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(54) **A BOX CONFIGURED TO ACCOMMODATE A PLURALITY OF BEVERAGE BOTTLES, A METHOD OF MANUFACTURING THEREOF, AND AN ASSEMBLY OF BOXES**

(57) A rectangular box (1) configured to accommodate a plurality of beverage bottles in an enclosure space (3). The box comprises a side wall (21) adjustable between a first position, in which the box is closed and the plurality of beverage bottles in the enclosure space are inaccessible, and a second position, in which box is opened and such that the plurality of beverage bottles in the enclosure space are accessible. The rectangular top (7) of the box has at least one protrusion (25), and the rectangular bottom of the box has at least one indentation (27) complementary to the at least one protrusion.

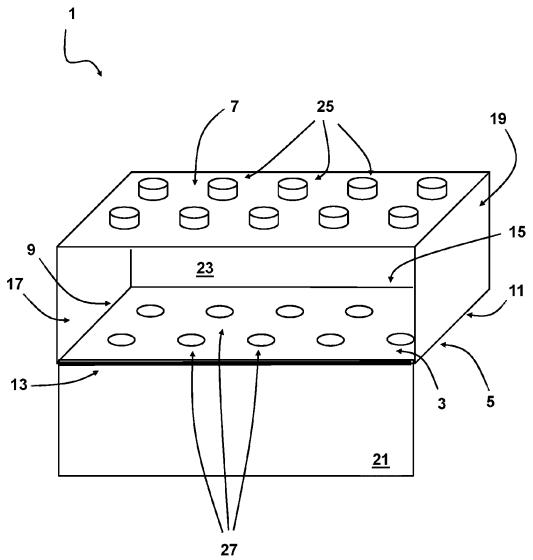

FIG 1

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Description

FIELD OF THE INVENTION

[0001] The invention relates to a box configured to accommodate a plurality of beverage bottles in an enclosure space. Furthermore, the invention relates to a packaging assembly comprising at least a first box and a second box. The invention also relates to a method of manufacturing a box configured to accommodate a plurality of beverage bottles. Additionally, the invention relates to a method of holding and/or transporting beverage bottles.

BACKGROUND TO THE INVENTION

[0002] Bottles are often used for supplying beverages for consumption. The use of a bottle allows an individual to transport a beverage from one place to another, and enables convenient consumption of the beverage stored within the bottle. The bottles can be made of different materials and can have various shapes, sizes and other properties.

[0003] Glass bottles are well suited for various beverages, especially for alcoholic beverages such as wine, whisky, etc. Some beverages are at least partially fermented in the bottle (e.g. sparkling wine) while others are bottled only after fermentation. Furthermore, it is often desired that such alcoholic beverage bottles are maintained at a favorable state. This favorable state may for example be a lay-down state in which the beverage inside the bottle contacts the cork.

[0004] Often, the existing bottle box designs are not user friendly. It can be very challenging to access the bottles, especially when multiple boxes are stacked on top of each other. Furthermore, the weight of the packaging also plays an important role, as it has a significant impact on the amount of energy required for transporting the bottled beverages.

[0005] There is a strong need for improved boxes for carrying multiple beverage bottles that are more convenient for use, especially when every box can contain a different beverage product (e.g. different wine bottles). There is a desire to provide for packaging for bottles with enhanced functionality and design features.

SUMMARY OF THE INVENTION

[0006] It is an object of the invention to provide for a method and a system that obviates at least one of the above mentioned drawbacks.

[0007] Additionally or alternatively, it is an object of the invention to provide for an improved box or container for accommodating a plurality of beverage bottles.

[0008] Additionally or alternatively, it is an object of the invention to provide for improved accessibility of beverage bottles held in different boxes positioned on top of each other.

[0009] Additionally or alternatively, it is an object of the invention to provide for boxes which can be transported with increased stability.

[0010] Thereto, the invention provides for a box configured to accommodate a plurality of beverage bottles in an enclosure space, the box comprising: a rectangular bottom and a rectangular top, wherein the rectangular bottom comprises a first edge, a second edge opposite the first edge, a third edge between the first edge and the second edge and a fourth edge opposite to the third edge, wherein a length of the first edge and the second edge is smaller than a length of the third edge and the fourth edge, wherein a first length and second length are selected such as to define the enclosure space in which the plurality of beverage bottles are positionable; a first end wall extending upwards from the first edge of the bottom; a second end wall extending upwards from the second edge of the bottom; a first side wall extending upwards from the third edge of the bottom; and a second side wall extending upwards from the fourth edge of the bottom; and wherein the first end wall, second end wall, first side wall, and second side wall are arranged between the rectangular bottom and the rectangular top; wherein the first side wall is adjustable between a first position, in which the box is closed and the plurality of beverage bottles in the enclosure space are inaccessible, and a second position, in which box is opened and such that the plurality of beverage bottles in the enclosure space are accessible; and wherein the rectangular top and rectangular bottom comprise respectively at least one complementary protrusion and indentation.

[0011] Advantageously, multiple boxes can be easily and predictably stacked on top of each other. The stacked boxes can remain stable by means of the complementary protrusions and indentations. The beverage bottles in boxes on which one or more other boxes are placed can be easily accessed by a user. This can be done, even when multiple boxes are stacked on top of each other. There is no need to first remove the other boxes on top of one box in order to access the beverage bottles accommodated therein.

[0012] The rectangular top of the box may comprise one or more protrusions, and the rectangular bottom of the box may comprise one or more complementary indentations. This enables an easy and stable stacking of multiple boxes, whilst providing easy access to the beverages without requiring reshuffling and/or moving of boxes which can be cumbersome. Furthermore, accidental damage to beverage bottles can be prevented, as the risk of falling over or toppling over can be reduced.

[0013] Optionally, the box is configured to be placeable on top of an other identical and/or compatible box, and wherein the at least one protrusion of the other box received in the at least one indentation of the box provides for an interlock such as to substantially prevent lateral displacement of said box with respect to the other box.

[0014] The boxes may be removably attached to each other in this way. As a result of the interaction between the protrusions and indentations of two boxes, relative

movement between the boxes in at least one dimension can be blocked. In some examples, movement in at least two directions is prevented (cf. lateral plane). A stable fixation of the boxes with respect to each other can be obtained in a cost-effective way. No additional tools may be required.

[0015] Optionally, the complementary protrusions and indentations are circular.

[0016] Such design of protrusions may be easy to manufacture, resulting in a more efficient manufacturing process. Therefore, a cost-effective design can be obtained in this way. The indentations can be easily and efficiently provided in the rectangular bottom plate. Standard protrusions may be easily provided and/or attached to the rectangular top.

[0017] Optionally, the plurality of complementary protrusions and indentations are uniformly spaced apart longitudinally and transversely.

[0018] Such uniform spacing may provide for more uniform force distribution, and may reduce the risk of damaging a protrusion. Advantageously, the clamping can be improved. Additionally or alternatively, the reliability and stability of the relative fixation of boxes placed on top of each other can be improved.

[0019] Optionally, the rectangular top and rectangular bottom comprise respectively a plurality of complementary protrusions and indentations arranged in a structured pattern. Various structured patterns can be employed.

[0020] Optionally, the structured pattern is symmetric.

[0021] Optionally, the structured pattern comprises at least a first array and a second array of protrusions/indentations.

[0022] Optionally, protrusions/indentations arranged approximate to walls of the box are distanced from an exterior side thereof by a gap distance equal to half of a pitch distance provided between the uniformly spaced apart protrusions/indentations longitudinally and/or transversally.

[0023] Advantageously, in this way, the stability of stacking of boxes on top of each other can be further improved. For instance, one box can be placed on top of two different boxes, wherein protrusions of a second box are received in a subset of indentations of the first box, and wherein protrusions of a third box are received in a different subset of indentations of the first box. The falling over of several boxes stacked on top of each other can be avoided.

[0024] Neighboring protrusions/indentations may have a pitch distance therebetween, and protrusions/indentations arranged closest to at least one of the first side wall, the second side wall, the first end wall or the second end wall may be distanced therefrom with the gap distance. Advantageously, a larger number of boxes can be positioned on top of each other in a stable manner.

[0025] Optionally, the indentation forms a through hole in the rectangular bottom.

[0026] Advantageously, the weight of the box can be reduced by means of the through holes. Furthermore, in some examples, it is desired to prevent light entering the enclosure space when the box is closed. By providing the through holes at the bottom, it can be effectively prevented that light (cf. UV radiation) enters the inside of the box for example during storage and/or transportation. In this way, it can be effectively prevented that the beverage perishes, for example as a result of UV-radiation.

[0027] Optionally, the indentation forms a recess in the rectangular bottom.

[0028] Advantageously, the risk of light contamination can be reduced. Additionally, the risk of dirt accumulation, for instance through the indentations can be reduced.

[0029] Optionally, at least one of the at least one protrusion arranged on the rectangular top has a gripping area.

[0030] In this way, one or more protrusions can be employed having an additional functionality, namely providing an ergonomic design for the end user. Furthermore, such design with gripping area may further reduce the total weight of the box.

[0031] Optionally, the gripping area is shaped to permit a user's fingers to grasp and/or handle the box.

[0032] In this way, a user can easily grab and handle the box, for example placing it on top of another box or removing it from another box by moving the box relatively upwards with respect to the other box.

[0033] Placing the boxes on top of each other and/or detaching the boxes from each other may require some particular handling/movement since the at least one protrusion of one box is received in an indentation of another box. The gripping area enable the user to more easily and accurate move and/or manipulate the placement of the box.

[0034] Optionally, the gripping area defines an opening configured to permit user's finger to pass therethrough for grasping and/or handling the box.

[0035] A more firm grip may be obtained in this way.

[0036] Optionally, one or more centrally located protrusions are provided with a gripping area. In this way, the user may hold the box at a location more proximate to the center of gravity of the box with bottles therein. In this way, the user can more easily lift the box.

[0037] Optionally, the first side wall is hinged.

[0038] Such a hinged connection may provide for an easy access to the inside of the box, without the need of removing other boxes placed on top of the box from which one or more bottles therein have to be accessed.

[0039] Optionally, the first side wall is hingedly connected to the rectangular bottom.

[0040] The hinged connection at the bottom provides for an improved design, as the wall can remain opened as a result of gravity.

[0041] Optionally, the enclosure space is dimensioned such that beverage bottles are positionable next to each other with their longitudinal direction substantially transverse to the first and the second side walls.

[0042] The bottles inside the box can be better ac-

cessed whilst being maintained in a favorable state (cf. lay-down state). Furthermore, the risk of bottles falling out the box can be better prevented in this way.

[0043] According to an aspect, the invention provides for a packaging assembly comprising a first box and a second box according to the disclosure, wherein the first box is placed on top the second box, and wherein protrusions of the second box are received in indentations of the first box.

[0044] The assembly may comprise a large number of boxes connected to each other by means of the protrusions/indentations.

