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(54) **Bottle tray**

Flaschenträger

Plateau pour bouteilles

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Description

[0001] The invention relates to a system comprising a bottle tray and bottles according to the preamble of claim 1 for single bottles and multipack 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] NL-1 007 612 discloses a tray for transporting multipacks packed in cardboard and also single bottles.

[0005] It is an object of the present invention to provide a system comprising a bottles and a bottle tray suited for the transport of both single bottles and multipacks.

[0006] 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.

[0007] The second support members are adapted into the spaces remaining between the pockets which are aligned in parallel rows. Resultingly, the second support

members give support to the bottles placed in the pockets thereof. Advantageously, the second support members are adapted at each point embraced by four adjacent pockets delineated by the above-mentioned first support members. According to 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.

[0008] More specifically, the bottle tray system according to the invention is characterized by what is stated in the characterizing part of appended claim 1.

[0009] The invention provides significant benefits.

[0010] 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.

[0011] 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.

[0012] 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, maximally 12 bottles. The indexing conveyor according to the invention is also suited for use with other types of multipacks including packages wherein the bottles are connected to each other by means of a carrier made of paperboard or the like packaging means adaptable about the bottle necks.

[0013] 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 convex to help the bottle act self-centeringly when placed into the pocket 2. The convex center portion 7 of the pocket 2 is surrounded by a groove 8 capable of accommodating the rim of the bottle bottom.

[0014] 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.

[0015] 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.

[0016] 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. The second support members 4 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.

[0017] 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.

[0018] 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 support 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.

Claims

1. A system comprising a bottle tray (1) for single bottles and bottles bundled into a multipack package comprising bottles in at least two parallel rows and a carrier or sleeve enclosing the bottles, the system including at least one bottle having a curved portion between the side and the bottom of the bottle arranged on the bottle tray (1) as a single bottle or bundled into a multipack package, 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) by means of bottles underlying the bottle tray (1), the top surface of the bottle tray (1) having second support members (4) 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) with a height smaller than that of the first support members (3), **characterized in that** the second support members (4) extend maximally to the same height as the curved portion between the side and the bottom of the at least one bottle comprised in the system.
2. The system 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 system 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 system 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 system 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 system 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 bottom surface (8) of the pocket (2).

Patentansprüche

1. System, umfassend einen Flaschentray bzw. -schale (1) für einzelne Flaschen und Flaschen, die in einem Multipackgebinde gebündelt sind, umfassend Flaschen in mindestens zwei parallelen Reihen und einen Träger oder eine Umhüllung, welche die Flaschen umschließt, wobei das System mindestens eine Flasche mit einem gekrümmten Teil zwischen der Seite und dem Boden der Flasche beinhaltet, der auf der Flaschenschale (1) als einzelne Flasche oder gebündelt in einem Multipack angeordnet ist, wobei die obere Fläche der Flaschenschale (1), die darauf in mindestens zwei parallelen Reihen Flaschenablagen (2) aufweist, um Flaschen in einem Multipack aufzunehmen und erste Stützelemente (3) aufweist, um das Multipack seitlich von zwei gegenüberliegenden Seiten zu stützen und wobei der Boden der Flaschenschale (1) mit Stützflächen (5, 6) versehen ist, um die Flaschenschale (1) mittels Flaschen zu stützen, die unter der Flaschenschale (1) liegen, wobei die obere Fläche der Flaschenschale (1), die zweite Stützelemente (4) aufweist, um Flaschen zu stützen, die in den Ablagen (2) platziert wurden, wobei die zweiten Stützelemente (4) in den Zwischenräumen zwischen den parallelen Reihen der Ablagen eingerichtet sind, die zwischen den ersten Stützelementen (3) mit einer Höhe gebildet sind, die geringer ist als die der ersten Stützelemente (3), **dadurch gekennzeichnet, dass** die zweiten Stützelemente (4) sich maximal bis zur gleichen Höhe wie der gekrümmte Teil zwischen der Seite und dem Boden der mindestens einen Flasche erstrecken, die in dem System enthalten ist.
2. System gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die zweiten Stützelemente (4) in den Zwischenräumen, die zwischen vier benachbarten Ablagen (2) vorhanden sind, eingerichtet sind, da die Ablagen in zwei parallelen Reihen angeordnet sind.
3. System gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die zweiten Stützelemente (4) sich bis zu einer Höhe von nicht weniger als 2 mm von der Bodenfläche (8) der Ablage (2) erstrecken.
4. System gemäß Anspruch 1 bis 3, **dadurch gekennzeichnet, dass** die zweiten Stützelemente (4) sich bis zu einer Höhe von nicht mehr als 40 mm von der Bodenfläche (8) der Ablage (2) erstrecken.

