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(71) Applicant: **Ribawood, S.A.**
50830 Villanueva de Gáliego, Zaragoza (ES)

(72) Inventor: **Rivera Ballarín, Carlos**
50830 Villanueva de Gállego Zaragoza (ES)

(74) Representative: **Schäfer, Matthias W.**
Patentanwalt
Schwanseestrasse 43
81549 München (DE)

(54) **NESTABLE PLASTIC PALLET**

(57) Nestable plastic pallet, formed by a load platform (1) and a plurality of removable runners (2), interconnected by means of corresponding legs, wherein the upper face of the load platform comprises several zones (3) of an essentially rectangular configuration, coinciding in number and position with the runners, endowed with a plurality of projections (4) of a shape, number and distribution coinciding with a plurality of cavities (5) located on the lower face of the runners, forming a tongue and groove joint.

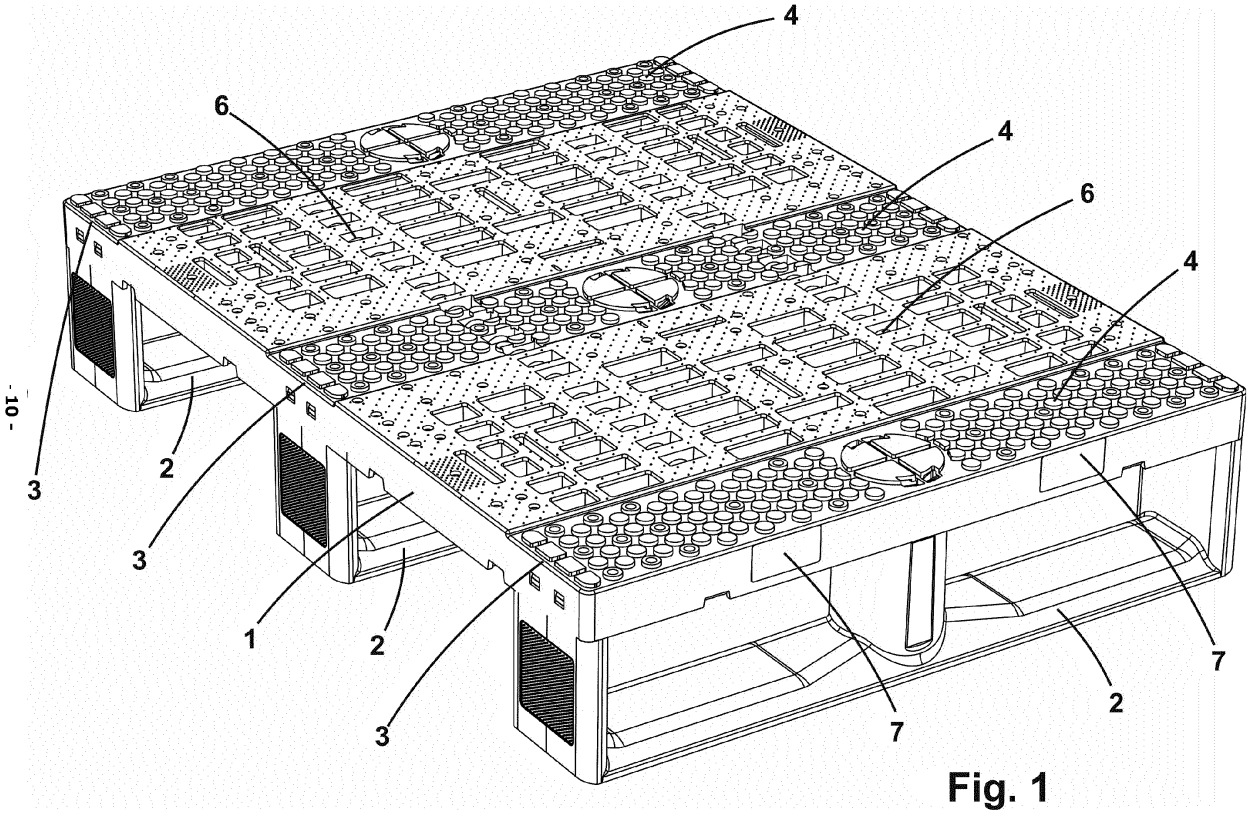

Fig. 1

EP 3 670 374 A2

Description

[0001] The present description refers, as its title indicates, to a nestable plastic pallet, with removable runners and/or legs, of the type used as a support for the transportation of goods, characterised in that it comprises several zones on the upper face of the load platform, provided with a tongue and groove joint with the runners, allowing one pallet to be placed on top of another with a precise fit, with end-pieces with clip attachment and blocks in elastomer material.

Field of the invention

[0002] The invention relates to the field of plastic pallets with removable runners and/or legs.

Current State of the Art

[0003] At present plastic pallets are widely used for transporting goods and/or products and are handled using forklifts, pallet jacks or similar means. Examples of this type of pallet can be found in Patent ES1079113 *"Improved structure for pallet in mouldable material*".

[0004] To facilitate maintenance and repair, some of them have removable legs, such as for instance Patent ES1072672 *"Plastic pallet*", or in others the runners are also removable in several pieces, such as for example, as described in Patent ES1202041 *"Runner for pallet'*, but all of them have the problem of the sliding of the loads on the pallet, the sliding of the pallets on the pallets themselves when stacked empty, and of the pallet itself on the transportation machine. This problem is usually sought to be resolved by means of granulated or textured surfaces on the pallet deck, however this is not an effective solution.

[0005] In some cases, as described in ES1067438 "Pallet", additional wedges are used to prevent the sliding and interlocking of load elements, but in many cases this solution tends to fall out or is lost when the load is removed.

[0006] Furthermore, in this type of detachable plastic pallets there is the problem that due to the fact that they are injected in just a few pieces, it is difficult to personalise them to adapt to the specific needs of identification of each one, since this would mean having to modify large moulds, which is not economically cost-effective.

Description of the invention

[0007] To resolve the current problems with regard to stacking, sliding and customising pallets, improving on the current state of the art, the nestable plastic pallet that is the object of this invention has been envisaged, which consists of a load platform and a plurality of removable runners in which the upper face of the load platform comprises several zones that coincide in their number and position with the runners, provided with a plurality of projections that coincide with a plurality of cavities located on the lower face of the runners, forming a tongue and groove joint that allows one pallet to be placed on top of another, fitting precisely, without them moving. The shape, dimensions and distribution of the projections and cavities is variable and customisable for each customer.

[0008] The zones endowed with a plurality of projections may form an integral part of the load platform or they may be separate pieces firmly attached by clipping, gluing or welding, or a combination thereof. Likewise, these zones with a plurality of projections may be made of the same material as the load platform or of other materials, such as for example, totally or partially of elastomer material.

[0009] This invention is applicable to plastic pallets with removable runners, both those formed by one or by several separate or fusible parts.

[0010] Optionally the pallet can incorporate metal reinforcement elements inserted in cavities in the load platform, which are closed off by means of end-pieces, having on the inner face of their main body a plurality of tabs that coincide in number, position and dimensions, with clipping housings positioned around the mouths of the housing of the metal reinforcement elements. Likewise, they comprise, on the inner face of their main body, a protruding element, of the appropriate shape and dimensions for insertion in the hollow interior of the metal reinforcement elements, provided with a plurality of pressure-attachment peripheral tabs. Thus the closures, instead of just being pressed on, are clipped to the load platform preventing them from accidentally slipping out.

[0011] Likewise it is envisaged that, alternatively, the end-pieces can be personalised according to customers' preferences, by engraving, serigraphy, colour or injection marks, for easy identification of their pallets or to facilitate their classification.

[0012] To prevent the load or the pallets from moving, the possibility of using a plurality of elastomer material blocks is also envisaged, located in housings or hollows foreseen in the zones with projections, in such a way that they protrude slightly above them and protrude underneath the lower surface of the load platform.