[0045] According to an aspect, the invention provides for a method of manufacturing a box configured to accommodate a plurality of beverage bottles in an enclosure space, the method including: providing a rectangular bottom and a rectangular top, wherein the rectangular bottom comprises a first edge, a second edge opposite the first edge, a third edge between the first edge and the second edge and a fourth edge opposite to the third edge, wherein a length of the first edge and the second edge is smaller than a length of the third edge and the fourth edge, wherein a first length and second length are selected such as to define the enclosure space in which the plurality of beverage bottles are positionable; providing a first end wall extending upwards from the first edge of the bottom; providing a second end wall extending upwards from the second edge of the bottom; providing a first side wall extending upwards from the third edge of the bottom; and providing a second side wall extending upwards from the fourth edge of the bottom; and wherein the first end wall, second end wall, first side wall, and second side wall are arranged between the rectangular bottom and the rectangular top; wherein the first side wall is adjustable between a first position, in which the box is closed and the plurality of beverage bottles in the enclosure space are inaccessible, and a second position, in which box is opened and such that the plurality of beverage bottles in the enclosure space are accessible; and wherein the rectangular top and rectangular bottom are provided with respectively at least one complementary protrusion and indentation.

[0046] "Optional" or "optionally" means that the subsequently described event or circumstance may or may not occur, and that the description includes instances where said event or circumstance occurs and instances where it does not.

[0047] Although the terms "first" and "second" may be used herein to describe various features/elements, these features/elements should not be limited by these terms, unless the context indicates otherwise. These terms may be used to distinguish one feature/element from another feature/element. Thus, a first feature/element discussed herein could be termed a second feature/element, and similarly, a second feature/element discussed herein could be termed a first feature/element without departing from the teachings of the present invention.

[0048] It will be appreciated that any of the aspects, features and options described in view of the box apply equally to the assembly, method, system and the described use of the box. It will also be clear that any one or more of the above aspects, features and options can be combined.

BRIEF DESCRIPTION OF THE DRAWING

[0049] The invention will further be elucidated on the basis of exemplary embodiments which are represented in a drawing. The exemplary embodiments are given by way of non-limitative illustration. It is noted that the figures are only schematic representations of embodiments of the invention that are given by way of non-limiting example.

[0050] In the drawing:

Fig. 1 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 2a, 2b shows a schematic diagram of an exemplary embodiment of a box;
Fig. 3 shows a schematic diagram of an exemplary embodiment of an assembly;
Fig. 4 shows a schematic diagram of an exemplary embodiment of an assembly;
Fig. 5 shows a schematic diagram of an exemplary embodiment of an assembly placed on a pallet;
Fig. 6 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 7 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 8 shows a schematic diagram of an exemplary embodiment of a rectangular top;
Fig. 9 shows a schematic diagram of an exemplary embodiment of a rectangular bottom;
Fig. 10 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 11 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 12 shows a schematic diagram of an exemplary embodiment of an assembly;
Fig. 13 shows a schematic diagram of an exemplary embodiment of an assembly;
Fig. 14 shows a schematic diagram of an exemplary embodiment of an assembly;
Fig. 15 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 16 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 17 shows a schematic diagram of an exemplary embodiment of a box;
Fig. 18 shows a schematic diagram of an exemplary embodiment of a box; and
Fig. 19 shows a schematic diagram of an exemplary embodiment of a box.

DETAILED DESCRIPTION

[0051] Fig. 1 shows a schematic diagram of an exemplary embodiment of a box 1 in perspective view. The box 1 is configured to accommodate a plurality of beverage bottles (not shown) in an enclosure space 3. The box 1 comprises: a rectangular bottom 5 and a rectangular top 7, wherein the rectangular bottom 5 comprises a first edge 9, a second edge 11 opposite the first edge 9, a third edge 13 between the first edge 9 and the second edge 11 and a fourth edge 15 opposite to the third edge 13, wherein a length of the first edge 9 and the second edge 11 is smaller than a length of the third edge 13 and the fourth edge 15, wherein a first length and second length are selected such as to define the enclosure space 3 in which the plurality of beverage bottles (not shown) are positionable. The box 1 comprise a first end wall 17 extending upwards from the first edge of the bottom 5; a second end wall 19 extending upwards from the second edge 11 of the bottom 5; a first side wall 21 extending upwards from the third edge 13 of the bottom 5 (in a closed position of the side wall 21; in this example, the first side wall 21 has been opened); and a second side wall 23 extending upwards from the fourth edge 15 of the bottom 5. The first end wall 17, second end wall 19, first side wall 21, and second side wall 23 are arranged between the rectangular bottom 5 and the rectangular top 7. Furthermore, the first side wall 21 is adjustable between a first position, in which the box 1 is closed and the plurality of beverage bottles in the enclosure space are inaccessible, and a second position, in which box 1 is opened and such that the plurality of beverage bottles in the enclosure space are accessible. In the shown illustration, the first side wall 21 is in a second position (i.e. opened state). Further, the rectangular top 7 and rectangular bottom 5 comprise respectively at least one complementary protrusion 25 and indentation 27. In this example, a plurality of protrusions 25 and indentations 27 are arranged. The indentations 27 are circular through holes configured complementary with respect the cylindrical protrusions 25. Hence, the protrusions 25 of the box 1 can be received in indentations 27 of another (identical) box. Similarly, the indentations 27 of the box 1 can receive protrusions 25 of another (identical) box.

[0052] Fig. 2a, 2b shows a schematic diagram of an exemplary embodiment of a box 1 in perspective view. In fig. 2a, the box 1 is orientated such that the rectangular top 7 of the box 1 is clearly visible. In fig. 2b, the rectangular bottom 5 of an identical box 1 is shown. In this example, the box 1 is provided with a structured pattern of protrusions 25 and indentations 27. The structured pattern forms a matrix of protrusions/indentations respectively arranged on the rectangular top and the rectangular bottom. However, various other patterns can be employed.

[0053] In this example, the protrusions/indentations 25, 27 of the box 1 are circular (cf. cylindrical). However, various other shapes can also be employed. For example, the protrusions 25 may have at least one of the following shapes: a cone, sphere, cube, pyramid, cuboid, cylinder, prism or tetrahedron. The indentations 27 can have complementary shapes such as to receive the protrusions 25 therein. More particularly, the indentations 27 may be shaped such as to block or prevent movement in at least one direction. In some cases, the indentations 27 are shaped to receive protrusions such as to block movement in at least two directions (e.g. movement in a plane parallel to the rectangular top/bottom of the box 1).

[0054] Compatible and identical boxes can be easily placed on top of each other in order to form an assembly of stacked boxes. For compatible boxes, the protrusions and indentations have to be compatible. For example, one box may have N protrusions, and another box may have N+x indentations, wherein the N protrusions of the one box can be received in the N indentations of the other box. Various compatible designs can be employed.

[0055] Fig. 3 shows a schematic diagram of an exemplary embodiment of an assembly 10. In this example, four identical/compatible boxes 1a, 1b, 1c, 1d are stacked on top of each other. Each box 1a-1d has a first sidewall 21 which can be opened and closed. The first sidewall 21 may form a loose lid. In some examples, the closed state of the first sidewall 21 can be locked by means of a mechanical locking unit. However, it is also possible to employ a magnetic locking arrangement.

[0056] In the assembly 10 shown in fig. 3, the boxes 1a-1d have a matrix of 4x6 protrusions, which are evenly distributed on the rectangular top 7 of the box 1. Such a matrix of protrusions can provide for a uniform force distribution. However, various other structural arrangements are possible, such as for instance 6x9, 2x3, 1x2, etc.

[0057] Fig. 4 shows a schematic diagram of an exemplary embodiment of an assembly 10. In this example, a number of boxes 1 are stacked on top of each other, wherein successive rows R1-R5 of boxes 1 are differently orientated. More particularly, the boxes 1 in the second row R2 are 90 degrees rotated with repect to the first row R1 with boxes 1a-f. Furthermore, the boxes in the third row R3 are again orientated as in the first row R1. The boxes in the fourth row R4 have a similar orientation as in the second row R2. Hence, the orientation of the boxes in the successive rows is alternatingly changed. In this way, a significantly more stable assembly 10 can be obtained.

[0058] Such stacking of the boxes can be employed as a result of the configuration of the protrusions on the rectangular top and the indentations on the rectangular bottom of the boxes. The protrusions/indentations arranged approximate to walls of the box are distanced from an exterior side thereof by a gap distance equal to half of a pitch distance provided between the uniformly spaced apart protrusions/indentations longitudinally and/or transversally. A box can be placed at various locations on top of other boxes (e.g. on the boxes 1a-1f in the first row R1). A box overlappingly placed on top of

two or more other boxes can result in a significantly more stable arrangement of the assembly 10.

[0059] Fig. 5 shows a schematic diagram of an exemplary embodiment of an assembly 10 placed on a pallet 20. In this example, each row R1-R4 of boxes has 9 boxes placed adjacent to each other. As the protrusions of the boxes are received in the indentations of other boxes, shifting of one row with respect to another row can be effectively prevented. A stable transportation and/or storage of the assembly 10 of boxes 1 can be achieved.

[0060] Fig. 6 shows a schematic diagram of an exemplary embodiment of a box 1. The box 1 has a first side wall 21 which can be opened up in order to provide the user access to the enclosure space 3. Furthermore, in this example, the box has one central protrusion 25. The protrusion 25 arranged on the rectangular top of the box 1 has a gripping area 30. The gripping area 30 is shaped to permit a user's fingers to grasp or handle the box. In this example, a recess is provided in the protrusion, making the protrusion effectively a handle of the box. However, it is also envisaged that the gripping area defines an opening configured to permit user's finger to pass through the protrusion 25.

[0061] Fig. 7 shows a schematic diagram of an exemplary embodiment of a box 1. In this example, the first side wall 21 is adjusted to an open position. The first side wall 21 can be adjusted to a closed position in which the enclosure space 3 is closed off. The first side wall 21 is hinged. In this example, the first side wall is hingedly connected to the rectangular bottom of the box 1. Two hinge connections 33 are shown. However, various other hinge arrangements can be employed.

[0062] In this example, the rectangular top 7 has a plurality of protrusions 25. One of the protrusions is provided with a gripping area 30 configured to enable a user to handle the box. Advantageously, the central protrusion arranged nearest to the central point of the rectangular top is provided with such gripping area 30. In this way, the user is allowed to easily handle the box with improved balance.

[0063] Fig. 8 shows a schematic diagram of an exemplary embodiment of a rectangular top 7 with protrusions 25 (top view). The protrusions 25 are arranged in a regular pattern. Such a regular pattern may provide for a more uniform pressure/force distribution when boxes 1 are placed on top of each other. In this example, the regular pattern is a matrix pattern. Various other patterns are envisaged. In the shown illustration, exemplary dimensions are provided in centimeters. It will be appreciated that such dimensions are merely provided for the purpose of illustration, and that various other dimensions and configurations can be employed.

[0064] Fig. 9 shows a schematic diagram of an exemplary embodiment of a rectangular bottom 5 (top view). The rectangular bottom 5 includes multiple indentations 27. In this example, the indentations are circular through holes. In this way, the weight of the bottom 5 can be reduced. Advantageously, the additional weight as a result of the protrusions arranged on the top of the box can be at least partially compensated by means of the cutouts (cf. indentations) in the bottom. The exemplary dimensions are illustrative.