5. System gemäß irgendeinem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die ersten Stützelemente (3) sich bis zu einer Höhe von nicht weniger als 3 cm von der Bodenfläche (8) der Ablage (2) erstrecken.

6. System gemäß irgendeinem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sich die ersten Stützelemente (3) sich bis zu einer Höhe von nicht mehr als 10 cm von der Bodenfläche (8) der Ablage (2) erstrecken.

Revendications

1. Système comprenant un plateau pour bouteilles (1) pour des bouteilles individuelles et des bouteilles emballées dans un emballage multiple comprenant des bouteilles sur au moins deux rangées parallèles et un support ou un manchon enfermant les bouteilles, le système comprenant au moins une bouteille ayant une partie incurvée entre le côté et le fond de la bouteille agencée sur le plateau pour bouteilles (1) en tant que bouteilles individuelles ou emballées dans un emballage multiple, la surface supérieure du plateau pour bouteilles (1) ayant sur celle-ci des poches pour bouteilles (2) sur au moins deux rangées parallèles pour loger des bouteilles dans un emballage multiple et des premiers éléments de support (3) pour supporter l'emballage multiple latéralement à partir de deux côtés opposés, et le fond du plateau pour bouteilles (1) étant prévu avec des surfaces de support (5, 6) pour supporter le plateau pour bouteilles (1) au moyen de bouteilles au-dessous du plateau pour bouteilles (1), la surface supérieure du plateau pour bouteilles (1) ayant des seconds éléments de support (4) pour supporter des bouteilles placées dans les poches (2), lesdits seconds éléments de support (4) étant adaptés dans les espaces entre les rangées parallèles de poches formées entre lesdits premiers éléments de support (3) avec une hauteur inférieure à celle des premiers éléments de support (3), **caractérisé en ce que** les seconds éléments de support (4) s'étendent au maximum à la même hauteur que la partie incurvée entre le côté et le fond d'au moins une bouteille comprise dans le système.

2. Système selon la revendication 1, **caractérisé en ce que** les seconds éléments de support (4) sont adaptés dans les espaces restants entre quatre poches (2) adjacentes lorsque les poches sont alignées sur deux rangées parallèles.

3. Système selon la revendication 1 ou 2, **caractérisé en ce que** les seconds éléments de support (4) s'étendent sur une hauteur non inférieure à 2 mm de la surface inférieure (8) de la poche (2).

4. Système selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** les seconds éléments de support (4) s'étendent sur une hauteur non supérieure à 40 mm de la surface inférieure (8) de la poche (2).

5. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les premiers éléments de support (3) s'étendent sur une hauteur non inférieure à 3 cm de la surface inférieure (8) de la poche (2).

6. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les premiers éléments de support (3) s'étendent sur une hauteur non supérieure à 10 cm de la surface inférieure (8) de la poche (2).