Advantages of the invention

[0013] This nestable plastic pallet presented affords numerous advantages over the pallets that are currently available, the most important of these being that the tongue and groove joint means that one pallet can be placed on top of another, with a precise fit, without them moving in any direction, providing perfect stacking and ensuring their stability during the transportation of piles of empty pallets.

Another important advantage is that, since the composition of this piece incorporates an elastomer component, an additional non-slip effect is achieved that prevents the load from moving.

[0014] It is also noteworthy that, as the tongue and

groove joint can be carried out separately, it can be different for each customer, enabling the pallets to be personalised so that those belonging to one customer do not fit those of another customer, it also being possible to include, as the tongue and groove joint, the embossed logo of the company that acquires the pallets.

[0015] Another noteworthy additional advantage is that, instead of the closing end-pieces of the metal reinforcement elements just being pressed on, they are clipped to the platform. This prevents them accidentally slipping out and, additionally, as this is a larger piece, it can be customised with the colour or logo of the company, or according to the different loads. This affords an additional advantage as it allows for easy identification of one or another pallet that may not be compatible, given that in some cases mistakes can lead to problems when handling loads.

[0016] Another notable advantage is that blocks in elastomer material are envisaged on the surface of the platform to prevent the load from moving on the top part, and on the lower part of the board to prevent the pallets themselves from sliding when they are transported with forklifts or pallet jacks.

Description of the figures

[0017] To gain a better understanding of the object of this invention, a preferred practical embodiment of a nestable plastic pallet is shown in the drawing attached:

In said drawing figure -1- shows a perspective view of the nestable plastic pallet with three tongue and groove joint zones on the load platform and the end-pieces inserted.

Figure -2- shows a perspective view of the nestable plastic pallet with three tongue and groove joint zones in the form of separate pieces, showing their housings on the load platform, with the end-pieces inserted.

Figure -3- shows a perspective view of the lower part of the nestable plastic pallet showing the cavities of the runners and the location of the metal reinforcements of the platform, with the end-pieces inserted.

Figure -4- shows a partially exploded front perspective view of the nestable plastic pallet with three tongue and groove zones on the load platform, in this case with detachable runners, showing the location of the metal reinforcements of the platform, the end-pieces and their clipping means.

Figure -5- shows a partially exploded rear perspective view of the nestable plastic pallet with three tongue and groove zones on the load platform, in this case with detachable runners, showing the location of the metal reinforcements of the platform, the end-pieces and their clipping means.

Figure -6- shows a perspective view of an end-piece.

Figure -7- shows a plan view of an end-piece.

Figure -8- shows a perspective view of a block in elastomer material.

Figure -9- shows a perspective view of a nestable plastic pallet with three tongue and groove zones on the load platform, the end-pieces inserted and six elastomer material blocks inserted, with an amplified detail showing the fit with the projections of the tongue and grooving.

Figure -10- shows a perspective view of the lower part of the nestable plastic pallet showing the cavities of the runners and the location of the metal reinforcements of the platform, the end-pieces inserted and the six elastomer material blocks inserted with an amplified detail showing the bottom closure of the block.

Figure -11- presents a side view of the nestable plastic pallet indicating, with an amplified detail, the location of the elastomer material block, showing how it protrudes slightly over the projections.

Figure -12- shows a partially exploded front perspective view of the nestable plastic pallet with three tongue and groove zones on the load platform, in this case with detachable runners, showing the location of the metal reinforcements of the platform, the end-pieces and their clipping means and five elastomer material blocks inserted, while a sixth block is shown in an exploded view.

Figure -13- shows a partially exploded rear perspective view of the nestable plastic pallet with three tongue and groove zones on the load platform, in this case with detachable runners, showing the location of the metal reinforcements of the platform, the end-pieces and their clipping means and five elastomer material blocks inserted, while a sixth block is shown in an exploded view.

Preferred embodiment of the invention

[0018] The conformation and characteristics of the invention can be better understood in the following description that relates to the attached figures.

[0019] As can be seen in figures 1,2,3,4,5,6,8,9,11 and 12, a nestable plastic pallet is shown, formed by a load platform (1) and a plurality of removable longitudinal and/or transverse runners (2), interconnected by means of the corresponding removable legs, and attachable to the lower face of the load platform (1) to facilitate main-

tenance and repair, in which the upper face of the load platform (1) comprises several zones (3) of an essentially rectangular configuration, coinciding in number and position with the runners (2), endowed with a plurality of projections (4) of a shape, number and distribution coinciding with a plurality of cavities (5) located on the lower face of the runners (2), forming a tongue and groove joint.

[0020] This tongue and groove joint allows one pallet to be placed on top of another, fitting together precisely, without them moving.

[0021] The shape, sizes and distribution of the projections (4) and cavities (5) are variable and customisable for each customer, thereby being able to ensure that the pallets are only stackable for that same customer.

[0022] The zones (3) of an essentially rectangular configuration, endowed with a plurality of projections (4), can form an integral part of the load platform (1), obtained by a single injection process or they can be in different materials, obtained by means of a second injection or over-injection. Another alternative embodiment is also envisaged, as detailed in figure -2-, in which the zones (3) of an essentially rectangular configuration, endowed with a plurality of projections (4) are separate pieces, firmly attached to the load platform (1) in housings (8) by means of an attachment chosen from the group formed by clipping, gluing, welding or a combination thereof.

[0023] When the zones (3) of an essentially rectangular configuration are not in the same material as the load platform (1), it is envisaged that preferably they will be totally or partially in elastomer material.

[0024] Figures 4, 5, 11 and 12 show variants of the invention in which the runners are attachable to the lower face of the load platform (1), being replaceable. It is also envisaged that the runners may be, in turn, formed by replaceable separate or fusible parts.

[0025] The shape, dimensions and distribution of the projections (4) and cavities (5) are variable and customisable for each customer.

[0026] Alternatively the pallet can incorporate metal reinforcement elements (6) inserted in cavities made in the load platform (1), the said cavities being closed off by means of end-pieces (7) such as those shown in figure -6- that comprise, on the inner face of their main body (9) a plurality of tabs (10) coinciding in number, position and dimensions with clipping housings (8) positioned around the mouths of the housing of the metal reinforcement elements (6). Likewise, they comprise, on the inner face of their main body (9), a protruding element (11), of the appropriate shape and dimensions for insertion in the hollow interior of the metal reinforcement elements (6), provided with a plurality of pressure-attachment peripheral tabs (12).

[0027] This way the closures of the metal reinforcement element (6) formed by end-pieces (7), instead of just being pressed on, are clipped to the load platform (1) preventing them from accidentally slipping out.

[0028] Likewise it is envisaged that, alternatively the end-pieces (7) may be of a different colour to that of the load platform (1) and comprise, on the outer face of their main body (9), differentiating means chosen from the group formed by engraving, serigraphy, colour or injection marks, enabling personalisation according to customers' preferences for easy identification of their pallets or to facilitate their classification.

[0029] Optionally, it is also envisaged, as shown in figures 8, 9, 10, 11 and 12, that a plurality of blocks (13) in elastomer material may be used to prevent the load from moving, being located in housings or hollows envisaged in the zones (3) in such a way that they protrude slightly above the projections (4) of the zones (3), and protrude underneath the lower surface of the load platform (1). By protruding underneath the lower surface of the load platform (1) they prevent the pallets from sliding when they are transported with forklifts or pallet jacks.

[0030] These blocks (13) in elastomer material are shown in figure -7- and are formed as a top platform (14), of a variable shape, endowed with projections (15) coinciding in shape, dimensions and distribution with the projections (4) of the zones (3), and a cylindrical bottom closure (16) of a smaller size, interconnected with a body (17) in a solid tapered shape or formed by fins.

[0031] A technical expert will easily understand that the characteristics of different embodiments can be combined with the characteristics of other possible embodiments provided that the combination is technically possible.

[0032] All of the information referring to examples or embodiments forms part of the description of the invention.