[0065] Fig. 10 shows a cross sectional side view of a schematic diagram of an exemplary embodiment of a box 1, and fig. 11 shows a cross sectional front view of a schematic diagram of an exemplary embodiment of the same box 1. The box includes the top shown in fig. 8 and the bottom shown in fig. 9. The exemplary dimensions are illustrative.

[0066] Fig. 12 shows a schematic diagram of an exemplary embodiment of an assembly 10. A first box 1a has been placed on top of a second box 1b having an identical and/or compatible design. In this example, each box 1a, 1b of the assembly 10 has two protrusions 25. The protrusions form elongated ribs extending in a direction parallel to the side walls 21, 23 of the box 1. The two ribs are arranged near the sides of the box.

[0067] Fig. 13 shows a schematic diagram of an exemplary embodiment of an assembly 10. A first box 1a has been placed on top of a second box 1b having an identical and/or compatible design. In this example, each box 1a, 1b of the assembly 10 has three protrusions 25. The protrusions form elongated ribs extending in a direction parallel to the side walls 21, 23 of the box 1. Two ribs are arranged near the sides of the box, and one rib is arranged centrally.

[0068] Advantageously, by means of the central rib, the boxes can be placed on top of each other in different ways. For example, indentations of one box may receive protrusions of two different boxes placed adjacent and next to each other. An improved stacking of boxes can be achieved in this way. Additionally, a more stable assembly of boxes can be obtained.

[0069] Fig. 14 shows a schematic diagram of an exemplary embodiment of an assembly 10. The assembly is similar to the embodiment shown in fig. 13. However, in this example, the middle or central protrusion has a gripping area 30. The gripping area 30 is formed by a cutout in the rib. The cutout is dimensioned such that a user can pass its fingers therethrough such as to get a firm grip of the box.

[0070] Fig. 15 shows a schematic diagram of an exemplary embodiment of a box 1. In this example, the box 1 has ring shaped protrusions 25. In this way, the weight of the box can be substantially reduce in an advantageous way. Relatively large complementary indentations can be used at the bottom of the box. The indentations arranged at the bottom of the box may be through holes having an outer diameter substantially corresponding to the outer diameter of the ring shaped protrusions 25, such that said protrusions 25 can be received therein.

[0071] Although a 2x3 matrix pattern is shown (cf. two-dimensional array of protrusions), various other configurations, sizes, arrangements, orientations, placements, etc., are possible and envisaged.

[0072] Fig. 16 shows a schematic diagram of an ex-

emplary embodiment of a box 1. In this example, the protrusions are beam shaped with rounded edges. Furthermore, side portions of the beams are convex. In this way, a more robust design may be obtained, wherein the protrusions can handle larger forces compared to some other designs. However, various other configurations are possible. For instance, additionally or alternatively, one or more of the side portions of the beams may be concave. Compatible and complementary indentations can be arranged in the rectangular bottom of the box.

[0073] Fig. 17 shows a schematic diagram of an exemplary embodiment of a box 1. In this example, cylindrical protrusions are employed, wherein the central protrusion is shaped to form a gripping area 30. Hence, the protrusion with the gripping area may have another shape. Compatible and complementary indentations can be arranged in the rectangular bottom of the box.

[0074] Fig. 18 shows a schematic diagram of an exemplary embodiment of a box 1. In this example, the protrusions 25 form interrupted ribs. In this way, the weight of the box can be reduced while retaining a stable and strong design.

[0075] Fig. 19 shows a schematic diagram of an exemplary embodiment of a box 1 similar to the embodiment shown in fig. 18. In this example, also protrusions 25' are provided which form an interrupted rib.

[0076] As used in the description, unless otherwise specified, the use of the ordinal adjectives "first", "second", "third", etc., to describe a common element, merely indicate that different instances of like elements are being referred to, and are not intended to imply that the elements so described must be in a given sequence, either temporally, spatially, in ranking, or in any other manner.

[0077] Whereas the terms "one or more" or "at least one", such as one or more or at least one member(s) of a group of members, is clear per se, by means of further exemplification, the term encompasses inter alia a reference to any one of said members, or to any two or more of said members, such as, e.g., any 3, .4, 5, >6 or >7 etc. of said members, and up to all said members.

[0078] Spatially relative terms, such as "bottom", "top", "side" "under", "below", "lower", "over", "upper" and the like, may be used herein for ease of description to describe one element or feature's relationship to another element(s) or feature(s) as illustrated in the figures. It will be understood that the spatially relative terms are intended to encompass different orientations of the device in use or operation in addition to the orientation depicted in the figures. The box may be otherwise oriented (rotated 90 degrees or at other orientations) and the spatially relative descriptors used herein interpreted accordingly. Similarly, the terms "upwardly", "downwardly", "vertical", "horizontal" and the like are used herein for the purpose of explanation only unless specifically indicated otherwise.

[0079] Herein, the invention is described with reference to specific examples of embodiments of the invention. It will, however, be evident that various modifications, variations, alternatives and changes may be made therein, without departing from the essence of the invention. For the purpose of clarity and a concise description features are described herein as part of the same or separate embodiments, however, alternative embodiments having combinations of all or some of the features described in these separate embodiments are also envisaged and understood to fall within the framework of the invention as outlined by the claims. The specifications, figures and examples are, accordingly, to be regarded in an illustrative sense rather than in a restrictive sense. The invention is intended to embrace all alternatives, modifications and variations which fall within the scope of the appended claims. Further, many of the elements that are described are functional entities that may be implemented as discrete or distributed components or in conjunction with other components, in any suitable combination and location.

[0080] In the claims, any reference signs placed between parentheses shall not be construed as limiting the claim. The word 'comprising' does not exclude the presence of other features or steps than those listed in a claim. Furthermore, the words 'a' and 'an' shall not be construed as limited to 'only one', but instead are used to mean 'at least one', and do not exclude a plurality. The mere fact that certain measures are recited in mutually different claims does not indicate that a combination of these measures cannot be used to an advantage.

Claims

1. A box configured to accommodate a plurality of beverage bottles in an enclosure space, the box comprising:

   a rectangular bottom and a rectangular top, wherein the rectangular bottom comprises a first edge, a second edge opposite the first edge, a third edge between the first edge and the second edge and a fourth edge opposite to the third edge, wherein a length of the first edge and the second edge is smaller than a length of the third edge and the fourth edge, wherein a first length and second length are selected such as to define the enclosure space in which the plurality of beverage bottles are positionable;
   a first end wall extending upwards from the first edge of the bottom;
   a second end wall extending upwards from the second edge of the bottom;
   a first side wall extending upwards from the third edge of the bottom; and
   a second side wall extending upwards from the fourth edge of the bottom; and
   wherein the first end wall, second end wall, first side wall, and second side wall are arranged between the rectangular bottom and the rectangu-

lar top;
wherein the first side wall is adjustable between a first position, in which the box is closed and the plurality of beverage bottles in the enclosure space are inaccessible, and a second position, in which box is opened and such that the plurality of beverage bottles in the enclosure space are accessible; and
wherein the rectangular top and rectangular bottom comprise respectively at least one complementary protrusion and indentation.

2. The box according to claim 1, wherein the box is configured to be placeable on top of an other identical and/or compatible box, and wherein the at least one protrusion of the other box received in the at least one indentation of the box provides for an interlock such as to substantially prevent lateral displacement of said box with respect to the other box.

3. The box according to claim 1 or 2, wherein the complementary protrusions and indentations are circular.

4. The box according to any one of the preceding claims, wherein the plurality of complementary protrusions and indentations are uniformly spaced apart longitudinally and transversely.

5. The box according to claim 4, wherein protrusions/indentations arranged approximate to walls of the box are distanced from an exterior side thereof by a gap distance equal to half of a pitch distance provided between the uniformly spaced apart protrusions/indentations longitudinally and/or transversally.

6. The box according to any one of the preceding claims, wherein the indentation forms a through hole in the rectangular bottom.

7. The box according to any one of the preceding claims 1-5, wherein the indentation forms a recess in the rectangular bottom.

8. The box according to any one of the preceding claims, wherein at least one of the at least one protrusion arranged on the rectangular top has a gripping area.

9. The box according to claim 8, wherein the gripping area is shaped to permit a user's fingers to grasp or handle the box.

10. The box according to claim 9, wherein the gripping area defines an opening configured to permit user's finger to pass therethrough.

11. The box according to any one of the preceding claims, wherein the first side wall is hinged.

12. The box according to any one of the preceding claims, wherein the first side wall is hingedly connected to the rectangular bottom.

13. The box according to any one of the preceding claims, wherein the enclosure space is dimensioned such that beverage bottles are positionable next to each other with their longitudinal direction substantially transverse to the first and the second side walls.

14. A packaging assembly comprising a first box and a second box according to any one of the preceding claims, wherein the first box is placed on top the second box, and wherein protrusions of the second box are received in indentations of the first box.

15. A method of manufacturing a box configured to accommodate a plurality of beverage bottles in an enclosure space, the method including:

providing a rectangular bottom and a rectangular top, wherein the rectangular bottom comprises a first edge, a second edge opposite the first edge, a third edge between the first edge and the second edge and a fourth edge opposite to the third edge, wherein a length of the first edge and the second edge is smaller than a length of the third edge and the fourth edge, wherein a first length and second length are selected such as to define the enclosure space in which the plurality of beverage bottles are positionable;
providing a first end wall extending upwards from the first edge of the bottom;
providing a second end wall extending upwards from the second edge of the bottom;
providing a first side wall extending upwards from the third edge of the bottom; and
providing a second side wall extending upwards from the fourth edge of the bottom; and
wherein the first end wall, second end wall, first side wall, and second side wall are arranged between the rectangular bottom and the rectangular top; wherein the first side wall is adjustable between a first position, in which the box is closed and the plurality of beverage bottles in the enclosure space are inaccessible, and a second position, in which box is opened and such that the plurality of beverage bottles in the enclosure space are accessible; and

wherein the rectangular top and rectangular bottom are provided with respectively at least one complementary protrusion and indentation.

