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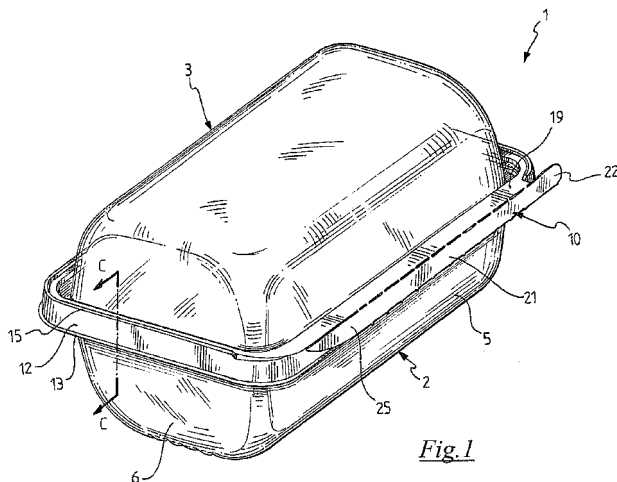
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Tamper-resistant plastic container for foods

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A tamper-resistant container (1; 101) is described, comprising a cover (3; 103), having an upper outwardly extending peripheral flange (17; 117), a bottom (2; 102) having an upper peripheral flange (8; 108) forming, at least in part, an upwardly protruding rib (15; 115) which extends around the perimeter of bottom (2; 102), said rib (15; 115) being arranged in such a way as to render said upper peripheral flange (17; 117) of the cover (3; 103) relatively inaccessible, when the container (1; 101) is closed, and a hinge (10; 110), having a breakable portion (21; 121), which connects said peripheral flange

(17; 117) of the cover (3; 103) to said bottom (2; 102), **characterized in that** said breakable portion (21; 121) is joined, in a partially removable way, to said peripheral flange (17; 117) of the cover (3; 103), and in a completely removable way to said bottom (2; 102), so that the removal of breakable portion (21; 121) causes said cover (3; 103) to detach from said bottom (2; 102) and the hinge (10; 110) to only partially separate from said peripheral flange (17; 117) of the cover (3; 103), thereby facilitating the removal of the cover (3; 103) from the bottom (2; 102) to open the container (1; 101).



Description

Technical field

[0001] In its broader aspect, the present invention relates to the field of packaging of foods.

[0002] In particular, the present invention relates to a plastic container, of the tamper-resistant type, for packaging of foods.

[0003] By "tamper-resistant" or "anti-tamper" we refer to a container provided with appropriate means or systems which clearly indicate to the user/consumer a possible preceding opening of the container as well as a possible adulteration of the food contained in the same.

Known art

[0004] Plastic material containers are broadly used in the industry and mass distribution for packaging of foods, at the same time allowing the protection, conservation, transport and exhibition at selling points of such foods.

[0005] The packaging by means of such containers has become an integral part of modern distribution system due to the almost unlimited freedom of choice provided by packaging solutions, in terms of materials, geometry and shapes, functionality, technical characteristics, performance and conservation needs.

[0006] In particular, functionality and technical performances are provided in terms of: better conservation of fresh degradable foods; possible reactivation of packaged products by direct heating in microwave or traditional ovens; sealing, easy opening; closing of container after use.

[0007] Usually, the containers for packaging of foods are comprised of a rigid base (also called bottom) of plastic food-compatible material, of generally squared shape (tray-like) or rounded shape (cup-like), which is filled with the desired food and sealingly closed in various ways, in particular by applying an extensible or thermo-sealable film over the base, by a suitable cover, which is normally separate from the base or by a simple closing operation of a cover which is integral and hinged to the base.

[0008] The sealed closing of the container (i.e. of said base) is required by technical and hygienic considerations; in particular it allows an adequate conservation of organoleptic characteristics and freshness of product before its consumption and is moreover desired by consumers, by distribution and food industry operators.

[0009] Moreover, in the case of closable containers provided with a cover, the consumer/user is facilitated by protection obtained through sealing, as well as because the consumer/user may use the product at different points in time, without impairing the food characteristics (humidity, color, taste, consistency, etc.) and original organoleptic qualities of foods, due to usage and conservation.

[0010] The containers with a hinged cover are particularly preferred by modern distribution, for exhibiting the

fresh pre-packaged products on self-service shelves, as well as by operators attending the cutting boards, since these containers are practical (available in various formats), easy to use (do not require specific closing apparatus) and are aesthetically pleasing.

[0011] In such containers, the cover is hinged in an integral but flexible way, to a side of the base (bottom) or at one portion of the same, and is provided, on its periphery, of suitable protrusions and/or recesses, which, at the time of overlapping the cover to the base, mate with corresponding peripheral recesses and/or protrusions, which are provided on the base, with a male-female coupling, which seals the container in a fluid-proof way.

[0012] Normally, the provision of protruding peripheral gripping systems allow the opening of the cover of the container each time the consumer wants to eat the product and then reposition it for future consumption.

[0013] Such a container is not inviolable, on the contrary, it may be tampered and its content may be potentially adulterated without being apparent that it was previously opened and tampered with.

[0014] Therefore, large distribution chains and the industry have found deterring systems, by using particular guarantee paper or sleeve-like seals, which are fixed to the cover and base by means of adhesives at packaging, and which break up when the container cover is even partially removed, indicating that a potential adulteration of food may have taken place.

[0015] Nonetheless, this type of system isn't always satisfactory; in particular, the paper seals require the gluing of a label, whose adhesion and positioning stability are often insufficient or at least very dubious in terms of anti-tampering guarantee or adulteration indication.

[0016] Anti-tampering containers for food products are also known, which are structured in such a way that their first opening may take place only after the removal of a structural component of the container (for example a ring, tab or hinge), which is normally removably connected (for example by means of weakening lines) to the cover or is normally provided for connecting the cover to the base. This type of container is described, for example, in patent US 4942974 and application WO 2005/009857.

[0017] Although such tamper-resistant containers are generally satisfactory in terms of their anti-tamper characteristics, they not always ensure an adequate sealing and are sometimes difficult to open and/or close by the final consumer/user.

[0018] The technical problem to be solved by the present invention is therefore to provide a tamper-resistant container for packaging of foods, which complies with above said needs, i.e. a tamper-resistant container which has suitable tamper-resistant and sealing characteristics and at the same time is easy to be opened and closed by the consumer/user, according to their needs.

Summary of the invention

[0019] This technical problem is solved by a tamper-resistant container comprising a cover having an outwardly extending peripheral upper flange, a bottom having a peripheral upper flange forming, in at least a its portion, a rib protruding upwardly and extended around the bottom perimeter, said rib being configured such as to render said upper peripheral flange of the cover relatively inaccessible when the container is closed, and a hinge having a breakable portion, which connects said peripheral upper flange of the cover to said bottom, **characterized in that** said breakable portion is connected, in a partially removable way, to said peripheral flange of the cover and in a completely removable way to said bottom, so that the removal of the breakable portion causes said cover to detach from said bottom and said hinge to only partially separate from said peripheral upper flange of the cover, thereby facilitating removal of cover from bottom to open the container.

[0020] Preferably, the peripheral upper flange of the bottom is joined, at its outwardly end, to a downward protruding skirt, the skirt ending with a rim, the upwardly protruding rib extending along the whole perimeter of said peripheral upper flange, except for a its portion positioned near said hinge and the peripheral upper flange of the cover has a more outwardly protruding portion, which, when the container is closed, is substantially overlapped to said peripheral upper flange of bottom, at said portion without the rib, so that it outwardly extends beyond said rib.

[0021] According to a preferred embodiment, the breakable portion of the hinge is upwardly connected, in a partially removable way, to the more protruding portion of said peripheral upper flange of the cover and is downwardly connected, in a completely removable way, to said rim of the skirt downwardly protruding from said peripheral upper flange of the bottom. Such connection is preferably obtained by means of upper weakening lines formed in the joining area of said breakable portion of the hinge with said more protruding portion of said upper peripheral flange of the cover and extended only on a portion of said joining area, and by means of lower weakening lines formed and extended along the whole joining area of said breakable portion of hinge with said bottom rim.

[0022] In the present invention, the upper and lower weakening lines may be provided in various ways, which are per se conventional, in particular by etching or perforation in the joining areas of cover and bottom hinge, the upper and lower weakening lines can be for example etching or perforation lines.

[0023] According to an embodiment, the hinge further comprises a tab, which is positioned at an end of said breakable portion and which is integral with it, in order to provide a gripping point for breaking said breakable portion.

[0024] According to another embodiment, the bottom

comprises a gripping tab formed by an outwardly extension of said skirt rim. Preferably, the bottom may further comprise means for draining liquids released by food contained in it during conservation. In this case, such means are preferably comprised of a plurality of slots formed on the bottom base or by a raised portion of said bottom.

[0025] According to an aspect of the present invention, the bottom and the cover each have a generally rectangular or circular shape.

[0026] In case of a generally rectangular shape, the hinge extends preferably along a bottom side and if a gripping flap is provided, it is preferably formed at a bottom rim corner near said hinge tab.

[0027] The tamper-resistant container according to the invention is preferably made of a plastic material, in particular a plastic material for foods, and said material is preferably transparent, in order to display the container content.

[0028] Preferably, the plastic material is chosen from the group comprising polystyrene (PS), oriented polystyrene (OPS), polyethylene terephthalate (PET), polypropylene (PP) and polylactic acid (PLA).

[0029] The characteristics and advantages of the tamper-resistant container according to the invention will be better understood from the following description of some preferred exemplary embodiments, with reference to appended drawings, which are illustrative and non limiting.

