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(54) **STACKABLE NESTABLE CONTAINER**

(57) A stackable nestable container (1) comprising a base (2) and an upstanding wall structure (3, 4, 5, 6), which extends away from the base (2) in an expanding manner, such that a container opening, which is defined by a rim (7) formed by the wall structure (3, 4, 5, 6), has a larger cross section than the base (2),wherein the container further comprises at least one stacking member (8), which is selectively movable between a stacking position, in which the stacking member (8) is at least partially positioned inside or above the opening to support a base (2') of another, preferably structurally identical or similar, container stacked thereon and a nesting position, in which the stacking member (8) is removed from the opening thereby enabling the other container to be nested inside the container (1). The stacking member (8) is mounted on the container (1) via at least one slide bearing (9, 10) comprising a protrusion (9), which is arranged on one of the stacking member (8) or the container wall structure (3, 4, 5, 6) and which engages with an elongate slot or groove (10) arranged on the other of the stacking member (8) and the container wall structure (3, 4, 5, 6) The slot or groove (10) and the protrusion (9) are designed such that the protrusion (9) has only one degree of freedom to move within the slot (10).

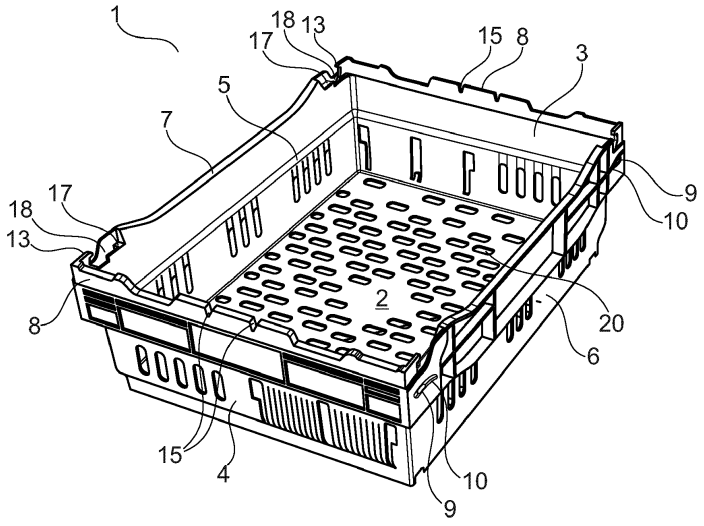

Fig. 1

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Description

[0001] The invention relates to a stackable nestable container comprising a base and an upstanding wall structure, which extends away from the base in an expanding manner, such that a container opening, which is defined by a rim formed by the wall structure, has a larger cross section than the base, wherein the container further comprises at least one stacking member, which is selectively movable between a stacking position, in which the stacking member is at least partially positioned inside or above the opening to support a base of another, preferably structurally identical or similar, container stacked thereon and a nesting position, in which the stacking member is removed from the opening thereby enabling the other container to be nested inside the container.

State of the art

[0002] In the state of the art, various types of stackable nestable containers are known, e.g. containers comprising stacking members which are movable between a stacking position, in which two structurally identical containers can be stacked, and a nesting position, in which one of the two containers can be nested within the other container, in order to reduce the transporting volume of empty containers. The most prevalent example of such stacking members are so called support bars or bale arms, which are usually configured as brackets, which can be pivoted to a position inside or above the opening of a container to enable another container to be stacked thereupon.

[0003] Such stackable nestable containers are usually produced in large quantities of millions of structurally identical containers and organized in reusable container pools. Such large quantities of containers necessitate automated handling of the containers. With containers comprising stacking members as described above, especially the automated engagement (movement into the stacking position) and disengagement (movement into the nesting position) of said stacking members has been posing problems to automated handling systems for a long time because the prevalent swiveling bale-arms swing on an arcuate path with a comparatively short radius. In particular, these bale arms known in the state of the art are usually held in a position on the outer face of the side walls, when they are positioned in the nesting position, and have to be swung approximately 270° onto the rim of the container to arrive at the stacking position. Such kinematics are disadvantageous because of the complex multidirectional movement required for engagement and disengagement of the stacking member.

[0004] There is thus a longstanding need in the art for stackable nestable containers, which can provide automation-friendly stacking members.

Disclosure of the invention

[0005] Because of the above stated disadvantages in known containers, the present invention is directed towards a stackable nestable container with improved automated handling properties.

[0006] The above stated problem is solved by a container according to the features of independent claim 1. Advantageous embodiments are object of the dependent claims.

