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(54) **Transport box**

(57) A transport box (1) configured for being transformable into a lap tray, the transport box (1) comprises a compartment (2) with an opening (17) for accessing the compartment (2) and a lid (3), the lid (3) comprises a first lid part (8) and an opposite second lid part (9) that extend from at least a part of a circumferential edge of

the opening (17), characterized in that the first and second lid parts (8,9) are configured for being joined in a transport state to serve as a handle (12), and being folded away from each other in a transport state to serve as a lap tray.

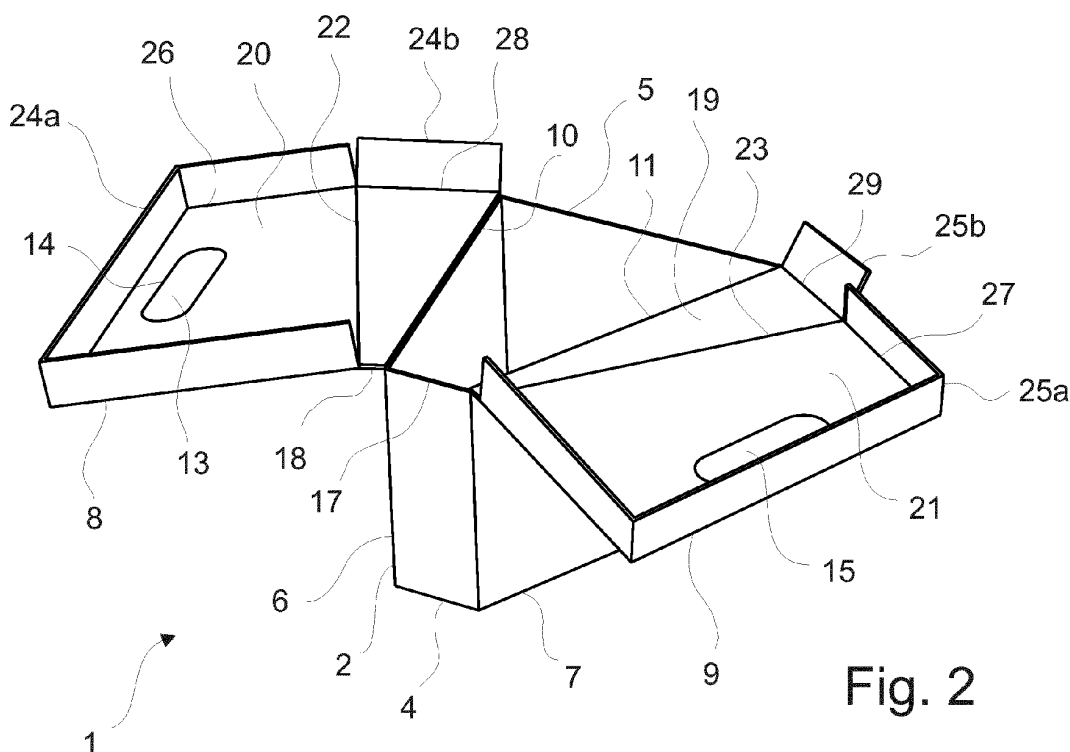


Fig. 2

Description

[0001] The present invention relates to a transport box configured so that it can be transformed into a lap tray, where the transport box comprises a compartment with an opening for accessing the compartment and a lid, where the lid comprises a first lid part and an opposite second lid part that extend from at least a part of a circumferential edge of the opening. The present invention also relates to an insert for the transport box, blanks that are foldable into the transport box and the insert, and use of the transport box as a lap tray and for transporting one or more objects such as food and/or beverages.

[0002] Preferably the transport box is a food transport box.

[0003] Boxes for transporting food that are made from e.g. a foldable cardboard blank and are able to be positioned on the thighs of a seated user when consuming the food by opening the box, are well-known. However, in such a position the box could easily tilt or slide off the thighs of the user in case he moves his thighs, is seated inside a moving vehicle or accidentally pushed the box.

[0004] The art of folding a blank, i.e. a piece of e.g. cardboard or carton, into a box is well-known from the packaging industry. Generally, the blanks of the present invention are made by cutting the cardboard into the desired shape and making the needed fold lines. The blanks could also be provided with a pleasant color or a logo via printing, embossing, via labels or combinations of these, and/or it could be laminated. The blanks are shipped in the flat form, and afterwards folded into the final shape by a machine or by hand.