Brief description of the drawings

[0030] In the appended drawings:

- fig. 1 shows a perspective view of a tamper-resistant container according to an embodiment of the invention, in its closed configuration,
- fig. 2 and 3 show a perspective view and a view from above, respectively, of the tamper-resistant container of fig. 1, in its open configuration, before packaging of food inside the same,
- fig. 4 shows a partial sectional view of the container of fig. 1 along line A-A of fig. 2,
- fig. 5 shows a partial sectional view of the container of fig. 1 along line B-B of fig. 2,
- fig. 6 shows a partial sectional view of the container of fig. 1 along line C-C,
- figs. 7-9 show perspective views of the tamper-resistant container of fig. 1 during respective steps of first opening by a consumer/user,
- fig. 10 shows a perspective view of a tamper-resistant container according to another embodiment of

the invention in its closed position,

- fig. 11 and 12 show a perspective view and a view from above, respectively, of the tamper-resistant container of fig. 1, in its open position before packaging of food inside same,
- fig. 13 shows a partial sectional view of the container of fig. 1 along line D-D of fig. 11,
- fig. 14 shows a partial sectional view of the container of fig. 1, along line E-E of fig. 11,
- fig. 15 shows a partial sectional view of the container of fig. 10, along line F-F.

Detailed description

[0031] In the following of the present description, the terms "upper", "lower", "external" and "internal" refer to orientation of a particular embodiment, as shown in the first figure relating to said embodiment.

[0032] With reference to fig. 1 to 9, a tamper-resistant container according to an embodiment of the present invention is generally indicated at 1.

[0033] The container 1 comprises a lower portion or substantially rigid bottom 2, for containing a food product, for example a vegetable or fruit item, and a cover 3, which enclose said product.

[0034] In the present non limiting example, the bottom 2 and the cover 3 are of substantially tray-like shape, with a rectangular section having rounded corners, and are fixed to each other in a removable way by means of a hinge 10.

[0035] More in particular, the bottom 2 comprises a flattened longitudinal portion 4, forming its base, from which long side walls 5 and short side walls 6 protrude upwardly, which, together with the base 4, define a cavity in which the food product to be packaged is housed and supported. The long side walls 5 and the short side walls 6, which extend upwardly from said base 4, end in a lower peripheral flange 7 having a substantially perimetric extension, the lower peripheral flange 7 protruding from long side walls 5 and short side walls 6 towards the outside of the bottom 2.

[0036] The bottom 2 moreover comprises a upper peripheral flange 8 having a substantially perimetric extension, the upper peripheral flange 8 being more outwardly positioned with respect to the lower peripheral flange 7, and being joined, at its inward end, to the lower peripheral flange 7 by means of a substantially perimetric skirt 9.

[0037] The upper peripheral flange 8 is also joined, at its outward end, to a downwardly protruding skirt 12 having a substantially perimetric extension, the skirt 12 ending with a rim 13, which also has a substantially perimetric extension. Moreover, on the upper peripheral flange 8 of the bottom 2, a rib (or cord) 15 is formed, which protrudes upwardly and extends along the whole perimeter of the

upper peripheral flange 8, with the exception of a its portion 20, which is positioned near the hinge 10 and is substantially opposed to the same.

[0038] The cover 3 has a body 3a ending with a lower peripheral outwardly protruding flange 16 having a substantially perimetric extension, and with an upper peripheral flange 17, which also protrudes outwardly and has a substantially perimetric extension. In particular, the upper peripheral flange 17 is more outwardly positioned with respect to the lower peripheral flange 16, and is joined, at its inward end, to the lower peripheral flange 16 by means of peripheral skirt 18. Moreover, the upper peripheral flange 17 of the cover 3 has a portion 19, which is more outwardly extended/protruded and which, when the container 1 is closed, is substantially overlapped to the upper peripheral flange 8 of the bottom 2 at its respective portion 20 without the rib 15, in order to outwardly extend beyond said rib 15.

[0039] According to the present invention, the hinge 10 comprises a breakable portion 21 having substantially a strip shape, which joins the upper peripheral flange 17 of the cover 3 and the bottom 2, and a tab 22, which is positioned at an end of the breakable strip 21, and is integral with the same, in order to provide a grip for pulling the breakable strip 21.

[0040] More particularly, the breakable strip 21 is upwardly connected, in a partially removable way, to the more protruding portion 19 of the upper peripheral flange 17 of the cover 3 and is downwardly connected, in a completely removable way, to the rim 13 of skirt 12, which protrudes downwardly from the upper peripheral flange 8 of bottom 2. In particular, the partial and complete removability is obtained by means of upper weakening lines which extend only on a portion of the joining area between the breakable strip 21 and the more protruding portion 19 of the upper peripheral flange 17 of the cover 3, and by means of lower weakening lines 24, which are substantially parallel to the upper weakening lines 23 and which extend along the whole joining area between the breakable strip 21 and the rim 13 of bottom 2. In practice, this is achieved by forming the hinge 10 integral with the bottom 2 and the cover 3, for example in a suitable mold, and then by applying the upper weakening lines 23 only on a portion of the joining area between hinge 10 and the upper peripheral flange 17 of cover 3 and by applying the lower weakening lines 24 along the whole extension of the joining area between the hinge 10 and the bottom 2. In this way, the hinge 10 is permanently joined to the cover 3 (in particular to the upper peripheral flange 17 at its more protruding portion 19) along a joining segment 25, so that, as will become apparent in the following discussion, the removal of the breakable strip 21, in particular on occasion of the first opening of the container 1, entails the detachment of the cover 3 from the bottom 2 and the separation only partial of the hinge 10 from the upper peripheral flange 17, of the cover 3, thereby facilitating the removal of the cover 3 from the bottom 2.

[0041] Advantageously, in the present example, the

hinge 10 is formed at a side (preferably the long side) of the container 1 and substantially extends along all said side. Moreover, in the present example, the joining segment 25 is advantageously an end segment of the hinge 10 and the tab 22 is positioned opposed to said joining segment 25.

[0042] Advantageously, in the present exemplary embodiment, the bottom 2 is provided with a gripping flap 27, which is optionally provided with a knurling in order to obtain an easier removal of the breakable strip 21 by means of tab 22, as will be described better later. Such flap 27 is advantageously formed on one or more corners 2 of the bottom, as an extension of the rim 13, and is preferably positioned near the tab 22.

[0043] The bottom 2 is also provided with a plurality of longitudinal and substantially parallel slots 28, which are formed on the base 4, for collecting possible liquids released by food or food products positioned inside the container 1, during conservation. In fact, if liquids are released, they are conveyed by gravity and collected between the slots 28, so resulting less visible to the final consumer and preferably not in contact with the same foods/food products, thereby preserving better their organoleptic characteristics during time.

[0044] Obviously, as an alternative to the slots, other means for collecting and/or containing liquids released by food may be provided, said means being integrated with the bottom 2 or being applied to it afterwards. Non limiting examples of means integrated or applied to the bottom 2 include absorbing cellulose inserts, super-absorbing polymer bags and absorbing plastic fiber fluff.

[0045] In use, the open container 1, with the bottom 2 and the cover 3 joined together by means of the hinge 10 (as shown in particular in figs. 2 and 3), is filled with the food product to be packaged and to be adequately protected, and the container 1 is closed, by engaging the bottom 2 and the cover 3 to each other in a removable way. This is achieved, in the present exemplary embodiment, by engaging the upper peripheral flange 17, the lower peripheral flange 16 and skirt 18 joining them of cover 3 with the upper peripheral flange 8, the lower peripheral flange 16 and skirt 18 joining them of the bottom 2, respectively, according to a substantially complementary shape coupling.

[0046] It is to be noted that, in the closed configuration of container 1, the rib or cord 15 extends over the upper peripheral flange 17 of the cover 3, surrounding it along the whole external rim, with the exception of its more protruding portion 19, which is in fact positioned in the area 20 without the rib, but is nevertheless joined, in a partially removable way, to the breakable strip 21 of the hinge 10. Therefore, the rib 15 provides a suitable tamper-resistant or intrusion-resistant system, by inhibiting, under certain limits, the physical access to the rim of the upper peripheral flange 17 of the cover 3, by fingers or an object which could be normally used as a leverage, for opening the container 1.

[0047] On first opening of the container 1, it is therefore

necessary to initially remove the breakable strip 21 of the hinge 10, which, once completely or partially removed, cannot be returned to its original position or replaced. Therefore the partial or complete removal of breakable strip 21 of the hinge 10 provides a clear indication of a possible intrusion or tampering of the container 1; in particular, if it happened before purchase, the consumer may easily deduce that container has been tampered with and therefore the food product contained in the same may be adulterated.

[0048] Referring now to figs. 7-9, main steps of first opening of container 1, for example, by a consumer, in order to access food contained in same, are shown in greater detail.

[0049] In fig. 8, the first step is shown, which, as already said, comprises the removal of the breakable strip 21. This operation may be performed easily by user by gripping with a hand the tab 22 and pulling the hinge 10 with force sufficient to break the breakable strip 21 along the upper weakening lines 23 and the lower weakening lines 24. In order to further facilitate the breaking of breakable strip 21, it may be also useful to grip the flap 27 positioned near tab 22.

[0050] With the present invention, the removal (breaking) of the breakable strip 21 involves only partial separation of the hinge 10 from upper peripheral flange 17 of the cover 3, to which it effectively remains attached along a permanent joining segment 25, and at the same time, the complete separation of the hinge 10 from the bottom 2.

[0051] At this point (figs. 10 and 11), still gripping the tab 22, the user may access the content of the container 1, by raising the cover 3 from the bottom 2. With the present invention, this step may be readily performed by the user leveraging the hinge 10, which, since it is permanently joined to the cover 3 along the joining segment 25 with the upper peripheral flange 17, allows the cover 3 to be easily and quickly raised.

[0052] Advantageously, after the first opening, the container 1 may be closed and re-opened as necessary, and in particular each re-opening is facilitated in a similar way, by operating on the hinge 10 and/or the gripping flap 27.

[0053] Referring now to figs. 10-15, a tamper-resistant container according to another embodiment of the invention is described, said container being generally referenced at 101.

[0054] Elements of the container 101, which are structurally and/or functionally equivalent to corresponding elements disclosed above for said container 1, are provided with same reference numerals as the previous ones, increased by 100.

[0055] The container 101 comprises a substantially rigid lower portion or bottom 102, for containing a food product, for instance a vegetable or fruit, and a cover 103, which enclose the product.

