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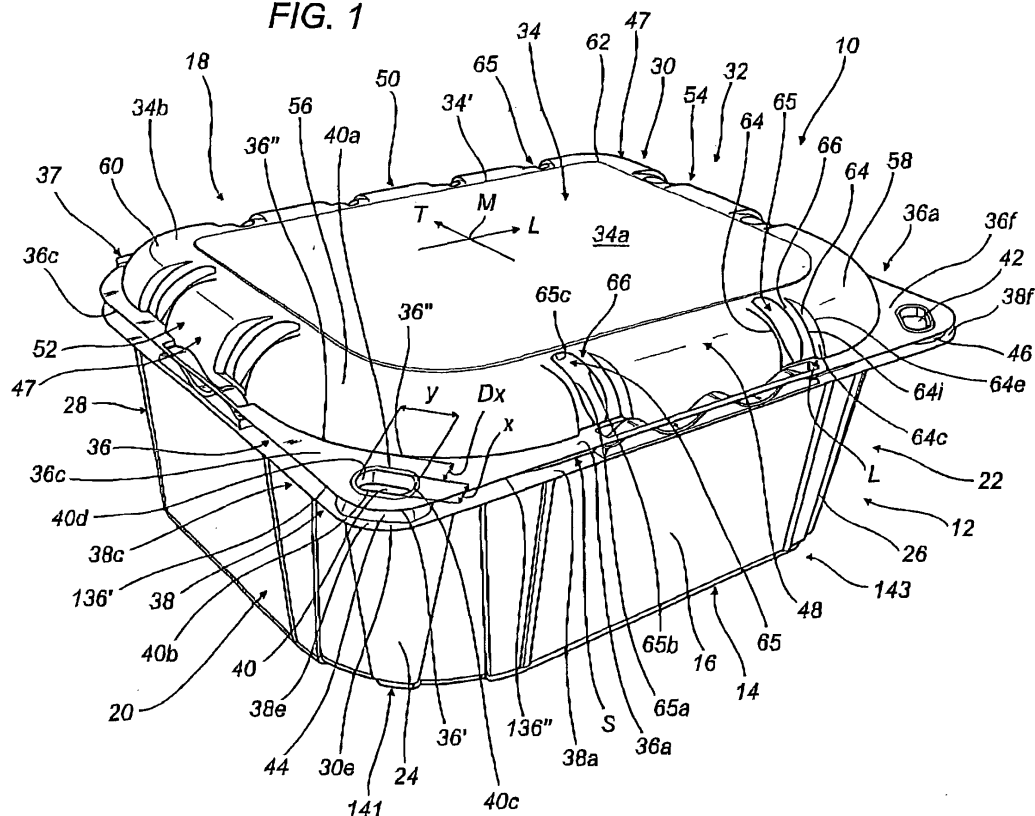
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(54) Container for the packaging of products, more specifically for fruit and vegetable products

(57) Described is a container (10) for the packaging of products, more specifically for fruit and vegetable products, comprising a container body (12) and a lid (32) for closing the upper opening of the container body (12), which are generally asymmetrical in shape. The contain-

er also comprises a plurality of side ventilation openings made in the sides of the lid (12). The side ventilation openings (65), that are provided on one side (50) of the lid, are not aligned with the openings provided on the opposite side (48) of the same lid.

FIG. 1



Description

[0001] This invention refers to a container for the packaging of products.

[0002] In particular, this container is designed for the packaging of fruit and vegetable products.

[0003] In the packaging field, containers made of flexible transparent plastic are known for use in containing fruit and vegetable products that come in various shapes and sizes and consist essentially of an open-top container body and a lid hinged to the container body, designed to close the top of the container and presenting suitable retaining means for keeping the lid in a closed position.

[0004] The retaining means for keeping the container closed usually consist of snap-lock press mouldings formed in the edges of the container facing the hinged side.

[0005] Prior art containers having such a configuration, in order to provide sufficient structural rigidity to the containers to allow them to protect fruit and vegetable products (and allowing the containers to be stacked for storage and transport purposes) are provided with reinforcement consisting of suitable stiffening ribs in the form of moulded protrusions distributed over the entire surface of the side walls of the container body and of the lid and extending also over the entire surface of the top of the lid.

[0006] One disadvantage of prior art containers of this type is due to the shape of the stiffening ribs and their distribution on the different parts of the container. Indeed, these ribs are normally produced in the form of sections which protrude from the plane defined by the walls of the container and whose cross section, transversal to the main extension of the ribs, is substantially arc-shaped. Prior art reinforcing ribs of this type have the disadvantage of preventing the products contained from being viewed properly, due principally to the fact that the shape of the ribbing distorts the view of the product inside the container afforded from the outside of the container, which means that consumers are precluded from fully appreciating the quality of the products inside the containers.

[0007] A further important requirement for these containers relates to obtaining internal refrigeration within the containers, without causing an excessive weakening to the container, in particular at the expense of the stacking capacity and/or the manufacturing cost thereof.

[0008] It is therefore provided a container for packaging products, in particular for fruit or vegetables products, the container comprising a container body and a lid therefor; characterised in that it comprises a plurality of side ventilation openings made in the sides of the lid; and in that the ventilation openings, which are provided on one side of the lid, are not aligned with the ventilation openings provided on the opposite side of the lid.

[0009] In this way, with fewer holes, the refrigerated air can circulate more uniformly around the product in the container. In fact, a better distribution of the incoming flow is obtained along the relevant side, without exces-

sively weakening the lid or providing a configuration that prevents the consumer from seeing the product.

[0010] The technical characteristics and advantageous aspects of the invention will become more apparent from the detailed description which follows, with reference to the accompanying drawings which illustrate preferred embodiments of the invention provided merely by way of example without restricting the scope of the inventive concept, and in which:

- figure 1 is a perspective view of a preferred embodiment of the container according to the present invention;
- figure 2 is a top view of the preferred embodiment of the container according to the present invention, in a closed position;
- figure 3 is a front view of the preferred embodiment of the container according to the present invention;
- figure 4 is a rear view of the preferred embodiment of the container according to the present invention;
- figure 5 is a side view of the preferred embodiment of container according to the present invention;
- figure 6 is a top view, slightly reduced, of the preferred embodiment of the container according to the present invention, in an open position;
- figure 7 is a side view of a detail of the stiffening ribs of the container according to the present invention.

[0011] With reference to the accompanying drawings, the numeral 10 denotes in its entirety a preferred embodiment of the container for the packaging of products, more specifically, for the packaging of fruit and vegetable products.

[0012] In figure 1, the reference characters "L" and "T" indicate virtual axes of reference, respectively longitudinal and transversal, at right angles to each other, extending from a middle point "M" on the container.

[0013] As illustrated, the container 10 is composed of a container body 12, and a lid 32.

[0014] As illustrated, the container body 12 has a generally quadrangular shape, more specifically, a generally rectangular shape, which extends asymmetrically, viewed from above, in relation to the longitudinal axis "L".

[0015] More specifically, as can easily be seen from the top view in figure 6, the container body 12 comprises a bottom wall 14, that has a generally asymmetric shape, in relation to the longitudinal axis "L".

[0016] As illustrated in figure 6, the bottom wall is defined by a horizontal panel comprising a pair of transversal surfaces 14a, 14b, that protrude slightly downwards, thereby defining lower supporting feet for the container, where holes 14c are provided for draining unwanted liquid that has collected inside the container.