[0005] US patent no. 5,127,339 discloses a foldable lap tray made from a corrugated cardboard blank. The top portion is provided with a circular hole for holding a cup and vertical flaps for counteracting objects from sliding off the tray. The tray is provided with bottom portions extending underneath the seated persons thighs and interlocked together for providing stability to the tray. However the top portion is only kept horizontal as long as the user does not move his thighs, which is not likely during the time period it takes to e.g. consume a burger and a beverage in a car or at a sporting event.

[0006] US patent no. 5,425,445 discloses a foldable lap tray made from a corrugated cardboard blank, where the bottom of the tray is provided with inverted V-shaped support legs that the user can grip with his thighs in order to stabilize the tray when seated. However the thighs of a seated person may not be parallel, which means that the support legs do not follow the natural position of the thighs.

[0007] Thus, the known lap trays mentioned above do not provide an optimal stabilization of the tray. Furthermore, they do not provide means for ensuring that the food is kept on the tray, and they are not convertible from a transport box for transporting the food before the user is seated and begins consuming the food.

[0008] Hence there is a need for a transport box of the

kind mentioned in the opening paragraph with means for providing stability and means for ensuring that objects, such as food, is kept on the tray when used as a lap tray by a seated user.

[0009] In a first aspect according to the present invention is provided a closed transport box that can be transformed into a lap tray.

[0010] In a second aspect according to the present invention is provided a lap tray with means for stabilizing the lap tray when positioned between the thighs of a user.

[0011] In a third aspect according to the present invention is provided a transport box having means for conveniently carrying the box.

[0012] In a fourth aspect according to the present invention is provided a lap tray having means for keeping the objects on the tray.

[0013] In a fifth aspect according to the present invention is provided a blank for manufacturing the lap tray, which blank does not take up substantial space during storage and transport, and which blank can be transformed immediate before use, and be made into a blank again.

[0014] The novel and unique way whereby this is achieved according to the present invention is that the first and second lid parts are configured for serving as a handle when they are joined in the transport state of the transport box, and that the first and second lid parts are configured for serving as a lap tray when they are folded away from each other in transformed state of the transport box.

[0015] The main advantage of the invention is the dual effect of the lid parts, as they in the transport state define a handle for carrying the transport box, and in the transformed state define a lap tray providing a surface to put e.g. food on when eating.

[0016] The lid is preferably adapted to close the opening of the compartment in the transport state, which has the effect that the object(s), e.g. food, is kept inside the compartment, no external objects (such as rain drops, leaves etc.) may accidentally enter the compartment and contaminate the food, and the heat transfer to/from the compartment is reduced, which is important when the food e.g. is a hot burger.

[0017] The handle provides an easy and convenient way of grabbing hold of and transporting the transport box. By grabbing the upper part of the handle the hand(s) of the user is kept at a distance from the compartment itself, which means that the hand is subjected to less heat in case of hot food (and less cold in case of cold food) than if the hand had to be close to the compartment or on the compartment itself in order to grab the transport box. These advantages of the handle are especially distinct when the handle extends in a direction that is vertical when the transport box is positioned on a horizontal surface.

[0018] As the lid parts extend from the circumferential edge of the compartment the user has easy and convenient access to the object(s) in the interior of the compart-

ment via the opening of the compartment, as the opening is uncovered when the lid parts are folded away from each other.

[0019] By folding the first and second lid parts away from each other, e.g. into a horizontal position in the transformed state where the lid parts can extend substantially flush on opposite sides of the opening, the lid parts can define two substantially horizontal tray surfaces to put e.g. the food on when eating, i.e. the lid parts serve as a lap tray. In a preferred embodiment the size of the lid parts are adapted so that they in the transformed state extend over the width of the thighs of a seated average adult person, which reduces the likelihood of food (e.g. dressing from a burger) accidentally spilled during eating to land on the thighs of the person eating or on the surface on which the person is seated.

[0020] When referring to a person seated with the transport box between his thighs, it is assumed that the person has his legs positioned in a natural and convenient V-shape.

[0021] The user is able to exert a horizontal force on the side walls of the compartment by slightly squeezing his thighs together, so that the lap tray is kept in place. This is especially useful for preventing the transport box from sliding away from its intended position due to e.g. the movements of a moving vehicle.

[0022] In a preferred embodiment it is possible to transform the transport box between the transport state and the transformed state several times, which means that the user is able to open the box, manipulate its content, e.g. eat some of the food, close the box and possibly transport it to another location, and then continue manipulation, such as eating. In case of warm (or cold) food, it is in this way possible to keep the food warmer (or colder) than if the box could not be re-closed.