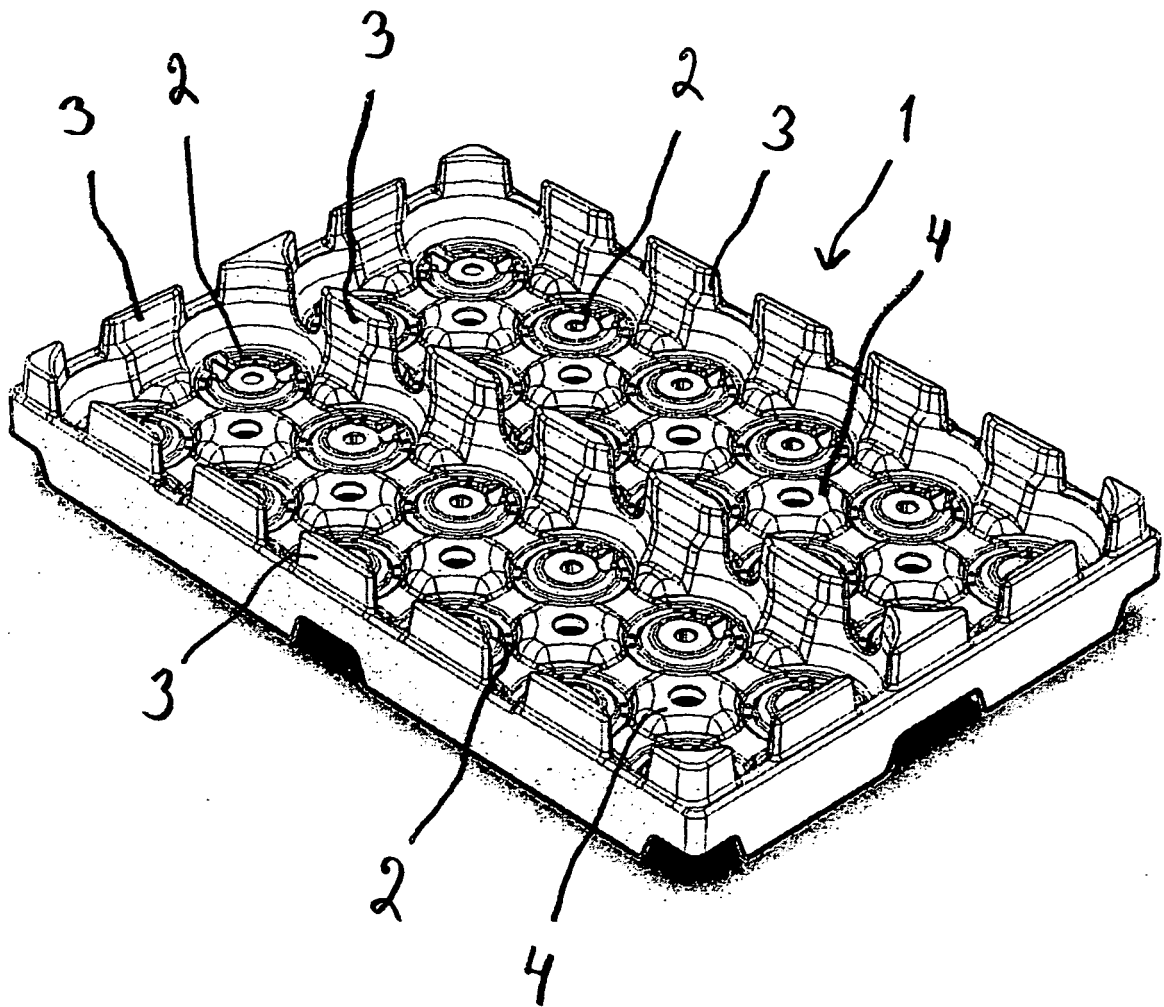