[0007] In accordance with the invention there is provided a stackable nestable container comprising a base and an upstanding wall structure, which extends away from the base in an expanding (outwardly inclined) manner, such that a container opening, which is defined by a rim formed by the wall structure, has a larger cross section than the base, wherein the container further comprises at least one stacking member (support bar), which is selectively movable between a stacking position, in which the stacking member is at least partially positioned inside or above the opening to support a base of another, preferably structurally identical or similar, container stacked thereon and a nesting position, in which the stacking member is removed from the opening thereby enabling the other container to be nested inside the container. The stacking member is mounted on the container via at least one slide bearing comprising a protrusion, which is arranged on one of the stacking member or the container wall structure and which engages with an elongate slot or groove arranged on the other of the stacking member and the container wall structure, wherein the slot or groove and the protrusion are designed such that the protrusion is movable only in the longitudinal direction of the slot or groove. Thus, the protrusion has only one degree of freedom to move within the slot. In other words, the stacking member is by design not able to rotate within the slot / groove and can only perform a sliding motion along the longitudinal direction of the slot/ groove. This design of the slide bearing has the advantage that the kinematics of the stacking member are changed from a swiveling movement about a hinge arranged in the distal ends of its swivel-arms to a sliding movement along a path defined by the slot or groove. As, such the travel path of the stacking member can be designed to be favorable for automated engagement and disengagement of the stacking member. Because the protrusion according to the invention cannot rotate within the slot, the position of the stacking member relative to the container is strictly defined for each position of the protrusion within the slot, which also leads to better (more defined) handling properties for automated handling.

[0008] In other words, the invention relates to a stackable nestable container with a substantially hollow conical shape (formed by the base and the walls), which provides the nesting function, and at least one stacking member, which provides the stacking function by being movable such that it obstructs the container opening thereby preventing a structurally identical container from

inserting inside the container. The movement of the stacking member is defined by an inventive slide bearing, in which an elongate slot defines a movement path of the stacking member and a complementary protrusion is designed such that, when inserted into the slot, it can only move along the path defined by the slot and cannot rotate within the slot. Preferably, the slot can guide the protrusion and thus the stacking member along either a linear or a flat arcuate path. Such kinematics of the support member allow for easily automated engagement and disengagement of the stacking member via a unidirectional movement.

[0009] According to a preferred embodiment of the invention the protrusion may perform a pivoting movement along a true circular path around a pivot axis (A) located outside of the slot or groove, when it slides within the slot or groove. The design of the slide bearing according to the invention allows the stacking member to perform a rotational movement around a virtual pivot axis that is located at a distance from the bearing itself. This may preferably be achieved by configuring the slot to have a arcuate, further preferably a true circular, shape, when viewed frontally. As such, it is possible to define a movement path of the stacking member along a relatively flat true circular path, which would require unpractically long radial pivot arms, if one would try to implement such a movement path with a standard hinged bearing.

[0010] According to one aspect of the invention the pivot axis (A) can be located with a distance of at least 2 cm, preferably at least 3 cm, with respect to the slot or groove, in the plane of the corresponding container wall.

[0011] According to a preferred embodiment of the invention the protrusion can have an arcuate cross-section shape corresponding to the arcuate shape of the slot or groove.

[0012] According to one aspect of the invention the protrusion can have an elongate or a substantially square cross-section shape. Such shapes of the protrusion can help to inhibit rotation of the protrusion within the slot.

[0013] According to a preferred embodiment of the invention the arcuate slot or groove may be curved such that it is convex toward the container rim and the apex of the arcuate slot or groove can be located between the outer ends of the slot. In this way, the outer end positions of the protrusion within the slot, which can preferably define the stacking-position and the nesting-position, are mechanical rest positions and accidental activation of the stacking member is impeded. Furthermore, this way the movement path of the stacking member is more intuitive for manual handling, since it mimics the swiveling movement of known bale-arms.

[0014] According to a preferred embodiment of the invention the container wall structure may comprise a first pair of opposing container walls and a second pair of opposing container walls and the stacking member can be mounted on the container via two slide bearings that are arranged on two opposing container walls. Preferably, said stacking member may comprise two protrusions, which engage with two slots located in opposed positions on the opposing container walls.

[0015] According to one aspect of the invention the stacking member can align with the upper end of a section of the container wall structure, when positioned in the nesting position, thereby forming a part of the rim. In particular, an outer end position of the protrusion within the slot of the slide bearing may define the nesting position and the stacking member may form an extension of the rim of the side walls, when positioned in said nesting position.

[0016] According to a preferred embodiment of the invention the stacking member may comprise at least one limit protrusion arranged on one of the ends of the stacking portion, which contacts a section of the container wall structure (an inner end surface of the gap of the double walled structure), thereby forming a limit stop, in the stacking position of the stacking member. Further preferably, said protrusion may rest on a shoulder formed by the container wall with its lower face, when the stacking member is positioned in the stacking position, such that stacking forces are transmitted through the protrusion into the side wall. Provision of such a structure of the stacking member and the container helps to shift stacking forces off of the slide bearing. One could also say that the stacking member and the container can comprise a complementary pair of protrusions or shoulders, which allow the stacking member to be seated (hooked) onto the container wall structure, when the stacking member is positioned in the stacking position.

[0017] According to a preferred embodiment of the invention the stacking member may comprise an elongate stacking portion and at least one arm, preferably two arms, projecting substantially perpendicular from the stacking portion and comprising the protrusion (each comprising one protrusion).

[0018] According to one aspect of the invention a perpendicular end portion (L-shaped edge portion) may extend from at least one end of the stacking portion of the stacking member and the at least one arm may extend from the perpendicular end portion towards the base, when the stacking member is mounted on the container.