[0023] In a preferred embodiment the compartment comprises two opposite facing side walls having diverging faces. The degree of divergence of the side walls and the distance between the side walls are advantageously adapted so that the compartment fits between the thighs of an average seated adult person when at least a main part of the bottom of the compartment rests on the surface on which the person is seated, which makes it easier, safer and more convenient to hold the compartment by means of the thighs or without the means of the thighs if possible. The compartment, when held between the thighs, is preferably positioned as close as possible to the crotch of the person. The person can keep the compartment in place by exerting a horizontal force on the side walls of the compartment by slightly squeezing his thighs together.

[0024] Advantageously the interior angle between at least one of the side walls and the bottom of the compartment is equal to or at least 45°, more preferred equal to or at least 75°, and most preferred is equal to or at least 90°.

[0025] At an interior angle below 90° the area of the opening of the compartment is smaller than the area of

the bottom of the compartment, which reduces the likelihood of object accidentally falling out of the compartment and enables the person to exert a partly downwards force on the compartment via his thighs.

[0026] In the most preferred embodiment said interior angle is close to 90°, or indeed 90°, which means that the side walls of the compartment have a vertical disposition in relation to the bottom when the compartment rests on a horizontal surface.

[0027] The height (e.g. about 15 cm) of the side walls of the compartment preferably corresponds to the average height of the thighs of a seated average adult person, which has the effect that the opposite lid parts are able to rest on top of the thighs of a seated person while having a substantially horizontal orientation in which they are supported by the person's thighs. It must however be understood that the compartment can be fitted into any appropriate gap and the lid parts folded away from each other to rest on surfaces surrounding the gap, hole or other cavity, whether such being made for the purpose, e.g. a depression dug in the sand on the beach or being an existing gap, hole or other cavity, e.g. in baby carriage, a garden table or similar.

[0028] A horizontal orientation of the lid parts is desired in the transformed state, as it thus is possible for the user to put objects on the lid parts and minimize any horizontal movement of such objects, which e.g. could be food, a scorecard in case the person is watching a sporting event, or playthings of a child.

[0029] Advantageously a cross-section of the compartment in a plane parallel to the bottom of the compartment may have a substantially isosceles trapezoidal shape. Thus e.g. the horizontal cross-section of the compartment, when positioned on a horizontal surface, has a substantially isosceles trapezoidal shape. In this embodiment it is preferred that a rear wall is facing the seated person, a front wall opposite the rear wall is facing away from the person, where the front wall is longer than the rear wall.

[0030] The cross-sectional shape of the compartment could also have other shapes, as well as the shape of the walls of the compartment could be e.g. curved.

[0031] In a particular preferred embodiment the above-mentioned substantially isosceles trapezoidal shape of the cross-section of the compartment is combined with an interior angle between the rear wall, front wall and the side walls of the compartment that is substantially 90°.

[0032] Even if one or both lid parts is/are oriented horizontally in the transformed state this does not prevent objects from sliding off the lid part if e.g. such objects are accidentally pushed by the user. Such an unwanted situation can however be prevented by providing at least one of the first and second lid parts with at least one rim extending from at least a part of a free edge of the lid part in an upwards direction out of the plane of the lid part.

[0033] In the preferred embodiment the at least one rim extends along all or substantially all of the free edges of the lid part. It is noted that the free edges of a lid part

may comprise all its edges except the edge where the lid part is connected to the compartment.

[0034] The grabbing hold of and transportation of the transport box can be further facilitated when at least one of the first and second lid parts comprises an opening with a hinged flap, where the flap is adapted to cover said opening in the transformed state and is movable between an open position for carrying the transport box in the transport state, and a closed position in the transformed state.

[0035] Preferably both lid parts can comprise an opening with a hinged flap, where the flaps are located opposite each other in the transport state.

[0036] In the open position the flaps can be bend inwards and thus define a hole through the handle in the transport state. By placing the flaps at a convenient distance from the upper edge of the lid parts is obtained the advantage that the user is able to grab around the part of the handle defined by the upper edge of the lid parts and the hole through the handle, which allows the user to conveniently carry the transport box.

[0037] In the closed position the flaps are situated in same plane as the surrounding remaining lid part and is able to be held at this position due to friction between the flap and the surround lid part, so that the lid part is able to functions as a lap tray without a hole, which means that spillage through the lap tray is inhibited. The flap can e.g. be made by punching of a lid part.

[0038] It is preferred that each of the lid parts is defined by a top part hingedly extending from the circumferential edge of the opening of the compartment, and a handle part extending from the opposite edge of the top part, where the top part is oriented substantially horizontal and the handle part is oriented substantially vertical when the compartment rests on a horizontal surface in the transport state of the transport box.