Fig. 1

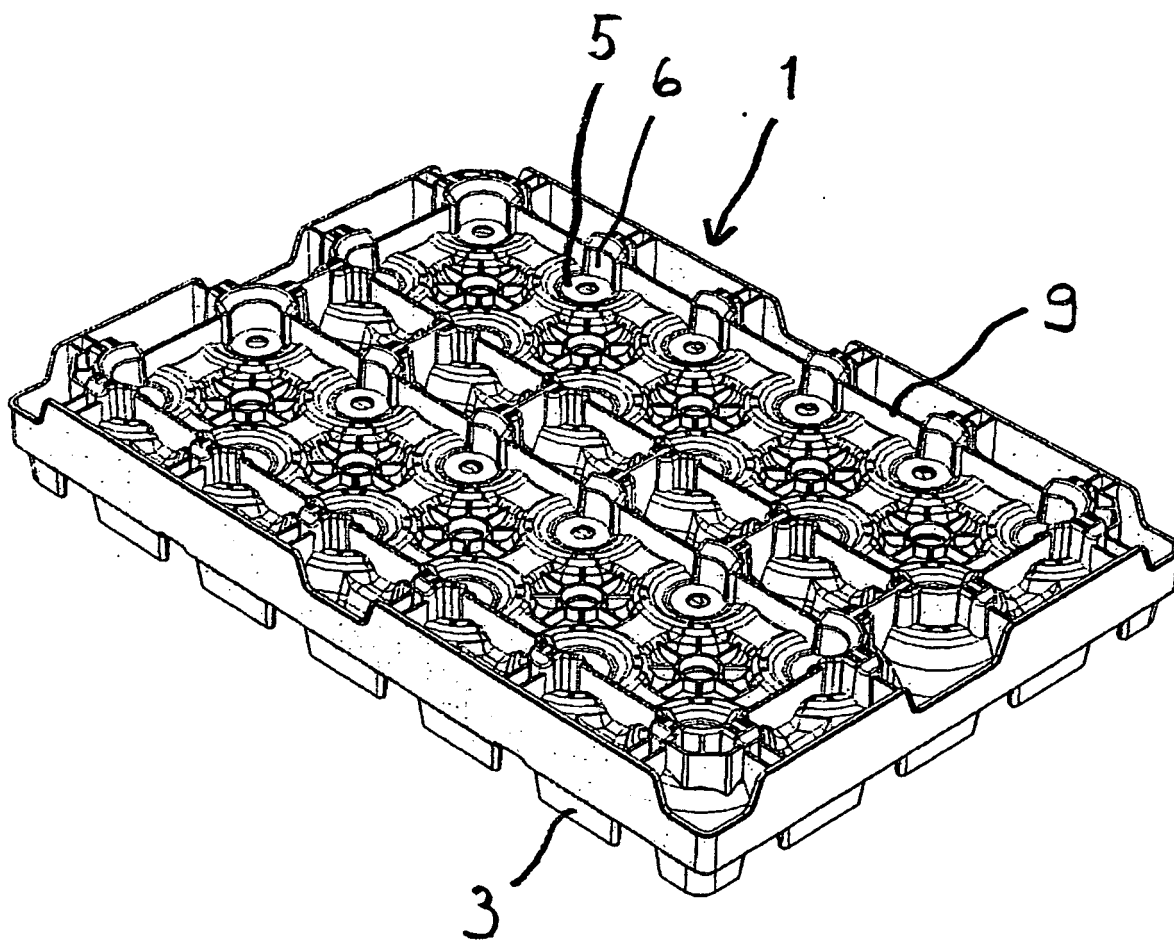