[0056] In the present non limiting exemplary embodiment, the bottom 2 and the cover 3 are of substantially

round cup-like shape and are removably fixed to each other by means of a hinge 110.

[0057] More in particular, the bottom 102 comprises a flattened longitudinal portion 104 forming its base, from which side walls 105 protrude upwardly, the side walls 105 defining, together with base 104, a cavity which encloses and supports the food product to be packaged. The side walls 105 protruding upwardly from said base 104 end with a lower peripheral flange 107 having a substantially perimetric, the lower peripheral flange 107 protruding from the side walls 105 towards the outside of the bottom 102.

[0058] The bottom 102 further comprises a peripheral upper flange 108 having a substantially perimetric extension, the upper peripheral flange 108 being more outwardly positioned with respect to the lower peripheral flange 107, and being joined, at its inward end, to the lower peripheral flange 107 by means of a substantially peripheral skirt 109.

[0059] The upper peripheral flange 108 is also joined, at its outward end, to a downwardly protruding skirt 112 having a substantially perimetric extension, the skirt 112 ending with a rim 113 which also has a substantially perimetric extension. Moreover, on the upper peripheral flange 108 of the bottom 102 a rib (or cord) 115 is formed, which protrudes upwardly and extends along the whole perimeter of the upper peripheral flange 108, with the exception of its portion 120, which is positioned near the hinge 110 and which is substantially opposed to the same.

[0060] The cover 103 comprises a body 103a, which is joined to an outwardly protruding peripheral lower flange 116 having a substantially perimetric extension, and to an upper peripheral flange 117 which also protrudes outwardly and has a substantially perimetric extension. In particular, upper peripheral flange 117 is more outwardly positioned with respect to the lower peripheral flange 116, and is joined, at its inward end, to the lower peripheral flange 116, by means of perimetric skirt 118. Moreover, the upper peripheral flange 117 of the cover 103 comprises a portion 119, which is more outwardly extended/protruded and which, when the container 101 is closed, is substantially overlapped to the upper peripheral flange 108 of the bottom 102, at a respective portion 120 without the rib 115, so that it outwardly protrudes beyond said rib 115.

[0061] According to the present invention, the hinge 110 comprises a breakable strip 121, which joins the upper peripheral flange 117 of the cover 103 to the bottom 102, and a tab 122, which is positioned at one end of the breakable strip 121 and which is integral with it, in order to provide a grip for breaking the breakable strip 121. To this end, the tab 122 comprises an upwardly protruding segment 122a, for facilitating the grip by a consumer for example.

[0062] More in particular, the breakable strip 121 is upwardly connected, in a partially removable way, to the more protruding portion 119 of the upper peripheral

flange 117 of the cover 103, and is connected downwardly, in a complete removable way, to the rim 113 of the skirt 112 which downwardly protrudes from the upper peripheral flange 108 of the bottom 102. In particular, the partial and complete removability is obtained by upper weakening lines 123 which extend only on a portion of the joining area between the breakable strip 121 and the more protruding portion 119 of the upper peripheral flange 117 of the cover 103 and by means of lower weakening lines 124, which are substantially parallel to the upper weakening lines 123 and extend along the whole joining area between the breakable strip 121 and the rim 113 of the bottom 102. In practice, this is achieved by forming the hinge 110 integral with the bottom 102 and the cover 103, for example in a suitable mold, and then by applying the upper weakening lines 123 only on a portion of the joining area between the hinge 110 and the upper peripheral flange 117 of the cover 103 and by applying the lower weakening lines 124 along the whole extension of the joining area between the hinge 110 and the bottom 102. In this way, the hinge 110 is permanently joined to the cover 103 (in particular to the upper peripheral flange 117 at its more protruding portion 119) along a joining segment 125, so that the removal of the breakable strip 121, in particular at the first opening of the container 101, causes the detachment of cover 103 from the bottom 102 and the separation only partial of the hinge 110 from the upper peripheral flange 117 of the cover 103, thereby facilitating the removal of the cover 103 from the bottom 2.

[0063] In the present exemplary embodiment, the hinge 110 is advantageously formed on a relatively small circumferential portion of the container 101, the joining segment 125 is advantageously an end segment of the hinge 110 and the tab 122 is positioned opposed to said joining segment 125.

[0064] Moreover, the base 104 of the bottom 102 comprises a raised portion 104a, which is in a substantially central position and which reinforces the bottom 102.

[0065] In use, opened container 101, having the bottom 102 and the cover 103 joined to each other by the hinge 110 (in particular, as shown in figs. 11 and 12), is filled with the food product to be packaged, and for which a suitable protection is required, and then the container 101 is closed, by engaging the bottom 102 and the cover 103 to each other, in a removable way. This is achieved by engaging the upper peripheral flange 117, the lower peripheral flange 116 and the skirt 118 joining the same, of the cover 103, with the upper peripheral flange 108, the lower peripheral flange 116 and the skirt 118, joining the same, of the bottom 2, respectively, according to a substantially complementarily shape coupling.

[0066] It is to be noted that, in the closed configuration of the container 101, the rib or cord 115 extends beyond the upper peripheral flange 117 of the cover 103, surrounding the same along all its external rim, with the exception of its more protruding portion 119, which is in fact positioned in the area 120 without the rib, but nonetheless

joined, in a partially removable way, to the breakable strip 121 of the hinge 110. Therefore, the rib 115 provides an adequate tamper-resistant or intrusion-resistant system, inhibiting, under certain limits, access to the rim of the upper peripheral flange 117 of the cover 103 by fingers or an object which may be used as a leverage for opening the container 101.

[0067] On first opening of container 101, it is therefore initially necessary to remove the breakable strip 121 of the hinge 110, which, once completely or partially removed, cannot be returned in its original position or replaced. Therefore, the partial or complete removal of the breakable strip 121 of the hinge 110 provides a clear indication of a possible intrusion or tampering of the container 101, in particular if this has taken place before the purchase, and the user can therefore easily infer that the container has been tampered with, and that the enclosed food product may be adulterated.

[0068] It is also to be noted that the first opening of container 101 may be performed by user in analogy to what has been previously said with reference to the container 1, and therefore it has the same advantages, in particular in relation to an easy and quick raising of the cover 103 from the bottom 102. Also the repeated closing and opening of container 101 may be performed by user as necessary, in analogy to what has been described above with reference to the container 1.

[0069] The main advantage of the tamper-resistant container according to the invention resides in the easiness and immediacy with which the consumer may perform its first opening, in particular raising the cover from the bottom, after removal of the breakable portion of the hinge. At the same time, the container according to the invention provides suitable tamper-resistant characteristics, which allow an adequate protection of its content as well as the clear indication of a possible tampering of the container.

[0070] Another advantage of the tamper-resistant container according to the present invention resides in the easier disposal after use, since it may be disposed with along with all its components, due to the fact that the hinge remains always connected to the cover during the whole life of container. In contrast, the tamper-resistant containers of the known art often provide in usage the separation of at least a component from the rest of the container (usually the breakable component) and therefore require separate disposals, usually at different times.

[0071] Another advantage of the tamper-resistant container according to the present invention is the fact that it adequately protects its content not only from tampering but also, and at the same time, from occasional external mechanical stresses, such as compression, which may take place for example during shelf life.

[0072] A further advantage of the tamper-resistant container according to the present invention is the fact that it allows a pleasant display of its content to the consumer, and the fact that it may be easily and economically produced in any plastic material, according to known

technologies in the field. Moreover, the tamper-resistant container according to the invention has a pleasant aesthetic effect such as to become attractive for the consumer.

[0073] Obviously, the tamper-resistant container of the present invention, in order to comply with contingent and specific needs, may be subject to suitable modifications and adaptations by the skilled in the art, without departing from the protection scope of the invention, as defined in the following claims.

Claims

1. Tamper-resistant container (1; 101) comprising a cover (3; 103) having an upper outwardly extending peripheral flange (17; 117), a bottom (2; 102) having an upper peripheral flange (8; 108) forming, at least in part, an upwardly protruding rib (15; 115) which extends around the perimeter of the bottom (2; 102), said rib (15; 115) being arranged in such a way as to render said upper peripheral flange (17; 117) of the cover (3; 103) relatively inaccessible, when the container (1; 101) is closed, and a hinge (10; 110), having a breakable portion (21; 121), which connects said peripheral flange (17; 117) of the cover (3; 103) to said bottom (2; 102),

characterized in that

said breakable portion (21; 121) is joined, in a partially removable way, to said peripheral flange (17; 117) of the cover (3; 103), and in a completely removable way to said bottom (2; 102), so that the removal of breakable portion (21; 121) causes said cover (3; 103) to detach from said bottom (2; 102) and the hinge (10; 110) to only partially separate from said peripheral flange (17; 117) of the cover (3; 103), thereby facilitating the removal of the cover (3; 103) from the bottom (2; 102) to open the container (1; 101).