Claims

1. Nestable plastic pallet, formed by a load platform (1) and a plurality of removable longitudinal and/or transverse runners (2), interconnected by means of the corresponding legs, attachable to the lower face of the said load platform (1) **characterised in that,** the upper face of the load platform (1) comprises several zones (3) of an essentially rectangular configuration, coinciding in number and position with the runners (2), endowed with a plurality of projections (4) of a shape, number and distribution coinciding with a plurality of cavities (5) located on the lower face of the runners (2), forming a tongue and groove joint.

2. Nestable plastic pallet, according to the preceding claim, **wherein** the zones (3) of an essentially rectangular configuration endowed with a plurality of projections (4), form an integral part of the load platform (1), obtained by means of a single injection process.

3. Nestable plastic pallet, according to claim 1, **wherein** the zones (3) of an essentially rectangular configu-

ration endowed with a plurality of projections (4), form an integral part of the load platform (1), obtained by means of a second injection or overinjection.

4. Nestable plastic pallet, according to claim 1, **wherein** the zones (3) of an essentially rectangular configuration, endowed with a plurality of projections (4) are separate pieces, firmly attached to the load platform (1) in housings (8) by means of an attachment chosen from the group formed by clipping, gluing, welding or a combination thereof.

5. Nestable plastic pallet, according to either of claims 3 and 4, **wherein** the zones (3) of an essentially rectangular configuration, are totally or partially in elastomer material.

6. Nestable plastic pallet, according to any of the preceding claims, **wherein** the shape, size and distribution of the projections (4) and cavities (5) are variable and customisable for each customer.

7. Nestable plastic pallet, according to any of the preceding claims, **wherein** it incorporates metal reinforcement elements (6) inserted in cavities made in the load platform (1), the said cavities being closed off by means of end-pieces (7) that comprise, on the inner face of their main body (9), a plurality of tabs (10) coinciding in number, position and dimensions with clipping housings (8) positioned around the mouths of the housing of the metal reinforcement elements (6).

8. Nestable plastic pallet, according to claim 7, **wherein** the end-pieces (7) comprise, on the inner face of their main body (9), a protruding element (11), of the appropriate shape and dimensions for insertion in the hollow interior of the metal reinforcement elements (6), provided with a plurality of pressure-attachment peripheral tabs (12).

9. Nestable plastic pallet, according to either of claims 7 and 8, **wherein** the end-pieces (7) are in a different colour to that of the load platform (1) and comprise, on the outer face of their main body (9), differentiating means chosen from the group formed by engraving, serigraphy, colour or injection marks.

10. Nestable plastic pallet, according to any of the preceding claims, **wherein** the load platform (1) comprises a plurality of blocks (13) in elastomer material, located in housings or hollows on the rectangular zones (3) in such a way that they protrude slightly above the projections (4) of the zones (3) and underneath the lower surface of load platform (1).

11. Nestable plastic pallet, according to claim 10, **wherein** the blocks (13) in elastomer material are formed as a top platform (14), of a variable shape, endowed with projections (15) coinciding in shape, dimensions and distribution with the projections (4) of the zones (3), and a cylindrical bottom closure (16) of a smaller size, interconnected with a body (17) in a solid tapered shape or formed by fins.