[0019] According to a preferred embodiment of the invention the protrusion can be arranged at an offset or distanced position in the longitudinal direction of the slot with respect to the stacking portion, when the stacking member is mounted on the container. By such design, the stacking member can be designed such that its center of gravity forms a moment arm with respect to the pivot axis of the slide bearing, which in turn forms a bias in a predetermined direction, preferably towards the nesting-position.

[0020] According to one aspect of the invention the container wall structure can (at least partially) have a double walled structure in proximity to the slot or groove such that the arm can be inserted between the double walled structure, when mounted onto the container via the slide bearing. This feature not only improves stability

of the rim in the joint / stacking area but also allows the gap formed between the double walled structure to function as further guidance for the movement of the stacking member. Preferably with such design the radial arms of the stacking member may have a flat bar shape and be oriented parallel to the gap.

[0021] According to one aspect of the invention the container may have an overhanging rim, which forms the double walled structure in proximity to the slide bearings (in proximity to the corners of the long walls). Further preferably the double walled portion of the overhanging rim may form an open gap at its upper face which penetrates the rim and forms another opening on the lower face thereof. This feature provides improved manufacturing properties for the double walled section of the container.

[0022] According to a preferred embodiment of the invention the slot of the slide bearing may be an elongate opening in the side wall, through which the protrusion is inserted from the inside outwards (possibly from within the gap of the double walled section). This has the advantage that the slide bearing is easily accessible from the outside.

[0023] According to one aspect of the invention the stacking member can comprise locking structures on the upper face of the stacking portion, which are configured to engage with a rib structure on the lower face of a base of a structurally identical or similar container that is stacked on top of the stacking member, in order to prevent sliding of said container in a direction parallel to the elongate stacking portion. In other words, a locking structure may be provided to prevent transverse sliding of stacked containers.

[0024] According to one aspect of the invention the base can comprise at least one complementary stacking recess or protrusion, designed to create a form-locking engagement with a stacking member of a structurally identical or similar container that is positioned in the stacking position. In other words, a stacking structure may be provided to prevent longitudinal sliding of stacked containers. As the skilled person will appreciate, the locking structure and the stacking recess /structure may also be integrated into one single structure.

[0025] According to a preferred embodiment of the invention the container wall structure can extend upwards such that it forms a step, which defines a predetermined contact surface for a structurally identical or similar container nested inside the container. Such design inhibits wedging between multiple nested containers.

[0026] According to a preferred embodiment of the invention the container and /or the stacking member may be made of a polymer material, preferably of a thermoplastic material and may further preferably be manufactured in an injection molding or rotation molding type process. With such an embodiment, the slot or protrusion of the slide bearing may advantageously be molded into the container and / or the stacking member integrally.

[0027] A further aspect of the invention relates to a stacking member for a container comprising an elongate stacking portion and two arms each projecting substantially parallel and perpendicular from said stacking portion and arranged on opposing ends thereof. Each arm comprises a protrusion for engaging a respective slot of a slide bearing on a container and having an elongate arcuate cross-section.

[0028] Embodiments of the invention will now be described by way of example and with reference to the accompanying drawings, in which:

Fig. 1 shows a perspective view of a container according to a preferred embodiment of the invention;

Fig. 2 shows a side view of the container according to a preferred embodiment of the invention;

Fig. 3 shows a detailed view of a stacking member of the container according to a preferred embodiment of the invention; and

Fig. 4 shows a perspective view of the underside of the container according to a preferred embodiment of the invention.

[0029] In Fig. 1 a perspective view of a container 1 according to a first preferred embodiment of the invention is shown. The depicted container 1 is made of a polymer, preferably a thermoplastic, material and manufactured e.g. in an injection molding process. A base 2 of the container 1 is substantially rectangular. The container 1 comprises a first pair of opposed (short) walls 3, 4 and a second pair of opposed (long) walls 5, 6, which extend in a generally upwards direction with a slight outwards incline and which form a rim 7 with their free edges thereby defining a container opening. In other words, the base 2 and the walls 3, 4, 5, 6 of the container 1 substantially form a hollow conical body, which allows two structurally identical containers 1, 1' to be nested inside one another. This nesting function is important since it allows empty containers 1 to be returned for reuse in a space efficient manner. The container 1 further comprises a stacking function for saving space when transporting multiple containers 1 in a filled state. This stacking function is implemented by means of two stacking members 8 (so called bale-arms or bail-arms 8) which are each movably connected to the second pair of sidewalls 5, 6 by means of novel slide bearings 9, 10 and can be moved into a stacking position, in which the stacking members 8 obstruct at least a part of the container opening thereby preventing nesting and providing support for stacking a structurally identical container 1' on top of the container 1. In Fig. 1, the stacking members 8 are shown positioned in the nesting position.

[0030] In ordinary stackable nestable containers as they are known in the art, the stacking members are pivotally mounted on the second pair of sidewalls by means of hinges and can be swiveled from a first position, in

which they are positioned laterally on the outer face of the short side walls, to a second position, in which they lay on top of the rim. Said known swivel motion has proven to be disadvantageous for automated handling of containers. There is therefore a need for optimized stacking members / bale arms which are optimized for automated handling and can be engaged and disengaged in one simple unidirectional movement.