2. Tamper-resistant container according to claim 1, **characterized in that** said upper peripheral flange (8; 108) of the bottom (2; 102) is joined, at its outward end, to a downwardly protruding skirt (12; 112), the skirt (12; 112) ending with a rim (13; 113), **in that** said upwardly protruding rib (15; 115) extends along the whole perimeter of said upper peripheral flange (8; 108), with the exception of a its portion (20; 120) which is positioned near said hinge (10; 110), and **in that** said upper peripheral flange (17; 117) of the cover (3; 103) has a more outwardly protruding portion (19; 119) which, when the container (1; 101) is closed, is substantially overlapped to said upper peripheral flange (8; 108) of the bottom (2; 102) at said portion (20; 120) without the rib (15; 115), so that it outwardly protrudes beyond said rib (15; 115).
3. Tamper-resistant container according to claim 2,

- characterized in that** said breakable portion (21; 121) is upwardly connected, in a partially removable way, to said more protruding portion (19; 119) of said upper peripheral flange (17; 117) of the cover (3; 103), and is downwardly connected, in a completely removable way, to said rim (13; 113) of the skirt (12; 112), which downwardly protrudes from said upper peripheral flange (8; 108) of the bottom (2; 102).
4. Tamper-resistant container according to claim 3, **characterized in that** it comprises upper weakening lines (23; 123) which are formed in the joining area between said breakable portion (21; 121) and said more protruding portion (19; 119) of said upper peripheral flange (17; 117) of the cover (3; 103) and which extend only over a portion of said joining area, and lower weakening lines (24; 124) which are formed and extended along the whole joining area between said breakable portion (21; 121) and said rim (13; 113) of the bottom (2; 102).
5. Tamper-resistant container according to any of preceding claims, **characterized in that** said hinge (10; 110) further comprises a tab (22; 122) which is positioned at an end of said breakable portion (21; 121) and is integral with the same, in order to provide a grip for breaking said breakable portion (21; 121).
6. Tamper-resistant container according to any of preceding claims, **characterized in that** said bottom (2; 102) comprises a gripping flap (27) as an outwardly extension from said rim (13; 113) of the skirt (12; 112).
7. Tamper-resistant container according to any of preceding claims, **characterized in that** said bottom (2) further comprises means (28) for draining possible liquids released by foods contained in the same, during their conservation.
8. Tamper-resistant container according to claim 7, **characterized in that** said means are comprised of a plurality of slots (28) formed over the base (4) of said bottom (2).
9. Tamper-resistant container according to any of preceding claims, **characterized in that** said bottom (2) and said cover (3) each are of generally rectangular shape.
10. Tamper-resistant container according to claim 9, **characterized in that** said hinge (10) extends along a side of said bottom (2).
11. Tamper-resistant container according to claim 9 or 10, **characterized in that** said gripping flap (27) is formed at a corner of said rim (13) of the bottom (2), near said tab (22).
12. Tamper-resistant container according to any of preceding claims 1 to 8, **characterized in that** said bottom (102) and said cover (103) are each of generally circular shape.
13. Tamper-resistant container according to any of preceding claims, **characterized in that** it is made of a transparent plastic material.

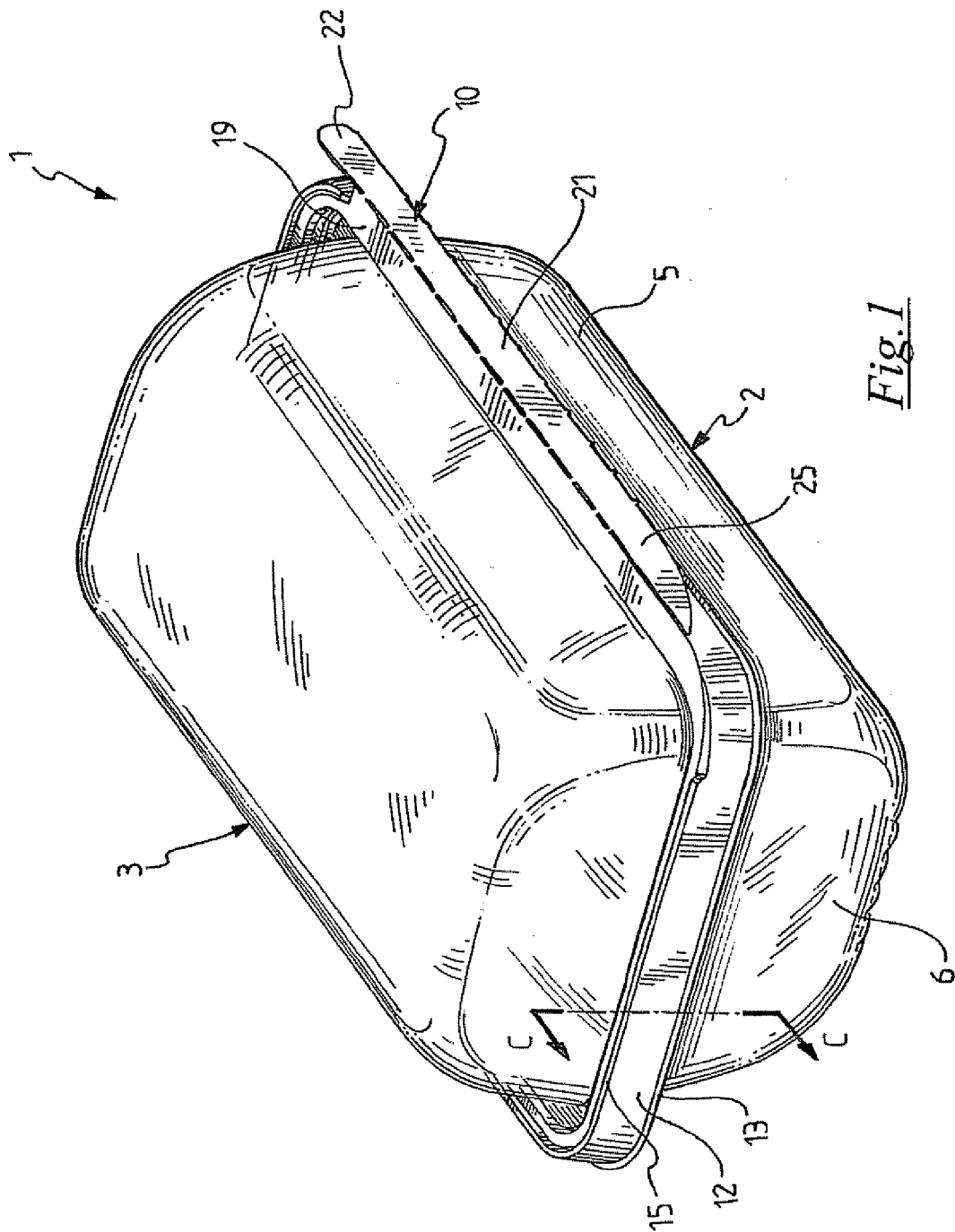


Fig. 1

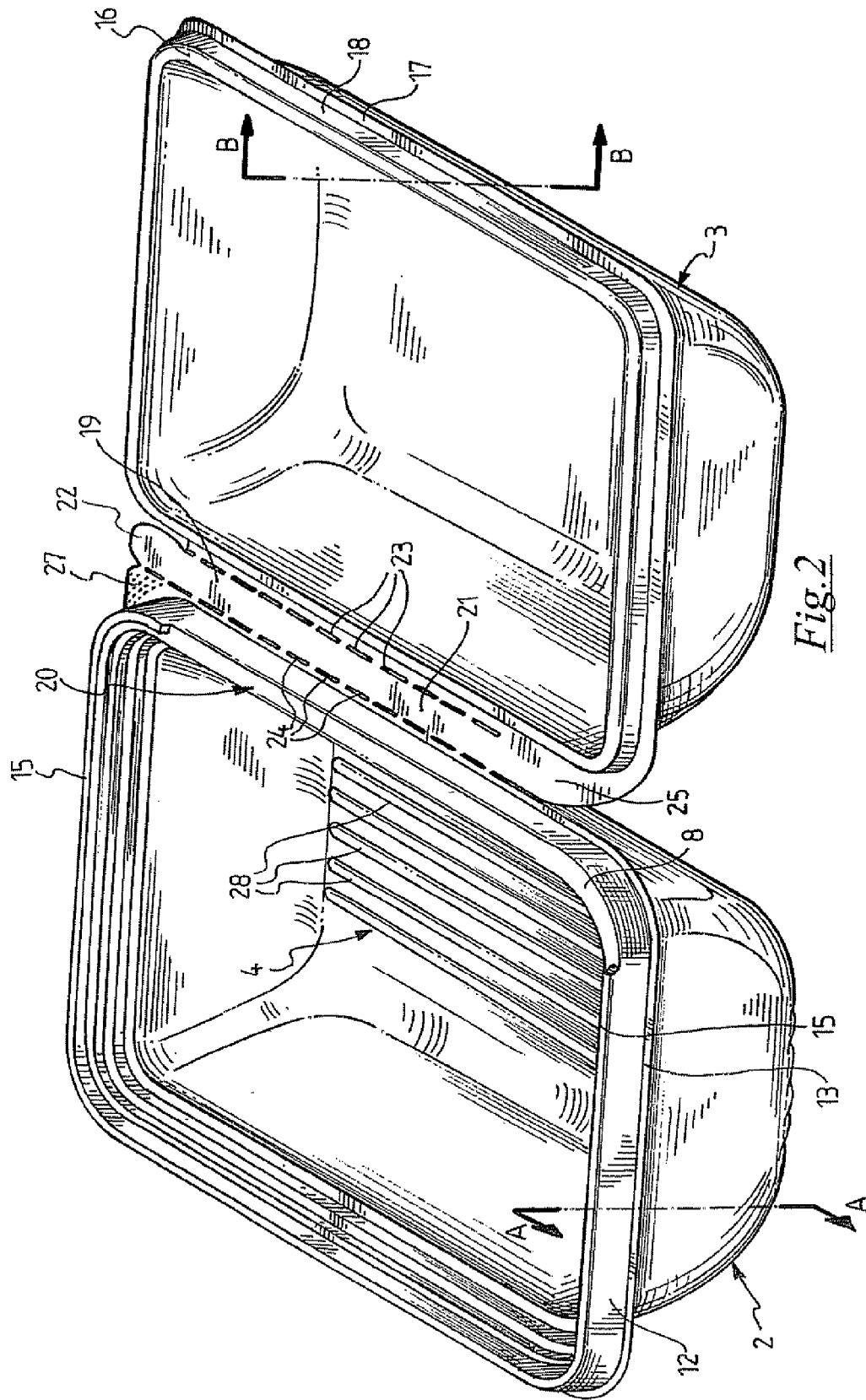
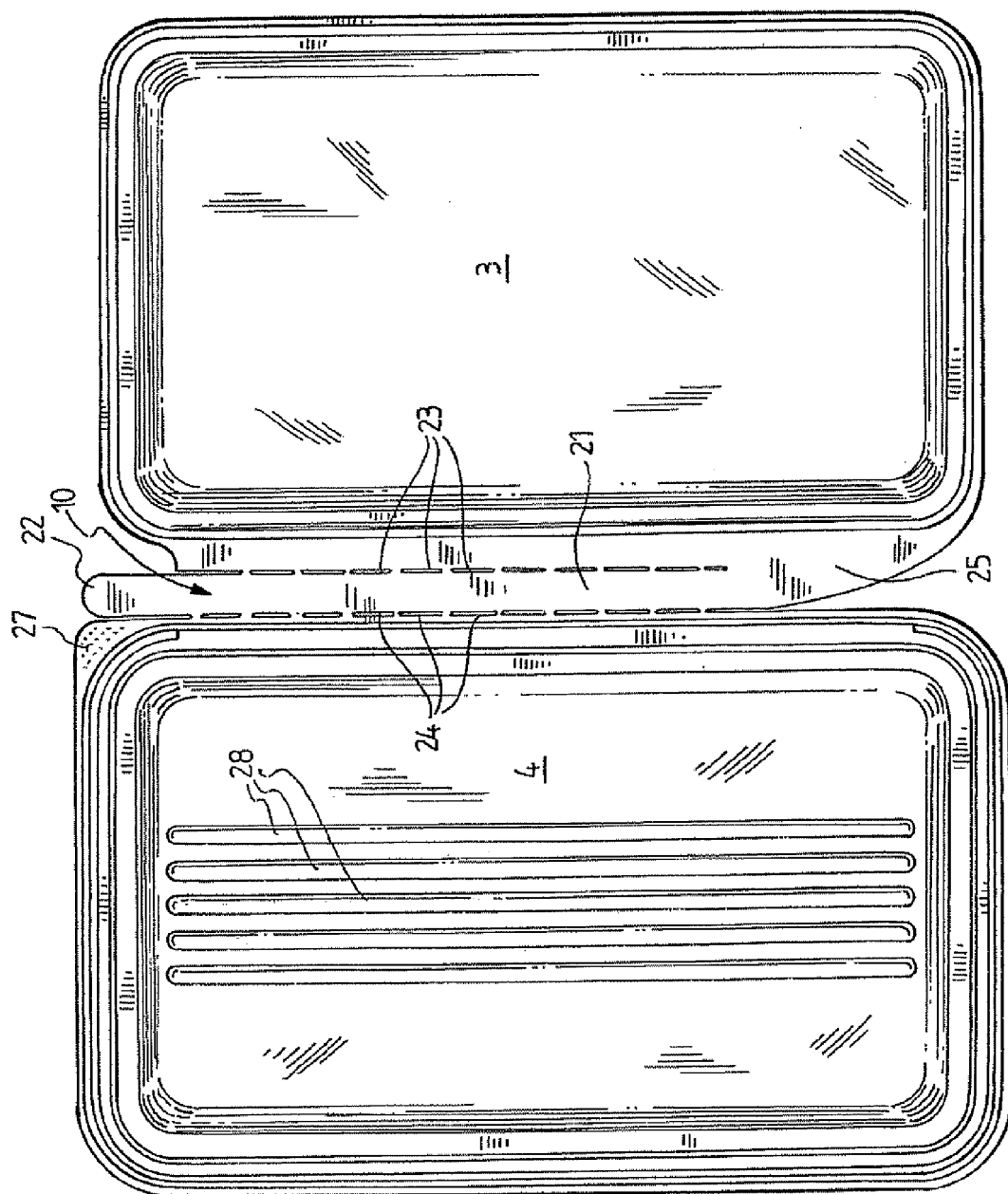