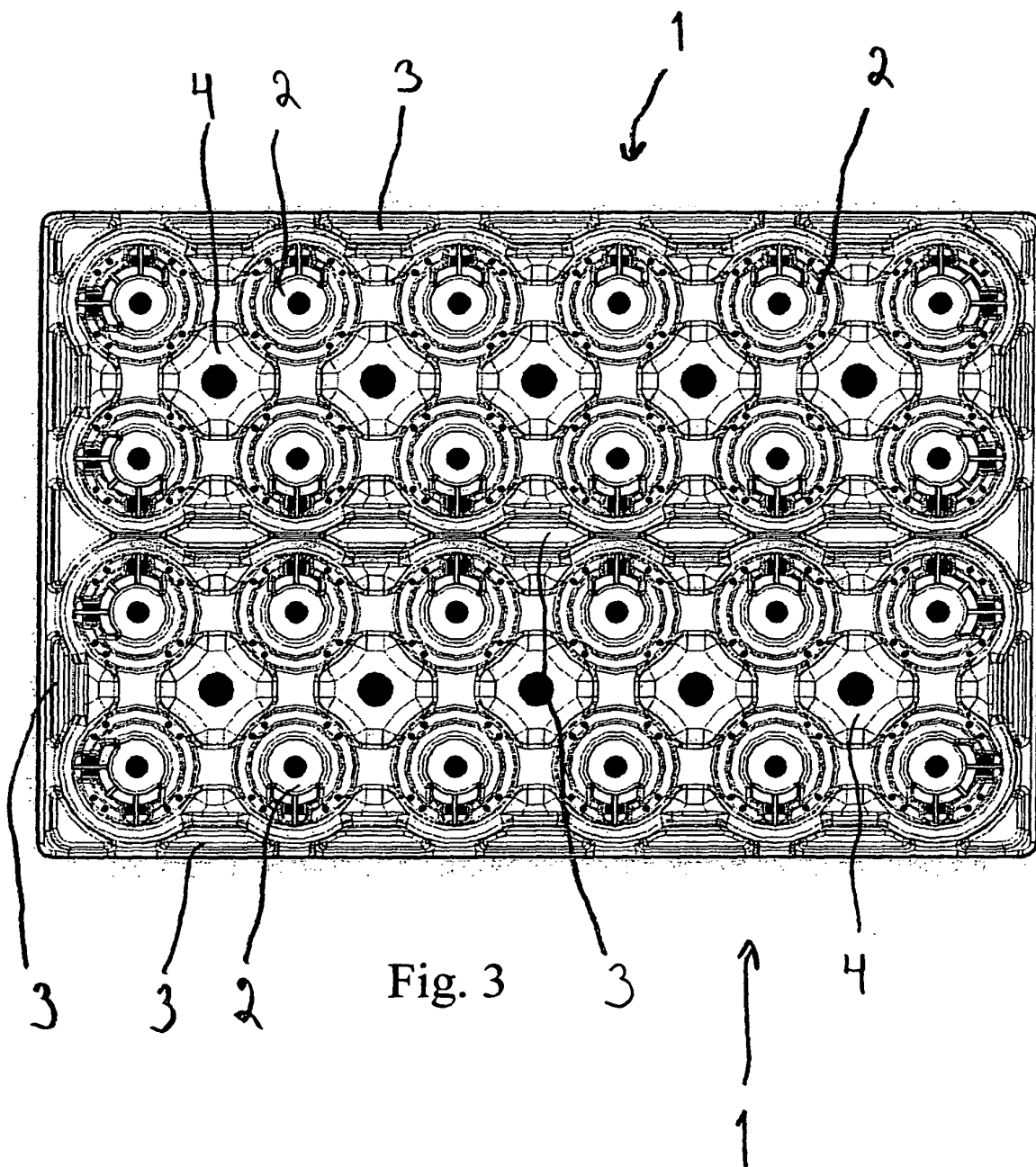