[0017] As illustrated, the bottom wall 14 is delimited by the first and second longitudinal side edges 140, 142, facing each other, and by a third and fourth transversal edges 144, 146, facing each other, the side edges 140, 142, 144 146 being joined or connected to each other by

arc-shaped portions 141, 143, 145, 147.

[0018] More specifically, as illustrated, the first and second side edges 140, 142, define the long sides of the bottom wall, while the third and fourth short side edges 144, 146, define the short sides of the bottom wall.

[0019] More specifically, the first and second connecting arc-shaped portions 141, 143 connect the facing longitudinal ends of the first longitudinal side edge, denoted by reference number 140, to the corresponding transversal side edges 144, 146, while the third and fourth connecting arc-shaped portions 141, 143 connect the opposing longitudinal ends of the second longitudinal edge 142, with corresponding transversal side edges 144, 146.

[0020] Advantageously, each connecting portion 141, 143 of the first long edge or side 140, with the corresponding short wall 144, 146, has a curvature radius that is greater than the connecting curvature radius 145, 147 between the ends of the second long edge 142 and the corresponding short edges 144, 146.

[0021] The container body 12 comprises, furthermore, a plurality of side containment walls 16, 18, 20, 22, which extend along the corresponding peripheral edges of the bottom 14 and which flare slightly upwards, as clearly shown in the drawings.

[0022] The side containment walls are composed of the first and second longitudinal side walls 16, 18 and by the third and fourth transversal side walls 20, 22.

[0023] As illustrated, the first and second longitudinal walls 16, 18 are, more specifically, in the form of corresponding walls along the container body 12, which extend from a corresponding edge 140, 142 along the bottom wall 14, while the third and fourth transversal walls are in the form of short walls 20, 22 of the container body, which extend from the corresponding short side edge 144, 146 of the bottom wall 14.

[0024] Arc-shaped connecting or joining walls 24, 26, 28, 30 are provided for connecting the longitudinal side walls 16, 18 and the transversal side walls 20, 22 of the container body 12.

[0025] The connecting side walls comprise the first and second arc-shaped connecting walls 24, 26, that extend between the facing longitudinal ends of the first longitudinal walls 16 and the corresponding ends of the transversal side walls 22, 24.

[0026] Furthermore, the connecting walls comprise the third and fourth arc-shaped connecting walls 28, 30, that extend between the facing longitudinal ends of the second longitudinal walls 18 and the corresponding ends of the transversal walls 22, 24. As illustrated in figure 6, advantageously, each arc-shaped side wall 24, 26, connecting the first longitudinal wall 16 with the corresponding transversal wall 20, 22, has a curvature radius R_a , that is greater than the curvature radius R_s of the arc-shaped walls 28, 30, connecting the second longitudinal wall 18 with the corresponding transversal walls 20, 22.

[0027] In this way it is obtained a container with an asymmetrical shape and having connecting or joining portions between the first longitudinal side and the trans-

versal sides, that are wide and are better able to fit the contour, which is generally arc-shaped, of fruit and vegetable products, especially products of considerable size.

[0028] It is therefore possible to make better use of the storage space within the container by limiting areas that are not occupied by products at the edges of the container.

[0029] In the preferred embodiment, the container body 12 has an arc-shaped connecting wall between adjacent side walls - in particular between the longitudinal walls 16 and the transversal wall 20 and between the same longitudinal wall 16 and the other transversal wall 22 - which has a wide curvature radius R_a , that could vary between a minimum value and a maximum value, and which optimally is equal to 42,5 mm, as in this preferred embodiment.

[0030] Furthermore, as illustrated, in accordance with the present embodiment the first longitudinal wall 16 is shorter than the second longitudinal side wall 18 facing it.

[0031] As illustrated, the container body 12 is superiorly open for the removal of the product. In fact, an opening 13 for access to the interior of the container body 12 is defined by the upper edge of the linear side walls 16, 18, 20, 22 and connecting or corner side walls 24, 26, 28, 30 of the container body.

[0032] As stated above, the container according to the invention comprises a lid for closing the upper opening 13, the lid being denoted in its entirety by reference number 32 and comprising an upper wall 34 that is substantially horizontal, suitable for defining a means of exerting a retaining force from above, or in a perpendicular direction, on the products in the container.

[0033] From the upper wall 34 of the lid 32, a peripheral area 47 extends downwardly to connect or join vertically with the underlying parts of the lid 32. In an advantageous and preferred embodiment the peripheral connecting surface or wall 47 is attached directly to a lower peripheral lip 36, which extends from the lower edge of this connecting portion towards the exterior of the container.

[0034] This configuration results in a container with a shallow lid so as to enable a greater number of containers to be stacked in appropriate storage spaces or crates. Furthermore, this configuration confers considerable rigidity on the present lid.

[0035] This peripheral connecting surface 47 presents, with respect to a vertical plane, a curvature which makes it convex toward the exterior of the container, thereby defining means that are suitable for exerting a retaining action on the product in the container, constituting both a retaining component, in a vertical or perpendicular direction, and at the same time, a retaining component that is directed horizontally.

[0036] This entire peripheral connecting surface or wall 47 comprises, more specifically, the first and second longitudinal connecting walls, respectively 48 and 50, that face each other transversely, and the third and fourth transversal connecting walls 52, 54, which extend trans-

versely and at right angles to the longitudinal connecting walls 48 and 50.

[0037] In practice, these longitudinal and transversal connecting walls are in the form of a curved segment or cylindrical surface portion, whose axis of curvature of the corresponding cylindrical surface lies in a horizontal plane.

[0038] These slanting retaining walls 48, 50, 52, 54, or long and short connecting sides of the lid, are connected to each other by means of intermediate connecting portions or walls, which, in the vertical plane, have the same curvature as the connecting walls they join, and, in the horizontal plane, present a further curvature such as to create a dome or vault shape at the corner portions of the lid.

[0039] More specifically, first and second corner vault-shaped walls 56 and 58 extend from facing longitudinal ends of the first longitudinal connecting wall 48 towards the transversal connecting wall 52, 54.

[0040] Reference numbers 60, 62, on the other hand, denote third and fourth vault-shaped corner walls extending from facing longitudinal ends of the longitudinal connecting wall 50 toward the transversal connecting walls 52, 54.

[0041] As illustrated, more specifically in figures 2 and 6, according to the top view, the corner walls or portions 56, 58 and 60, 62 that connect to the longitudinal and transversal connecting sides or walls 48, 50 and 52, 54, of the lid have a different curvature radius in the horizontal plane. In practice, in a manner that is similar to the connecting or corner walls of the container body, the connecting portions 56, 58 have a wide curvature radius "Ra" in the horizontal plane, which is considerably greater than the curvature radius "Rs" of the connecting sides 60, 62, viewed from above.

[0042] Preferably, the wide curvature radius Ra, at the base of the lid, could vary, similarly to what is referred to above, between a minimum value and a maximum value, and, optimally, is equal to 42,5 mm, as in the present preferred embodiment.

[0043] In turn, the vertical plane of each said connecting walls of the peripheral connecting surface 47 of the lid 32 has a curvature radius Re, which may vary between a maximum value and a minimum value, and which in any case, optimally, is equal to 15 mm, as in the present preferred embodiment.

[0044] As illustrated, a horizontal peripheral lip 38, extends towards the exterior of the container, from the upper edge of the side walls 16, 18, 20, 22, 24, 26, 28, 30 of the container body.