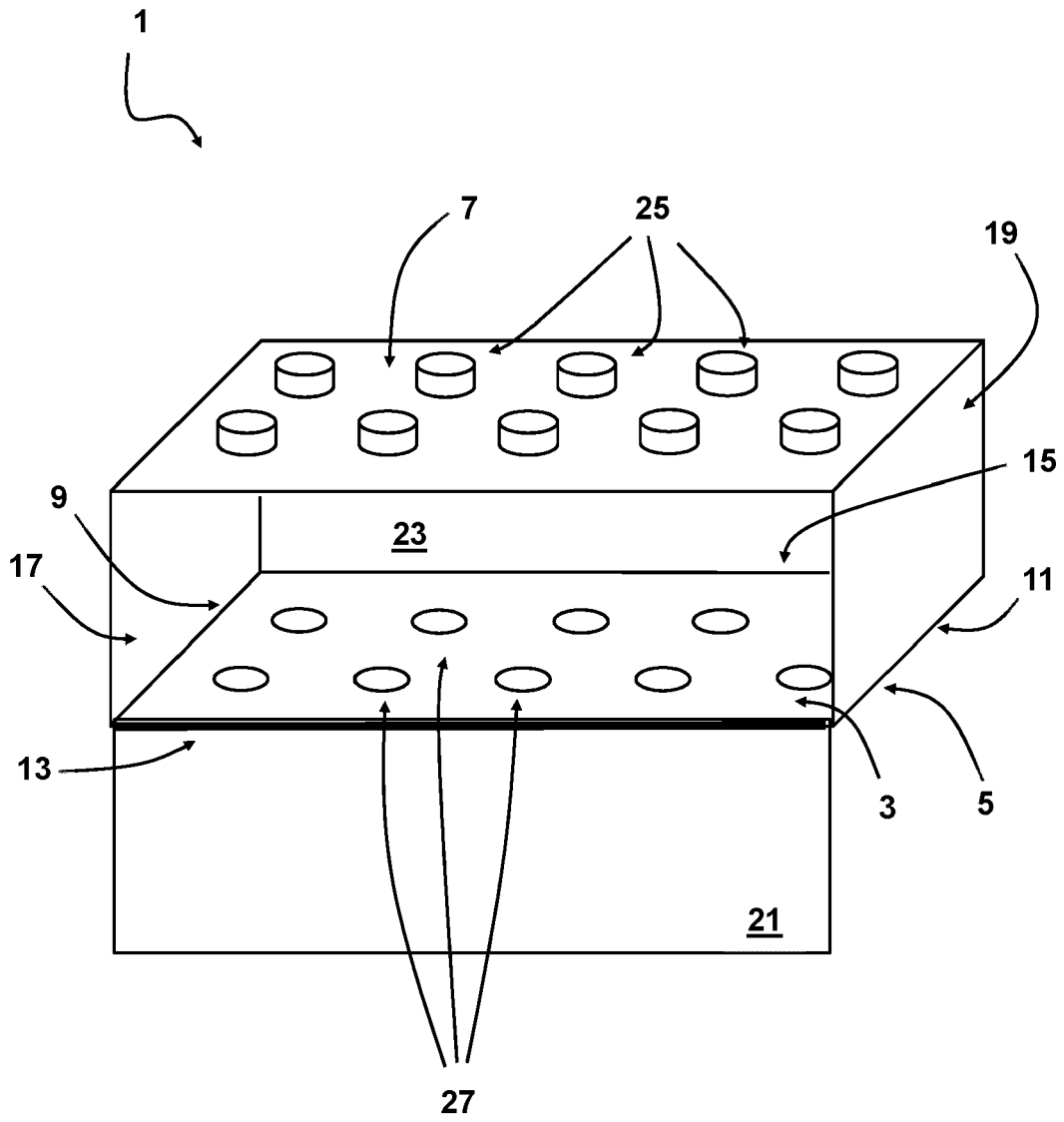

FIG 1

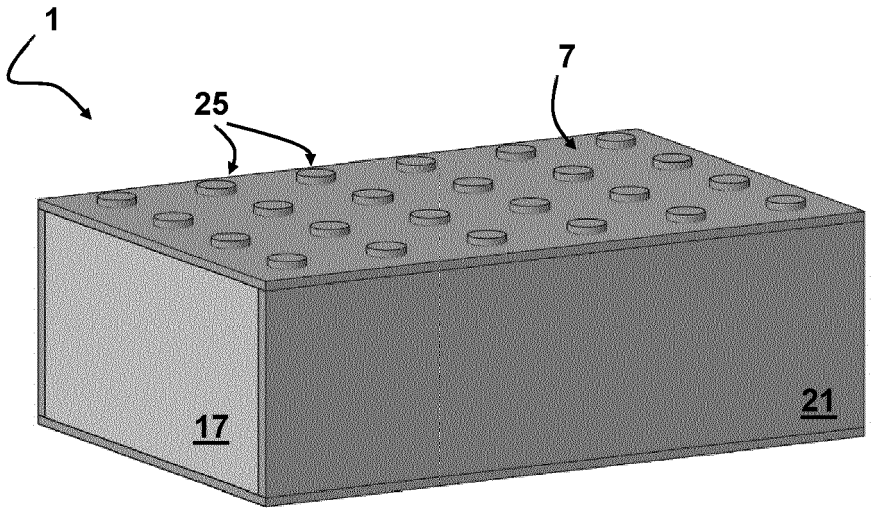

FIG 2A

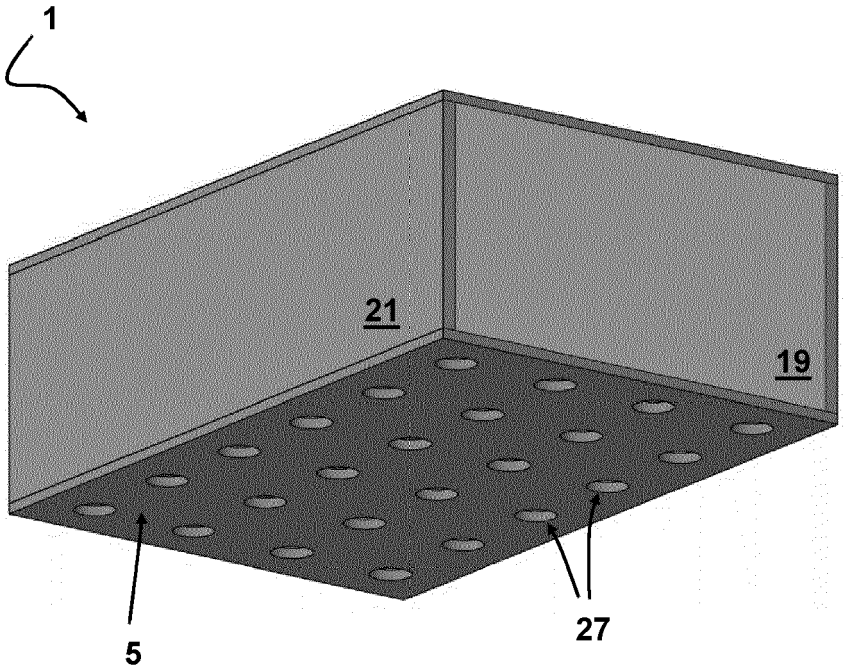

FIG 2B

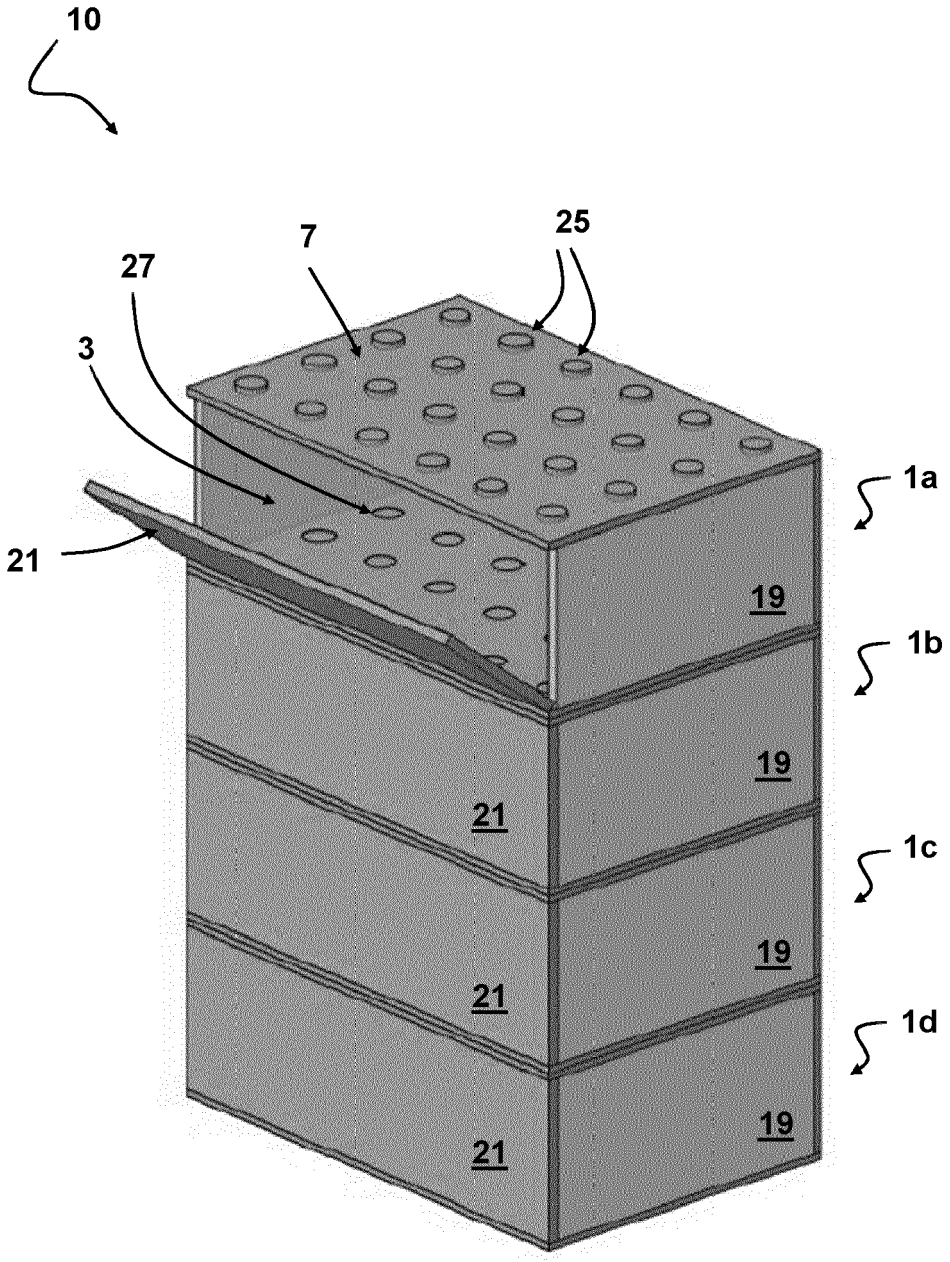

FIG 3

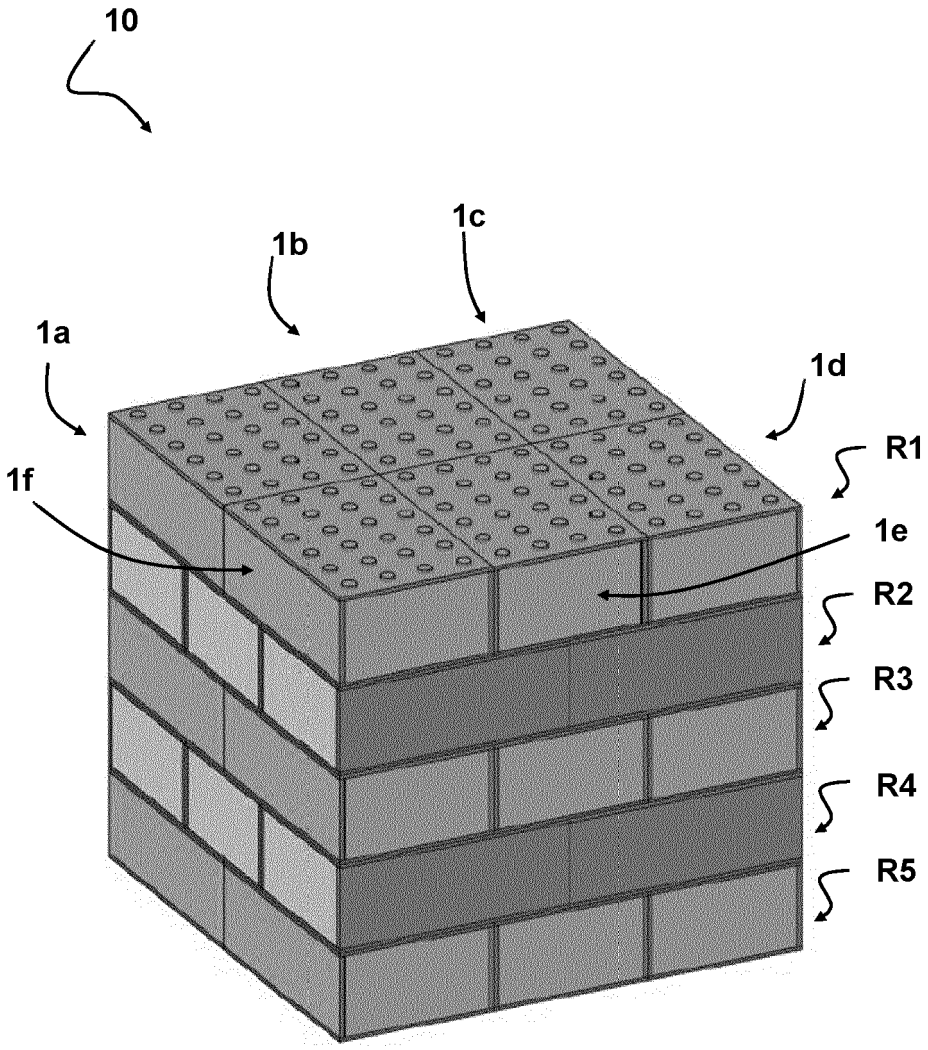

FIG 4

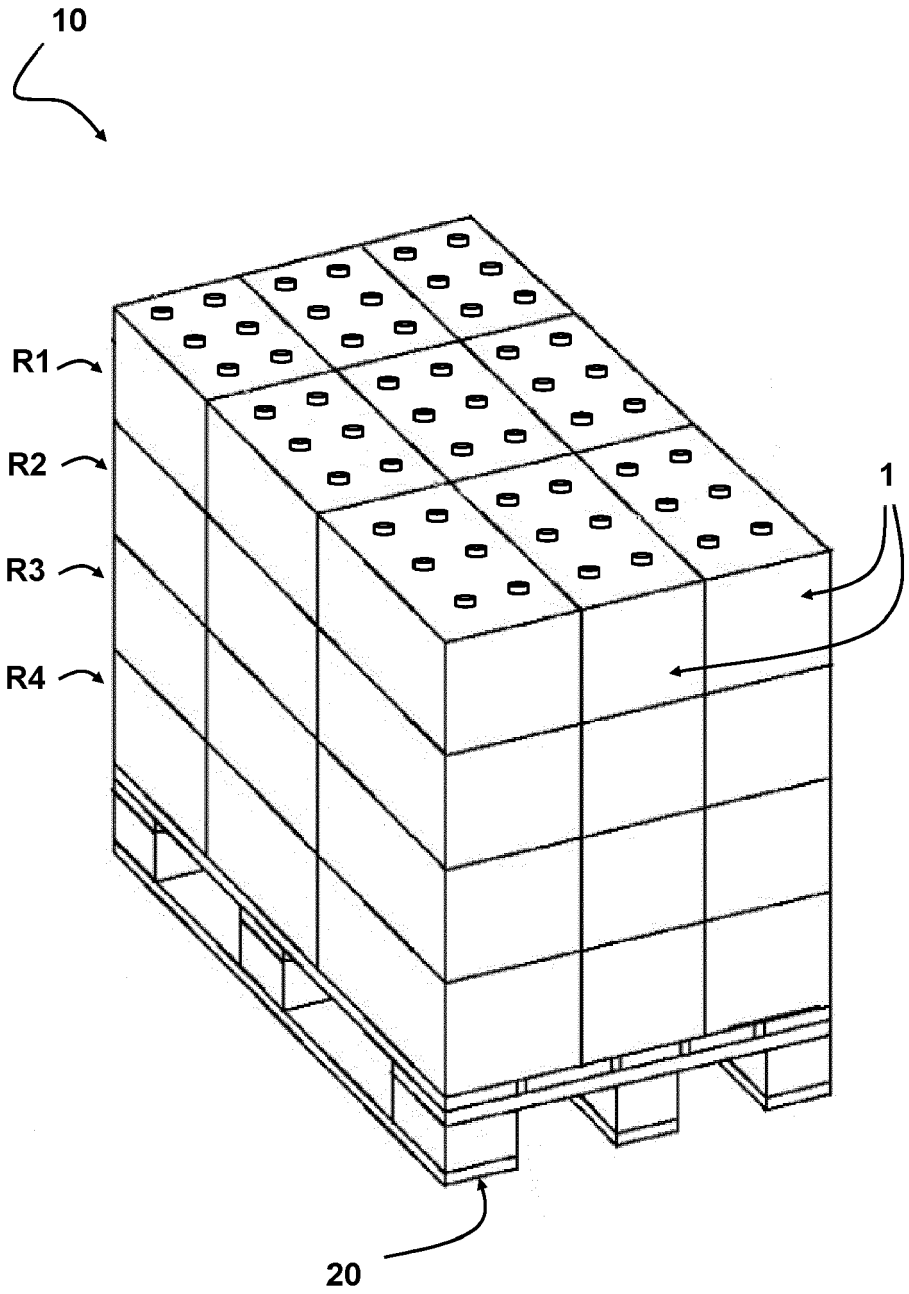

FIG 5

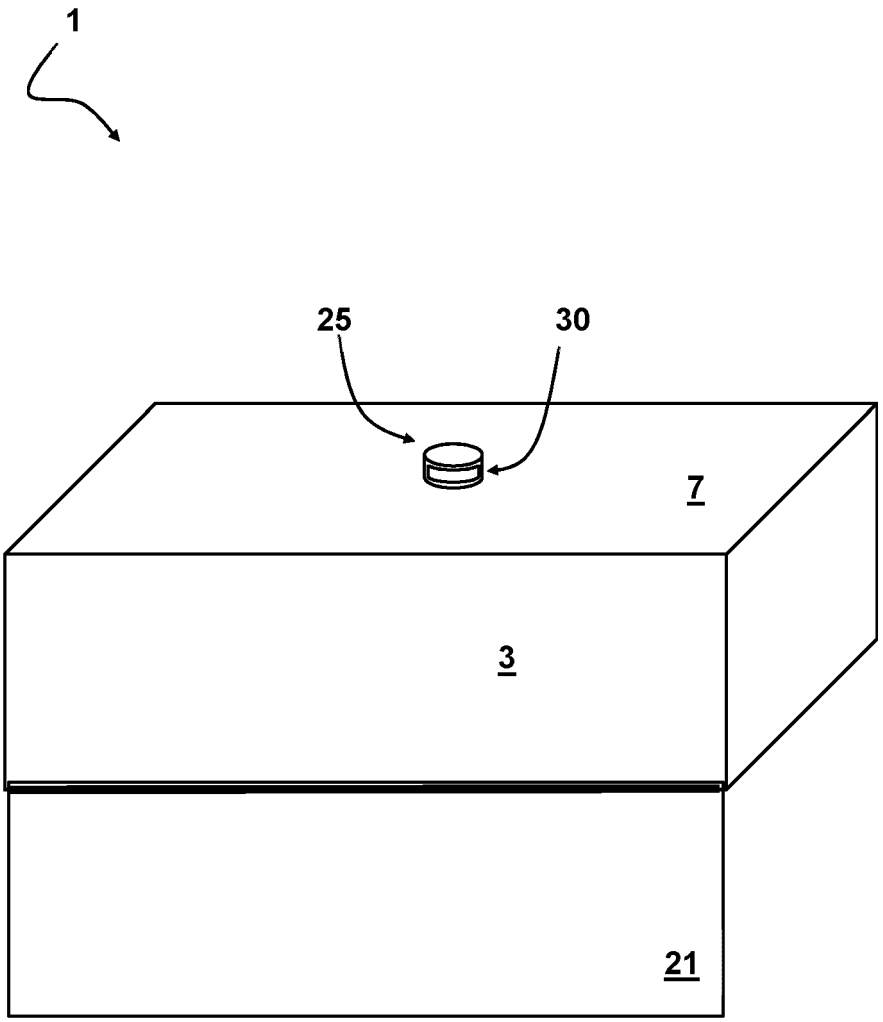

FIG 6

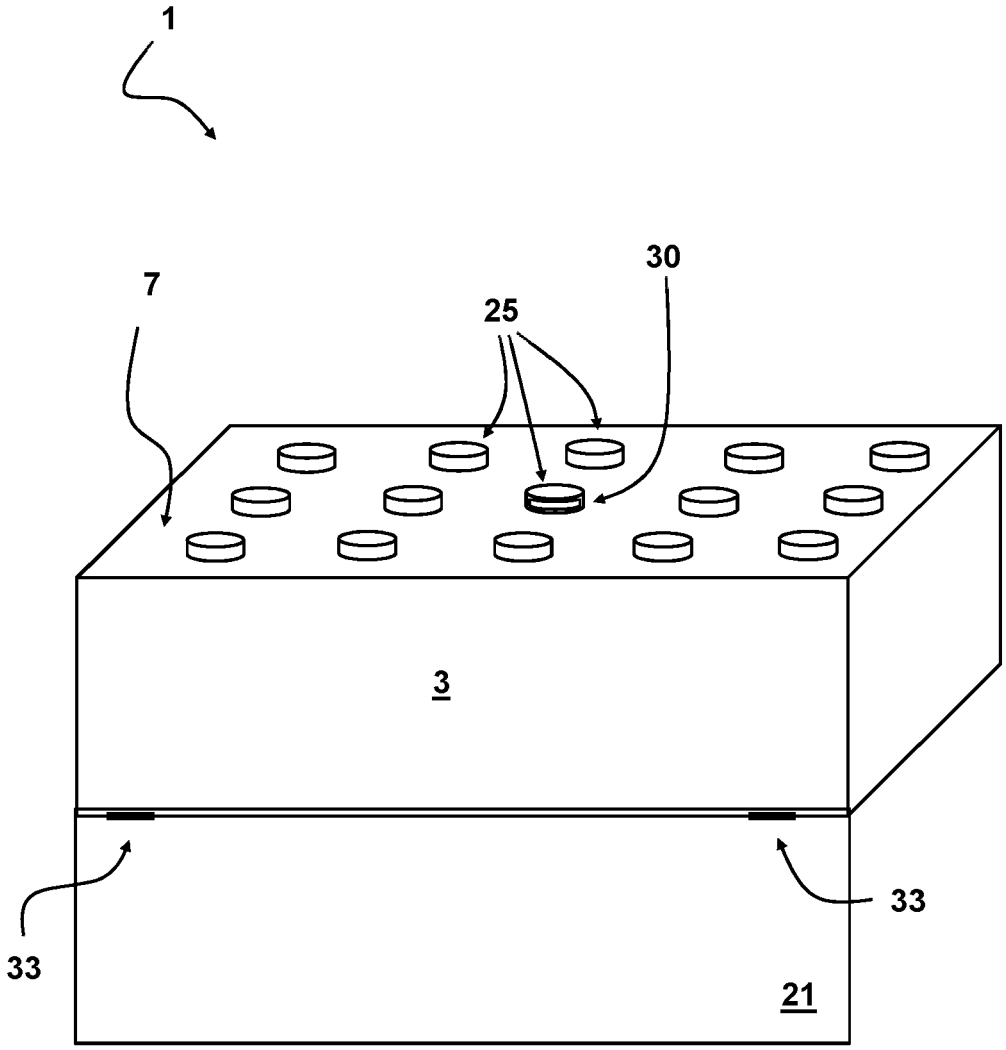