Fig. 2



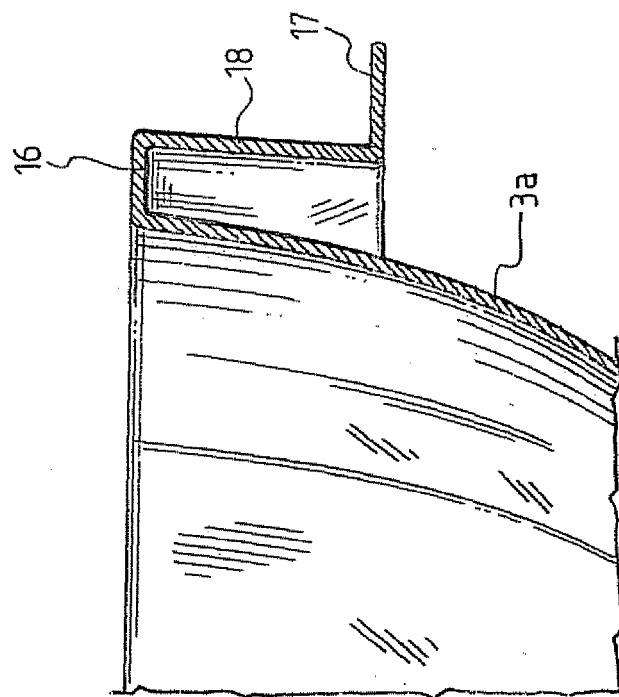


Fig. 5

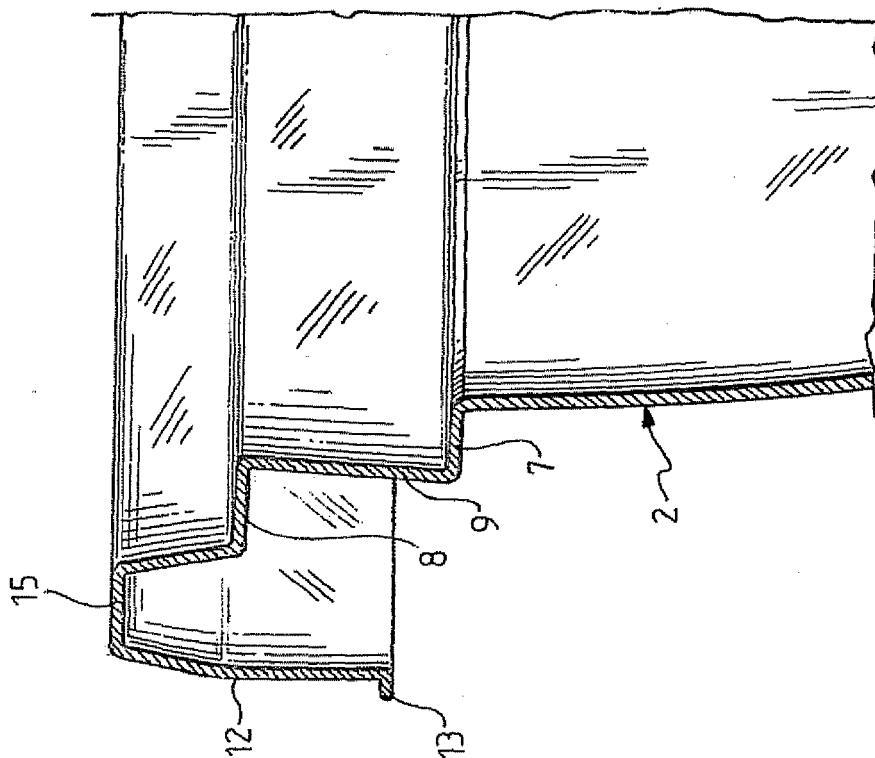
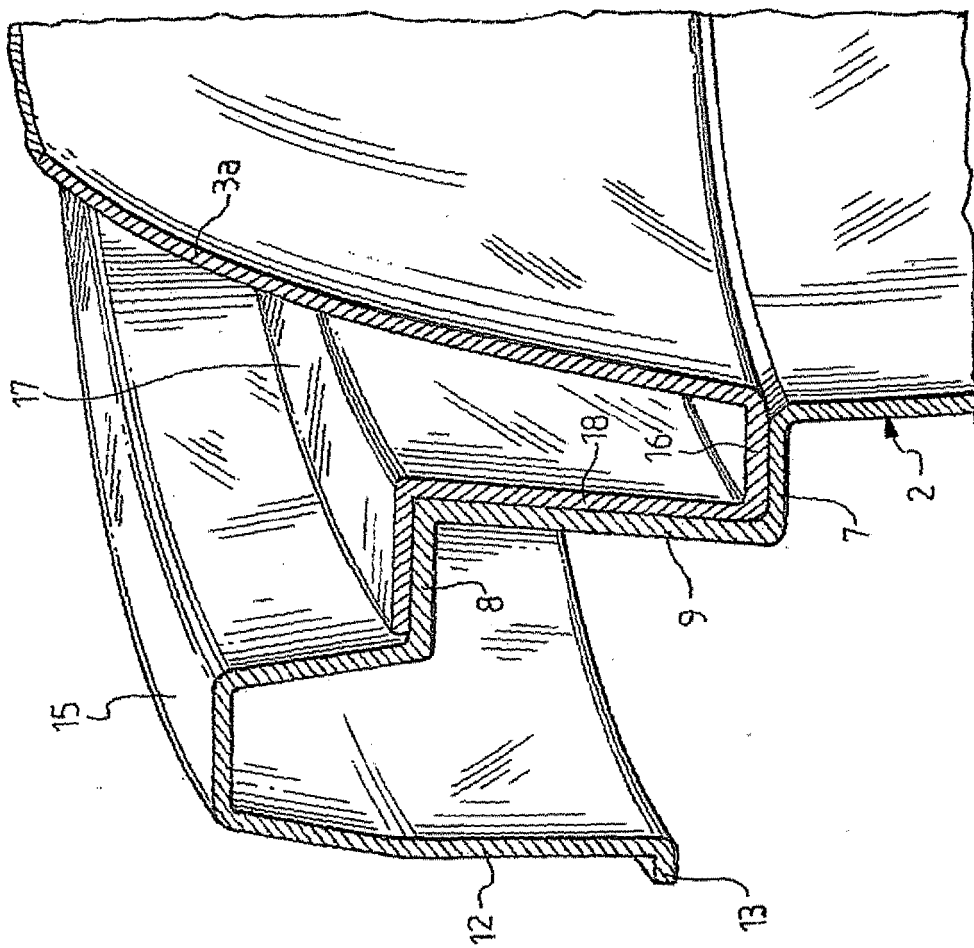
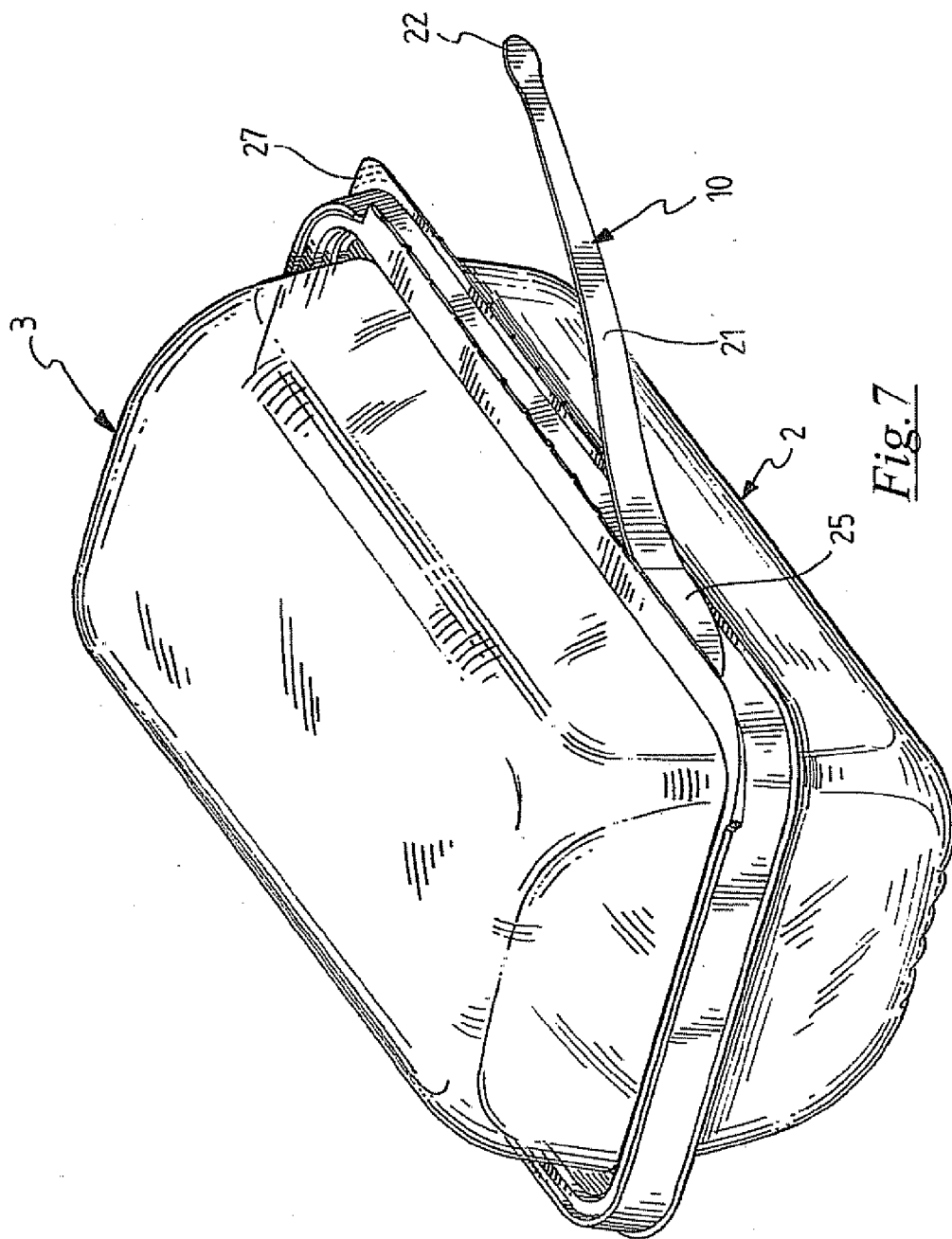


