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Remarks:

In accordance with the last part of Article 14 (2) EPC the applicant has filed a text with which it is intended to bring the translation into conformity with the original text of the application.

(54) **Bottle tray**

(57) This publication discloses a bottle tray (1) for single bottles and bottles bundled into a multipack package, such as a multipack package comprising bottles in at least two parallel rows and a carrier/sleeve enclosing the bottles, the top surface of the bottle tray (1) having thereon bottle pockets (2) in at least two parallel rows to accommodate bottles in a multipack and first support members (3) for supporting the multipack laterally from two opposite sides, and the bottom of the bottle tray (1)

being provided with support surfaces (5, 6) for supporting the bottle tray (1) to bottles underlying the bottle tray (1). Second support members (4) are provided on the top surface of the bottle tray (1) for supporting bottles placed in the pockets (2), whereby the second support members (4) are adapted into the spaces between the parallel rows of pockets formed between the first support members (3) and have a height smaller than that of the first support members (3).

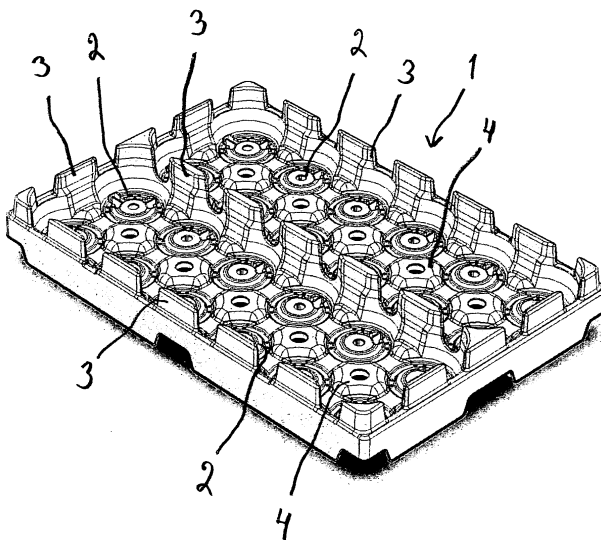


Fig. 1

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Description

[0001] The invention relates to a bottle tray according to the preamble of claim 1 for single bottles and multi-bottle packs. This kind of low-height bottle tray comprises bottle pockets for receiving bottles bundled into a multipack package and support members for supporting such a multipack from at least two sides.

[0002] Handling of bottles generally takes place with the help of various bottle trays. Bottle trays are employed, e.g., for storage and transport of bottles in the brewery industry as well as in the wholesale and retail business. Typical examples of bottles suitable for transport in bottle trays are plastic bottles such as PEN and PET bottles filled with beverages. Obviously, the bottle may also be of glass or of both glass and plastic combined. Bottles are further used for storage of liquids and other materials.

[0003] On their top side, bottle trays have concavities, partitions and other support members for supporting the bottom of bottles to be placed in the bottle tray. Conventional bottle trays are described in patent publications, e.g., in US 4,978,002. Bottle trays known from such publications have the pockets supporting the bottles delineated by vertical pillars. However, this kind of bottle tray is ill suited for supporting multipacks packaged in a shrink film carriers, because the bottle tray pillars entering the spaces between the bottles of the multipack sever the plastic shrink film of the carrier, whereby the pack may be torn as it is removed from the bottle tray. Multipacks packaged in shrink film carriers can be placed in bottle trays free from support members that need to fit into the spaces between the bottles. However, this bottle tray type is not suited for transport of individual bottles, because the bottles tip/tilt readily due to the insufficient support provided thereto. Hence, these bottle trays cannot be used for transporting, e.g., empty reusable bottles returned to a shop back to a beverage factory, but rather the bottle trays must be hauled back empty thus consuming extra space in the vehicle performing the transport.

[0004] It is an object of the present invention to provide a bottle tray suited for the transport of both single bottles and multipacks.

[0005] The goal of the invention is attained by providing the top surface of the bottle tray with first support members serving to support a multipack placed in the pockets of the bottle tray from two opposite directions. In addition to these, situated between the first support members and aligned between two adjacent bottle pocket rows are adapted second support members serving to support bottles placed in the bottle pockets, the second support members having a height smaller than that of the first support members.

[0006] In a preferred embodiment of the invention, the second support members are adapted into the spaces remaining between the four adjacent pockets as the pockets are aligned in two parallel rows. Resultingly, the

second support members give support to the bottles placed in the pockets thereof. Advantageously, second support members are adapted at each point embraced by the four adjacent pockets delineated by the above-mentioned first support members. In a second preferred embodiment of the invention, the second support members extend maximally to the same height as the curved portion between the side and bottom of the bottle type intended to be transported in the tray.

[0007] More specifically, the bottle tray according to the invention is characterized by what is stated in the characterizing part of appended claim 1.