Fig. 2



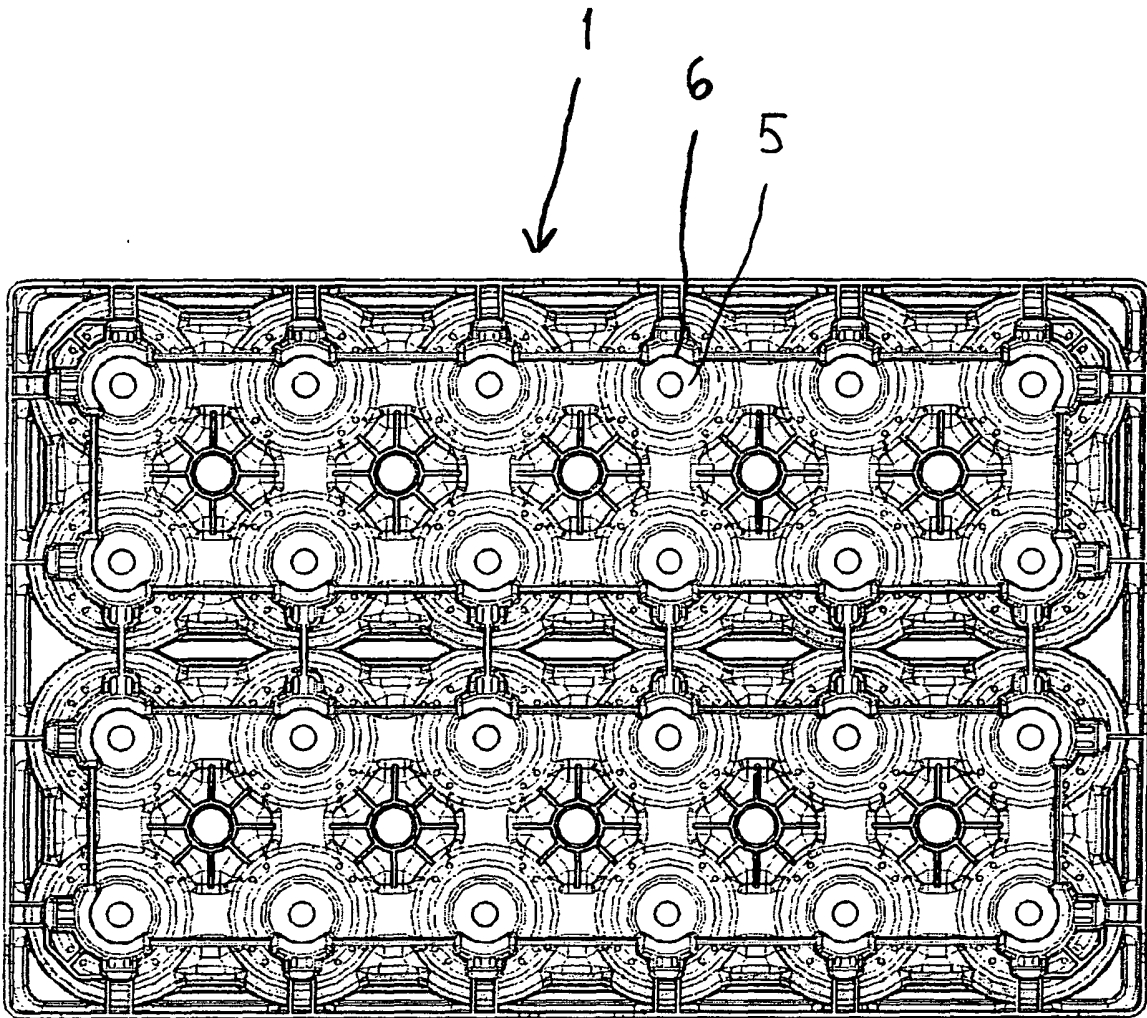


Fig. 4

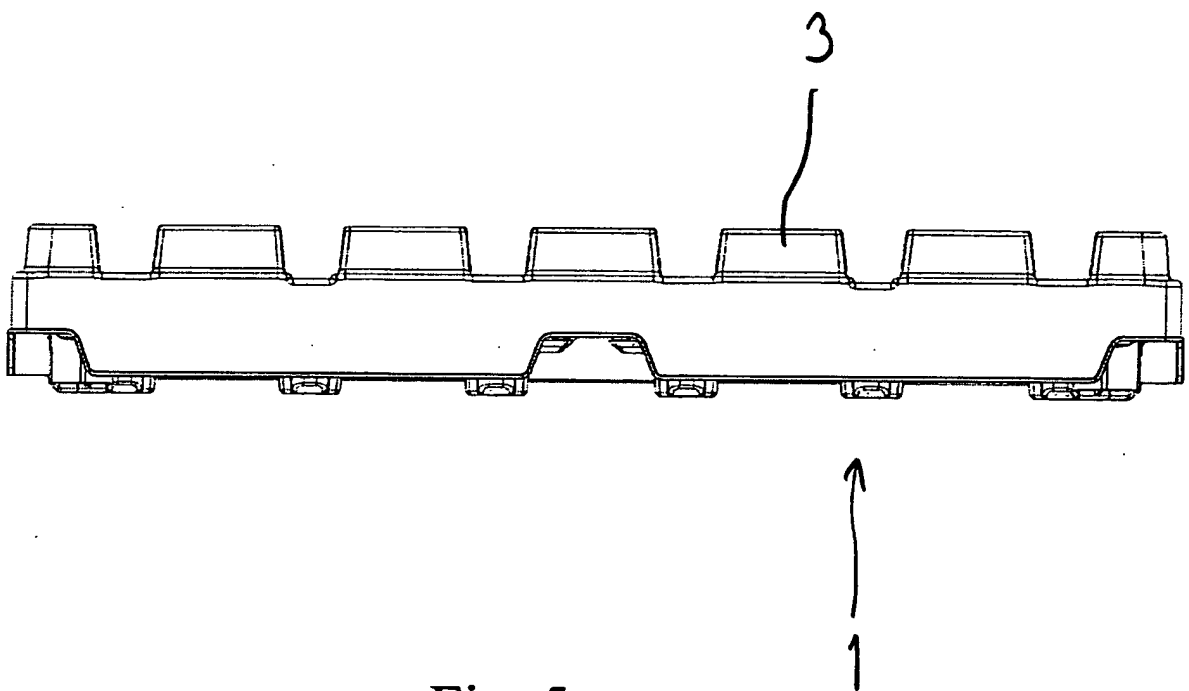