[0031] This is achieved in the container 1 according to the invention depicted in Fig. 1, by providing an advantageous articulation device for movably bearing the stacking members 8 on the walls 5, 6. Said articulation device is represented by the slide bearings 9, 10 in the depicted preferred embodiment. The slide bearings 9, 10 each comprise a gliding protrusion 9 located on the stacking member 8 which inserts into a corresponding elongate slot located on the walls 5, 6. As the skilled person will appreciate, the positioning of the protrusions 9 and the slots 10 can easily be switched without altering the kinematics of the joint 9, 10. The container in Fig. 1 has two stacking members 8 each comprising two respective protrusions 9 on opposed longitudinal ends of the stacking member 8, which insert into a corresponding pair of slots 10 located on opposed walls 5, 6. In the depicted embodiment the protrusions 9 and the slots 10 both have an elongate and arcuate shape, the slot 10 having around thrice the length of the protrusion 9 in the shown example. The protrusions 9 have rounded ends to prevent it from jamming within the slot 10. One could also describe the cross-section of the protrusion 9 as having a flat kidney-shape. The protrusion 9 is designed complementarily to the slot 10 in its curvature as well as in its width such that it is prevented from rotating within the slot 10 and can only move along one degree of freedom, which is gliding along the longitudinal direction of the slot 10. The above described design of the slide bearing 9, 10 has the effect that the stacking member 8 can perform a pivoting movement around a virtual pivot axis A (as best seen in the side view of Fig. 2), which is located further away from the slide bearing 9, 10 than would be practical or even possible when using a swiveling stacking member as known in the state of the art. The dotted line on the left side of the container 1 depicted in Fig. 2 indicates the pivot area that such a known bale-arm with a standard hinge bearing would need, if it were to be implemented with the same location of the pivot axis as the stacking member 8 of the preferred embodiment. It is evident that said standard bale-arm would need an unreasonably large pivot area, which would increase the space required for operation of the container, and that the radial arms of the bale-arm would be so long, that the support-bar of the bale arm could swing underneath the container, which is also unfavorable for handling. These disadvantages are circumvented by the slide bearing 9, 10 according to the invention. In fact, the arms 12 of the stacking member 8 according to the invention can be quite short as is evident e.g. from Fig. 3. As a result of said design of the protrusions 9 and slots 10, the stacking members 8 of the container according to the invention can be moved in a flat arcuate (true circle) path and thus can easily be engaged or disengaged by a simple unidirectional automated movement.

[0032] As best seen in Fig. 2, the elongate slots 10 are curved such that they are convex towards the upper side of the container 1. By such design each slot has an apex, which lies between the respective ends of each slot 10. This has the advantage that the end positions, which the protrusions 9 can assume within the slots 10 and which define the stacking-position and the nesting-positon of the stacking member 8 are located lower than the apex of the slot 10 thus providing retention properties in these extremal positions. The inward stacking-position end of the slot is arranged lower than the outward nesting-position end in each of the depicted slots 10.

[0033] As can be seen in Fig. 3 the stacking member 8 of the preferred embodiment of the invention has a substantially elongate or bar-shaped stacking portion 11, which basically serves as a support bar on which another container can be stacked, when the stacking member 8 is moved inwardly into the stacking-position. The stacking member substantially has a flat bar shape with the exception of a number of functional structures, which will be explained in the following paragraphs. A perpendicular edge portion is formed adjacent to each longitudinal end of the stacking portion 11. When the stacking member is mounted on the container 1 the stacking portion 11 is substantially parallel to the short walls 3, 4 and the perpendicular edge portions are substantially parallel to the long walls 5, 6 of the container 1, as can be seen e. g. in Fig. 1. The (radial) arms 12 extend substantially downwards (towards the base 2) from the perpendicular edge portions, when viewed in a mounted state of the stacking member 8. One could also say that the stacking member 8 of the invention has a bracket shape when viewed from above as well as when viewed frontally.

[0034] In the container of Figs. 1, 2 and 4, the side walls 5, 6 have a double walled structure in the area of the slots 10 (the upper lateral corner areas of the side walls 5, 6, when viewed in a side view). An elongate gap 18 is formed between the two walls of said double walled structures. The flat arms 12, which are oriented perpendicular to the stacking portion 11 can be inserted into said gaps 18, such that the gaps 18 provide further guidance and stability for the stacking member 8. The gaps 18 also provide a self-locking effect, when the stacking members 8 are activated in an unsymmetrical manner, thereby preventing accidental activation, e.g. when a corner of a stacking member 8 receives an impact.

[0035] The stacking member 8 shown in Fig. 3 forms limit protrusions 13 extending from the perpendicular edge portions of the stacking portion 11, which abut with the ends of the gaps 18 of the double walled structures in the stacking-position of the stacking members 8 to form a limit stop. The limit protrusions 13 of the container 1 of the preferred embodiment also fulfill a second function. In ordinary bale-arm containers the support bar may be

swiveled such that it rests onto the container rim thereby optimally transferring stacking forces into the container's side walls. With the inventive kinematic concept, this is not feasible because of the comparatively flat arcuate movement path of the support bar. For this reason, the protrusions 13 form hook-like structures which engage with (rest upon) shoulders 17 formed by the side walls 5, 6, when the stacking members 8 are positioned in their respective stacking positions. It follows, that the protrusions 13 help to transfer the flow of stacking forces directly into the container side walls 5, 6, thereby taking stress off of the slide bearings 9, 10.