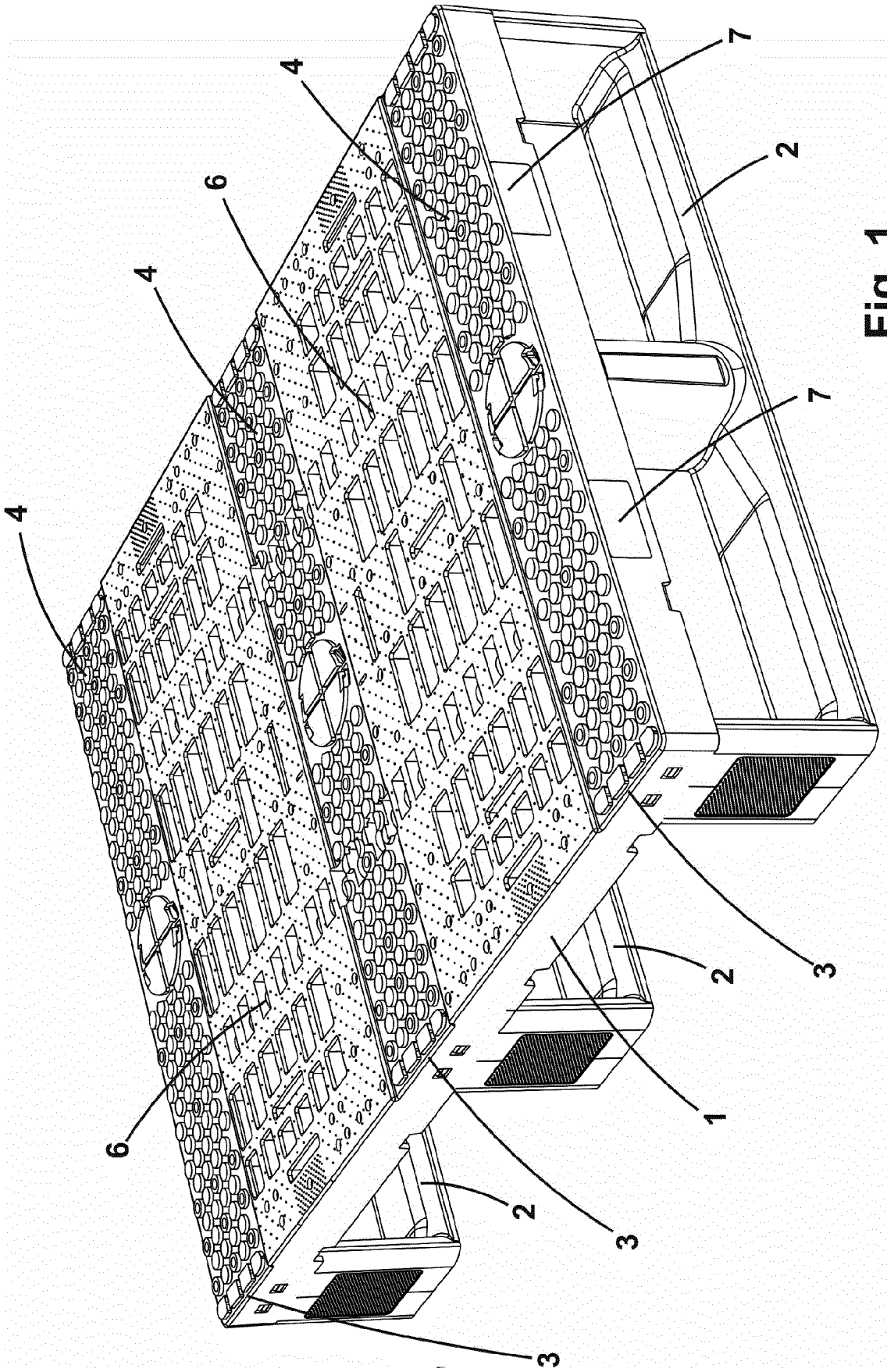

Fig. 1

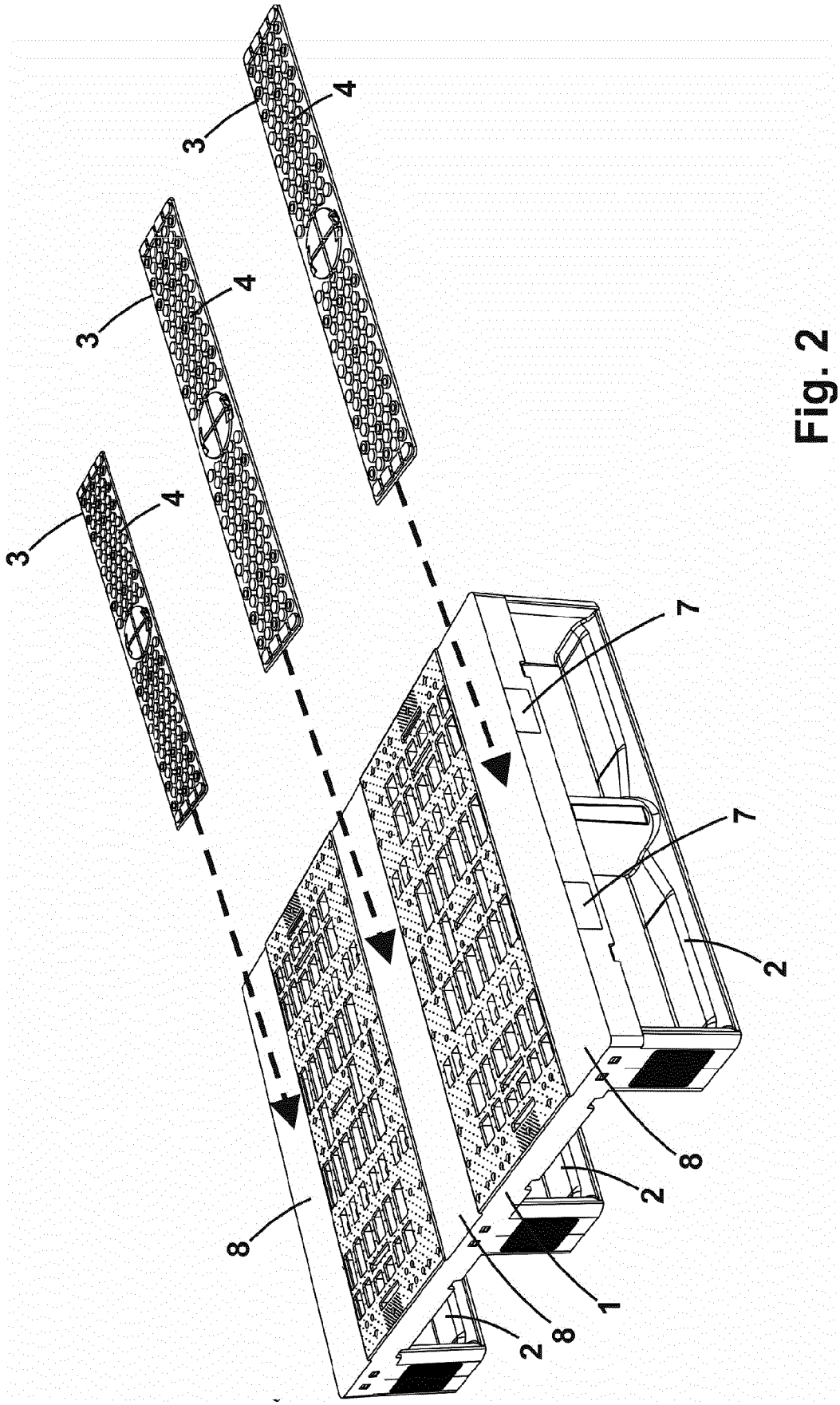

Fig. 2

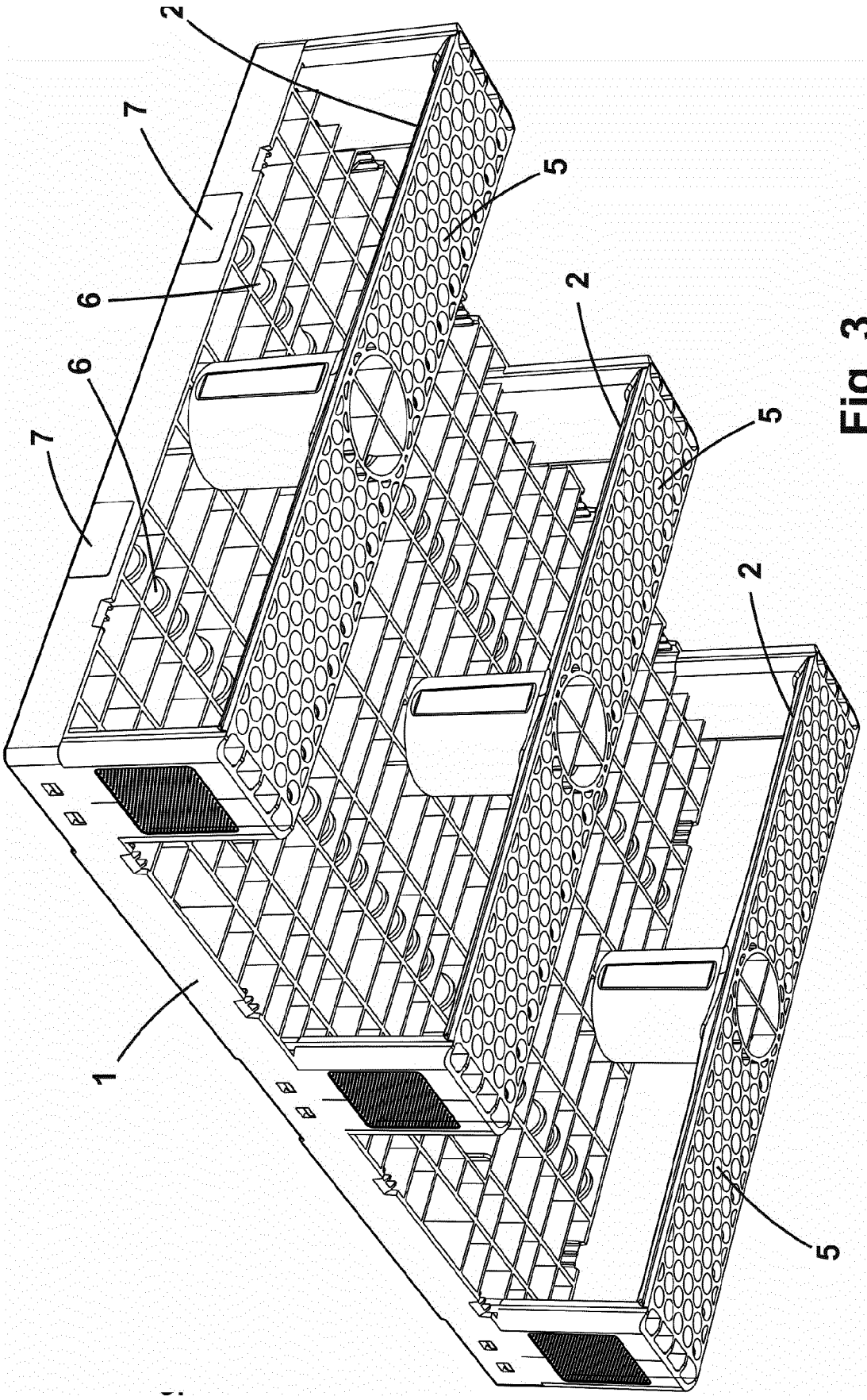

Fig. 3