[0039] Advantageously the transport box further comprises an insert being positionable inside the compartment at a position where its top wall is located at a distance from the bottom of the compartment and is provided with one or more openings for holding a corresponding number of objects.

[0040] Raising the top wall of the insert from the bottom of the compartment has the effect that the wall of e.g. a drinking cup, at some distance from the bottom of the cup, is able to engage the wall of the opening of the insert, thereby preventing the cup from moving in the horizontal plane, so that the cup is held firmly in place in opening of the insert but still protrudes sufficiently up beyond the insert in order for being conveniently grasped.

[0041] The opening is preferably circular. The transport box can e.g. be used for transporting a typical fast food meal in the form of a burger wrapped in paper and a soft drink in a cup, in which case the burger can rest on the top wall of the insert and the opening of the insert can hold the cup. However, as such cups typically are sold in different sizes, it is preferred to have a number of insert with varying radius of said opening of the top wall

that can be positioned inside a compartment, and/or inserts configured to be positioned more or less close to the bottom of the compartment.

[0042] The vertical distance between the bottom of the compartment and the lid at the location of the circular opening of the insert could be chosen to correspond to the height of the drinking cup intended to be used, so that unintended vertical movement of the cup is also prevented.

[0043] The top wall of the insert is preferably raised from the bottom of the compartment by having at least one support member extending from the edge of the top wall at an angle of about 90° between the top wall and the support member.

[0044] In the preferred embodiment the insert comprises one or more support members extending down from the edge(s) of the top wall at an angle of about 90°, where substantially all of the circumference of the top wall is supported by said one or more support members in order to maintain the desired position of the top wall inside the compartment.

[0045] In the preferred embodiment the top wall of the insert has a shape, which is the same or corresponding to the cross-sectional shape of the compartment, which e.g. can be a substantially isosceles trapezoidal shape. The effect is that the food or objects are kept on the upper surface of the top wall of the insert.

[0046] If the insert and the compartment has the substantially isosceles trapezoidal shape, it is preferred that the insert comprises one support member extending down from each of the four edges of its top wall at an angle of about 90 degrees, where substantially all of the circumference of the top wall is supported by these four support members in combination.

[0047] The at least one support member of any of the embodiments is preferably a support wall, and preferably of the same material as the top wall, but could also be a support pillar or some other kind of support member that is able to maintain the top wall in a raised position in relation to the bottom of the compartment.

[0048] The top wall of the insert may together with the support wall be frictionally engaged inside the compartment.

[0049] In a modified version the insert is a solid body provided with at least one upper recess, preferably circular, for holding a corresponding number of objects, such as drinking cups.

[0050] The shape of the at least one opening or recess of the insert could have other shapes than circular, such as e.g. rectangular or triangular.

[0051] In an alternative version of the embodiment where the top wall of the insert has a substantially isosceles trapezoidal shape only one of the two parallel edges of the top wall is provided with at least one support member in order to raise said edge of the top wall from the bottom of the compartment, while the opposite of the two parallel edges is resting on the bottom of the compartment. This would naturally require that the material of the

top wall is sufficient rigid in order not to bend due to the weight of the food to be placed on the insert.

[0052] The transport box according to the present invention is advantageously formed from a first blank comprising a number of panels interconnected via fold lines.

[0053] The panels comprise:

- a rear wall panel,
- a first side wall panel connected to the rear wall panel,
- a second side wall panel connected to the rear wall panel opposite the first side wall panel,
- a first bottom wall panel connected to the first side wall panel,
- a second bottom wall panel connected to the second side wall panel,
- a first top wall panel connected to the first side wall panel opposite the first bottom wall panel,
- a second top wall panel connected to the second side wall panel opposite the second bottom wall panel,
- a first handle wall panel connected to the first top wall panel opposite the first side wall panel,
- a second handle wall panel connected to the second top wall panel opposite the second side wall panel, and
- a front wall panel connected to the first side wall panel opposite the rear wall panel, where
- the first and second bottom wall panels are provided with first connection means for connecting the bottom wall panels to each other,
- the front wall panel and the second side wall panel are provided with second connection means for connecting the front wall panel to the second side wall panel,
- the first and second top wall panels and the front wall panel are provided with third connection means for releasable connecting the first and second top wall panels to the front wall panel, and
- the first and second handle wall panels are provided with fourth connection means for releasable connecting the first and second handle wall panels to each other.

