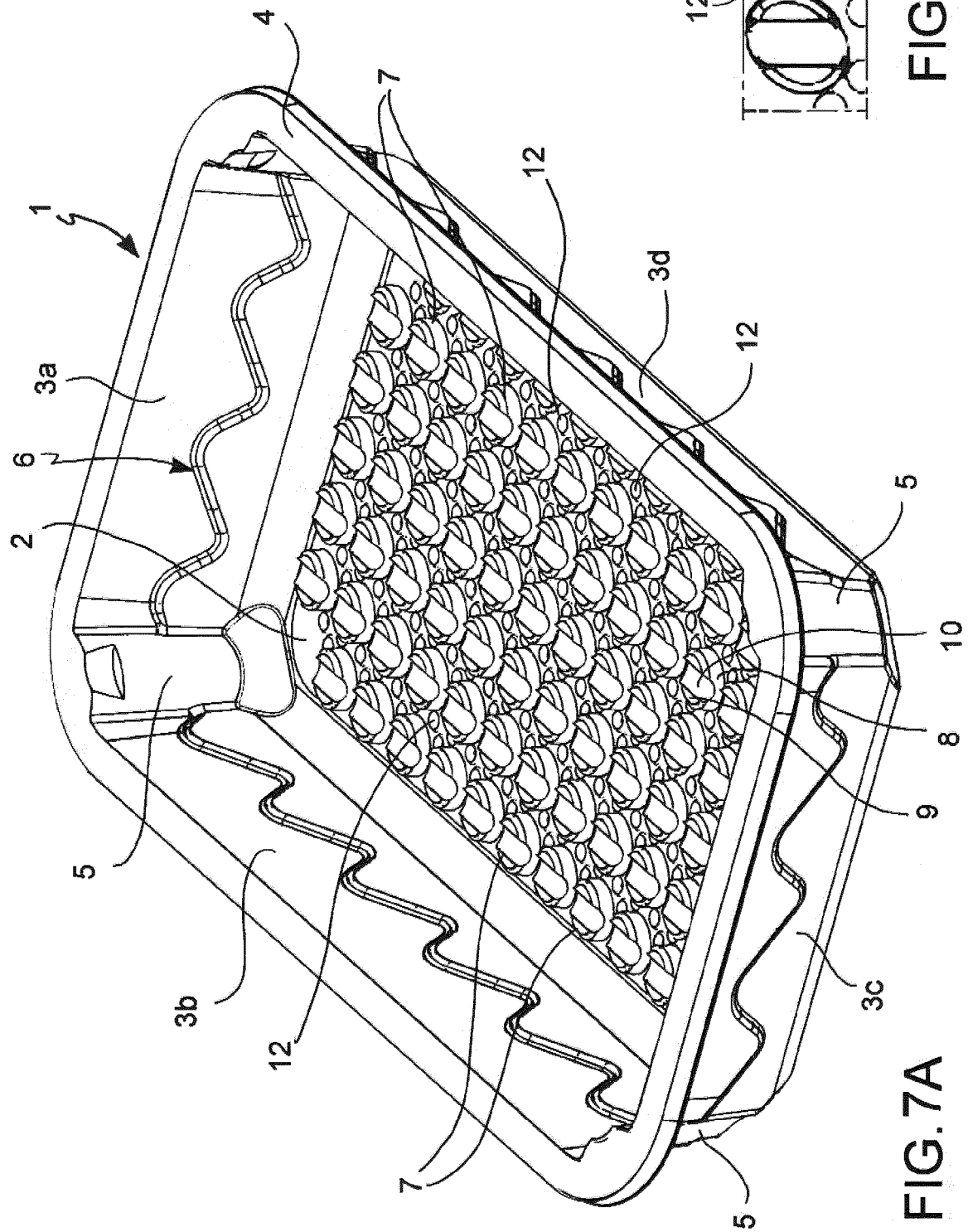


FIG. 7A

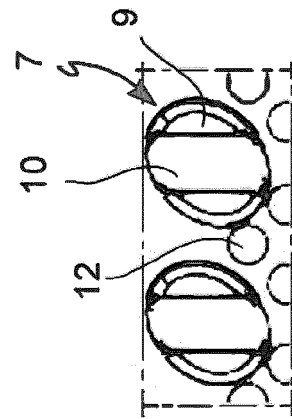


FIG. 7B

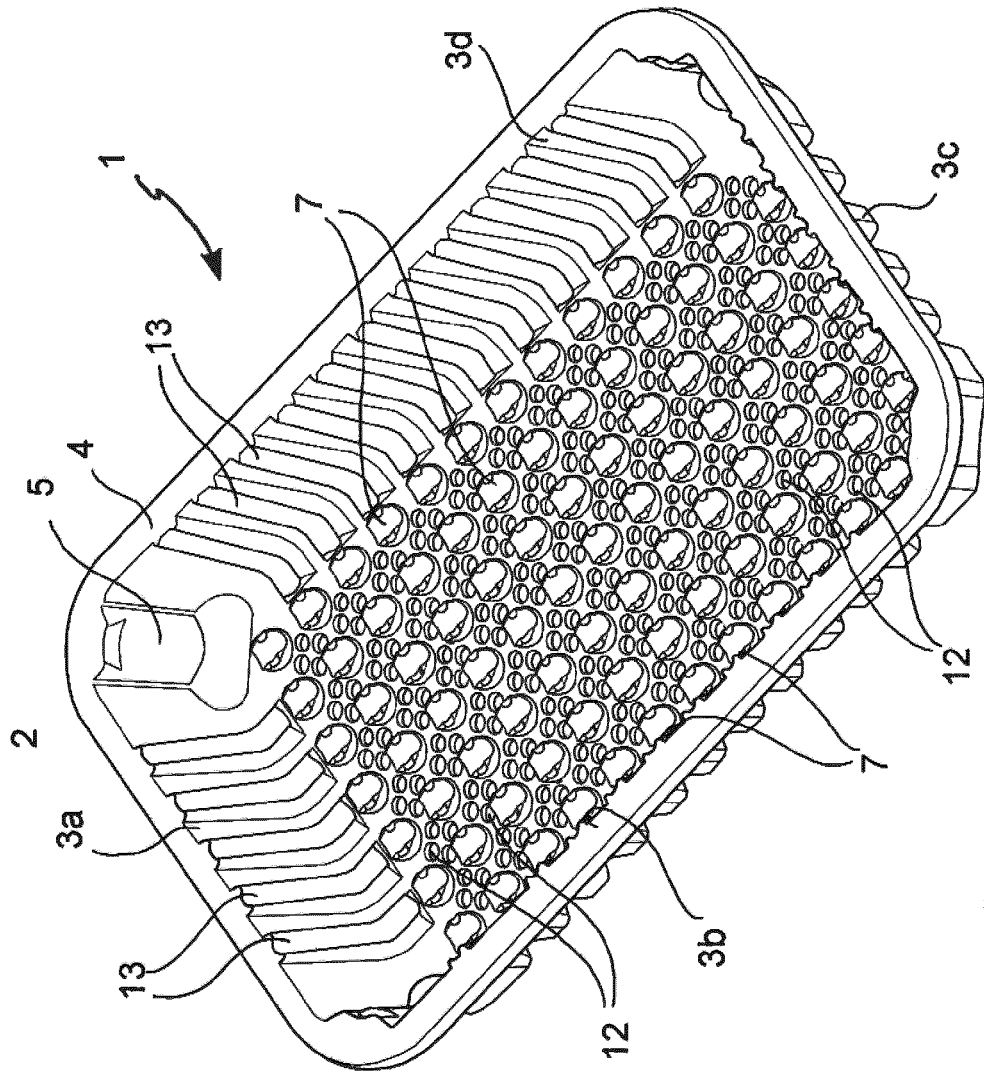


FIG. 8A

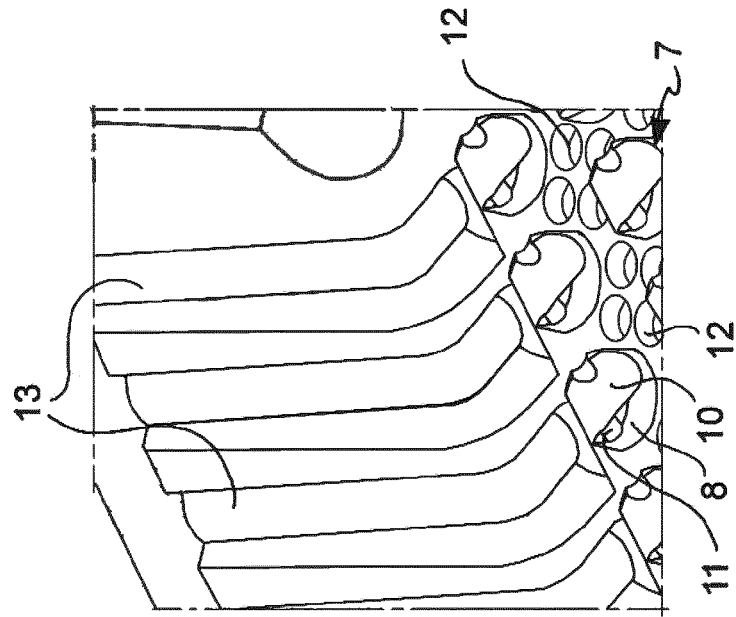


FIG. 8B

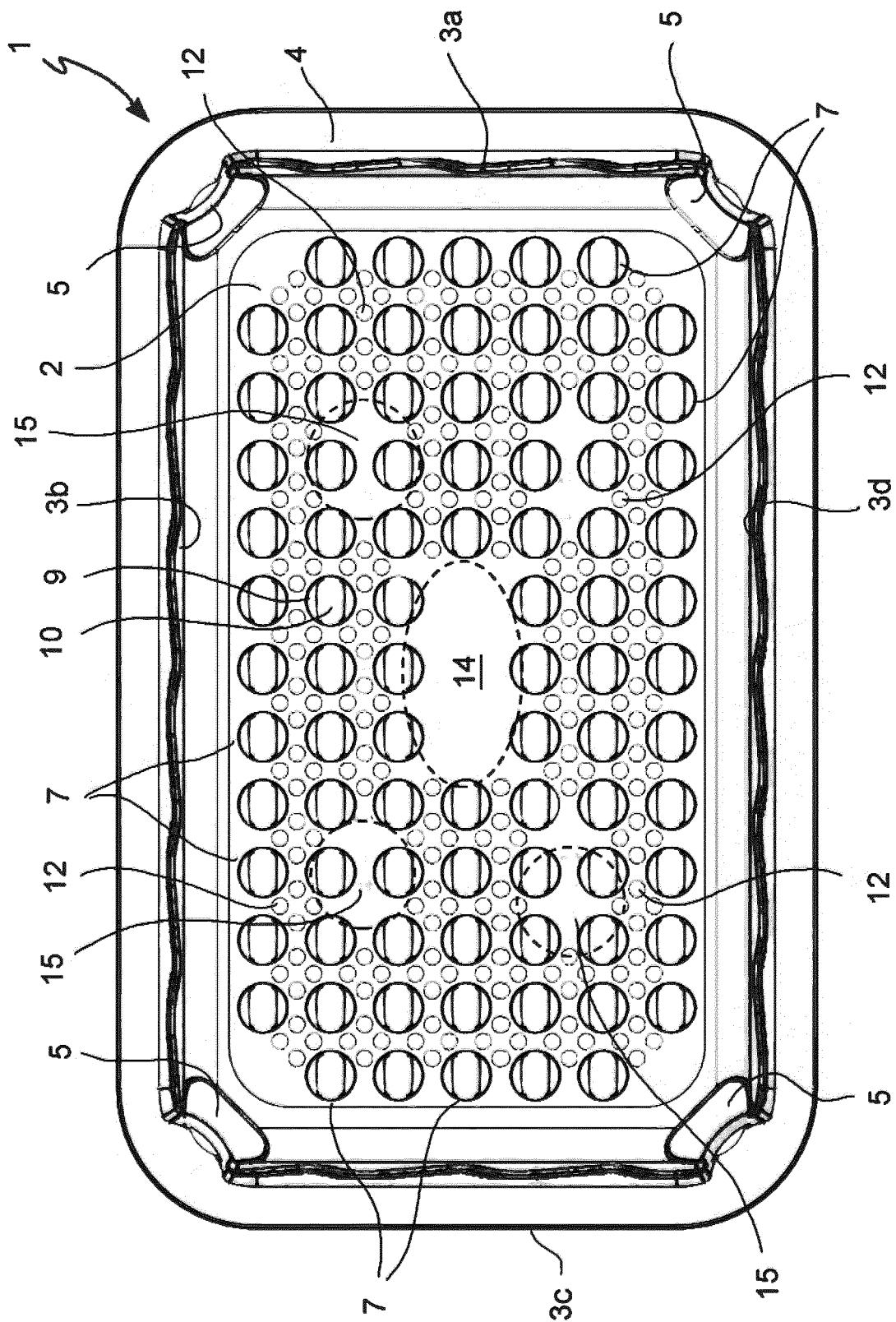