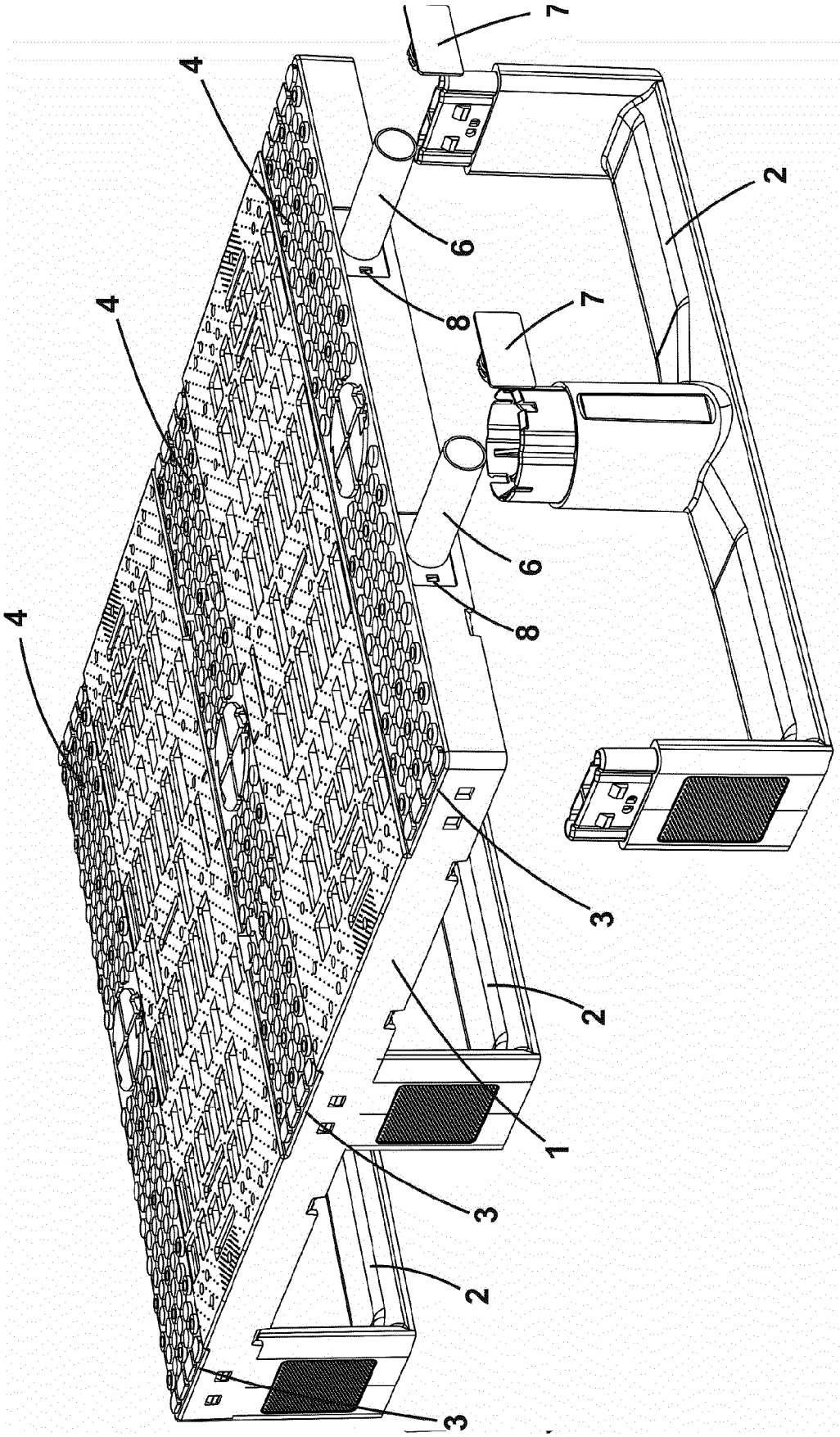

Fig. 4

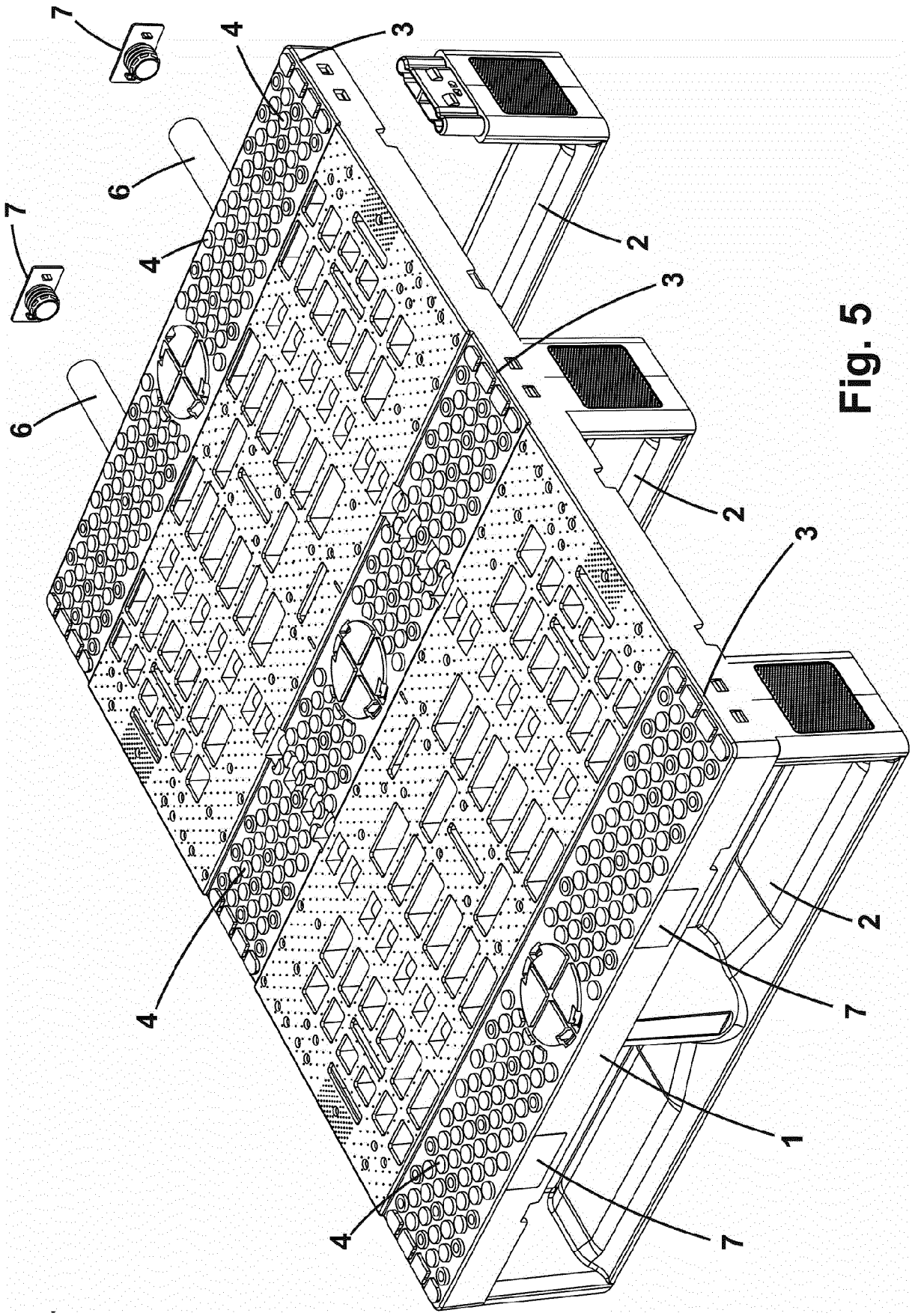

Fig. 5

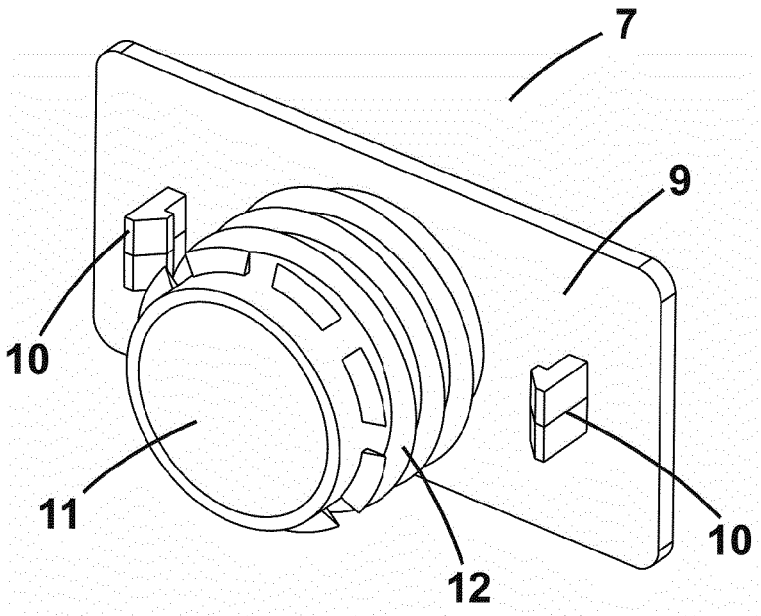

Fig. 6