[0008] The invention provides significant benefits.

[0009] The bottle tray according to the invention can support both individual bottles and multipacks without causing damage to the carrier of the multipack. Hence, the bottle tray can be used for transport of multipacks from a beverage factory to a shop and for return of empty bottles from the shop back to the beverage factory.

[0010] In the following, the invention is examined in more detail with the help of the exemplifying embodiments and making reference to the appended drawings in which

FIG. 1 shows a bottle tray according to the invention in a perspective view taken obliquely from above;

FIG. 2 shows the bottle tray of FIG. 1 in a perspective view taken obliquely from below;

FIG. 3 shows the bottle tray of FIG. 1 in a top view;

FIG. 4 shows the bottle tray of FIG. 1 in a bottom view;

FIG. 5 shows the bottle tray of FIG. 1 in a side elevation view;

FIG. 6 shows the bottle tray of FIG. 1 in an end elevation view; and

FIG. 7 shows a partially enlarged view of four adjacent bottle compartments aligned in two parallel rows on the bottle tray top surface and of a second support member adapted in the space therebetween.

[0011] Referring to FIG. 1, the bottle tray illustrated therein is designed to hold 24 bottles. As a rule, bottle trays are intended to accommodate at least 4 bottles, typically 6 to 144 bottles. The bottle tray 1 is made of a polymeric material. Bottles to be placed in the bottle tray 1 may be single bottles and/or packaged into multipacks. A multipack is made by bundling multiple bottles into a pack with the help of a carrier. The carrier may be of shrink film or paperboard. The bottle tray 1 according to the invention is particularly suitable for bottle packages of the multipack type having the bottles placed in two

parallel rows and enclosed in a shrink film package. The bottles are located in the package with the sides of adjacent bottles facing each other. The shrink film covers the bottom, sides and ends of the multipack. Typically, this kind of multipack contains at least 4 bottles, maxi-

[0012] To accommodate bottles to be placed into the bottle tray 1, the top side of bottle tray 1 is provided with bottle pockets 2, each one of them being dimensioned to hold one bottle. Single bottles and/or multipacks are placed into the pockets 2 resting therein on their bottoms. The bottom shape of pocket 2 is compliant with the bottom shape of the bottle, whereby the bottle placed into the pocket 2 self-centers itself thus securing its upright position on the bottle tray 1. The bottle tray 1 illustrated in the diagrams is suited, e.g., to the transport of beverage PET bottles having a central recess at the bottle bottom. Then, the center portion 7 of the bottom in the pocket 2 is made concave to help the bottle act self-centeringly when placed into the pocket 2. The concave center portion 7 of the pocket 2 is surrounded by a groove 8 capable of accommodating the rim of the bottle bottom.

[0013] On the top surface of the bottle tray 1 illustrated in the diagrams, the pockets 2 are aligned in four parallel rows. The top surface of the pocket 1 is provided with first support members 3 serving to support the bottles in pockets 2 from the sides. The first support members 3 encircle the periphery of the top surface of the bottle tray 1. An additional set of first support members 3 is provided centrally on the top surface of the bottle tray 1 so as to divide the tray top into two equal areas. Thus, between the support members 3 situated at one side of the bottle tray 1 and those at the center thereof are formed two parallel rows of pockets 2 and, respectively, also two rows of pockets 2 are formed between the support members 3 situated at the other side of the bottle tray 1 and those at the center thereof. The multipack is placed onto the bottle tray 1 into the space formed between the support members 3 situated at one side of the bottle tray 1 and those at the center thereof, whereby the first support members 3 give support to the multipack from two opposite sides. The bottoms of the bottles in the multipack fall into the pockets 2 formed between the support members 3 situated at one side of the bottle tray 1 and those at the center thereof.

[0014] For additional support to the bottles placed into the pockets 2, the top surface of the bottle tray 1 is also provided with second support members 4 with a height smaller than that of the first support members 3. The second support members 4 are adapted into the spaces between the first support members 3 situated at the sides of the bottle tray 1 and those at the center thereof

so that the second support members 4 are located in the space remaining between each four adjacent pockets (i.e., in the space remaining between the succession of pockets 2 aligned in two adjacent rows). Advantageously, each one of such spaces remaining between the four adjacent rows of pockets 2 are provided with these second support members 4. Resultingly, each one of the support members 4 gives support to four bottles placed in separate pockets 2. In the embodiment illustrated in the diagrams, the number of second support members 4 is five between the center of the bottle tray and the first support members 3 at the left side thereof, as well as five between the center of the bottle tray and the first support members 3 at the right side thereof. The second support members 4 are so shaped that they give support to the bottles placed in any of one of the pockets 2 situated about the support members.