[0054] Such a blank does not take up much space when stored and can be folded into the shape of the transport state of the transport box in good time prior to use, or just before use. Once the transport box has been used it can be folded back again into a flat structure for disposal or reuse if not soiled.

[0055] The first top wall panel and the first handle wall panel define the previously mentioned first lid part of the transport box, and the second top wall panel and second handle wall panel define the second lid part of the transport box.

[0056] The top wall panels and handle wall panels serve the purpose of closing the opening of the compartment in the transport state of the transport box, which

will be discussed in more details in connection with the drawings.

[0057] In the transport state the panels of the first blank have been folded into the form of the transport box of the present invention, where the mutual orientation of the panels are maintained using all four connection means. In the transformed state the third and fourth connection means are not in use as the first blank can be partly unfolded to serve as the lap tray as shown in the drawings.

[0058] In an alternative embodiment the first and second bottom wall panels are replaced with a single bottom wall panel, which is either connected to the first side wall panel where the first connection means is provided on the single bottom wall panel and the second side wall panel, or connected to the second side wall panel where the first connection means is provided on the single bottom wall panel and the first side wall panel.

[0059] The preferred embodiment of the four connection means is further explained in connection with the drawings. However, other kinds of connection means could be used, which e.g. could be an adhesive, velcro or snap-fit arrangement. It is however required that at least the third and fourth connection means provides a releasable type of connection.

[0060] Naturally, instead of being connected to the first side wall panel, the front wall panel could be connected to the second side wall panel opposite the rear wall panel, in which case the second connection means connects the front wall panel to the first side wall panel.

[0061] In order to prevent objects from sliding off one or both of the first and second lid parts (defined by the top wall panels and handle wall panels) in the transformed state of the transport box, at least one of the first and second handle wall panels of the first blank advantageously comprises:

- a first rim panel connected to the handle wall panel opposite the top wall panel,
- a second rim panel connected to the first rim panel opposite the handle wall panel,
- a third and fourth rim panel connected to opposite side edges of the handle wall panel, and
- a first and second tuck-in tab connected to the third and fourth rim panel, respectively, where
- the second rim panel and the handle wall panel are provided with assembly means for releasable assembling the first, second, third and fourth rim panel and the first and second tuck-in tab into a rim extending from the handle wall panel.

[0062] When the first and second rim panel are folded and assembled by means of the assembly means they can preferably be oriented substantially parallel, and the two tuck-in tabs can be tucked in between the first and second rim panel, so that the first, second, third and fourth rim panel form a non-interrupted rim.

[0063] A preferably non-interrupted rim can be extending along all edges of the handle wall panel except along

the edge where the handle wall panel is connected to the top wall panel.

[0064] In order to facilitate the carrying of the transport box, at least one of the first and second handle wall panels may comprises an opening with a hinged flap panel adapted to cover said opening.

[0065] The hinged flap is preferably created by making a cut and a fold line in the material of the handle wall panel at a convenient distance from the edge of the handle wall panel connected to the first rim panel. This means that the flap can be held in a closed position in the plane of the handle wall panel due to friction between the flap and the handle wall panel.

[0066] Preferably both handle wall panels comprises an openings with a hinged flap, said two openings being positioned opposite each other in the transport state of the transport box.

[0067] The insert of the transport box is advantageously formed from a second blank comprising a top wall panel having substantially the same shape and dimensions as the compartment of the folded first blank, and at least one support panel connected to the top wall panel via a fold line, where the top wall panel is provided with an opening.

[0068] In the preferred embodiment the top wall of the second blank has at least one support wall connected to each of the four edges of the top wall via fold lines.

[0069] The second blank can be folded into its use configuration and back again to the blank configuration just as the first blank.

[0070] The advantages of the insert formed from the second blank are the same as the previous mentioned advantages of the insert being positionable inside the compartment at a position where its top wall is located at a distance from the bottom of the compartment and is provided with at least one opening.

[0071] The transport box, the insert, the first blank and/or the second blank is/are preferably made from a foldable material, such as cardboard, carton or paper, but could also be made from another kind of foldable material, such as e.g. a plastic, metal or foam material.

[0072] The foldable material is preferably sufficiently thin so that it is easy to fold, cheap and does not take up to much space in the completely unfolded state during storage, while the material at the same time is sufficient rigid in order to be able to main the desired shape of the transport box and lap tray.

[0073] The fold lines of the first and second blanks are provided in order to enable folding the wall panels in relation to each other, and are created using any conventional technique, e.g. by scoring the fold lines, embossment, depressing techniques, etc. The fold lines are preferably made so that the transport box has a build-in capability to assume the three-dimensional configuration of transportation state and transformed state of the transport box.