[0045] As illustrated, the lid also comprises a horizontal peripheral lip 36, which faces the horizontal peripheral lip 38, extending from the upper edge of the side walls of the container body.

[0046] As illustrated, this horizontal lip 36 of the container extends peripherally, towards the exterior of the body of the lid 32.

[0047] The first and second coupling lips 36 and 38

have side portions that follow the outline, respectively, of the upper edges of the side walls of the container and of the lower edges of the vertical connecting walls of the lid.

[0048] In practice, as illustrated, the first and second coupling lips 36 and 38 have first and second longitudinal side portions 36a, 38a and 36b, 38b, and third and fourth transversal side portions 36c, 38c and 36d, 38d.

[0049] The first and second coupling lips 36 and 38 also have corner portions 36e, 38e, 36f, 38f between the first longitudinal portions 36a, 38a and transversal portions 36c, 38c and 36d, 38d, and corner portions 36g, 38g, 36h, 38h between the second longitudinal portions 36b, 38b and the transversal portions 36c, 38c and 36d, 38d of the respective lip.

[0050] Corresponding retaining means are also provided in order to close the lid 32 of the container body 12, the closing retaining means of which are provided at longitudinally facing corner portions 36e, 38e, 36f, 38f, between the first longitudinal portions 36a, 38a of the lip and the transversal portions 36c, 38c and 36d, 38d of the facing lips.

[0051] As illustrated, with the present configuration of container and lid, the corner portions 36e, 38e, 36f, 38f between the first longitudinal portion 36a, 38a and the transversal portions 36c, 38c and 36d, 38d, that have a generally triangular shape, whose size is advantageously large, making them suitable for housing advantageous retaining means for keeping the lid in the closed position.

[0052] The retaining means for keeping the lid in the closed position include a pair of buttons, or protruding elements on the corner portions, composed, respectively, of male plug elements 40, 42, and by female socket elements 44, 46, the latter defining a convenient housing with an internal surface that is suitable for grasping and holding the external surface of the matching plug elements 40, 42.

[0053] As may be inferred more specifically from figures 1, 2 and 6, the protruding elements 40, 42 have a peripheral external surface that is generally ellipsoidal in shape, while the socket and retaining element 44, 46, in turn, has a peripheral internal surface, which is also generally ellipsoidal in shape.

[0054] As illustrated, according to the embodiment shown here, the plug elements 40, 42 are provided at the corner area of the peripheral lip 36 of the lid, while the socket and retaining elements or housing are provided at the corresponding corner portions of the upper peripheral lip 36 of the container 12. However, an alternative or contrasting arrangement could be imagined for the male and female retaining elements.

[0055] This structure for the plug elements or pins, and the relevant socket housing provided to correspond with the present wide corner portion of the horizontal peripheral lip, results in an advantageous and secure retaining action holding the lid against the container. Furthermore, it is also possible to obtain a grip between the plug and socket elements, which is advantageously convenient

and reliable.

[0056] In fact, the present retaining means provided at a relatively great distance from the adjacent lateral wall 56, 58 of the lid, providing, in this manner a considerable retaining action to keep the lid closed.

[0057] Furthermore, the peripheral surface of mutual engagement between the plug element and the socket element is itself relatively extensive, thereby resulting in a significant retaining action.

[0058] Looking in more detail, figure 6 shows how the opposing means of engagement comprise the first and second facing linear portions 40a, 44a, 40b, 44b, which are arranged along an axis that is positioned obliquely, preferably at an angle of 45° in relation to the axes "L" and "T".

[0059] These linear portions 40a, 40b and 44a, 44b are connected to each other by means of semi-circular connecting terminal portions, labelled 40a, 40b and 44a, 44b, respectively.

[0060] As illustrated, the retaining means 40, 42, 44, 46 are substantially at the centre of the corresponding corner portions 36e, 36f, 38e, 38f of the corresponding peripheral lip 36, 38.

[0061] In the embodiment shown, the retaining means preferably have a width "X" that is equal to 5,8 mm and a length "Y" equal to 10 mm. Furthermore, the distance "Dx" from the corresponding side wall of the lid is equal to 7,1 mm. Obviously, the dimensions referred to above, although they are particularly preferred and advantageous, could vary between a minimum value and a maximum value.

[0062] In practice, the invention contemplates the provision, on the lid, of a corner portion of the peripheral lip, which is delimited by the first and second free edges 136' and 136", which are at right angles to each other, and by a curved portion 36', connecting the perpendicular edges 136' and 136", having a curvature radius "Rc", and by an internal curved edge with a broad curvature 36", that is defined by the corresponding corner side wall of the lid that therefore has a curvature of radius "Ra", which is greater than the curvature radius "Rc", thereby making it possible to provide a wide support or housing surface for the retaining means, as clearly shown in figure 6.

[0063] Similarly, the provision on the container, of a corner portion that is delimited by the first and second free edges 138' and 138", which are perpendicular to each other, and by a curved portion connecting the perpendicular edges 38', with a curvature radius "Rc", and by an internal curved edge with a broad curvature 38", which is defined by the corresponding upper edge of the container and therefore has a curvature radius "Ra", which is greater than the curvature radius "Rc", makes it possible to provide a wide support or housing surface for the retaining means, as clearly shown in figure 6.

[0064] Advantageously, the external curvature radius "Rc" of the corner portions is variable between a minimum and a maximum, and is however preferably equal to 12,5 mm, while the internal curvature radius "Ra", of said cor-

ner portions, is variable between a minimum and a maximum, and is however preferably equal to 42,5 mm, as provided for in the present preferred embodiment.

[0065] In this way, it is possible to optimize the width of the area of mutual engagement of the plug and socket elements, as well as the distance "Dx" of the internal surface of these portions of engagement from the corresponding side wall of the lid or from the corresponding upper edge of the container.

[0066] Optimally, according to this embodiment, the ratio between the length of the retaining means "Y", which is equal to approximately 10mm, and the distance "Dx" of the internal surface thereof from the corresponding internal edge of the corner portions that supports them, which is equal to 5mm, is equal to 2. In this way, an optimal retaining action is obtained. However it is possible to imagine that the ratio Y/Dx could vary from 1,4 to 2,5 or especially from 1,8 to 2,3.

[0067] As illustrated, the horizontal wall 34 of the lid comprises an internal portion 34a, that is delimited by a peripheral border or slight notch 34' and a peripheral horizontal surface portion 34b surrounding the central portion 34a.

[0068] The lid 32 is, furthermore, attached to the container body 12, by means of a connecting hinge 73, on the second longitudinal side, or long side 18 of the container body, and of the second longitudinal side or long side of the lid. It should however be understood that it is possible to conceive of a version of the container according to this invention in which the cover is provided separately from the container body and can be connected to the container by means of a simple insertion thereon, or in which no hinging edge is provided between the lid and the container.

[0069] The lid 32 also has stiffening ribs, which extend between the upper wall of the lid 34 and the protruding lip 36. The ribs, which are denoted by reference number 64, include an external edge 64e and an internal edge 64i, between which extends a ribbed surface 64c that is substantially flat and lies in a substantially vertical plane, as illustrated in figure 7.

[0070] The ribbing has a curved external edge 64e, having a radius "Re", and an internal edge 64i, which is also curved with a radius "Ri", that is greater than the curvature radius Re of the external edge, so as to define a stiffening surface, having a maximum width "h" at an intermediate point thereof, thereby resulting in a crescent-shaped structure for the ribbing.