Fig. 4

Fig. 6





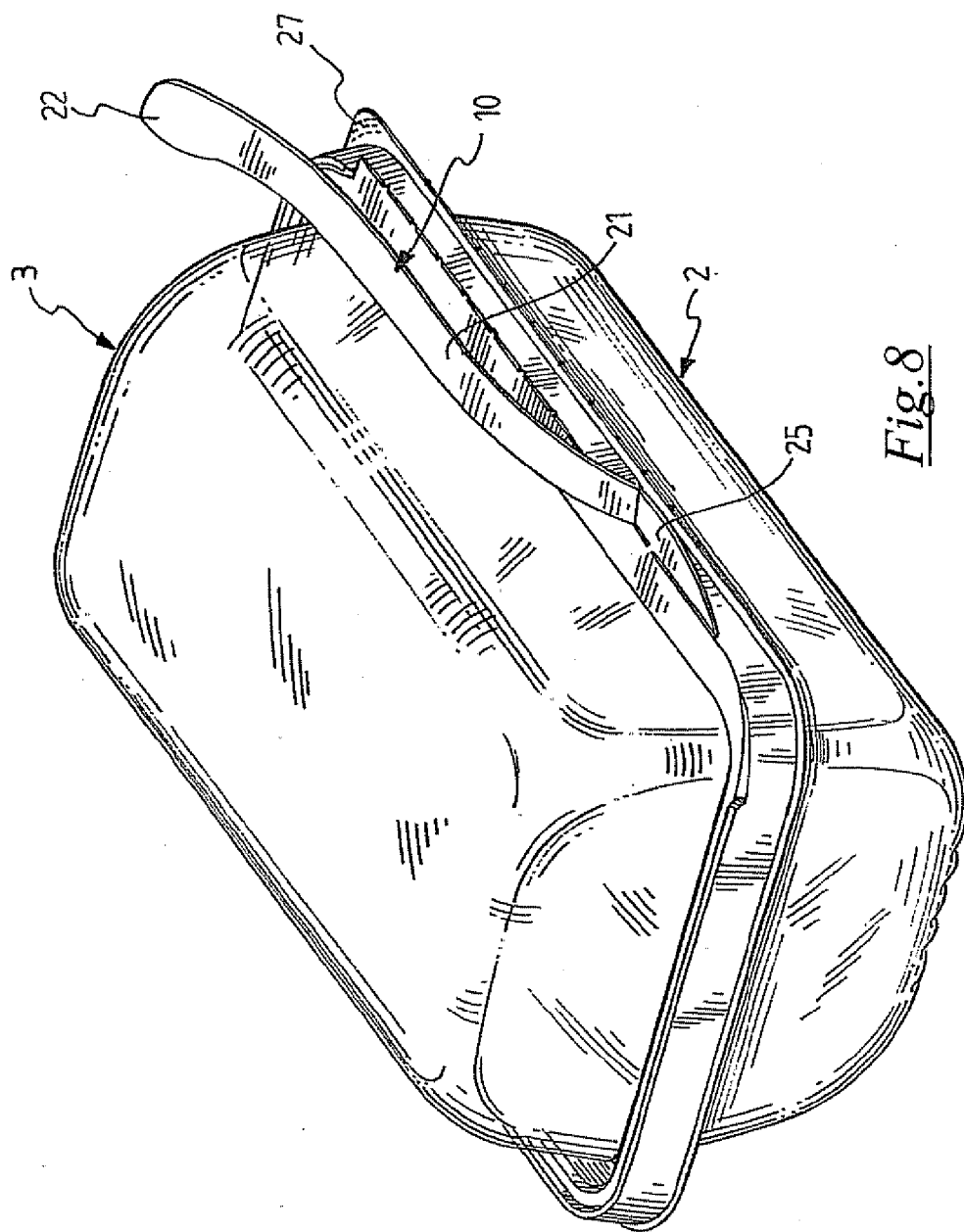


Fig. 8

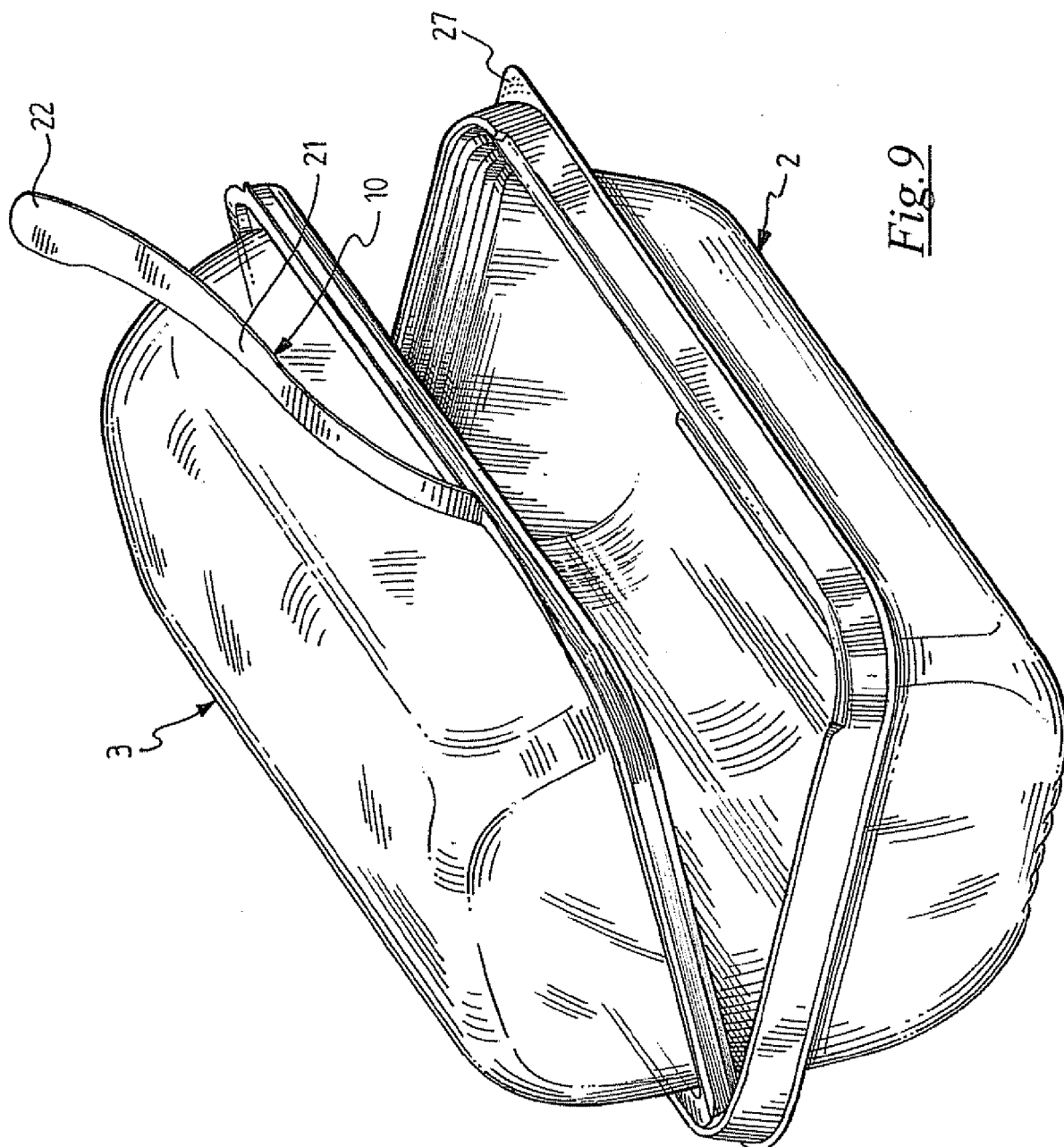