[0036] As best seen in Fig. 4, the container 1 according to the depicted preferred embodiment comprises complementary stacking recesses (or protrusions) 14, which are arranged in corner areas of the base 2 and which are designed to create a form-locking engagement with the stacking members 8 of a structurally identical or similar container that is positioned in the stacking position. Said form-locking engagement prevents sliding of containers 1 stacked on top of one another in the direction of the long walls 5, 6. Similarly, the stacking member 8 comprises locking structures (recesses in the shown example) 15 on its upper face, which are configured to engage with stiffening ribs 16 arranged on the lower face of the base 2. This second form-locking engagement prevents sliding of containers 1 stacked on top of one another in the direction of the short walls 3, 4.

[0037] As can be seen e.g. in Fig 1 or 2, the stacking portion 11 of the stacking member 8 aligns with the short walls 3, 4, when positioned in the (outward) nesting position, thereby forming an extension of the rim 7 and clearing the container opening for another container to be nested therein or for the container to be filled. It is also evident from Fig. 1 that perpendicular edge portions of the stacking member 8 align with the long walls 5, 6 and compliment the container rim 7 when the stacking members 8 are held in the stacking position.

[0038] The container 1 advantageously further comprises RFID-tag holders 19, which can be formed integrally with at least one of the side walls 3, 4, 5, 6 and/or the base 2, such that electronic identification of the containers 1 can easily be implemented.

[0039] The depicted container 1 is provided with drainage holes/recesses 20 in the base 2 of the container 1. To facilitate e.g. the cooling of frozen goods within the container 1, the side walls 3, 4, 5, 6 may be provided with ventilation perforation or ventilation recesses 21.

[0040] As the skilled person will appreciate, the above described container implements an automation-friendly movement path of the stacking member 8,

Reference signs

[0041]

1	container;
2	base;
3, 4, 5, 6	side walls;
7	rim;
8	stacking member;
9	protrusion of the slide bearing;
10	slot of the slide bearing;
11	stacking portion / support bar;
12	(radial) arms;
13	limit protrusion and stacking shoulder;
14	stacking recess;
15	locking structure;
16	rib structure;
17	support shoulder / protrusion;
18	gap;
19	RFID tag holder;
20	drainage hole; and
21	ventilation recesses.

Claims

1. A stackable nestable container (1) comprising a base (2) and an upstanding wall structure (3, 4, 5, 6), which extends away from the base (2) in an expanding manner, such that a container opening, which is defined by a rim (7) formed by the wall structure (3, 4, 5, 6), has a larger cross section than the base (2),
wherein the container further comprises at least one stacking member (8), which is selectively movable between
a stacking position, in which the stacking member (8) is at least partially positioned inside or above the opening to support a base of another, preferably structurally identical or similar, container stacked thereon and
a nesting position, in which the stacking member (8) is removed from the opening thereby enabling the other container to be nested inside the container (1),
characterized in that
the stacking member (8) is mounted on the container (1) via at least one slide bearing (9, 10) comprising a protrusion (9), which is arranged on one of the stacking member (8) or the container wall structure (3, 4, 5, 6) and which engages with an elongate slot or groove (10) arranged on the other of the stacking member (8) and the container wall structure (3, 4, 5, 6), wherein
the slot or groove (10) and the protrusion (9) are designed such that the protrusion (9) is movable only along the longitudinal direction of the slot (10).

2. The stackable nestable container (1) according to claim 1, wherein, when the protrusion (9) slides within the slot or groove (10), it performs a pivoting movement along a true circular path around a virtual pivot point or pivot axis (A) located outside of the slot or groove (10).

3. The stackable nestable container (1) according to

claim 1 or 2, wherein the protrusion (9) has an elongate or a substantially square cross-section shape and the slot or groove (10) has an elongate linear or arcuate shape.

4. The stackable nestable container (1) according to claim 3, wherein the arcuate slot or groove (10) is curved such that it is convex toward the container rim (7), wherein preferably an apex of the arcuate slot or groove (10) is located in between the outer ends of the slot.

5. The stackable nestable container (1) according to one of claims 2 to 4, wherein the pivot axis (A) is located with a distance of at least 2 cm, preferably at least 3 cm, with respect to the slot or groove (10), in the plane of the corresponding container wall (3, 4, 5, 6).

6. The stackable nestable container (1) according to one of claims 1 to 6, wherein the stacking member (8) comprises a protrusion or shoulder (13) which rests on a complementary protrusion or shoulder (17) of the container (1), when the stacking member (8) is positioned in the stacking position, such that stacking forces are transferred through said pair of complementary protrusions or shoulders (13, 17).

7. The stackable nestable container (1) according to one of claims 1 to 6, wherein the container wall structure (3, 4, 5, 6) comprises a first pair of opposing container walls (3, 4) and a second pair of opposing container walls (5, 6) and the stacking member (8) is mounted on the container (1) via two slide bearings (9, 10) that are arranged on two opposing container walls (3, 4, 5, 6).