[0071] As illustrated said rib 64 has, inferiorly, at the protruding lip 36, one end having a width "L" and at the opposite end, substantially at the upper surface of the lid, the curved edges 64i and 64e merge with each other at a single point 64'.

[0072] More specifically, rib pairs 64, 64, are provided that face each other and between which extends a surface, preferably lower, 66, also having a curvature radius "Ri", or having a curvature radius that is greater than the curvature radius of the corresponding connecting walls,

which, as is stated above, is equal to "Re". This facing pair of ribs 64, 64 and define a type of local combined stiffening ribbing.

[0073] The curvature radius Re and Ri may vary between a minimum and a maximum and are however, preferably equal, respectively, to 10 mm and 15 mm.

[0074] As illustrated, side ventilation openings 65 are provided, as described in more detail below, at the portions 66 between the individual rib pairs 64, 64.

[0075] As illustrated, between the protruding lip 36, of the lid, and the protruding lip 38, of the container body, there is a horizontal peripheral space or opening "S", that may be used by air flowing in and out of the container.

[0076] However, when the container is in a stack of several rows of containers that are placed side by side, it is rather difficult for the air to find an access through the openings "S" between the lid and the container, in order to reach the fruit or vegetable product stored in the container in cold storage.

[0077] Therefore the aforementioned side ventilation openings, labelled 65, are provided at the connecting walls and extend between the horizontal upper surface 34 of the lid up to the protruding lip 36 of the lid.

[0078] As illustrated, these side ventilation openings 65 are in the form of an elongated hole having side and end walls 65a, 65b, 65c, 65d.

[0079] In this embodiment of the container the side ventilation openings 65 are arranged according to a particularly advantageous configuration. In fact, in the present container, the side ventilation openings 65, that are provided on one side 50 of the lid, are not aligned with the holes on the opposite side 48 of the lid.

[0080] In this manner, the refrigerated air can circulate more uniformly around the product in the container. In fact, this results in incoming airflow on one side, which affects a longitudinal area that is different from the incoming flow from the other side, thereby resulting in a good distribution along a longitudinal direction of the refrigerated airflow. This embodiment does not excessively weaken the lid, due to the fact that an excessive number of openings are avoided, or without providing a configuration that makes it difficult for the consumer or purchaser to see the product in the container.

[0081] The distance between the side ventilation openings side 65 provided along the long, or hinged, side 50 of the lid may vary between a minimum and a maximum, and is preferably equal to 32,6 mm.

[0082] The distance between the side ventilation openings 65, 65 provided along the long side 48 at the front of the lid may vary between a minimum and a maximum, and is preferably equal to 60 mm.

[0083] The distance between the side ventilation openings 65 provided along the transversal sides 52 and 54 of the lid is variable between a minimum and a maximum, and is preferably equal to 39 mm.

[0084] Furthermore, it may be noted that the side ventilation openings provided on one side 50 differ in number from the ventilation openings 65 provided on the opposite

side 48.

[0085] In this way, there will be an incoming airflow affecting areas along the respective side that are not affected by the incoming airflow from the opposite side, thereby guaranteeing a sufficiently uniform refrigeration of the product in the corresponding direction, more specifically in a longitudinal direction, without excessively weakening the structure, the advantage of which is a better view of the product at least on the side having a fewer number of openings 65.

[0086] According to another aspect, it may be noted that there are fewer side ventilation openings 65, on the front side 48, than there are ventilation openings 65 on the hinged side 50.

[0087] In this way, more openings are provided where the container is more robust, that is, on the hinged side, the advantage of which is a good internal refrigeration of the product without weakening the structure.

[0088] In accordance with the present preferred embodiment, a first and a second opening 65, 65, which are longitudinally aligned with each other, are provided on the transversal or short sides of the lid, a first, a second, a third and fourth opening on the long, hinged side 50 and a first and a second opening on the facing long front side 48.

[0089] It should also be noted that, by means of these openings 65 made in facing sides and in different numbers, an airflow is caused to enter from a certain side and to exit from the opposite side, and to be diffused through the container along oblique lines that affect the product within the container to a greater extent.

[0090] Advantageously, as illustrated, the openings 65 on the side 48 facing the hinged side 50, extend between the end openings 65' of the plurality of openings on the hinged side 50 and the openings 65" adjacent thereto, more specifically remaining aligned with the extension of the centre-line between the end openings 65' and intermediate openings 65", on the hinge side 50.

[0091] A similar arrangement to that described for the ventilation openings 65 is provided for the facing rib pairs 64, 64 between which the openings 65 extend.

[0092] As illustrated, the corner connecting portions between the short and long connection surfaces 56, 58, 60, 62 of the lid are delimited substantially by ribs 64 and 64 that extend along a perpendicular plane between them.

[0093] The openings 65, 65 extending in directions at right angles to each other are located at the ends of the corner connecting portions, between the short and long connecting surfaces of the lid.

[0094] As can be seen in the drawings, the peripheral connecting surfaces of the lid have ten openings 65 and corresponding rib pairs 64, 64, in order to allow good ventilation of the interior of the container, without affecting or weakening the corner vault portions, thereby conferring considerable rigidity on the lid and at the same time enabling good transparency and view of the interior of the container.

[0095] Furthermore, in the preferred embodiment, the width of the openings 65 is equal to 6 mm, while the distance between the facing rib pairs 64, 64 is equal to 12 mm.

[0096] On the side opposite the hinged side, there are convenient means, denoted in their entirety by reference numbers 72, 74, for engaging and supporting the lid on the container body.

[0097] More specifically, the first engagement means 72 are made in an intermediate area of one of the front walls 48 of the lid and extend from a lower edge of this wall, or of the corresponding lip 36c, towards the upper edge of a matching wall 20 or lip 38c of the container body, to engage with the second engagement means 74 that protrude from the upper edge of the wall 20 of the container body.

[0098] Advantageously, the first engagement means on the lid take the form of a pair of central teeth 72a, 72b and opposing end teeth 72c, 72d, which fit into the matching spaces between the teeth 74a, 74b, 74c, of the second engagement means on the container body.

[0099] This guarantees a secure closure and prevents the lid from sliding sideways relative to the container body.

[0100] As illustrated, these mutual engagement teeth have convergent lateral contact surfaces 72', 72" and 74', 74" which engage with each other.

[0101] This facilitates the insertion of the teeth into the matching tooth spaces, ensuring a snug fit that prevents sideways movements between lid and body and confers compactness and rigidity on the container.

[0102] As illustrated, these means for engaging and laterally retaining the lid on the container body are made on the side walls opposite the hinge 37 which joins the lid to the container body. Thus, the side wall of the lid rests on the matching side wall of the container body, conferring greater flexural rigidity on the lid wall and, hence, greater rigidity on the horizontal wall of the lid. As illustrated, the engagement and sideways retaining means comprise teeth with substantially semicircular profiles, labelled 72a, 72b and arc-shaped end portions 72c, 72d, which extend downwardly from the lower lip 36a protruding horizontally from the container lid.

[0103] Matching semicircular teeth 74a, 74b, 74c extend along the upper edge of the corresponding wall of the container body and are suitably spaced in such a way as to form spaces for accommodating the semicircular teeth 72a, 72b, of the engagement means on the container lid.

[0104] The tooth configuration uniformly distributes the force applied to the tooth, thus preventing excessive strain on the tooth and significantly reducing the risk of the teeth becoming deformed.