FIG 7

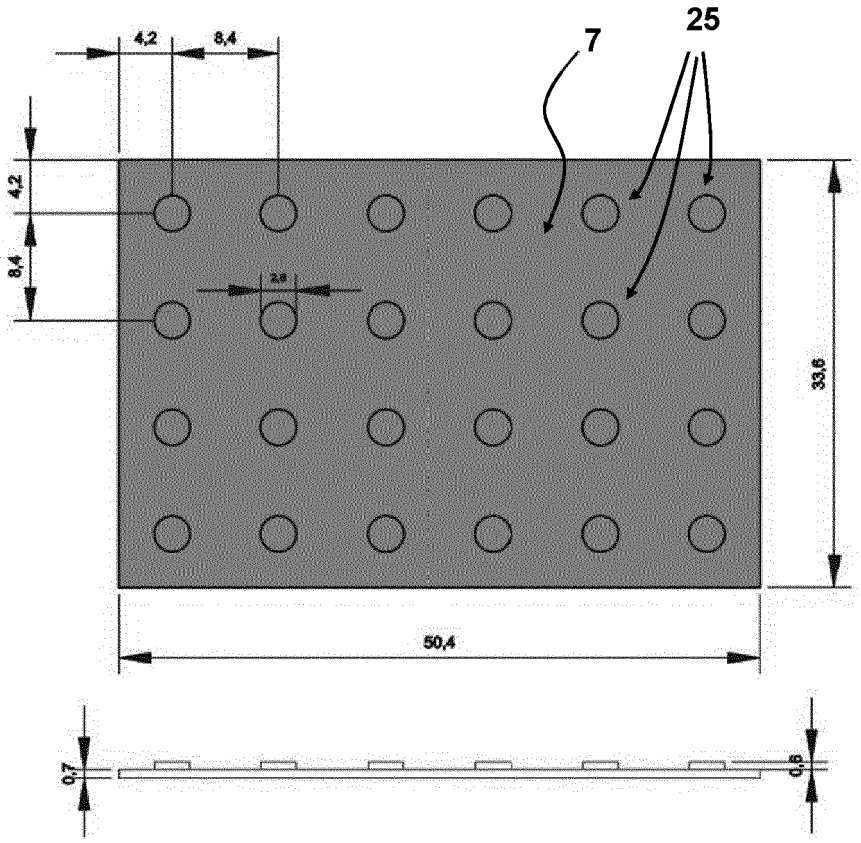

FIG 8

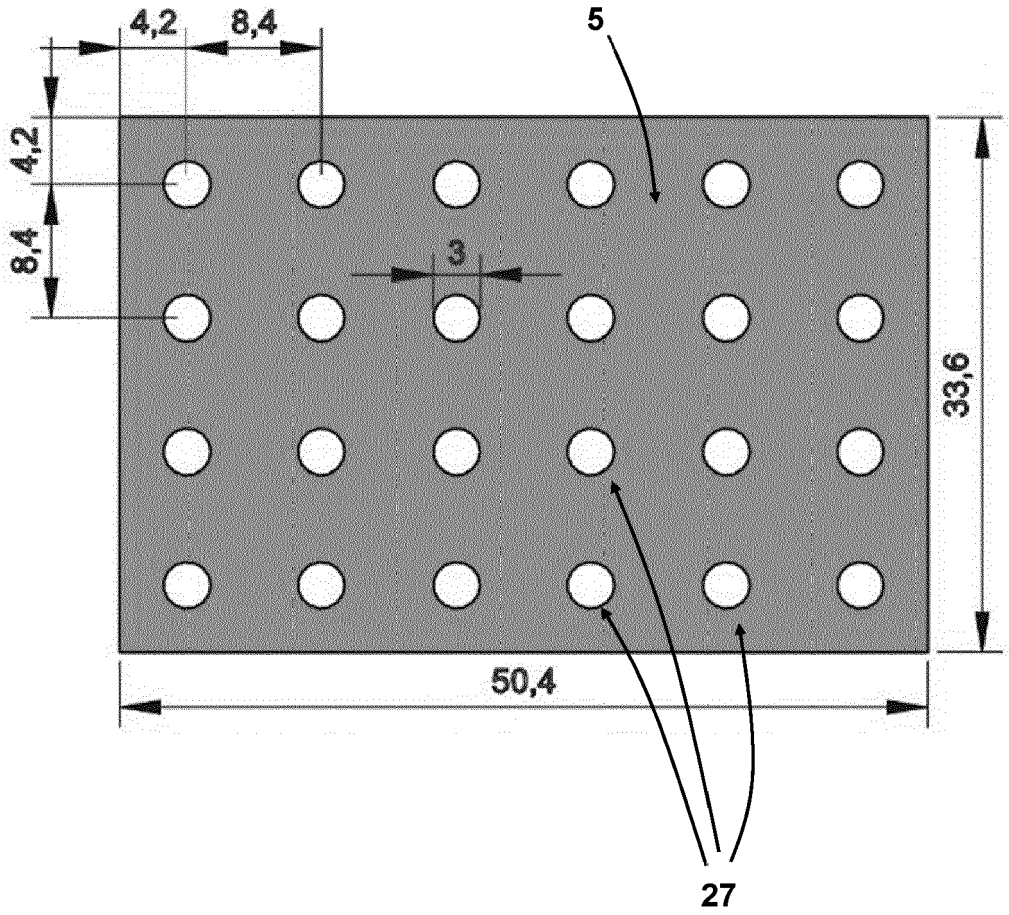

FIG 9

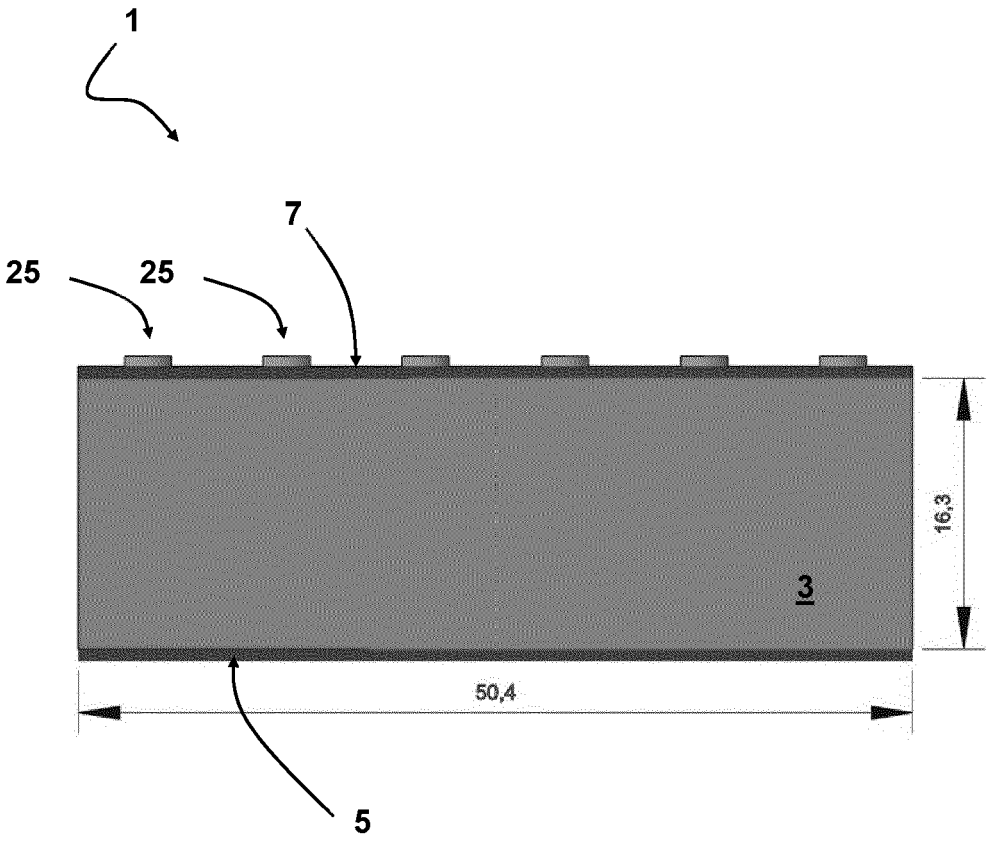

FIG 10

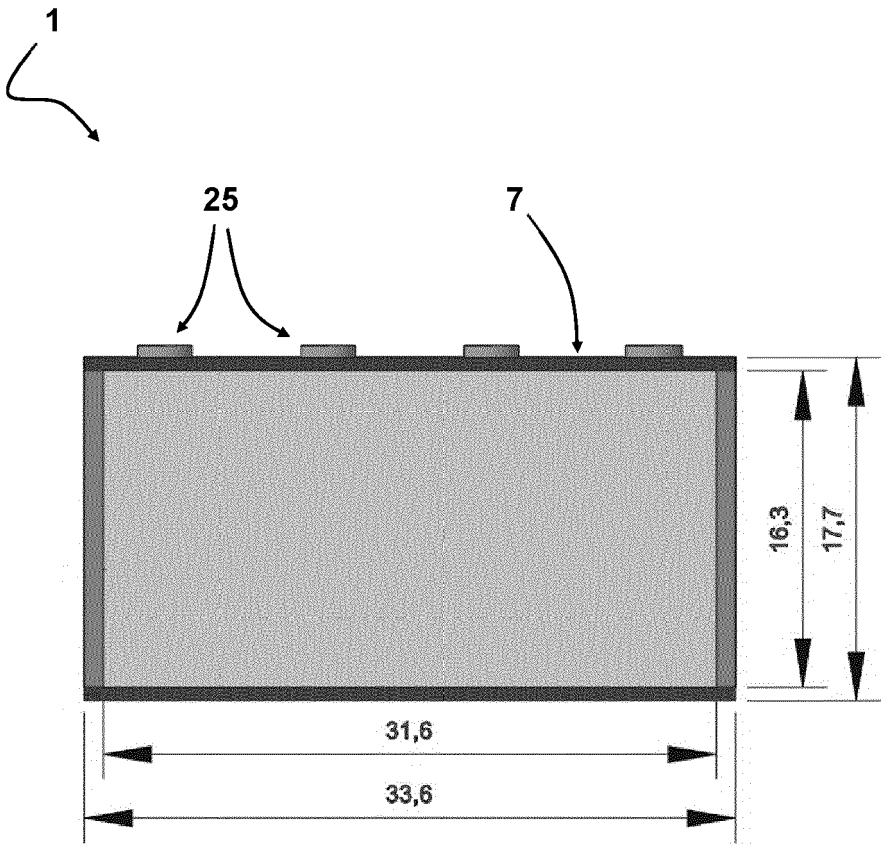

FIG 11

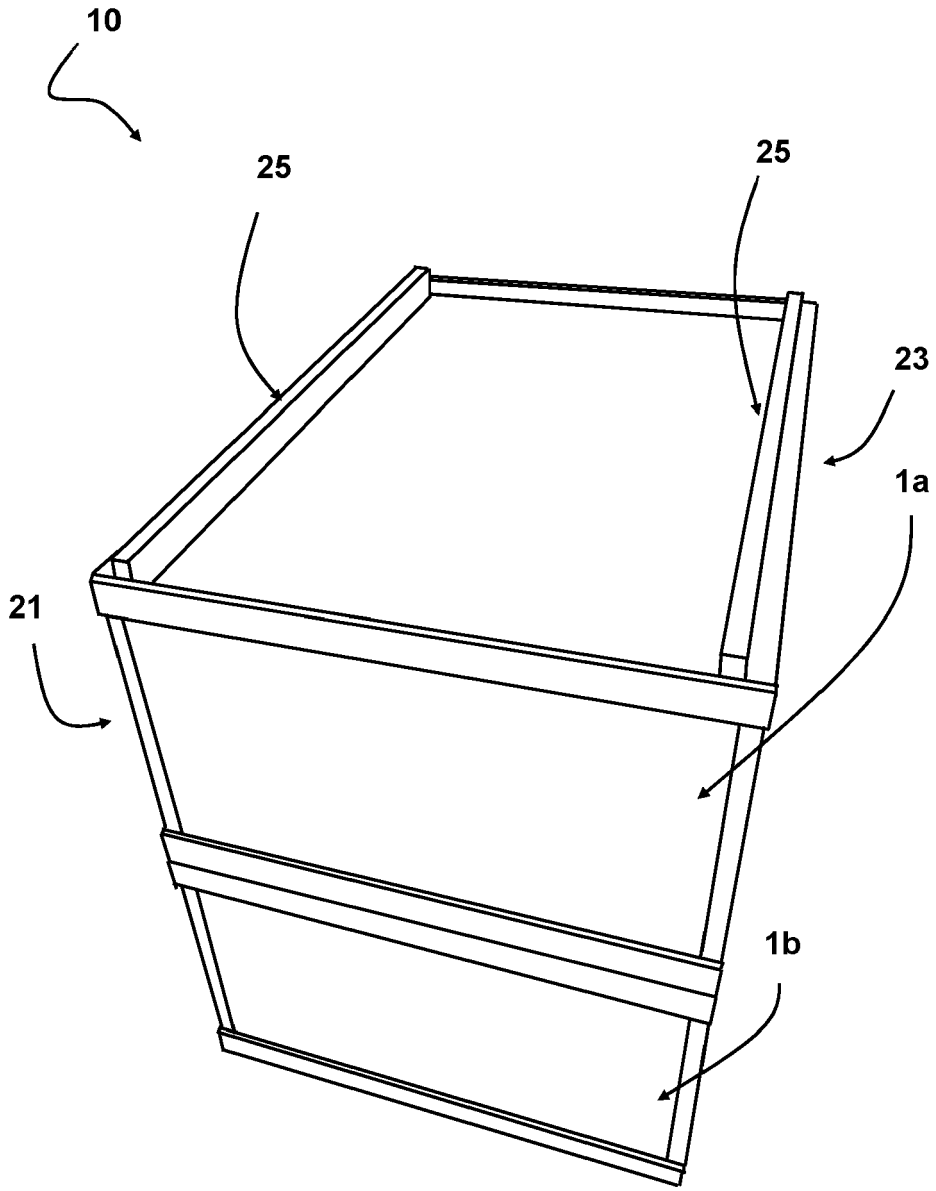

FIG 12

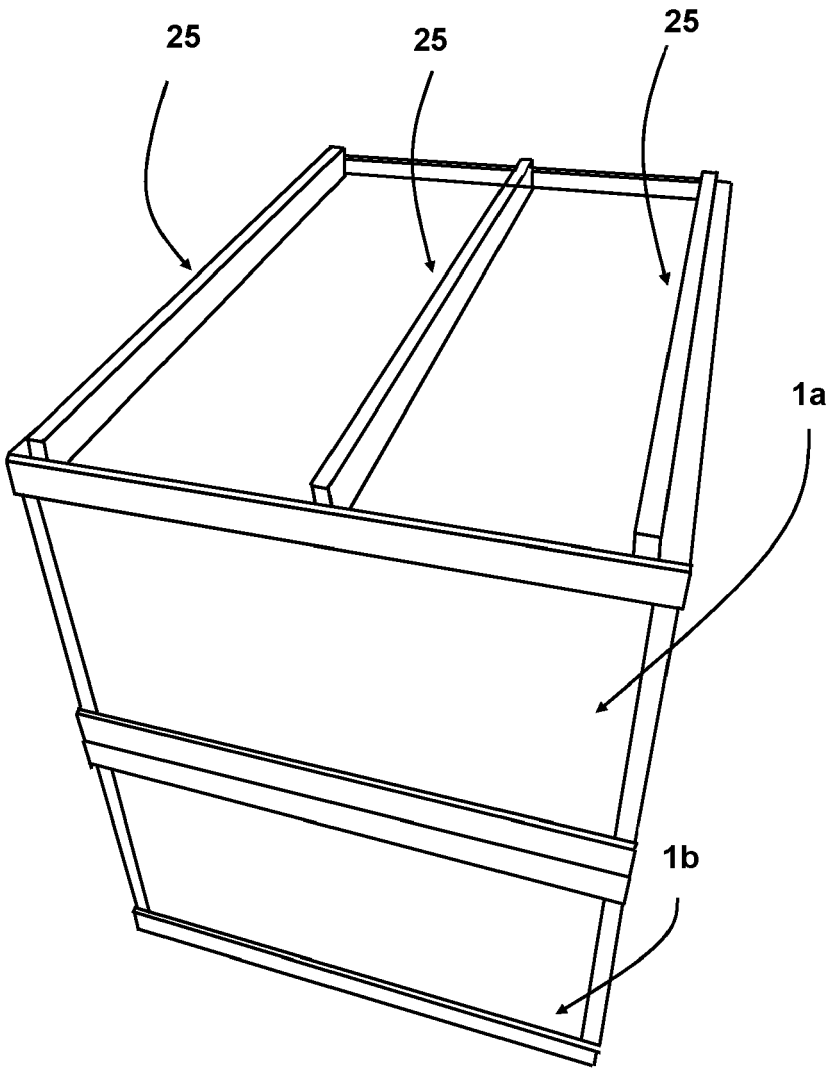

FIG 13

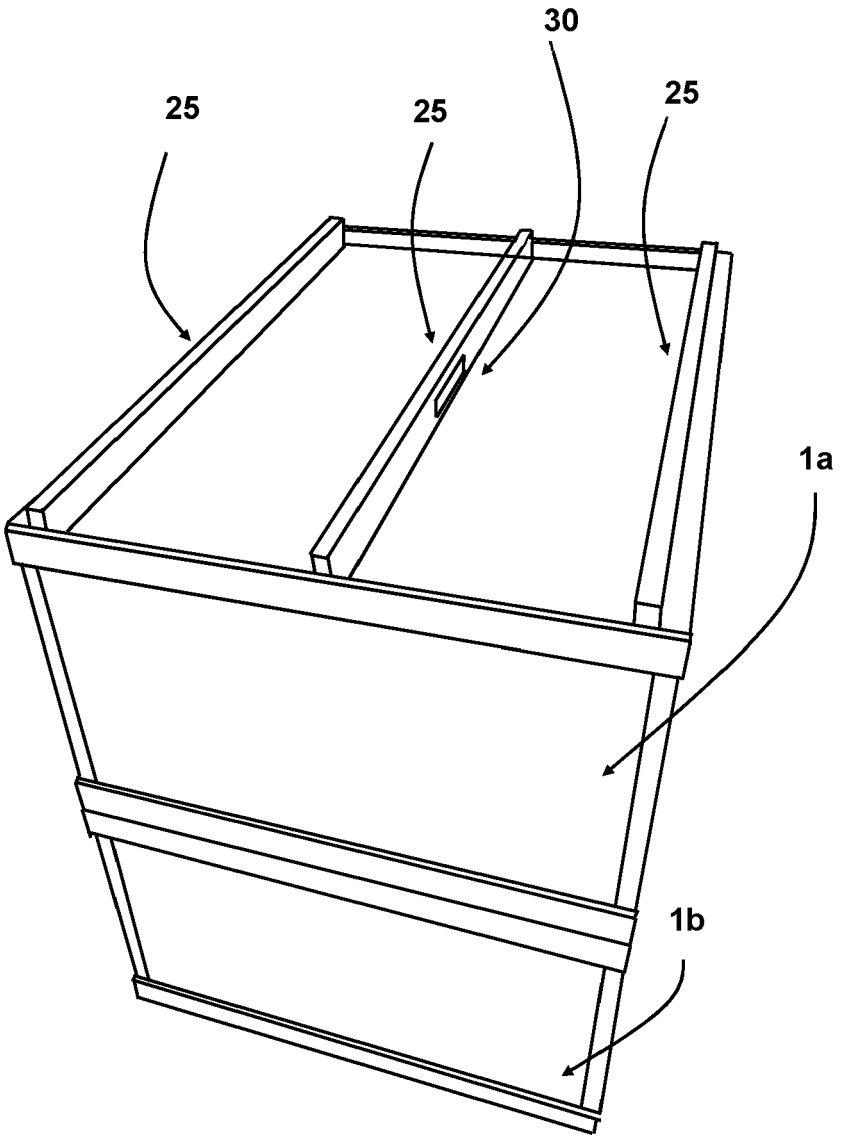