8. The stackable nestable container (1) according to one of claims 1 to 7, wherein the stacking member (8) aligns with the upper end of a section of the container wall structure (3, 4, 5, 6), when positioned in the nesting position, thereby forming a part of the rim (7).

9. The stackable nestable container (1) according to one of claims 1 to 8, wherein the stacking member (8) comprises a stacking portion (11) and at least one arm (12) projecting substantially perpendicular from the stacking portion (11) and comprising the protrusion (9).

10. The stackable nestable container (1) according to claim 9, wherein a perpendicular end portion extends from at least one end of the stacking portion (11) of the stacking member 8 and the at least one arm (12) extends from the perpendicular end portion towards the base (2), when the stacking member (8) is mounted on the container (1).

11. The stackable nestable container (1) according to claim 10, wherein the protrusion (9) is arranged at an offset position in the longitudinal direction of the slot (10) with respect to the stacking portion (11), when the stacking member (8) is mounted on the container (1).

12. The stackable nestable container (1) according to one of claims 9 to 11, wherein the container wall structure (3, 4, 5, 6) at least partially has a double walled structure in proximity to the slot or groove (10) such that the arm (12) is inserted between the double walled structure, when mounted onto the container via the slide bearing (9, 10).

13. The stackable nestable container (1) according to one of claims 9 to 12, wherein the stacking member (8) comprises two arms (12) arranged on opposite ends of the stacking portion (11), which each comprise at least one protrusion (10) and which engage with two corresponding slots or grooves (10) located in opposing container walls (3, 4, 5, 6).

14. The stackable nestable container (1) according to one of claims 9 to 13, wherein the stacking member (8) comprises locking structures (15) on the upper face of the stacking portion (11), which are configured to engage with a rib structure (16) on the lower face of a base of a structurally identical or similar container that is stacked on top of the stacking member (8), in order to prevent sliding of said container in a direction parallel to the elongate stacking portion (11).

15. A stacking member (8) for a container (1) comprising an elongate stacking portion (11) and two arms (12) each projecting substantially parallel and perpendicular from the stacking portion (11) and arranged on opposing ends thereof, **characterized by** each arm (12) comprising a protrusion (9) for engaging a respective slot on a container (1) and having an elongate arcuate cross-section.