[0105] The thickness of the contact surfaces 72', 72" and 74', 74" of the engagement teeth is such as to guarantee a good distribution of the sideways retaining action between the lid and the container body.

[0106] More specifically, said engagement means 72

and 74 extend along the entire width of the edge.

[0107] As illustrated, the engagement and retaining surfaces of the relative rotation between the lid and the container body extend in a perpendicular direction to the direction of expansion of the matching wall of the container.

[0108] Second and third engagement means are provided for the transversal sides of the container.

[0109] These second and third engagement means are similar to the first engagement means described above, although they are shorter, (only means 172, 174 on side 20 of the container being, however, illustrated in the drawings) each having teeth with substantially semicircular profiles, denoted respectively with reference number 172a, that extends downwardly from the transversal portion of the corresponding lower lip 36, protruding horizontally from the lower end of the container lid 32.

[0110] Outer arc-shaped end portions 172b, 172c are provided at the sides of the tooth 172a and extend downwardly and spaced in such a way as to form suitable insertion spaces.

[0111] Matching semicircular teeth 174a, 174b extend along the upper edge of the protruding lip of the matching wall of the container body and are suitably spaced in such a way as to form spaces for accommodating the substantially semicircular teeth 172a, and, externally, for the arc-shaped end portions 172b, 172c, of the engagement means on the container lid.

[0112] As illustrated, the surfaces for rotationally engaging and retaining the lid on the container, which are provided on the various sides of the container, are substantially perpendicular to each other so as to form particularly effective means of rotation prevention and vertical support.

[0113] As illustrated in figure 3, engagement means 72, that extend from the peripheral protruding lip 36a, of the first longitudinal side of the lid, extending longitudinally ending at the opposite ends 173 and 175, at which matching side ventilation openings 65, 65 extend, with said opposing stiffening ribs 64 and 64, at the openings 65, 65, one of which is positioned at the internal area of the engagement portion 72 on the lid and, the other, longitudinally beyond the corresponding longitudinal ends 173, 175 of the engagement portions on the lid.

[0114] According to a further aspect of the present container, reinforcing ribbing is only provided at the corner portions, or arc-shaped connecting portions between the side walls of the container body.

[0115] These stiffening or reinforcing means for the connecting portions provided on the container body 12 include, at the wider connecting portions, 24, 26, an outer rib 80 on the long side, and an outer rib 82 on the short side, and take the form of portions having curved horizontal cross-sections preferably facing the exterior of the container and extending substantially in a vertical direction.

[0116] Between these corner ribs 80 and 82, there are also pairs of ribs that are upwardly convergent.

[0117] These consist of a first pair of opposing ribs 84, 86, that are upwardly convergent and are provided on the long side, and a second pair of opposing ribs 88, 90, that are upwardly convergent and are provided on the short side.

[0118] At the narrow connecting portions of the side walls of the container body there are provided, more specifically, the first and second end ribs having a semicircular transversal cross-section protruding outwardly 91, 92, which extend substantially vertically, between which there are provided the first and second inward ribbing walls 92, 93, facing each other and converging upwardly.

[0119] On the long side, beyond the first ribbing with a semicircular transversal cross-section 91, there are also further ribbing surfaces, denoted by reference numbers 94, 95 in the drawings, which are recessed towards the interior of the container, and which also extend opposite each other and converge upwardly.

[0120] As may be noted in figure 6, between the recessed and facing ribs, there is a connecting portion, which is recessed in relation to the main surface of the corresponding container wall.

[0121] This container is made preferably from plastic material, more specifically, transparent plastic, preferably PET, using thermoforming.

[0122] According to the present preferred embodiment, this container is 73,3 mm high, the length of the long side is equal to 181 mm, and the width of the short side is equal to 142 mm.

[0123] There is provided, therefore, a container, more specifically a moulded container, that has an advantageous rigidity and allows the product to be effectively stored inside it. The present container also provides good ventilation and view of the product in the container and is inexpensive to produce.

[0124] The invention as described herein has obvious industrial applications and may be modified and adapted in several ways without thereby departing from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A container (10) for packaging products, in particular for fruit or vegetables, the container comprising a container body (12) and a lid (32) for covering the container (12); **characterised in that** it comprises a plurality of side ventilation openings (65) made in the lid (32) along the lateral areas thereof; and **in that** the ventilation openings (65) that are provided on one side (50) of the lid are not aligned with the ventilation openings (65) that are provided on the opposite side (48) of the lid.
2. The container according to claim 1 or according to the precharacterizing portion of claim 1, **character-**

ized in that it has an asymmetrical shape when viewed from above.

3. The container according to either of the previous claims or according to the precharacterizing portion of claim 1, **characterised in that** the container body (12) comprises a bottom wall (14) and a plurality of side containment walls (16, 18, 20, 22).
4. The container according to any of the previous claims, **characterised in that** the container body (12) comprises first and second longitudinal side walls (16, 18) and third and fourth transversal walls (20, 22).
5. The container according to claim 4, **characterised in that** the first and second longitudinal walls (16, 18) make up the long walls of the container body (12) and the third and fourth transversal walls make up the short walls (20, 22) of the container body.
6. The container according to any of the previous claims from 3 to 5, **characterised in that** the container body (12) comprises at least one arc-shaped connecting wall between adjacent side walls, having a wide curvature radius (R_a).
7. The container according to any of the previous claims from 3 to 6, **characterised in that** it comprises first and second arc-shaped connecting walls (24, 26) extending between the facing longitudinal ends of the first longitudinal wall (16) and corresponding short side walls (22, 24), and third and fourth arc-shaped connecting walls (28, 30) extending between the facing longitudinal ends of the second long wall (18) and the corresponding transversal short walls (22, 24).
8. The container according to claim 7, **characterised in that** each arc-shaped side wall (24, 26) connecting the first longitudinal wall (16) to the corresponding transversal wall (20 or 22) has a curvature radius (R_a), that is greater than the curvature radius (R_s) of the arc-shaped walls (28, 30) connecting the second longitudinal wall (18) to the corresponding transversal wall (20 or 22).
9. The container according to any of the previous claims from 6 to 8, **characterised in that** the container body (12) comprises at least one arc-shaped connecting wall between adjacent side walls, that has a curvature radius (R_a) that is variable between a minimum and a maximum, preferably equal to 42,5 mm.
10. The container according to any of the previous claims or according to the precharacterizing portion of claim 1, **characterised in that** the lid for closing

the upper opening of the container comprises an upper wall (34), from which one or more peripheral side walls (47) extend downwardly, providing a vertical connection to the underlying parts of the lid (32).