Fig. 9

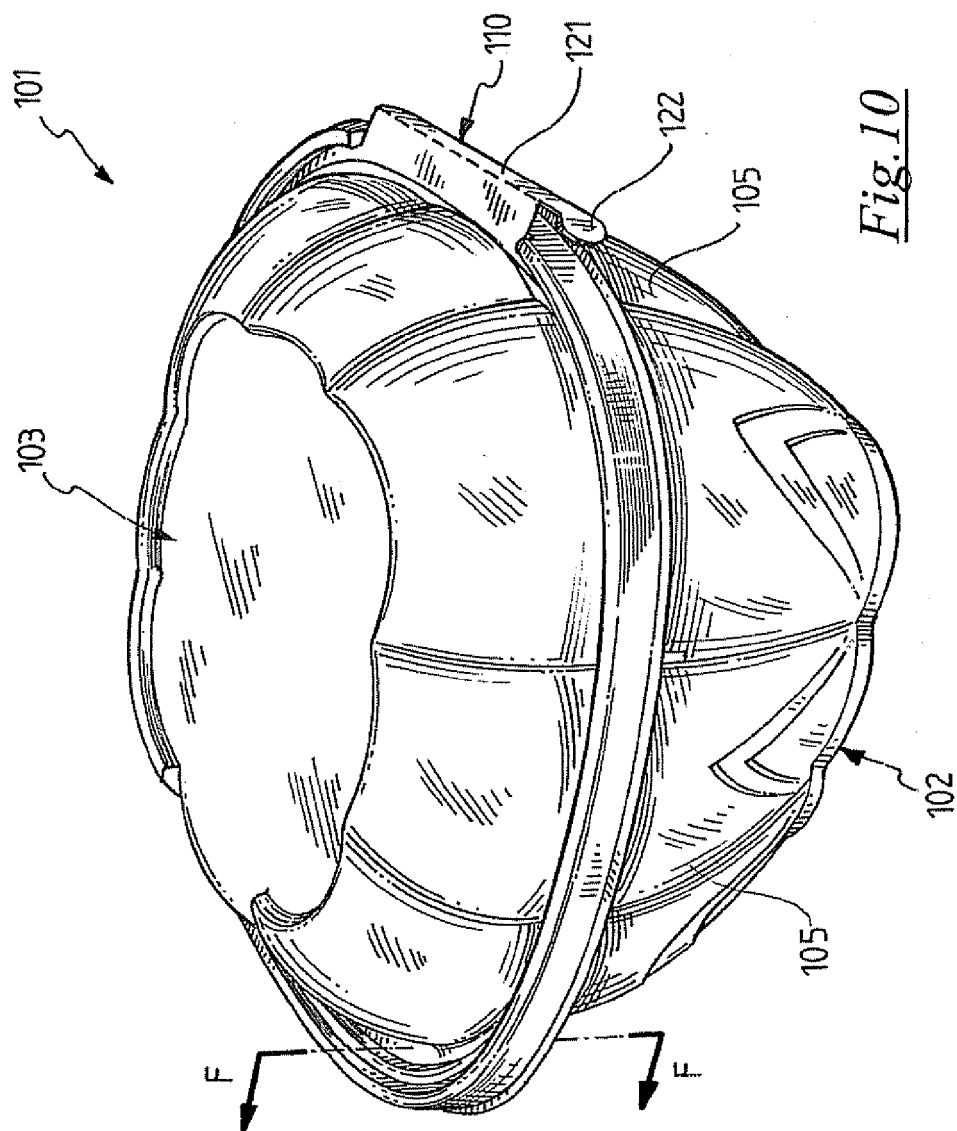
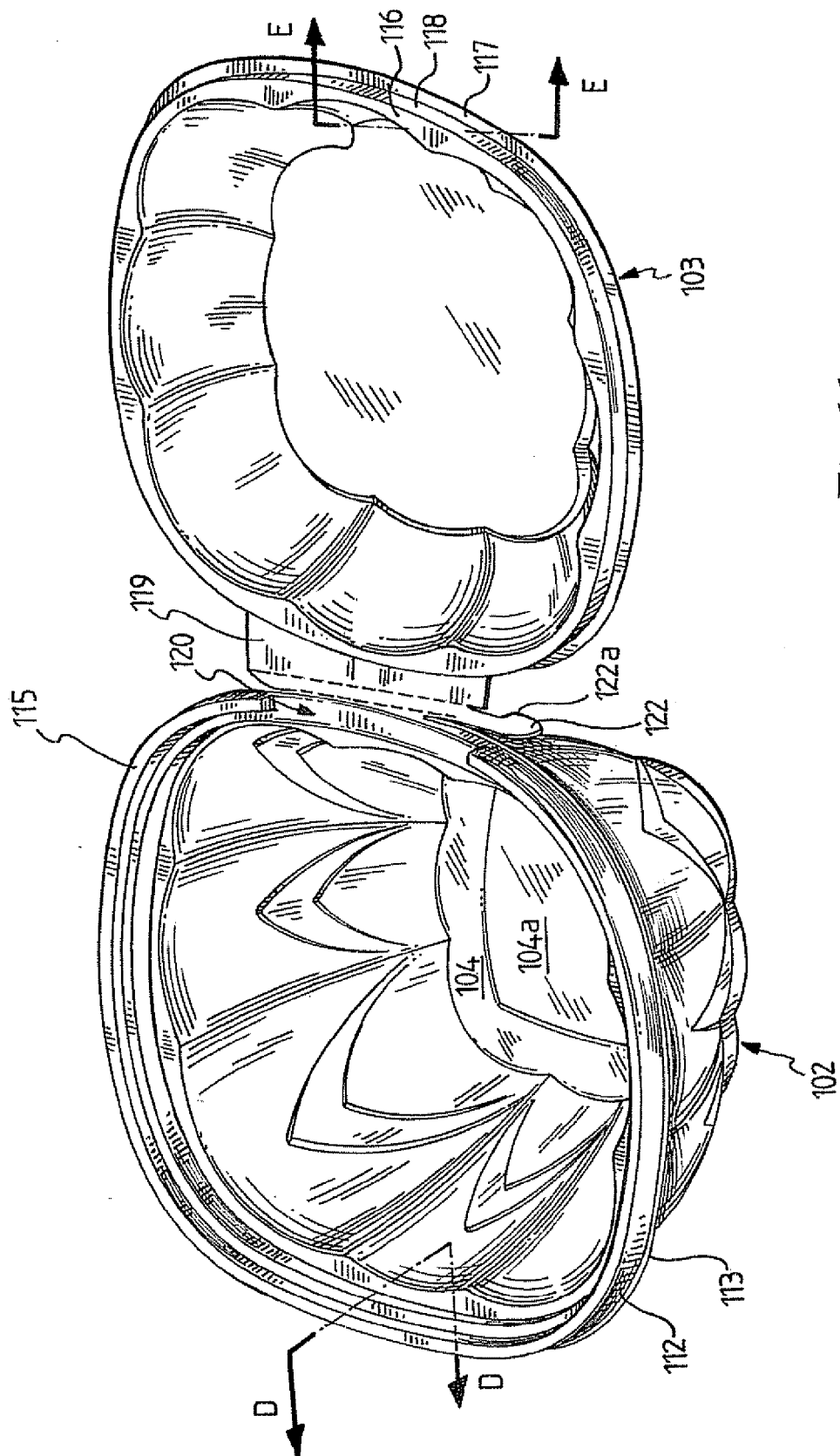