[0074] In the blank state the first and second blank are able to be stored and transported in a space saving and

thus cost efficient manner, and then being folded into the transport box and insert on site when they are to be used.

[0075] The transport box of the present invention is especially suitable for being used as a lap tray in a moving vehicle, such as e.g. a car, bus or train.

[0076] Instead of being adapted to an average adult person, the shape/dimensions of the lid parts, the distance between the two opposite side walls of the compartment, and the height of the side walls of the compartment can be adapted to e.g. an average child.

[0077] Increased friction between the outer surface of the side walls of the compartment and the thighs of the user can be obtained by e.g. providing at least a part of said outer surfaces with a layer of a material that has this ability.

[0078] The invention will be explained in greater detail below, describing only an exemplary embodiment of the transport box, insert, first blank and second blank according to the invention with reference to the drawings, in which

Fig. 1 shows the transport box in its transport state according to the invention,

Fig. 2 shows the transport box in its transformed state as a lap tray according to the invention,

Fig. 3 shows one embodiment of the insert of the transport box according to the invention,

Fig. 4 shows another embodiment of the insert of the transport box according to the invention,

Fig. 5 shows the transport box of fig. 2 and the insert of fig. 3, where the insert is positioned inside the food compartment,

Fig. 6 shows the first blank according to the invention, and

Fig. 7 shows the second blank according to the invention.

[0079] The invention is described in the drawings under the assumption that - seen in relation to a horizontal surface on which the food compartment is placed - the side walls of the food compartment have a vertical disposition, the horizontal cross-section of the food compartment has a isosceles trapezoidal shape, and the rim of the lid parts has a vertical disposition. However, other dispositions of the side walls, other shapes of the horizontal cross-section of the food compartment and/or other dispositions of the rim of the lid parts are able to provide the intended technical effects of the overall invention.

[0080] The invention is also described in the drawings under the assumption that the transport box is for transporting food and a drinking cup. However, other kinds of objects could also be transported in the transport box of

the present invention.

[0081] Fig. 1 shows the transport box 1 having a food compartment 2 and a lid 3. The shape and mutual position of the rear wall 4, front wall 5 and the first and second side wall 6,7 of the food compartment 2 define the isosceles trapezoidal shape of its cross-section.

[0082] The lid 3 has a first lid part 8 hingedly extending from the top edge 10 of the first side wall 6, and an opposite second lid part 9 hingedly extending from the top edge 11 of the second side wall 7.

[0083] The first and second lid parts 8,9 will be described in more details in connection with fig. 2. However, as illustrated in fig. 1 the lid parts 8,9 extend into and define an upright handle 12 (the upright part of the first lid part 8 is not visible in fig. 1) that a user can grab hold on and thereby conveniently carry the transport box. The second lid part 9 is shown with its swing flap 15 hingedly extending from an inside edge 16 of the second lid part 9 and in a position between the open and closed position of the swing flap 15.

[0084] Fig. 2 shows the transport box 1 in the transformed state, where the user via the opening 17 of the food compartment 2 has access to the food (not shown) located in the food compartment 2. This access is obtained as the first and second lid parts 8, 9 have been folded away from each other.

[0085] The top wall 18 and handle wall 20 of the first lid part 8, as well as the top wall 19 and handle wall 21 of the second lid part 9 are shown in the position where they are substantially horizontal, and thus able to function as a lap tray in combination with the food compartment 2.

[0086] In the transformed state the food compartment 2 is intended to be positioned between and held in place by the thighs of the seated user with the rear wall 4 touching or at least located close to the crotch of the user, and where the first lid part 8 is extending over the left thigh of the user and the second lid part 9 is extending over the right thigh of the user.

[0087] The first lid part 8 has a first top wall 18 hingedly extending from the top edge 10 of the first side wall 6, a first handle wall 20 extending from an inside edge 22 of the first top wall 18, an upright rim 24a extending from the free edges 26 of the first handle wall 20, an upright rim 24b hingedly extending from the front edge 28 of the first top wall 18, and a first swing flap 13 hingedly extending from an inside edge 14 of the first handle wall 20.

[0088] The second lid part 9 has a correspondingly second top wall 19, hingedly extending from the top edge 11 of the second side wall 7, a second handle wall 21 extending from an inside edge 23 of the second top wall 19, an upright rim 25a extending from the free edges 27 of the second handle wall 21, an upright rim 25b hingedly extending from the front edge 29 of the second top wall 19, and a second swing flap 15 hingedly extending from an inside edge 16 (not visible) of the second handle wall 21.