11. The container according to claim 10, **characterised in that** the one or more peripheral side walls (47) of the lid are directly connected to a lower peripheral lip (36) of the lid.
12. The container according to any of the previous claims 10 or 11, **characterised in that** the peripheral side walls (47) of the lid comprise first and second longitudinal connecting walls (48 and 50) and, at right angles thereto, third and fourth transversal connecting walls (52, 54).
13. The container according to any of the previous claims from 10 to 12, **characterised in that** the peripheral side walls (47) of the lid comprise intermediate connecting walls (56, 58, 60, 62), that extend along a curve lying in a horizontal plane, having a dome or vault shape, at the corner portions of the lid.
14. The container according to claim 13, **characterised in that** the intermediate connecting walls comprise first and second connecting walls (56, 58), that extend from the facing longitudinal ends of the first longitudinal connecting wall (48) towards the transversal connecting walls (52, 54), and third and fourth connecting walls (60, 62), that extend from the facing longitudinal ends of the other longitudinal connecting wall (50) towards the transversal connecting walls (52, 54).
15. The container according to any of the previous claims from 10 to 14, **characterised in that** the intermediate connecting walls (52, 54 and 60, 62) between the longitudinal and transversal connecting walls of the lid (48, 50 and 52, 54), have a different curvature radius in the horizontal plane.
16. The container according to any of the previous claims from 10 to 15, **characterised in that**, in the lid, the intermediate connecting walls (56, 58) between the first longitudinal connecting wall (48) and the transversal connecting walls (52, 54) have a wide curvature radius (Ra).
17. The container according to any of the previous claims from 10 to 16, **characterised in that**, in the lid, the intermediate connecting walls (56, 58) of the first longitudinal connecting wall (48) with the transversal connecting walls (52, 54) have a curvature radius (Rs).
18. The container according to claim 17, **characterised in that** the intermediate walls (56, 58) connecting

the first longitudinal connecting wall (48) to the transversal connecting walls (52, 54) have a wide curvature radius (Ra) that is greater than the curvature radius (Rs) of the walls (60, 62) connecting the first longitudinal connecting wall (50), to the transversal connecting walls (52, 54).

19. The container according to any of the previous claims from 10 to 18, **characterised in that** the lid (32) comprises at least one arc-shaped connecting wall between adjacent main connecting walls, that has a wide curvature radius (Ra) that is variable between a minimum and a maximum, preferably equal to 42, 5 mm.
20. The container according to any of the previous claims from 10 to 19, **characterised in that** the connecting walls of the peripheral connecting surface (47) of the lid (32) have a curvature radius (Re), in a corresponding vertical plane, that is variable between a minimum and a maximum, preferably equal to 10 mm.
21. The container according to any of the previous claims from 10 to 20, **characterised in that** the lid (32) comprises a substantially horizontal upper wall (34).
22. The container according to any of the previous claims or according to the precharacterizing portion of claim 1, **characterised in that** the side ventilation openings (65) provided on one side of the container differ in number from the ventilation openings (65) provided on the opposite side.
23. The container according to claim 22, **characterised in that** there are fewer side ventilation openings (65) on the front side (48) than there are ventilation openings (65) on the rear facing side (50) of the container.
24. The container according to any of the previous claims or according to the precharacterizing portion of claim 1, **characterised in that** the lid (32) comprises a peripheral lip (36).
25. The container according to any of the previous claims or according to the precharacterizing portion of claim 1, **characterised in that** the container body (12) comprises a peripheral lip (38) that extends from the upper edge of the side walls (16, 18, 20, 22) of the container body.
26. The container according to any of the previous claims 24 or 25, **characterised in that** each of the first and second coupling lips (36 and 38) of the lid and of the container, respectively, has a corresponding first longitudinal side portion (36a, 38a), of the respective transversal side portions (36c, 38c and

36d, 38d), and of the respective corner portions (36e, 38e, 36f, 38f) between the first longitudinal portions (36a, 38a) and the side transversal portions (36c, 38c and 36d, 38d).

27. The container according to any of the previous claims, **characterised in that** corresponding retaining means are provided for closing the lid (32) against the container body (12) at longitudinally facing corner portions (36e, 38e, 36f, 38f) between the first longitudinal portion (36a, 38a) and the transversal portions (36c, 38c and 36d, 38d) of the corresponding lip.
28. The container according to any of the previous claims 26 or 27, **characterised in that** the corner portions (36e, 38e, 36f, 38f), between the first longitudinal portion (36a, 38a) and the transversal portions (36c, 38c and 36d, 38d), are in the form of wide portions which are generally triangular in shape.
29. The container according to any of the previous claims 27 or 28, **characterised in that** the retaining and closing means of the lid comprise at least one plug element (40, 42) and a matching socket and retaining element (44, 46) defining an internal surface which is suitable for grasping and holding the external surface of the plug element (40, 42).
30. The container according to claim 29, **characterised in that** the protruding element (40, 42) has a peripheral external area generally ellipsoidal in shape; and **in that** the socket and retaining element (44, 46) has a peripheral external area generally ellipsoidal in shape, that is suitable for exerting a retaining action to couple with the peripheral surface of the protruding element (40, 42).
31. The container according to any of the previous claims from 26 to 30, **characterised in that** it comprises a corner portion delimited by first and second free edges (136' and 136") at right angles to each other, by a curved connecting segment of the perpendicular edges (36'), and by an internal curved edge having a wide curvature (36") defined by the corresponding side portions of the respective wall of the lid or by the corresponding upper edge of the container.
32. The container according to any of the previous claims from 27 to 31, **characterised in that** the ratio between the length of the retaining means and the distance from the area thereof that faces the interior of the container to the corresponding internal edge of the corner portions is between 1,4 and 2,5 and is preferably equal to 2.
33. The container according to any of the previous

claims or according to the precharacterizing portion of claim 1, **characterised in that** mutual retaining means (72) are provided on the lid and on the container on the longitudinal side opposite the hinged side.

34. The container according to any of the previous claims or according to the precharacterizing portion of claim 1, **characterized in that** it comprises, at least on at least one transversal side of the container, mutual engagement means (172, 174) on the lid and on the container.
35. The container according to any of the previous claims 33 or 34, **characterised in that** the retaining means (72, 74, 172, 174) have engagement surfaces (72', 72", 74', 74") that are substantially at right angles to each other.
36. The container according to any of the previous claims from 33 to 35, **characterised in that** the engagement means (72) extending from the protruding peripheral lip of the first longitudinal side (48) of the lid extend longitudinally and end at the opposite ends at which there extend corresponding side ventilation openings (65).
37. The container according to any of the previous claims from 33 to 36, **characterised in that** the engagement means (72) extending from the protruding peripheral lip of the first longitudinal side (48) of the lid extend longitudinally and end at the opposite ends at which there extend stiffening ribs (64, 64) that are positioned at an internal area of the engagement portions (72) on the lid.
38. The container according to any of the previous claims from 33 to 37, **characterised in that** the engagement means (72) extending from the protruding peripheral lip from the first longitudinal side (48) of the lid extend longitudinally and end at the opposite ends at which there extend stiffening ribs (64, 64) that are positioned beyond the corresponding longitudinal end of the engagement portion on the lid.
39. The container according to any of the previous claims from 13 to 38, **characterised in that** the connecting corner portions (56, 58, 60, 62) between the short and long connecting surfaces of the lid are delimited substantially by ribs (64 and 64) that extend in planes at right angles to each other.
40. The container according to any of the previous claims from 13 to 39, **characterised in that**, at the ends of the connecting corner portions (56, 58, 60, 62) between the short and long vertical connecting surfaces of the lid, there extend matching openings (65) that are at right angles to each other.

41. The container according to any of the previous claims, **characterised in that** the container (10) has a generally quadrangular shape, and more specifically, a generally rectangular shape.

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42. A lid (32) for closing a container for the packaging of products, more specifically for fruit and vegetable products, **characterised in that** the lid (32) is made in accordance with any of the corresponding previous claims.

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43. A body (12) for a container for the packaging of products, more specifically for fruit and vegetable products, **characterised in that** the container body is provided in accordance with any of the corresponding previous claims.