Fig. 10



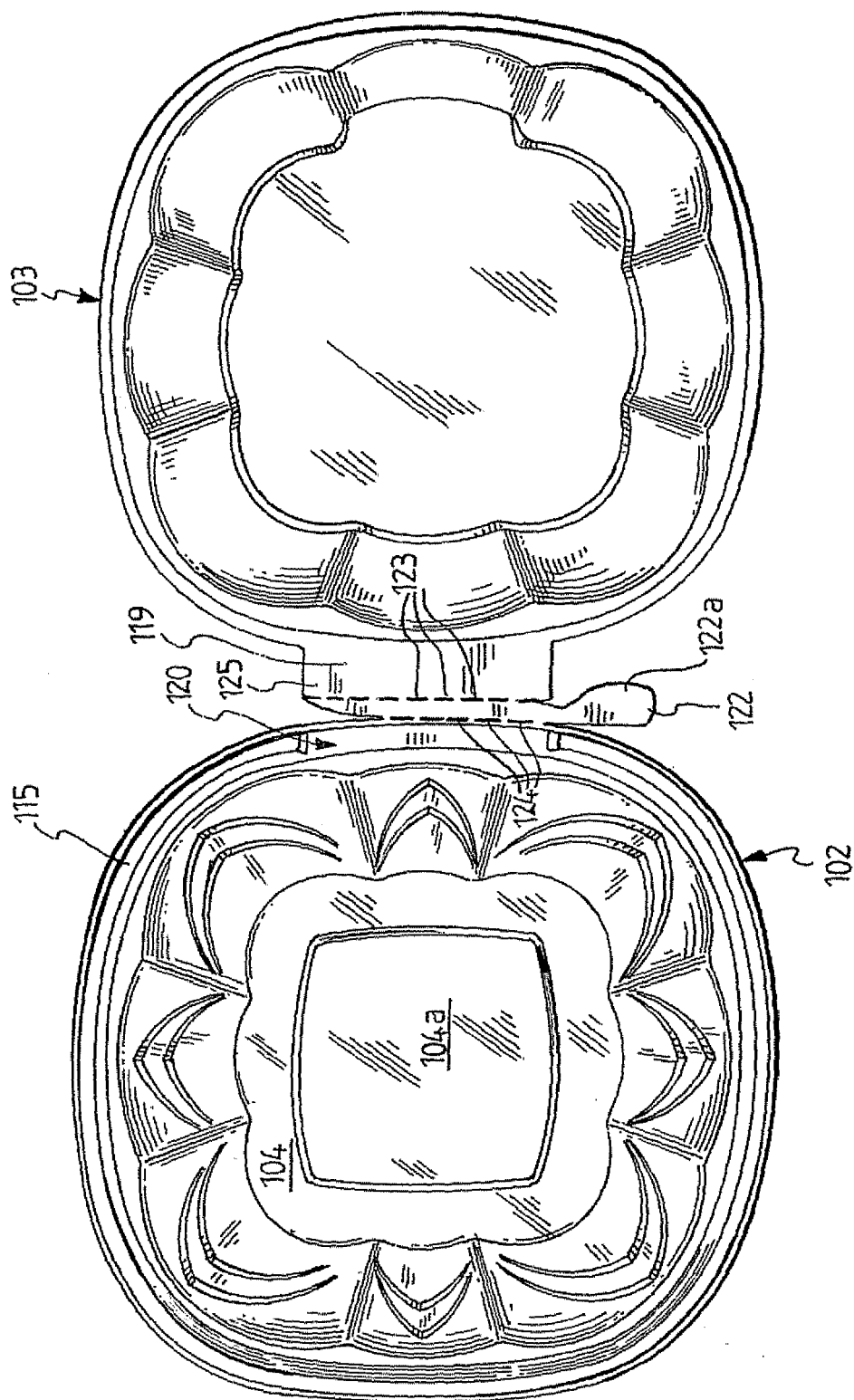


Fig. 12

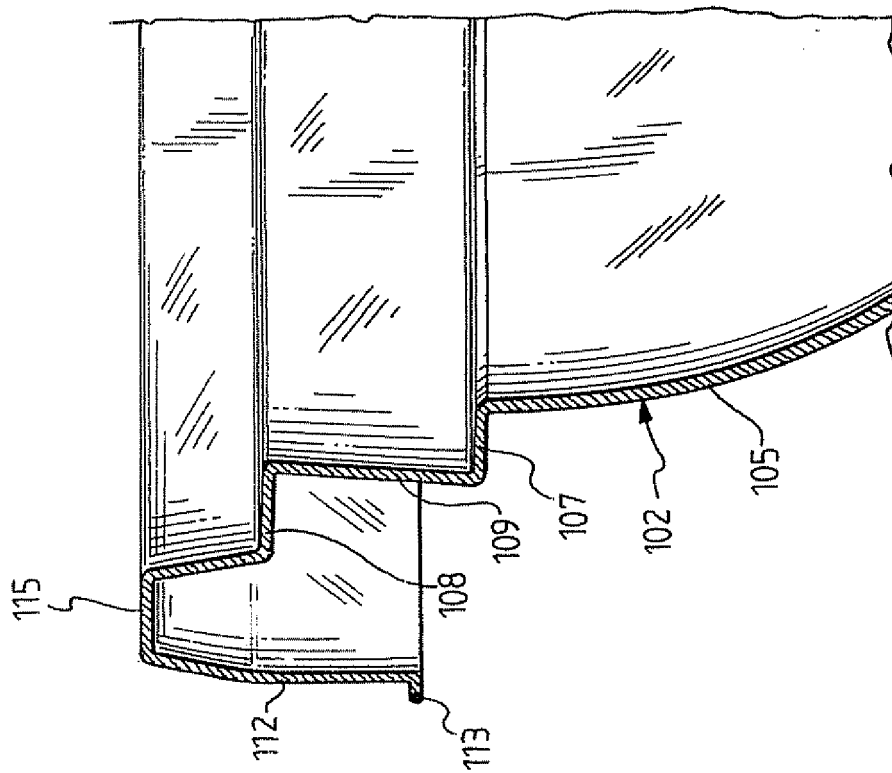


Fig. 13

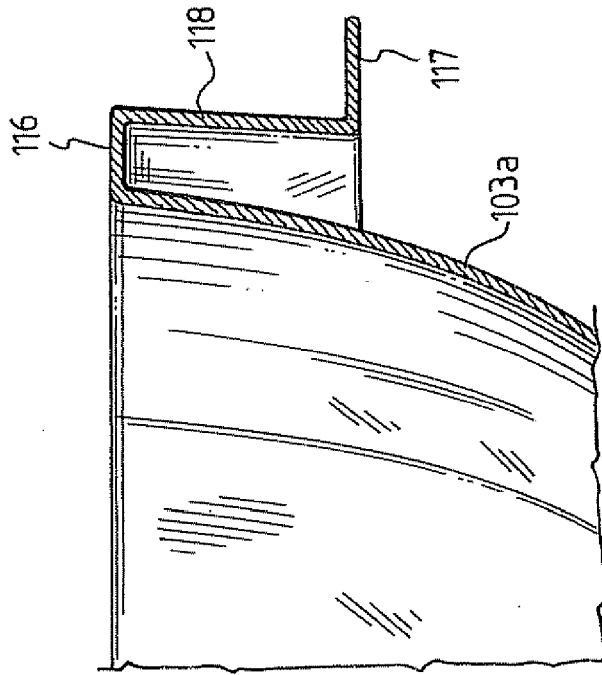
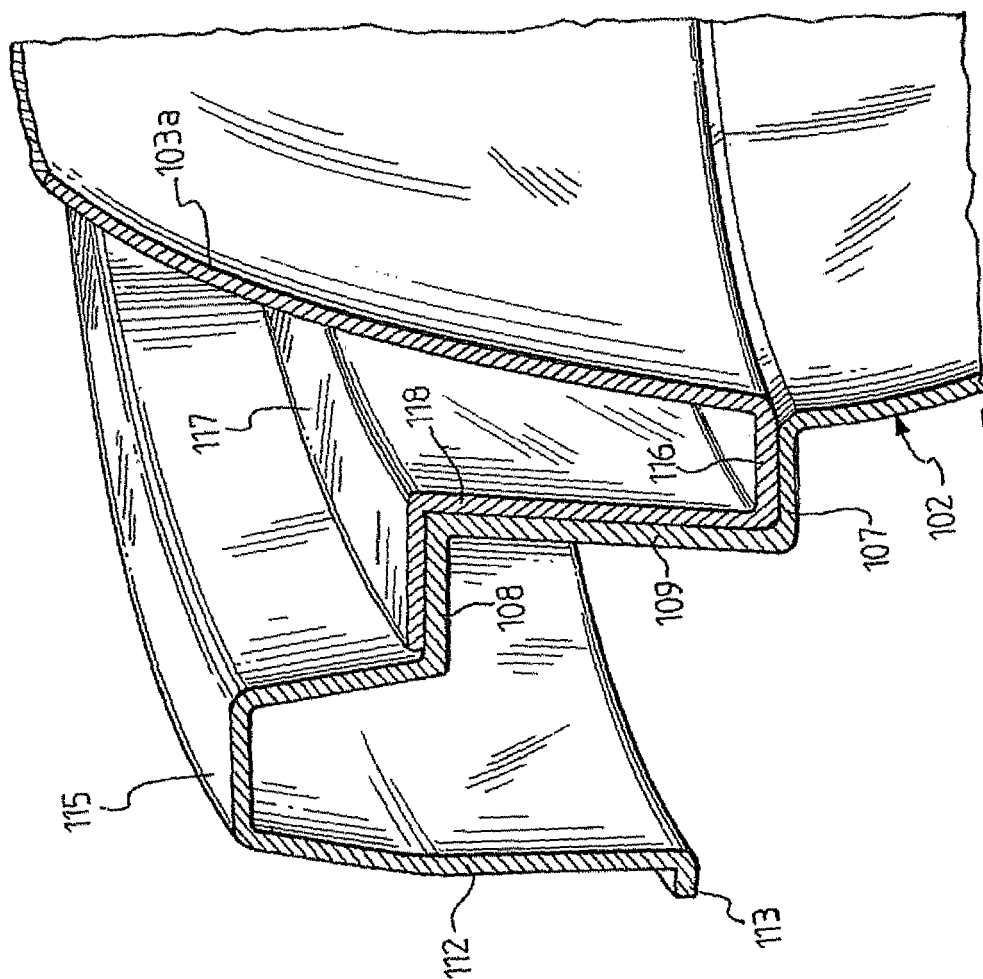


Fig. 14

Fig. 15





EUROPEAN SEARCH REPORT

Application Number
EP 09 15 1134

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	FR 2 903 970 A (GROUPE GUILLIN SA [FR]) 25 January 2008 (2008-01-25) * page 4, line 18 - page 5, line 4; figures *	1-3, 5-10,12, 13	INV. B65D43/02
Y	US 2006/289541 A1 (BOBACK PETER [US] ET AL) BOBACK PETER [US] ET AL 28 December 2006 (2006-12-28) * abstract; figures *	1-13	
Y	FR 2 287 390 A (GOIFFON ETS LEON [FR]) 7 May 1976 (1976-05-07) * claim 1; figure 3 *	1-13	
A	US 2006/278652 A1 (VOVAN TERRY [US] ET AL) 14 December 2006 (2006-12-14) * the whole document *	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 May 2009	Examiner Vigilante, Marco
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 15 1134

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The members are as contained in the European Patent Office EDP file on
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20-05-2009

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