[0015] When a multipack formed with the help of a shrink film is placed into the bottle tray 1, the portion of shrink film covering the multipack bottom remains, on one hand, between the pocket 2 and the bottle inserted therein and on the other hand, above the second support members 4. To avoid severing the shrink film, the height of the second support members 4 shall be made smaller than that of the first support members 3 that are adapted to give lateral support to the bottles of the multipack and/or single bottles. The height of the second support members 4 must be determined to suite the height, diameter and shape of the bottle type intended to be accommodated by the bottle tray 1. Advantageously the second support members 4 may extend maximally to the same height as the curved portion between the side and bottom of the bottle type intended to be transported in the pocket 2 of the bottle tray. Typically the second support members 4 extend to the height of 2 mm minimum from the bottom surface of pocket 2, however, not higher than 40 mm from the bottom surface of pocket 2. Herein, any reference to the bottom surface of pocket 2 must be understood to mean the level or point which accommodates the bottom portion of a bottle inserted into the pocket 2 that bears the weight of the bottle when it is placed upright on a level surface. In the embodiment illustrated in the diagrams, this bottom surface of pocket 2 is formed by groove 8.

[0016] Analogously, the height of the second support members 4 must be determined to suit the height, diameter and shape of the bottle type intended to be accommodated by the bottle tray 1. To obtain a sufficiently secure supporting effect, the first support members 3 are adapted to extend at least 3 cm from the from the bottom surface of the pocket, however, not higher than 10 cm from the bottom surface of the pocket. Typically the first support members 3 extend to the height equal to 1/8 to 1/3 of the height of the bottle type intended to be transported in the bottle tray 1.

[0017] The bottle trays 1 according to the invention are stackable on each other after they are loaded with bottles. The bottom surface of the bottle tray 1 has sup-

port surfaces 5 formed as recesses on which the bottle tray 1 rests supported by the caps/closures and/or mouths of the underlying bottles. As is evident from FIG. 2, at the side of the first support surfaces 5 on the bottom of the bottle tray 1 are made second support surfaces 6 that support the bottom tray 1 in the lateral direction as the tray 1 rests on the underlying bottles. The bottom of the bottle tray is further provided with ridges 9 shaped so as to meet the side of the cap/closure of the underlying bottle, whereby the lateral support of the bottle tray is further improved.

bottom surface (8) of the pocket (2).

Claims

1. A bottle tray (1) for single bottles and bottles bundled into a multipack package, the multipack package comprising bottles in at least two parallel rows and a carrier/sleeve enclosing the bottles, the top surface of the bottle tray (1) having thereon bottle pockets (2) in at least two parallel rows to accommodate bottles in a multipack and first support members (3) for supporting the multipack laterally from two opposite sides, and the bottom of the bottle tray (1) being provided with support surfaces (5, 6) for supporting the bottle tray (1) to bottles underlying the bottle tray (1), **characterized by** having second support members (4) on the top surface of the bottle tray (1) for supporting bottles placed in the pockets (2), said second support members (4) being adapted into the spaces between the parallel rows of pockets formed between said first support members (3) and a height smaller than that of the first support members (3).
2. The bottle tray of claim 1, **characterized in that** the second support members (4) are adapted into the spaces remaining between four adjacent pockets (2) as the pockets are aligned in two parallel rows.
3. The bottle tray of claim 1 or 2, **characterized in that** the second support members (4) extend to a height not smaller than 2 mm from the bottom surface (8) of the pocket (2).
4. The bottle tray of any one of claims 1-3, **characterized in that** the second support members (4) extend to a height not greater than 40 mm from the bottom surface (8) of the pocket (2).
5. The bottle tray of any one of foregoing claims, **characterized in that** the first support members (3) extend to a height not smaller than 3 cm from the bottom surface (8) of the pocket (2).
6. The bottle tray of any one of foregoing claims, **characterized in that** the first support members (3) extend to a height not greater than 10 cm from the