[0089] The upright rims 24a,25a of the handle walls 20,21 are locked at an interior angle of substantially 90°

with respect to the handle walls 20,21, as is described in connection with fig. 6. The upright rims 24b,25b of the top walls 18,19 are able to bend with respect to the top walls 18,19, but will assume an interior angle of substantially 90° (or close to 90°) with respect to the top walls 18,19 due to the build-in capability of the material to assume the intended three-dimensional form. For illustrative purposes the upright rims 24b,25b of the top walls 18,19 are not shown with their intended interior angle of 90° with respect to the top walls 18,19.

[0090] The swing flaps 13,15 are shown in their closed position where they are parallel with the surface of the handle walls 20,21.

[0091] Fig. 3 shows the insert 30 that can be placed at the bottom of the food compartment 2 via the opening 17 of the food compartment 2. The insert 30 has four support members 31a,31b,31c,31d (shown in the form of support walls) hingedly extending from its top wall 32, which has a circular opening 33 for holding a drinking cup. The edges of the top wall 32 are intended to touch the rear 4, front 5 and side walls 6,7 of the food compartment 2.

[0092] The intended angle between each of the four support members 31a,31b,31c,31d in relation to the top wall 32 when the insert is placed in the food compartment is 90 degrees. Fig. 3 does not show this angle for illustrative purposes. However, with this intended angle it is easily understood that the top wall 32 is raised from the bottom of the food compartment 2 and the insert 30 rests stable on the bottom of the food compartment 2.

[0093] It is noted that the height of the first and second support member 31b,31d increases towards the end of the top wall 32 where the circular opening 33 is located, and that the height of the rear support member 31a is higher than the height of the front support member 31c (more clearly shown in fig. 6). This variation in the height of the support members 31a,31b,31c,31d causes the top wall 32 to be tilted, so that food or other object located on the top wall 32 will tend to be moved away from the drinking cup in case e.g. the transport box 1 is moved around. Separation of the drinking cup from the food/objects is desirable in order to e.g. minimize any heat transfer between the typically cold drinking cup and any warm food.

[0094] Fig. 4 shows an alternative embodiment of the insert 30' where the support members 31a',31b',31c',31d' has the same height.

[0095] Fig. 5 shows the insert 30 seen in fig. 3 positioned inside the food compartment 2 of the transport box 1 shown in fig. 1, where the support members 31a,31b,31c,31d are resting on the bottom of the food compartment 2.

[0096] The terms left, right, rear, front, top and bottom used in the below description of the first and second blank 34,102 as shown in figures 4 and 5 refer to the orientation of the first and second blank 34,102 when folded as shown in figures 1 and 2.

[0097] Fig. 6 shows the first blank 34 in its unfolded and flat state, where the first and second side wall 6,7

extend from the first and second fold line 35,36 of the rear wall 4, respectively. The front wall 5 extends from the front fold line 37 of the first side wall 7.

[0098] The first and second bottom walls 38,39 extend from the bottom fold line 40,41 of the first and second side wall 6,7, respectively. In the embodiment shown in fig. 6 the first connection means consists of three protruding flaps 42a,42b,42c extending from the interior edge 43 of the first bottom wall 38 and four protruding flaps 44a,44b,44c,44d extending from the interior edge 45 of the second bottom wall 39, where the flaps 42a,42b,42c,44a,44b,44c,44d are arranged so that when the two bottom walls 38,39 are brought together upon folding of the transport box 1 the flaps 42a,42b,42c,44a,44b,44c,44d are bend a bit upwards so that the flaps 42a,42b,42c of the first bottom wall 38 overlaps the second bottom wall 39, and vice versa. In this way the bottom walls 38,39 are able to engage each other in an interlocking manner.

[0099] The first blank 34 has a rear bottom wall 46 extending from the bottom fold line 47 of the rear wall 4, and a front bottom wall 48 extending from the bottom fold line 49 of the front wall 5, where the rear and front bottom wall 46,48 in the folded state of the transport box 1 are positioned over the first and second bottom walls 38,39. This has the effect that there is no gap between the first/second bottom wall 38,39 and the rear/front wall 4,5 in the folded state, which inhibits e.g. liquid food from running down along the rear or front wall 4,5 and through any small gap between the rear/front wall and the bottom walls 38,39.