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FIG. 1

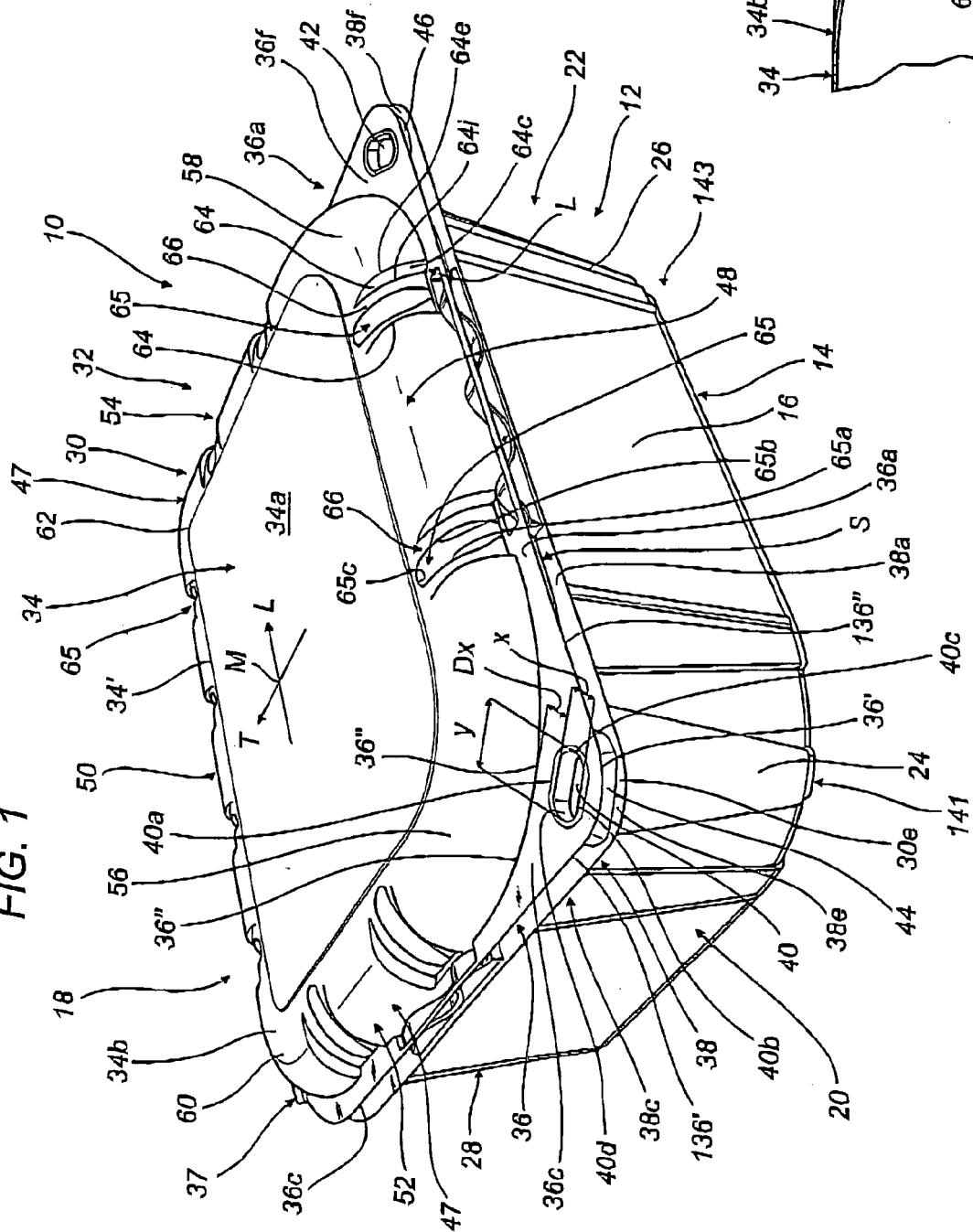


FIG. 7

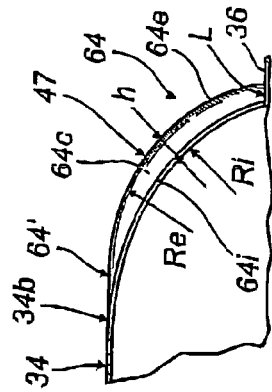


FIG. 2