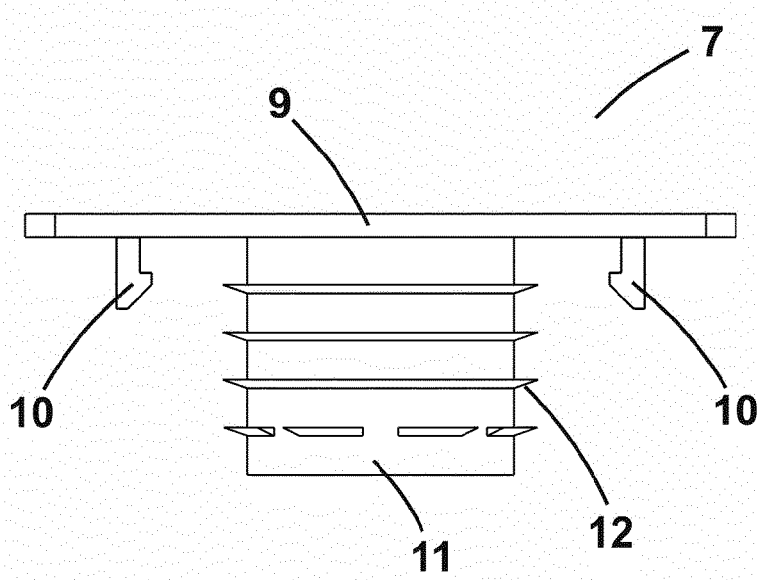

Fig. 7

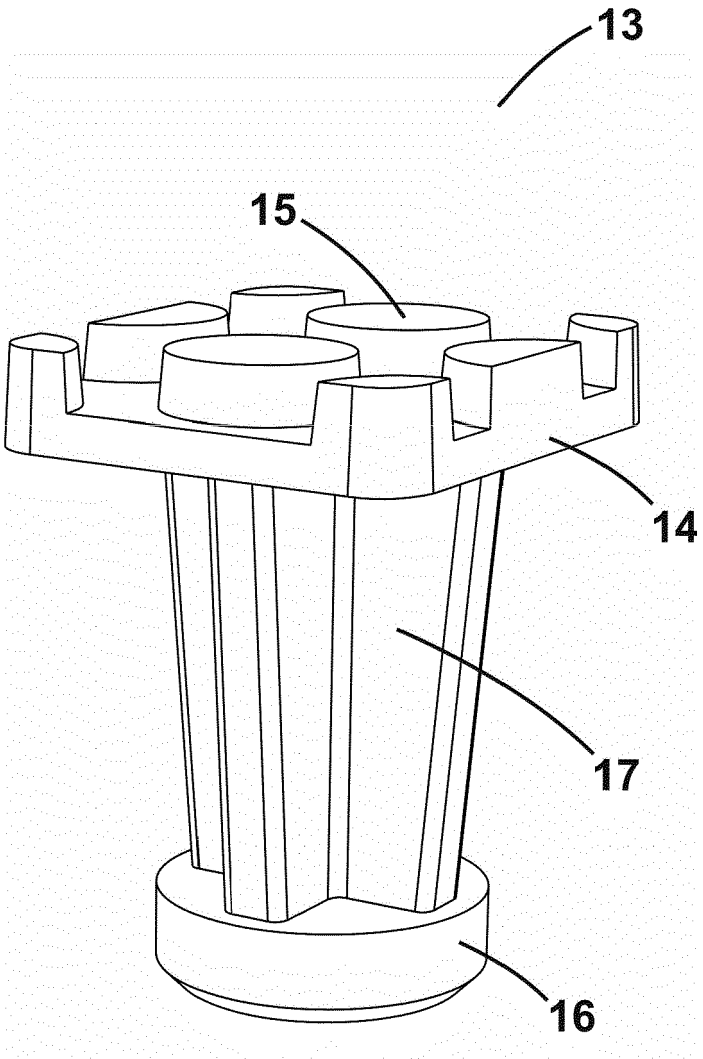

Fig. 8

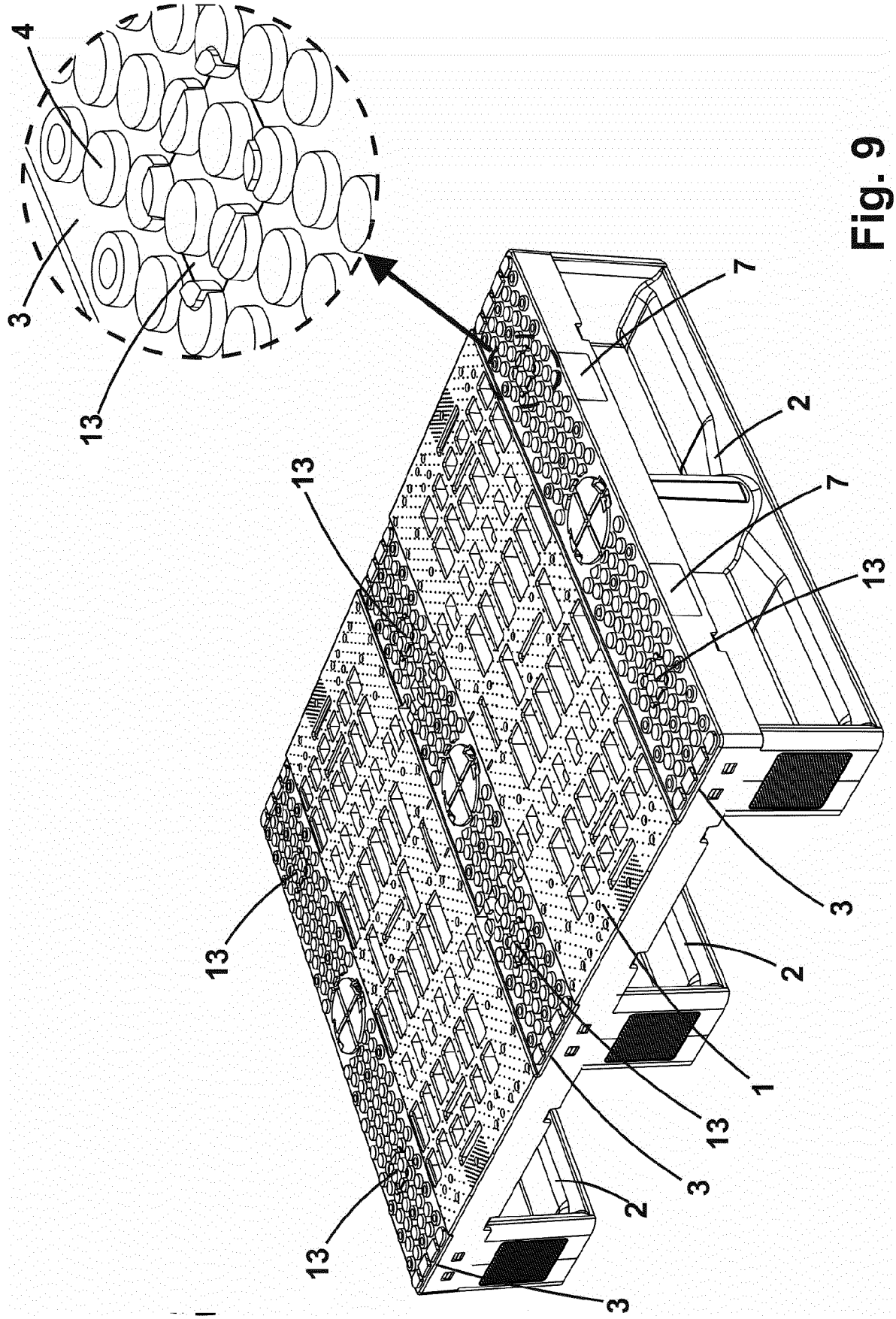

Fig. 9

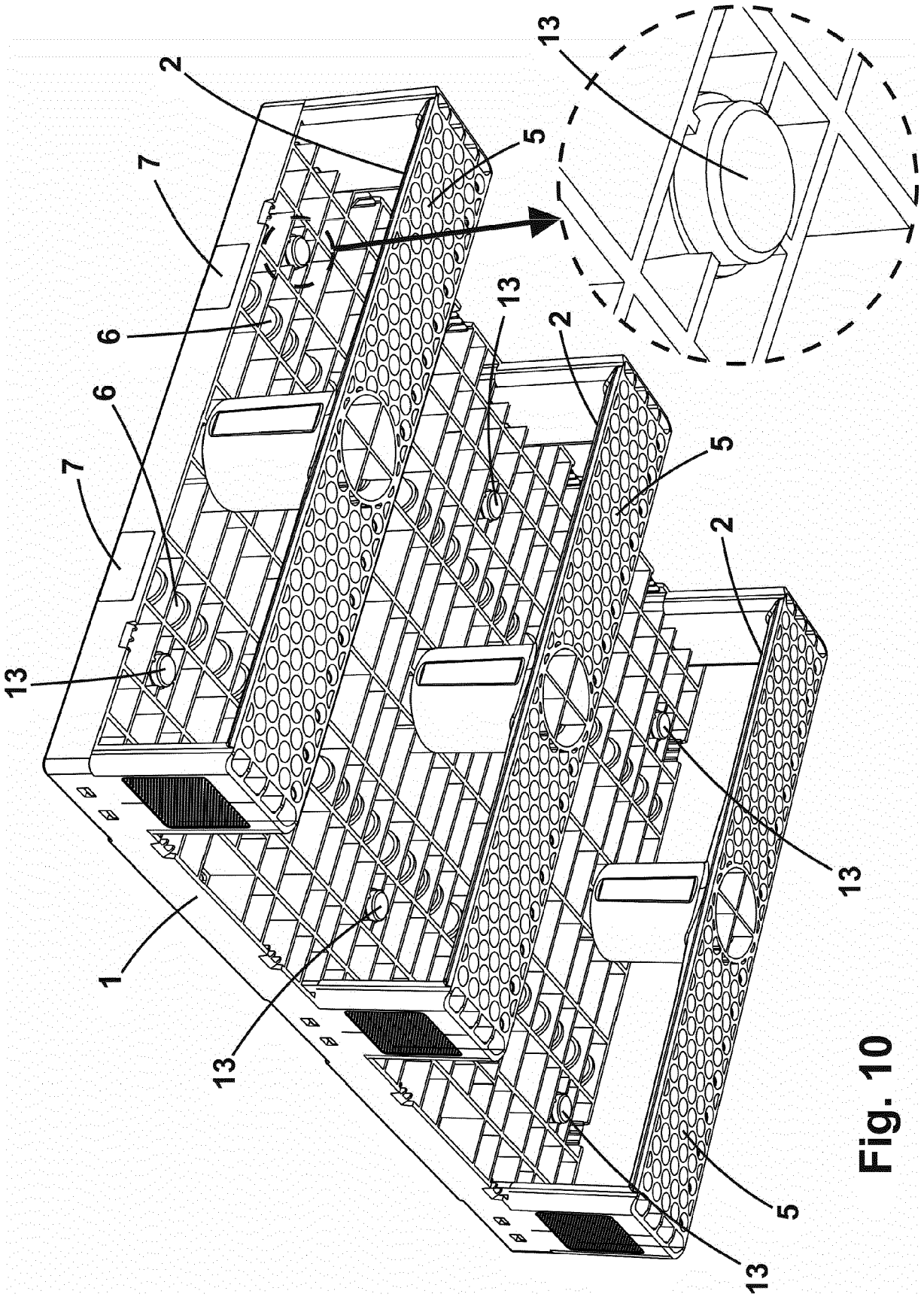