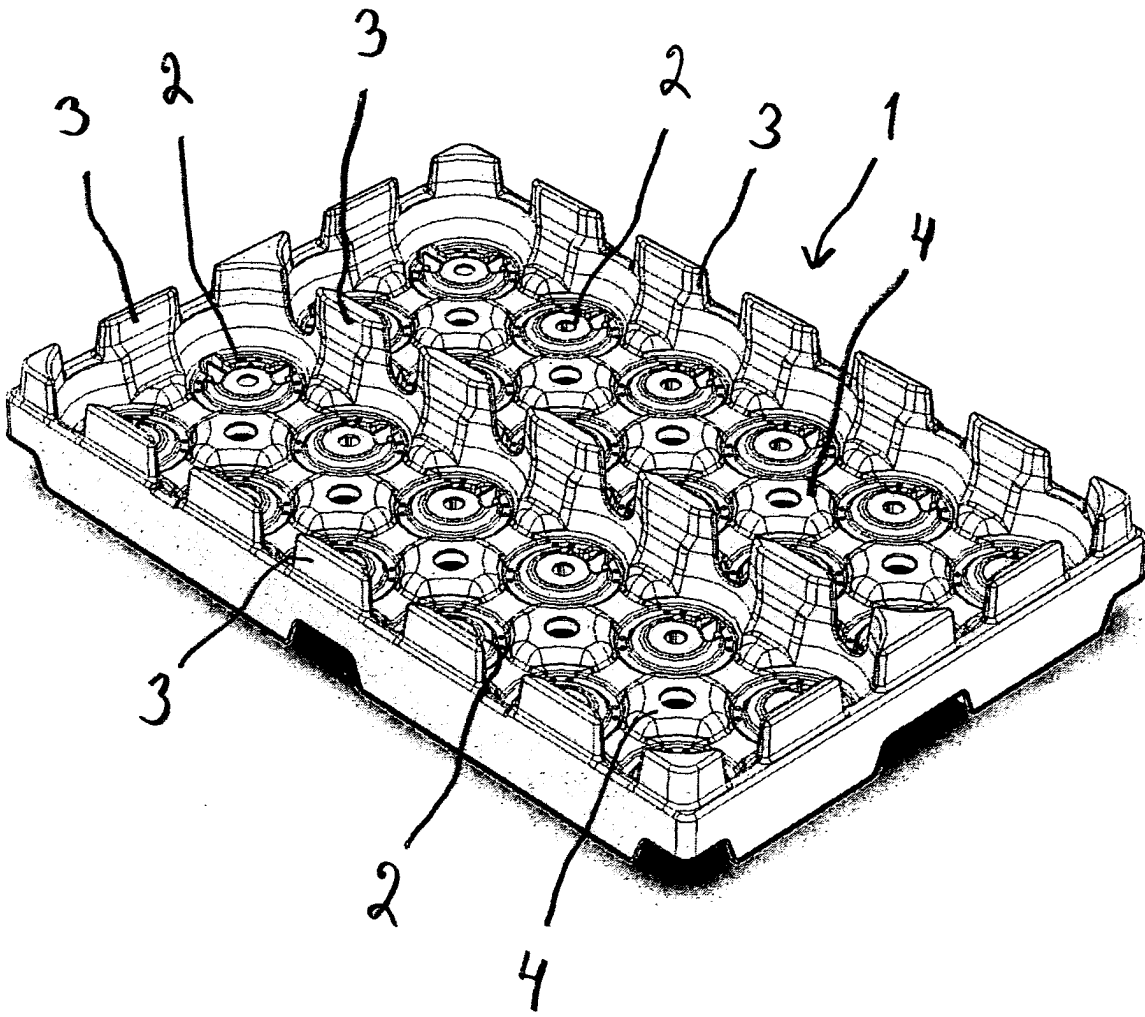


Fig. 1