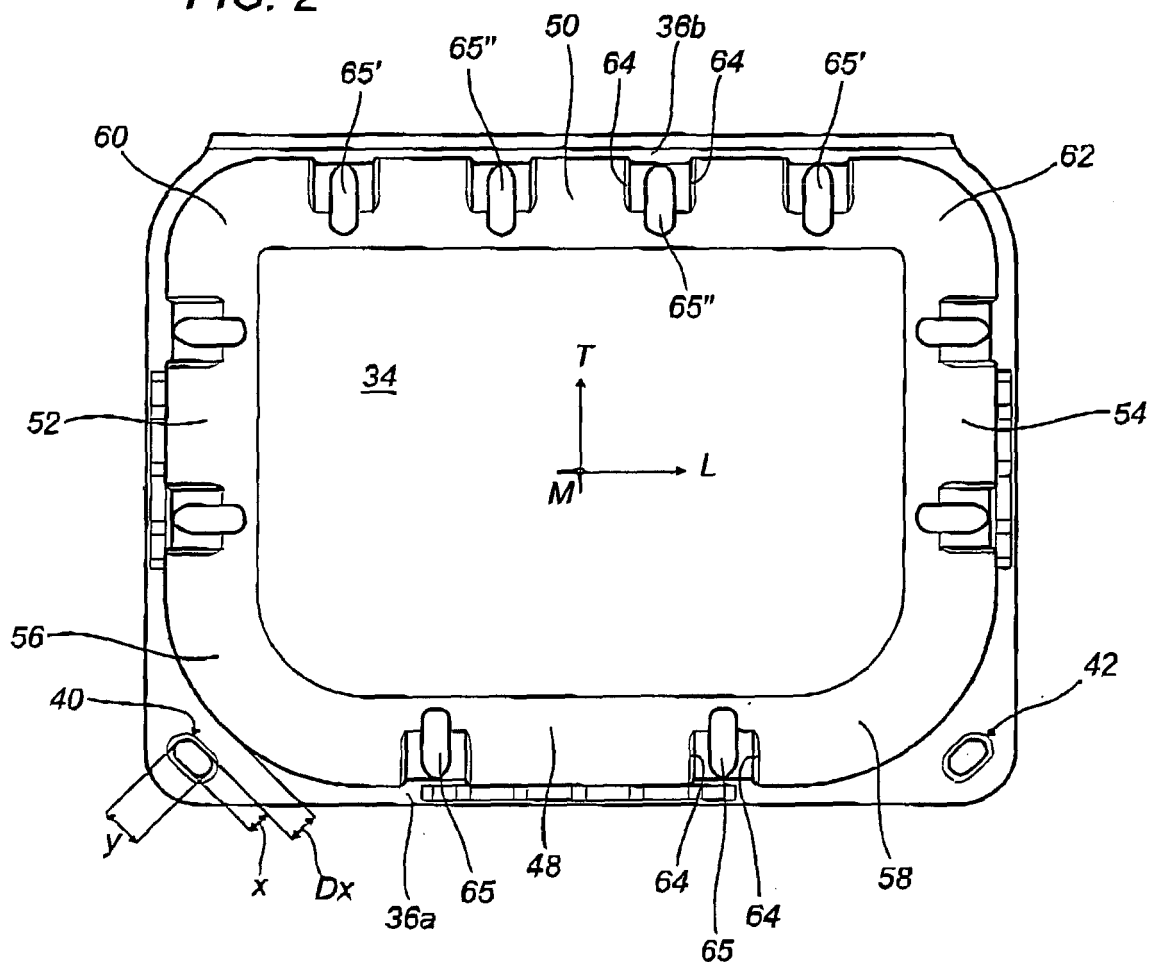


FIG. 5

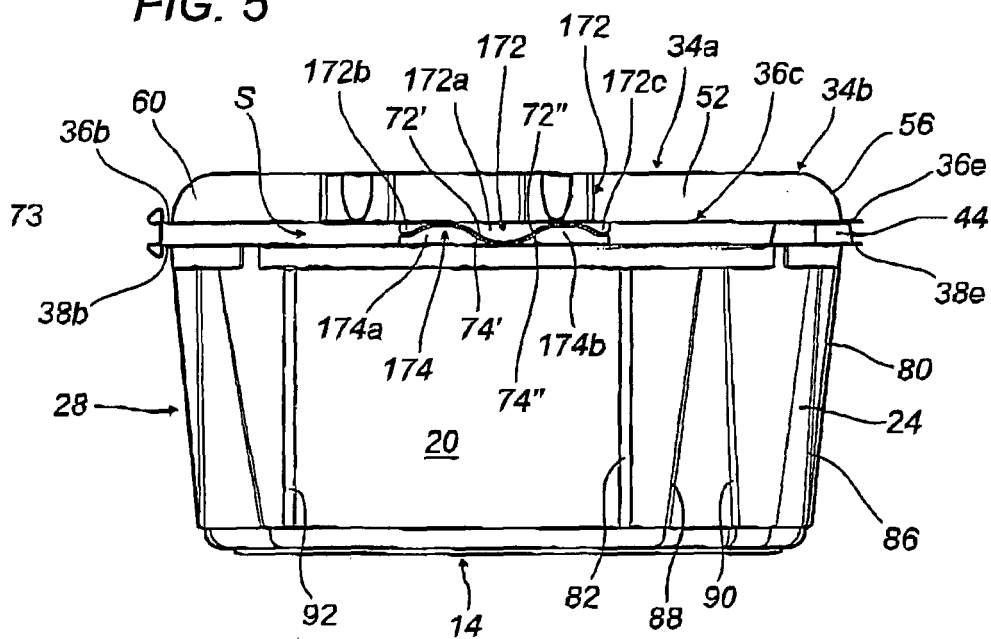


FIG. 3

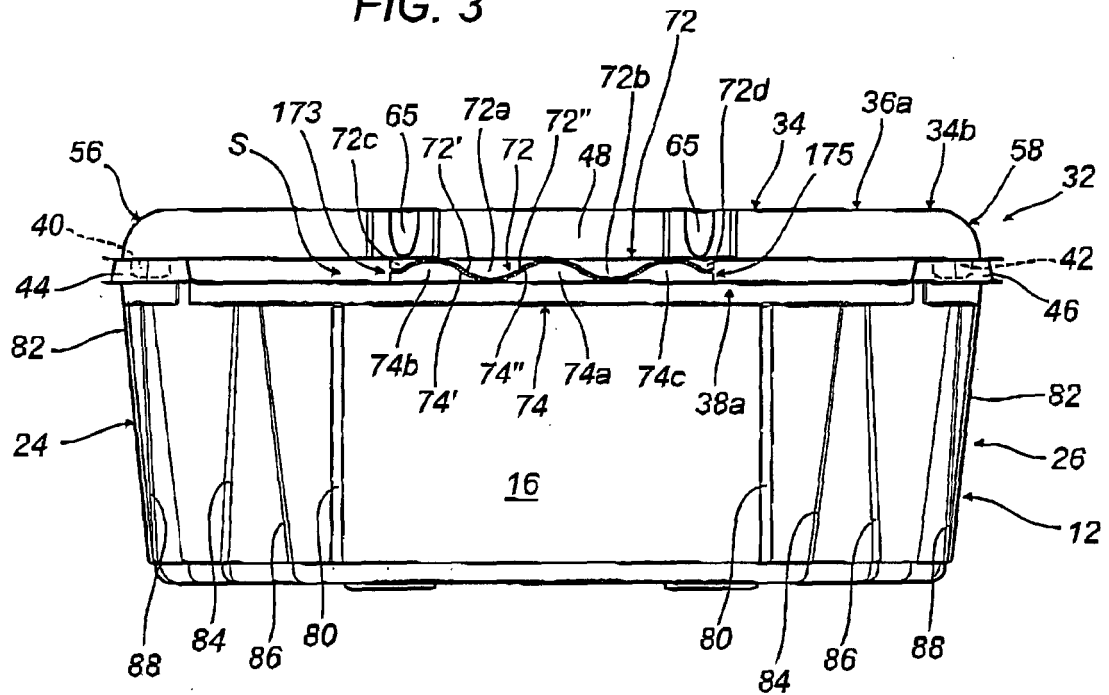


FIG. 4

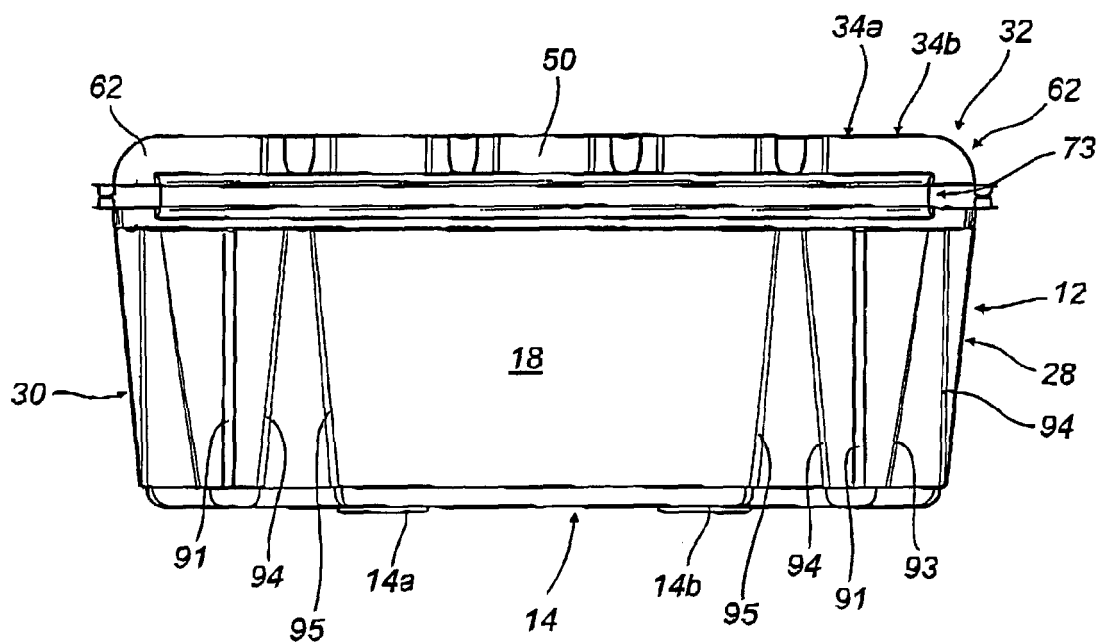


FIG. 6