Fig. 10

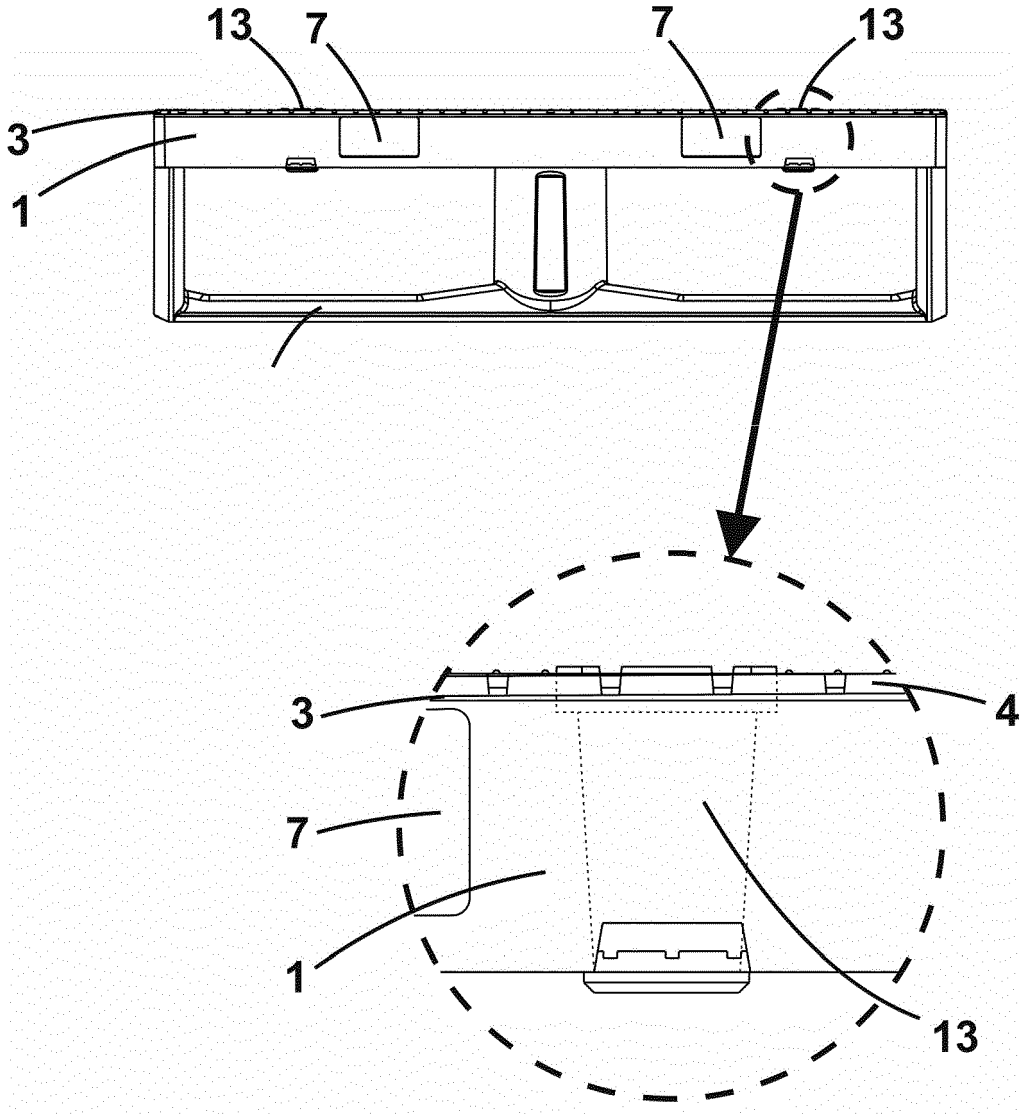

Fig. 11

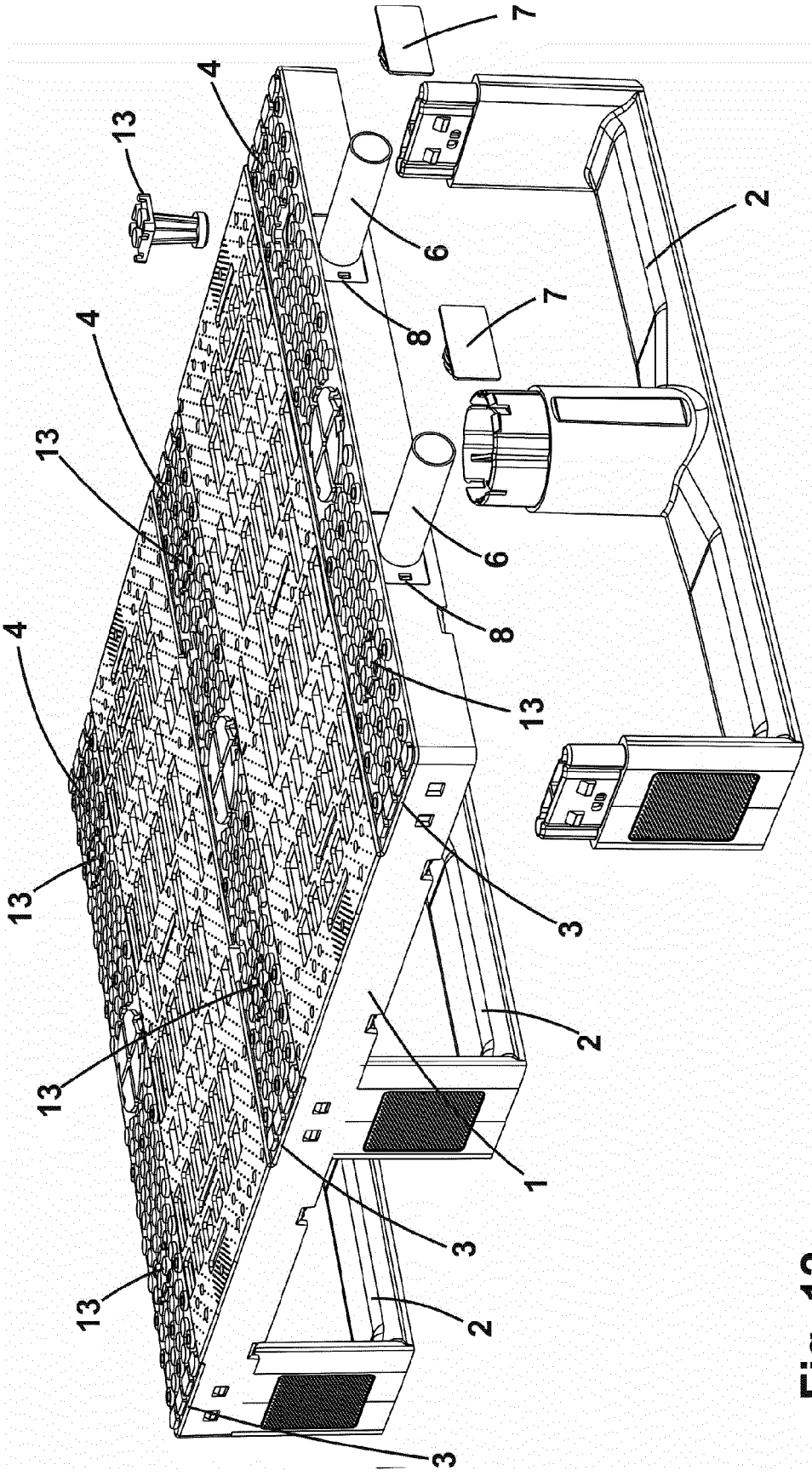

Fig. 12

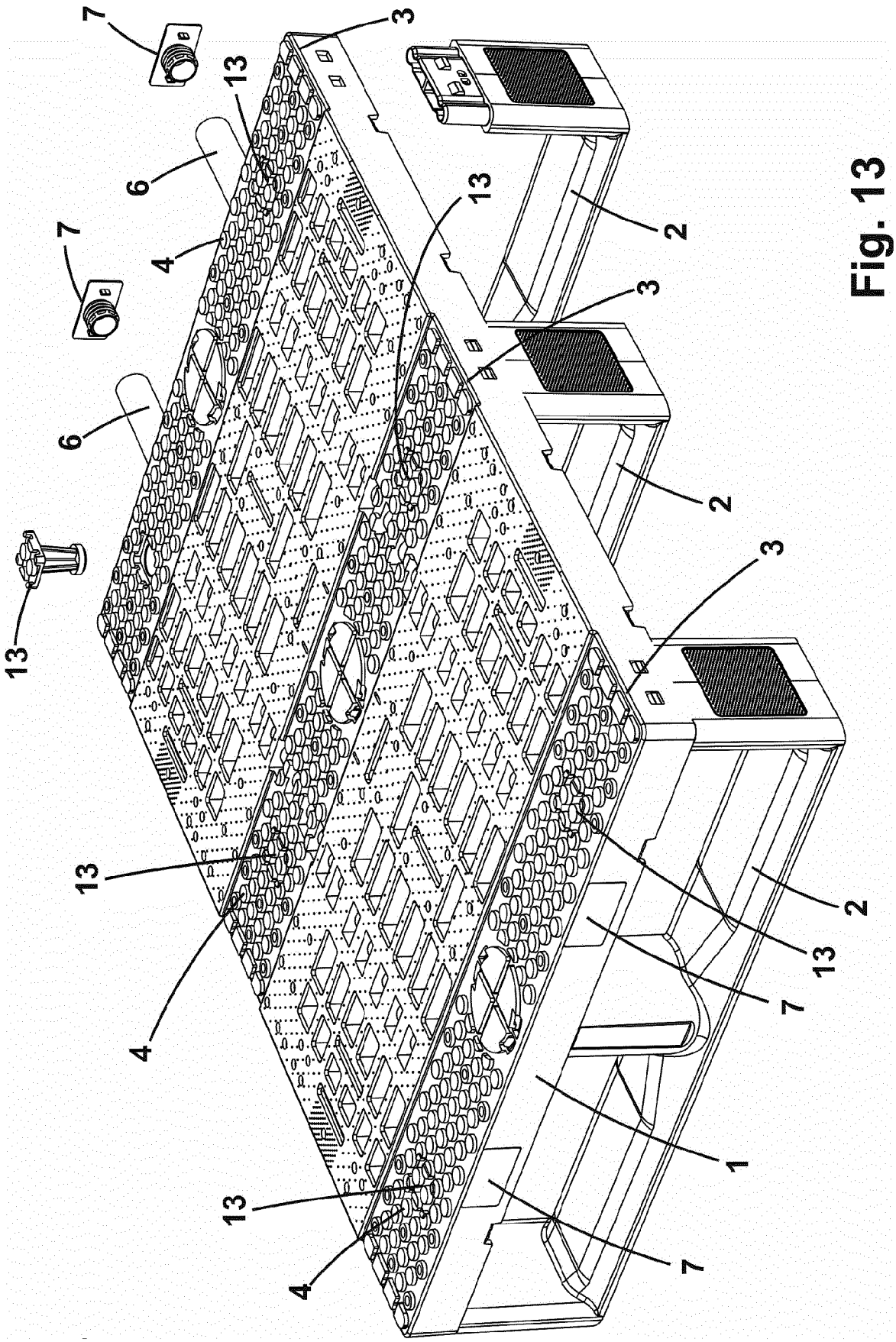

Fig. 13

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 1079113 **[0003]**
- ES 1072672 **[0004]**
- ES 1202041 **[0004]**
- ES 1067438 **[0005]**