Fig. 5

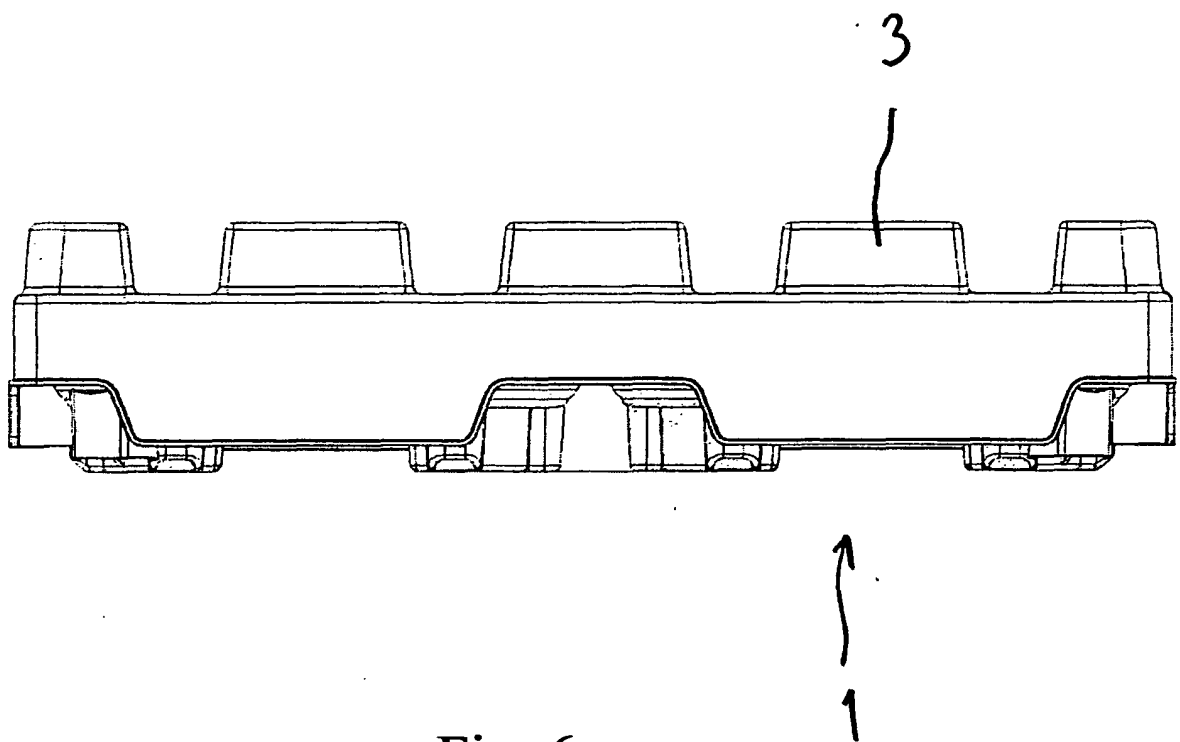
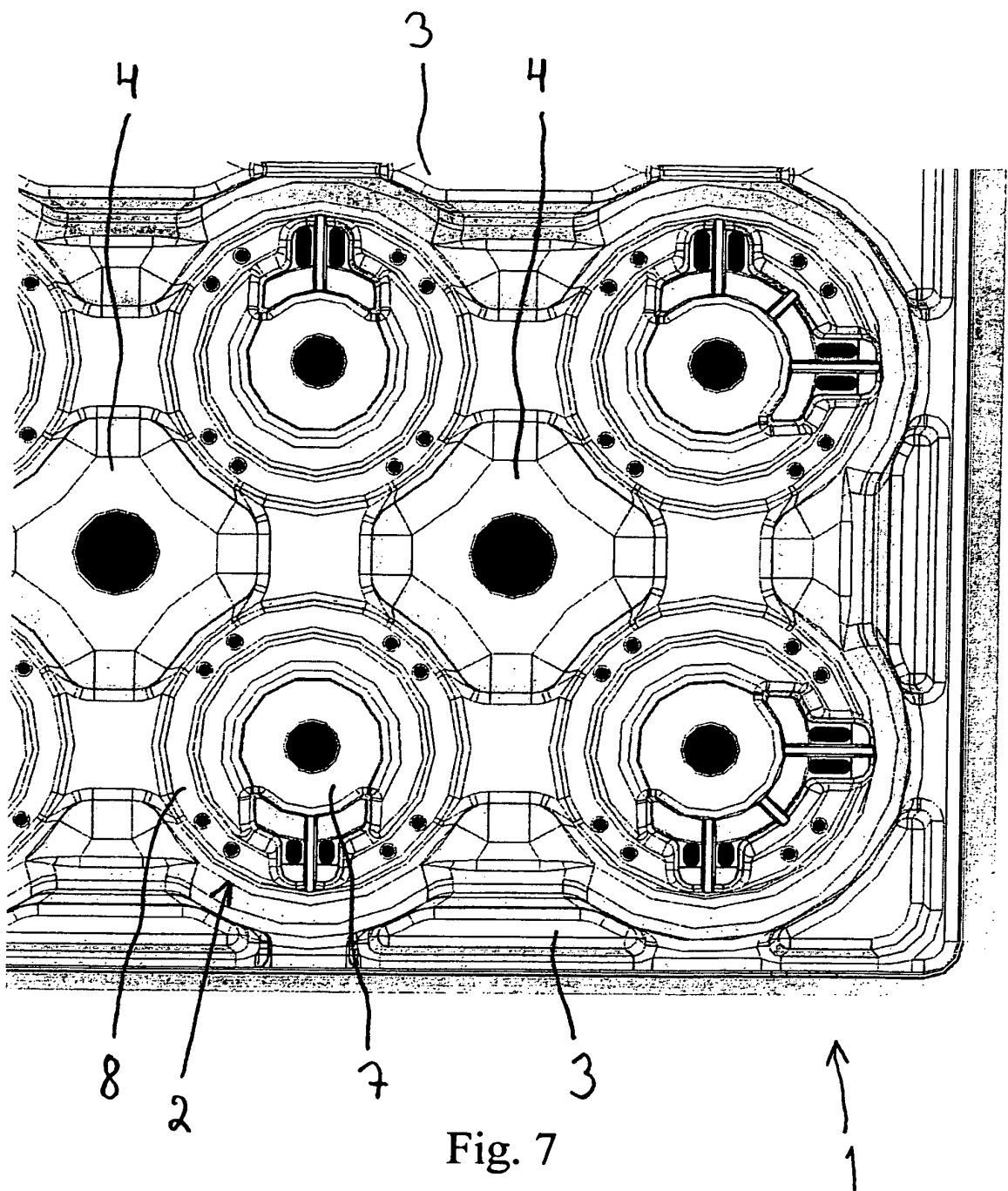


Fig. 6



REFERENCES CITED IN THE DESCRIPTION

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