FIG 14

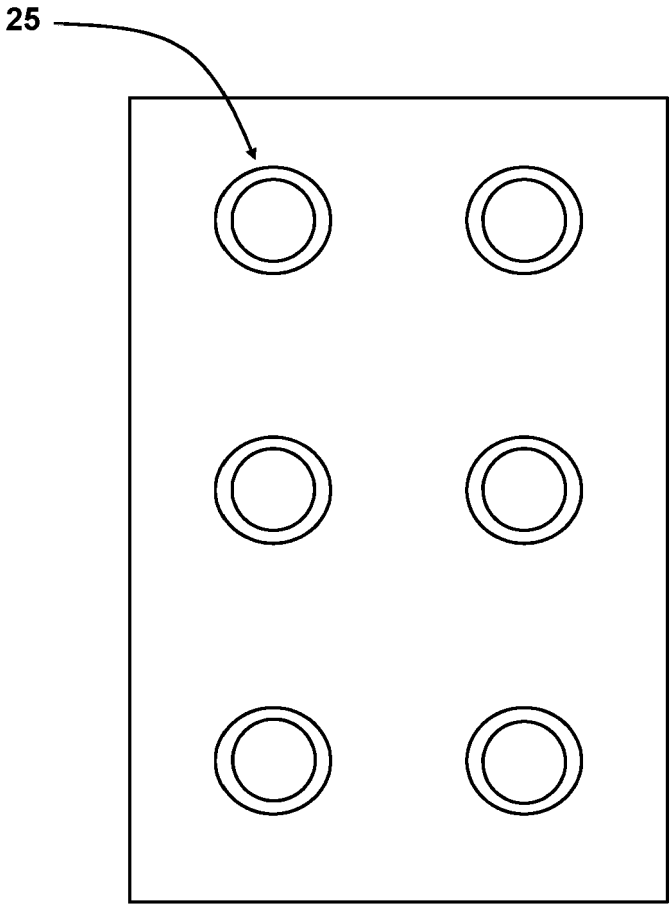

FIG 15

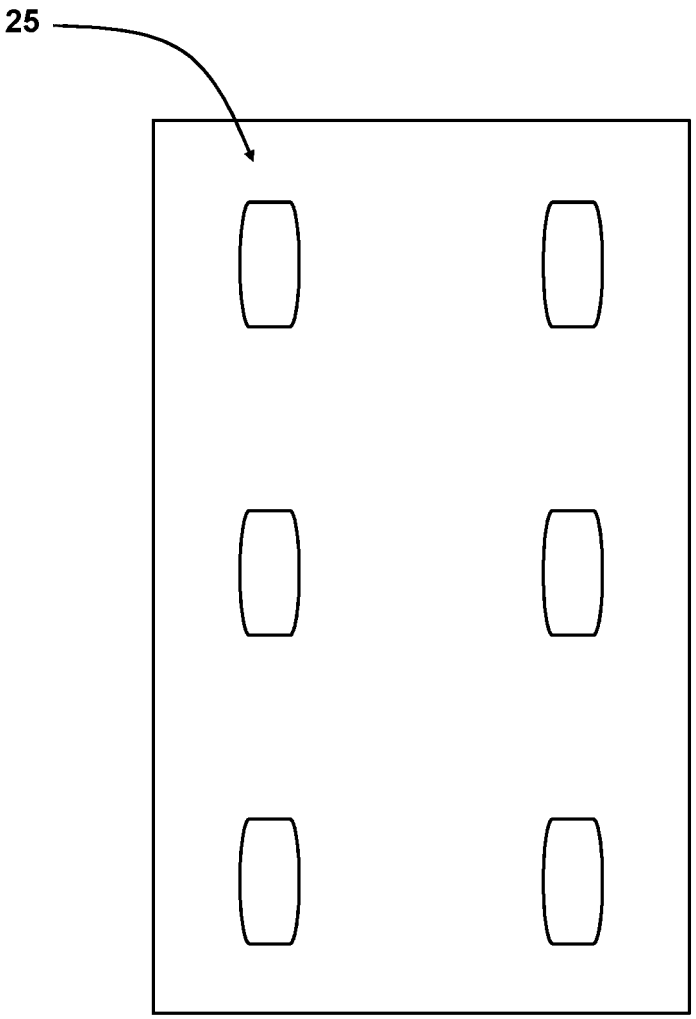

FIG 16

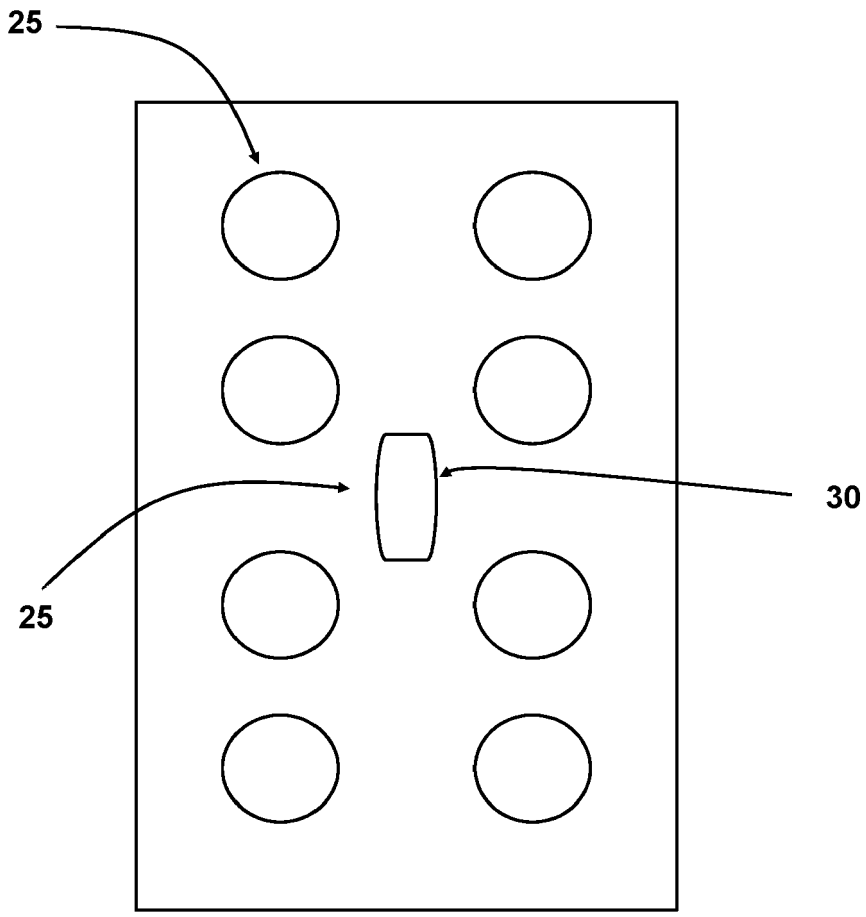

FIG 17

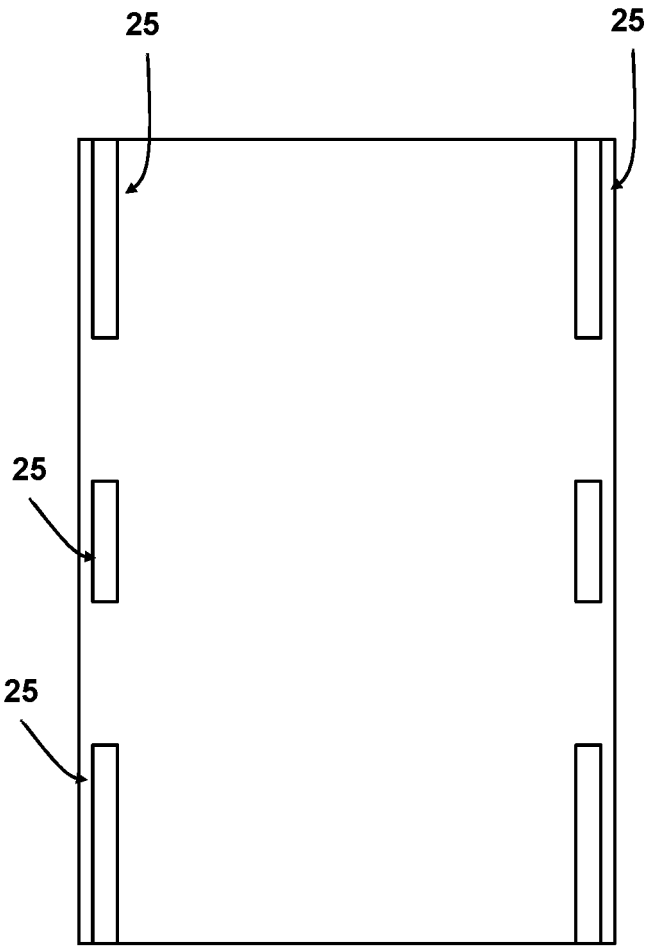

FIG 18

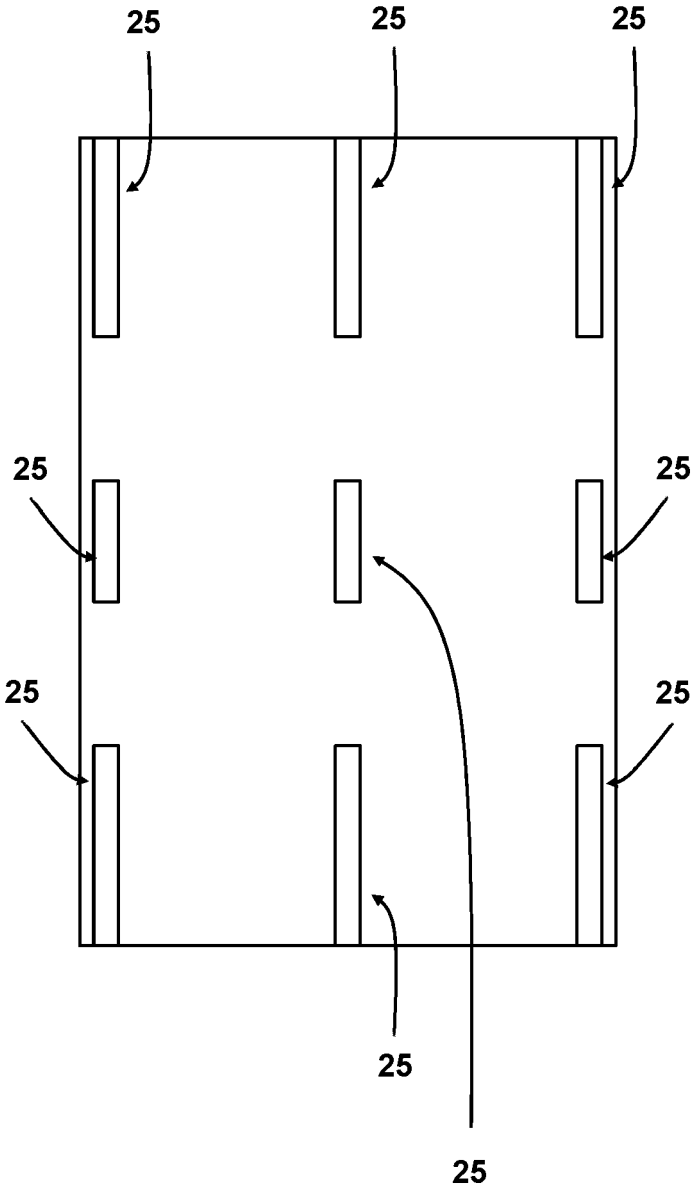

FIG 19

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EUROPEAN SEARCH REPORT

Application Number
EP 22 16 6784

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2018/354711 A1 (CHENG LEWIS KA HANG [CN] ET AL) 13 December 2018 (2018-12-13) * paragraph [0078]; figures 19, 23b *	1,2,8,9, 11-15	INV. B65D21/02 B65D25/28
X	DE 20 2014 105771 U1 (DAG TAHSIN [DE]) 13 January 2015 (2015-01-13) * figures 1-3 *	1-5,7-9, 11-15	
X	WO 99/42374 A1 (EVERS WILHEMUS JOHANNES ALBERT [NL]) 26 August 1999 (1999-08-26) * paragraph [0002]; figures 1, 3 *	1,2,6,8, 9,11-15	
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			B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	30 September 2022	Balz, Oliver

CATEGORY OF CITED DOCUMENTS

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30-09-2022

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