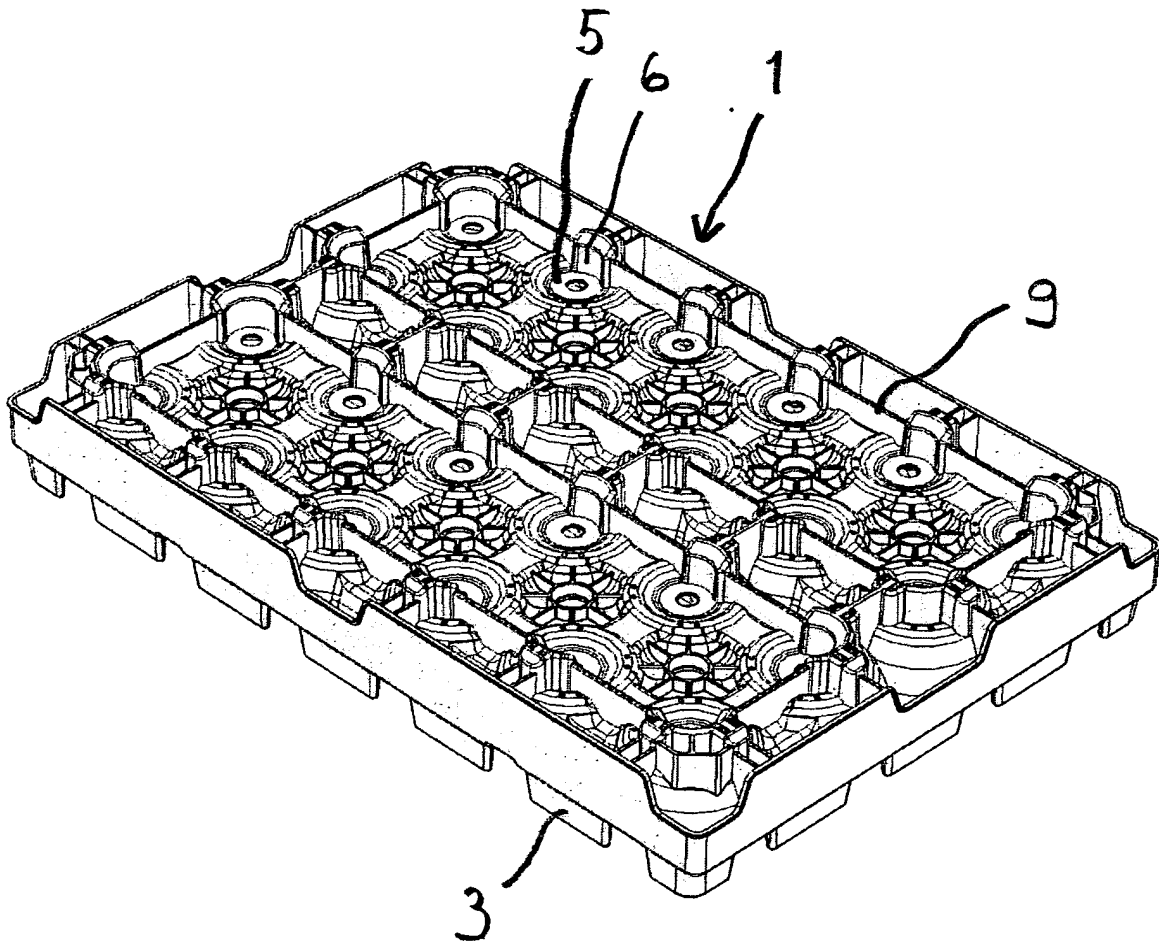
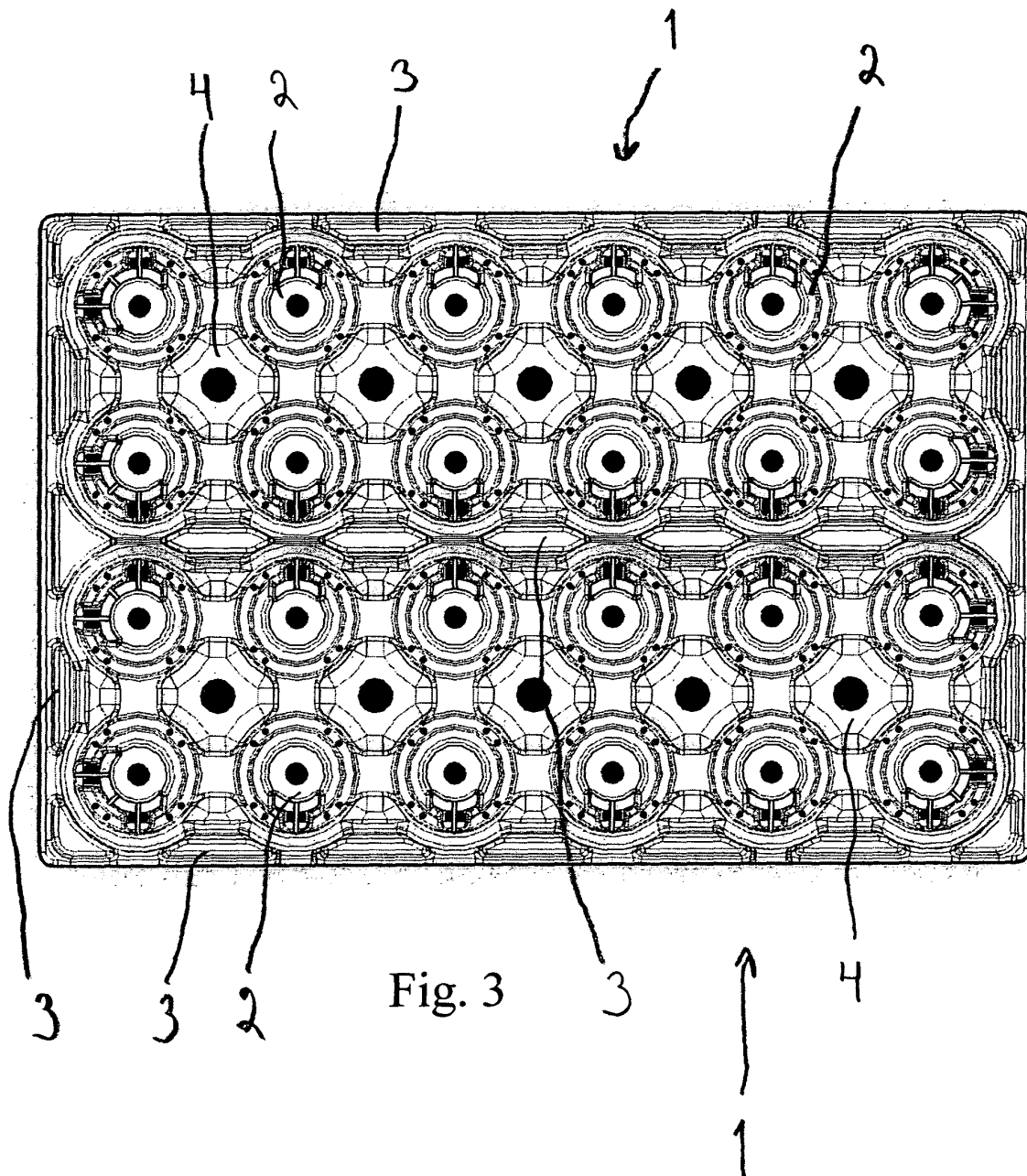