FIG. 9

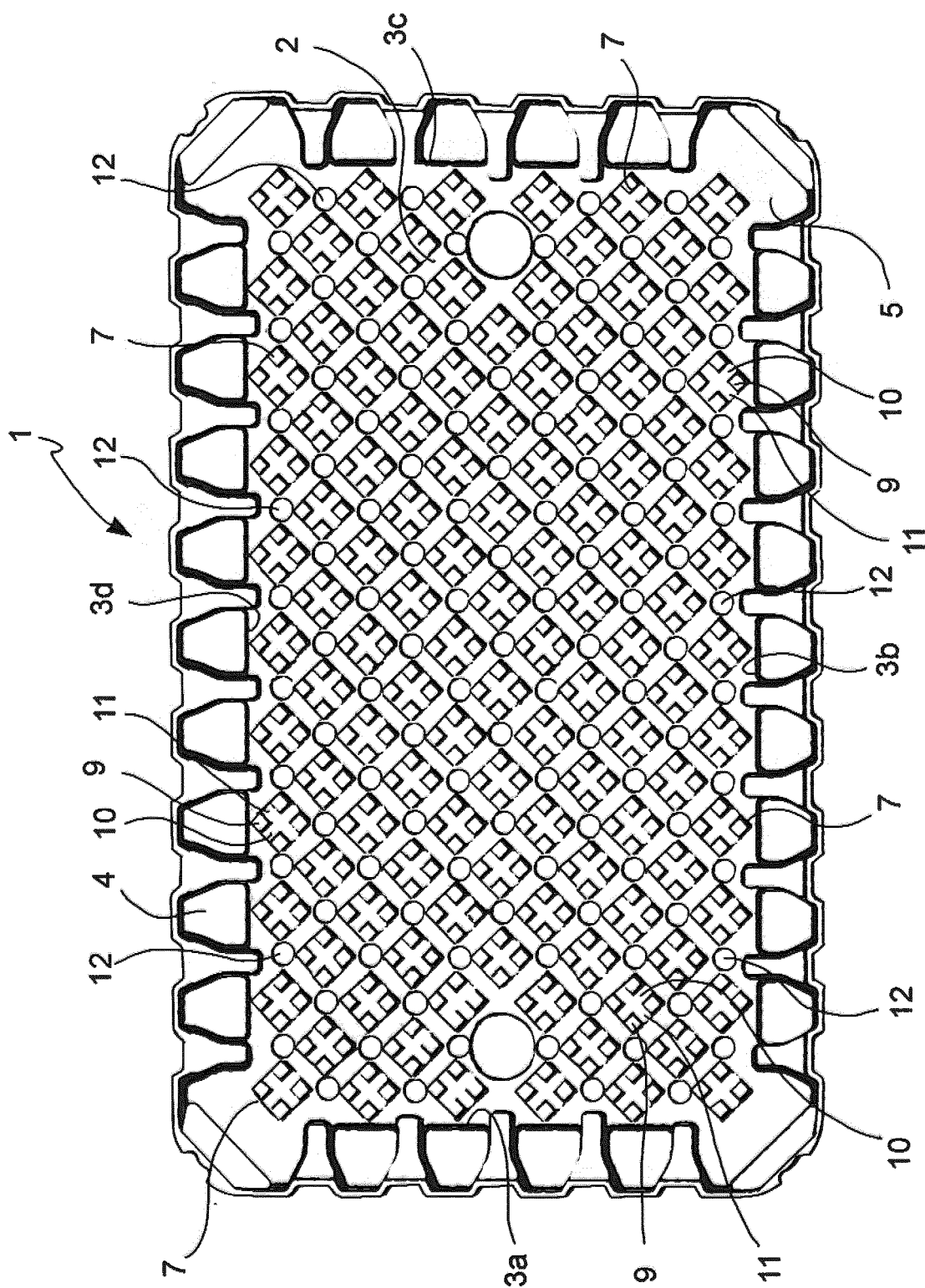


FIG. 10



EUROPEAN SEARCH REPORT

Application Number
EP 19 20 4465

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X	CH 663 943 A5 (BETAN AG) 29 January 1988 (1988-01-29)	1,3-5, 7-12	INV. B65D81/26
A	* page 2, column 1, line 19 - page 2, column 2, line 38; figures 1-3 *	2,6, 13-15	
A	WO 93/14995 A1 (ANDERSEN IRMA [DK]) 5 August 1993 (1993-08-05) * abstract; figures 1-5 *	1-15	
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
Place of search		Date of completion of the search	Examiner
Munich		9 January 2020	Leijten, René
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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