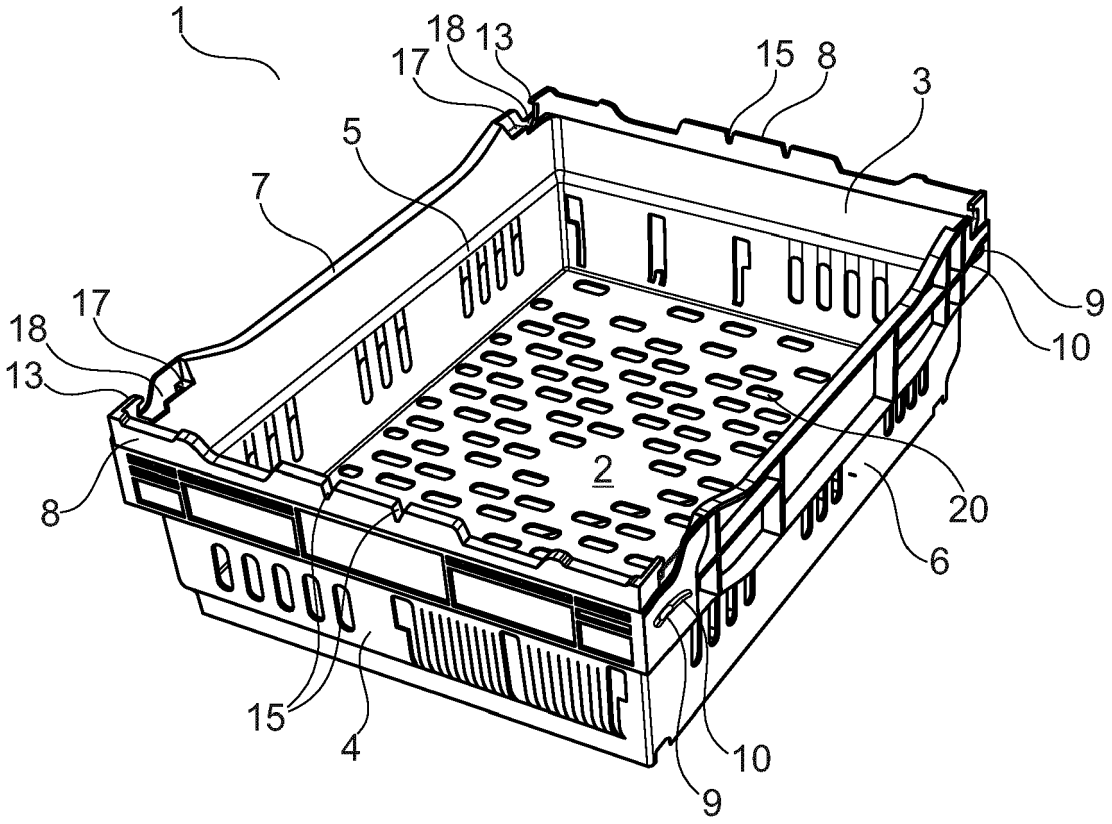

Fig. 1

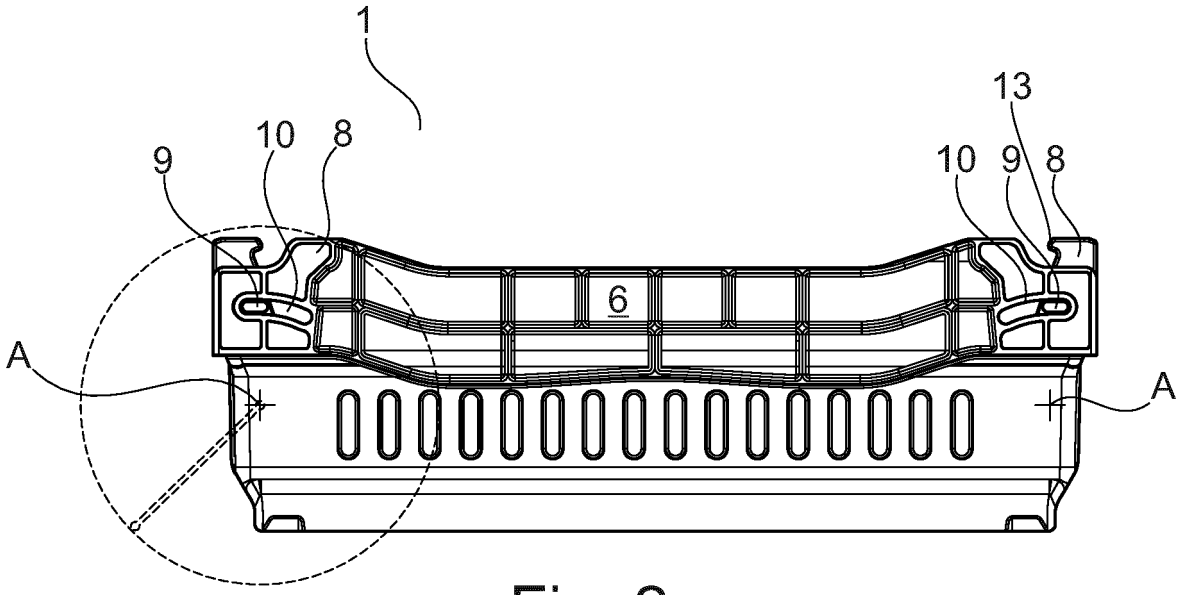

Fig. 2

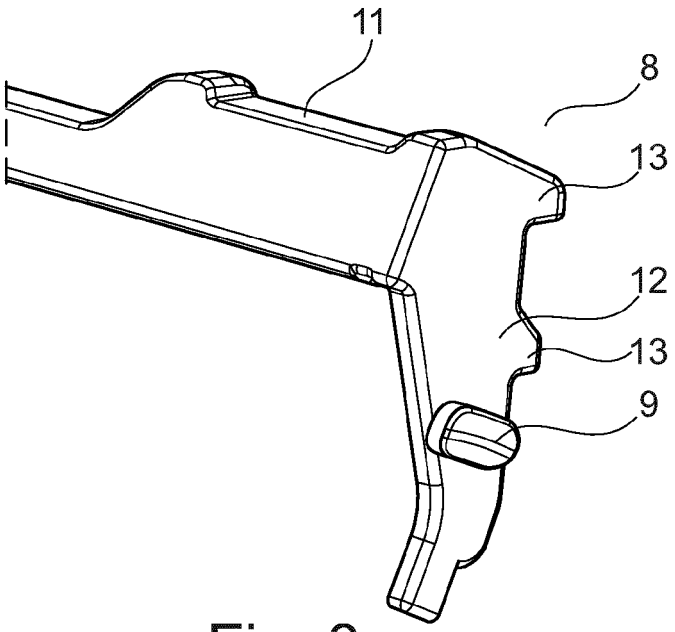

Fig. 3

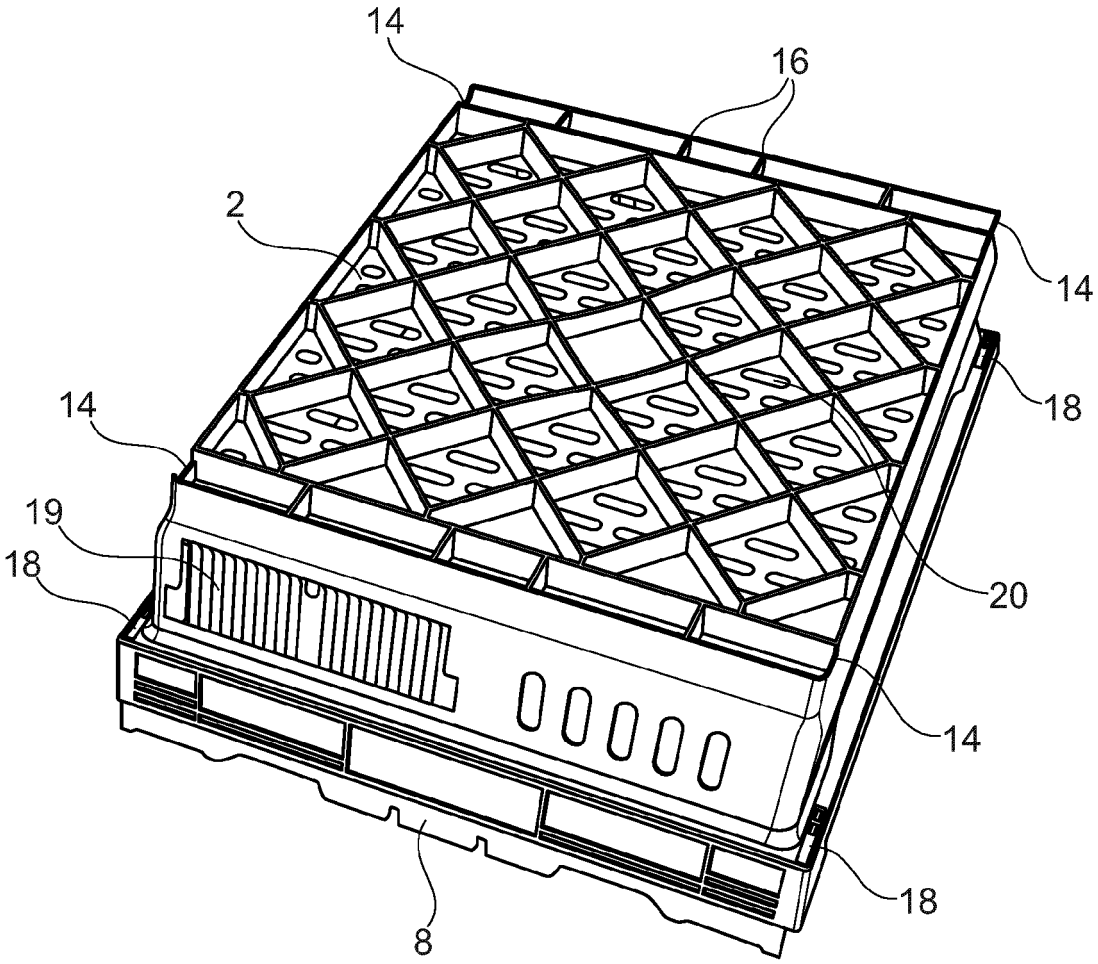

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 18 16 0762

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 2 426 059 A2 (KAPLA JOHN PAUL [US]) 7 March 2012 (2012-03-07)	1,6-13	INV. B65D21/06
A	* paragraphs [0007] - [0017]; figures *	15	
X	EP 2 426 060 A1 (KAPLA JOHN PAUL [US]; BALTZ KYLE L [US]) 7 March 2012 (2012-03-07)	1,2,5, 7-13	
A	* paragraphs [0007] - [0014] *	15	
X	EP 2 993 141 A1 (IFCO SYSTEMS GMBH [DE]) 9 March 2016 (2016-03-09)	1,3,7-13	
A	* paragraph [0040]; figures *	15	
X	GB 2 494 642 A (LINPAC ALLIBERT LTD [GB]) 20 March 2013 (2013-03-20)	1,7-14	
A	* figures *	15	
X	JP 2003 081273 A (KAWAKAMI HITOSHI) 19 March 2003 (2003-03-19)	1,3,7-13	
A	* the whole document *	15	
X	US 2003/230510 A1 (AIKEN CYNTHIA R [US] ET AL) 18 December 2003 (2003-12-18) * paragraph [0036]; figures *	1,2,4,5, 7-13	TECHNICAL FIELDS SEARCHED (IPC) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 September 2018	Fournier, Jacques