Fig. 2



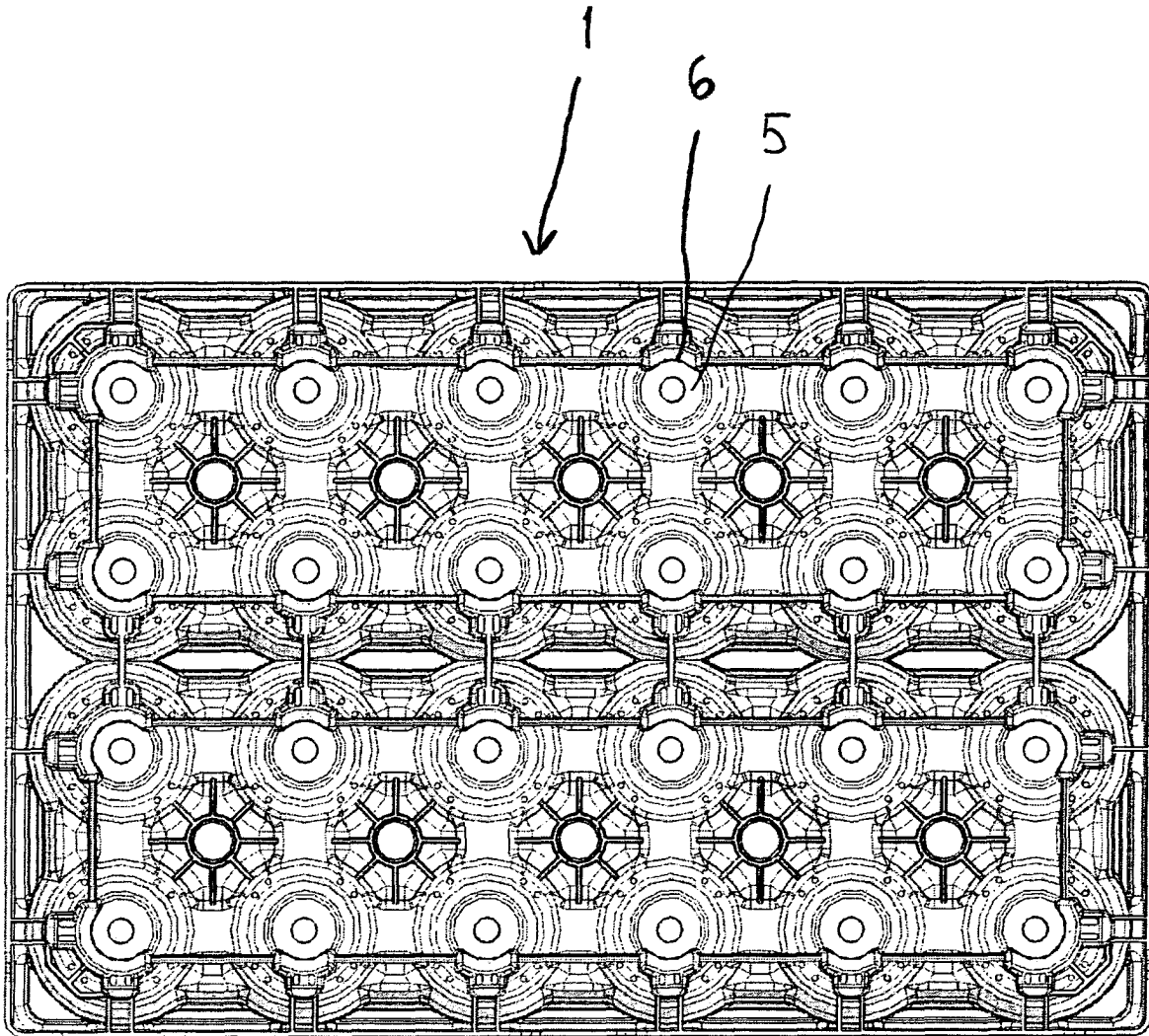


Fig. 4

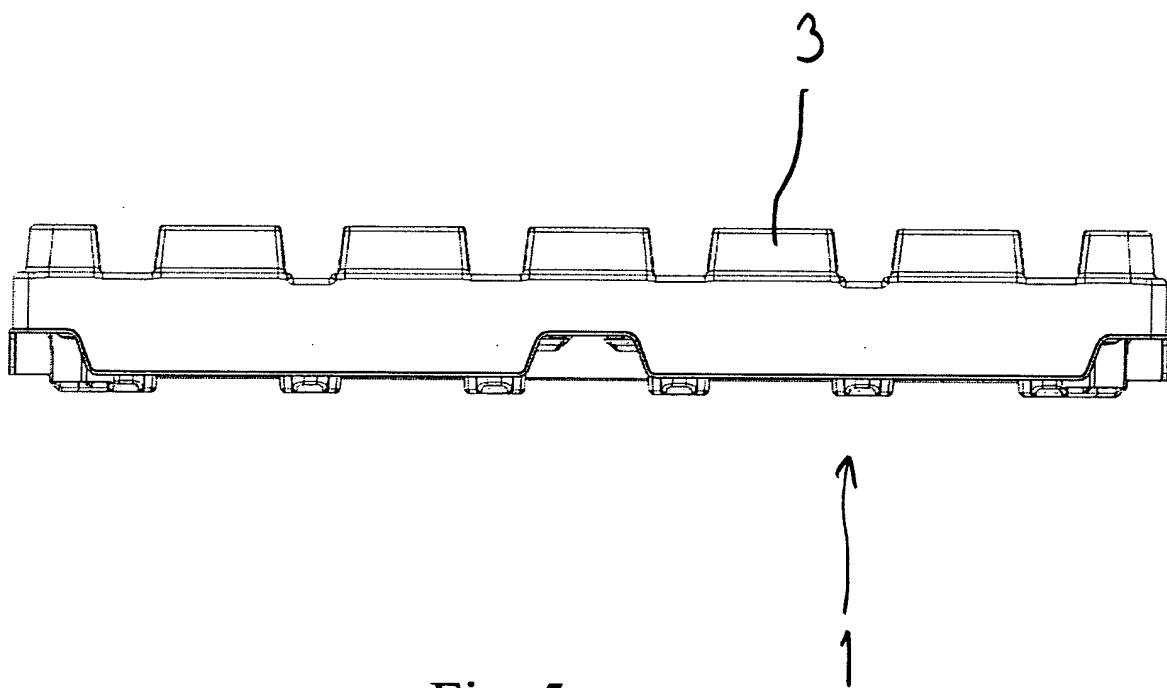


Fig. 5

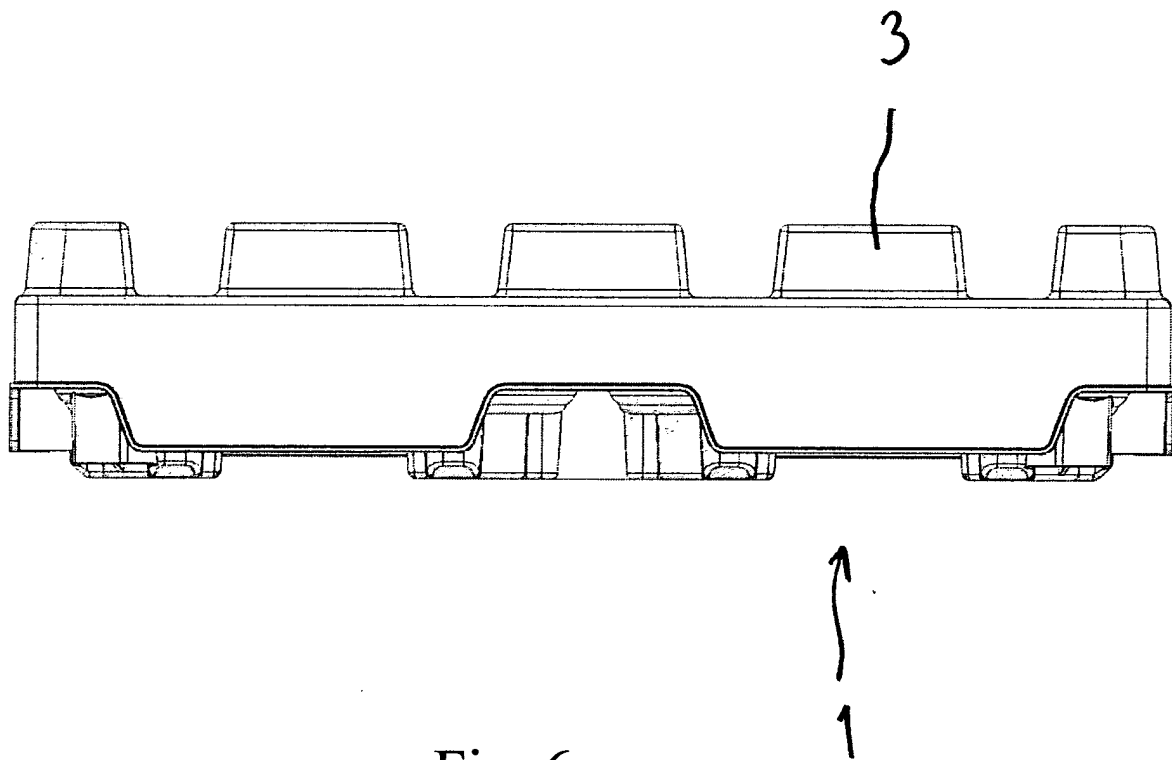


Fig. 6

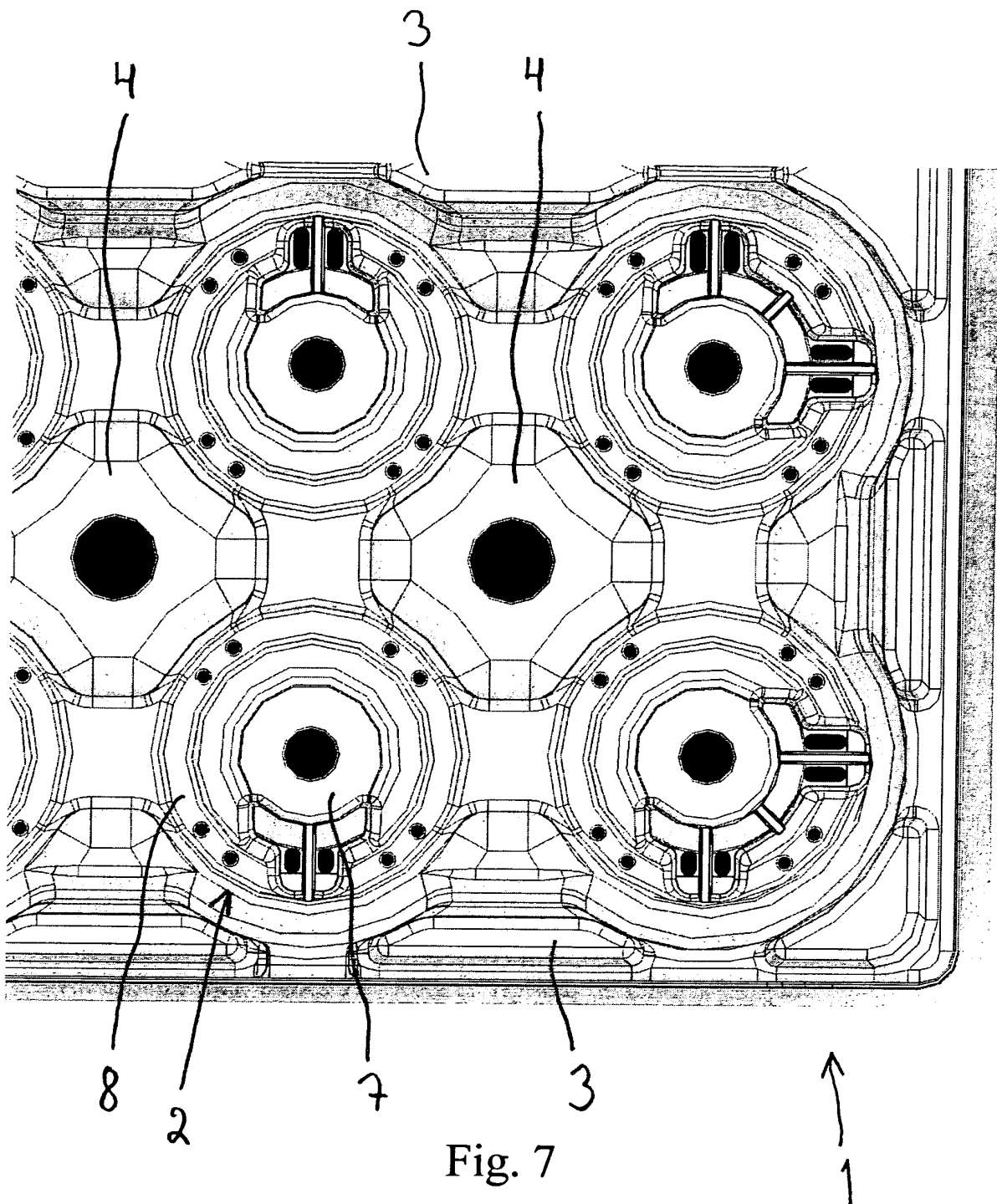


Fig. 7



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EUROPEAN SEARCH REPORT

Application Number
EP 05 39 6017

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	NL 1 007 612 C2 (HEINEKEN TECHNICAL SERVICES B.V) 26 May 1999 (1999-05-26) * page 11, line 3 - page 12, paragraph 2; figures 1,4,5,7,8 *	1-6	B65D71/00
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 July 2005	Examiner Segerer, H
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 39 6017

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