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 18 16 0762

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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10-09-2018

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2426059 A2	07-03-2012	CA 2751182 A1	01-03-2012
		EP 2426059 A2	07-03-2012
		US 2012048821 A1	01-03-2012
EP 2426060 A1	07-03-2012	CA 2751194 A1	01-03-2012
		EP 2426060 A1	07-03-2012
		US 2012048767 A1	01-03-2012
EP 2993141 A1	09-03-2016	DK 2548809 T3	01-08-2016
		EP 2548809 A1	23-01-2013
		EP 2993141 A1	09-03-2016
		ES 2574182 T3	15-06-2016
		HU E029082 T2	28-02-2017
		PL 2548809 T3	28-04-2017
		PT 2548809 E	02-06-2016
GB 2494642 A	20-03-2013	NONE	
JP 2003081273 A	19-03-2003	NONE	
US 2003230510 A1	18-12-2003	AR 040641 A1	13-04-2005
		AT 535457 T	15-12-2011
		AU 2003241454 A1	22-12-2003
		CA 2485544 A1	18-12-2003
		EP 1509460 A1	02-03-2005
		MX PA04011970 A	31-03-2005
		US 2003230510 A1	18-12-2003
		US 2006108372 A1	25-05-2006
		WO 03104094 A1	18-12-2003

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82