[0100] In the embodiment shown in fig. 6 the second connection means consists of the flap 50 extending from the fold line 51 of the front wall 5, the flap 52 extending from the fold line 53 on the front side of the second side wall 7, and the flap 54 hingedly extending from the fold line 55 of the second side wall 7. The flap 54 is made by performing a U-shaped cut 56 partly in the second side wall 7 and partly in the flap 52 as shown in fig. 6.

[0101] After the bottom walls 38,39 has been connected as described above, the flap 52 is bend into an angle parallel with the front wall 5 in its the folded state, the flap 50 is inserted into the slit created due to the cuts 56a,56b performed in the flap 52, and the flap 54 is afterwards bend into the slit created due to the cut 57 performed in the flap 50. In this way the front wall 5 and the second side wall 7 are connected to each other.

[0102] A flap 58 is extending from the top fold line 59 of the front wall 5 and provided with two cut-out holes 60,61. The flap 58 is bend inwards into a position parallel with the front wall 5, which is provided with two cut-out holes 62,63 places opposite the holes 60,61 of the flap 58 as shown in fig. 6.

[0103] The first and second top wall 18,19 are extending from the top fold line 10 of the first side wall 6 and the top fold line 11 of the second side wall 7, respectively. Each of the first and second top wall 18,19 has a first flap 64,65 extending from the front fold line 28,29 of the first

and second top wall 18,19, respectively, and a second flap 66,67 extending from the bottom fold line 68,69 of the first and second flap 64,65, respectively.

[0104] The next folding step is to fold the first and second top walls 18,19 over the opening 17 of the food compartment 2 and inserting the left second flap 66 into the left holes 60,62 and the right second flap 67 into the right holes 61,63.

[0105] In the embodiment shown in fig. 6 the third connection means consists of the first and second flaps 64,65,66,67 and the cut-out holes 60,61,62,63.

[0106] The first and second handle wall 20,21 are extending from the interior fold line 22,23 of the first and second top wall 18,19, respectively. Each of the handle walls 20,21 has a front flap 70,71 extending from the front fold line 72,73 of the handle wall 20,21, where each of the front flaps 70,71 has a tuck-in tab 74,75 extending from the top fold line 76,77 of the front flap 70,71. Each of the handle walls 20,21 also has a rear flap 78,79 extending from a rear fold line 80,81 of the handle wall 20,21, where each of the rear flaps 78,79 has a tuck-in tab 82,83 extending from a top fold line 84,85 of the rear flap 78,79. Finally, each of the handle walls 20,21 has a first top flap 86,87 extending from a top fold line 88,89 of the handle wall 20,21, where a second top flap 90,91 is extending from the top fold line 92,93 of each of the first top flaps 86,87.

[0107] The upright rim 24a of the first handle wall 20 is made by folding the rear and front flaps 70,78 into a position perpendicular to the handle wall 20, and folding the tuck-in tabs 74,82 into a position parallel with the top fold line 88 of the first handle wall 20. The rear and front flaps 70,78 and the tuck-in tabs 74,82 are held in this position by firstly folding the first top flap 86 into a position perpendicular to the handle wall 20, secondly folding the second top flap 90 into a position parallel with the first flap 86, and thirdly inserting the small flaps 94,95 of the second top flap 90 into the correspondingly shaped cut-out holes 96,97 in the handle wall 20. In this way the rear 78, front 70, first and second top flaps 86,90 are interlocked and form the upright rim 24a shown in fig. 2 and 5.

[0108] The upright rim 25a of the second handle wall 21 is, in the same way, made by folding the rear 79, front 71, first and second 87,91 flaps, folding the tuck-in tabs 75,83 and interlocking them using the small flaps 98,99 and the cut-out holes 100,101.

[0109] As the length A and height C of the first handle wall 20 is slightly smaller than the length B and height D of the second handle wall 21, respectively, the first handle wall 20 and its upright rim 24a is able to fit into the second handle wall 21 and its upright rim 25a when the transport box 1 is in its transport state. These lengths A,B and heights C,D are adapted so that there is friction between the upright rims 24a,25a, where this friction holds the first and second handle walls 20,21 together, and thus forms the upright handle 12 shown in fig. 1. This length/height difference constitutes the fourth connection means of the embodiment shown in fig. 6.

[0110] Fig. 7 shows the second blank 102 in its unfolded and flat state, where the top wall 32 has a circular opening 33, and each of the support walls 31a,31b,31c,31d is extending from a fold line 103,104,105,106 of the top wall 32.

Claims

1. A transport box (1) configured for being transformable into a lap tray,

- the transport box (1) comprises a compartment (2) with an opening (17) for accessing the compartment (2) and a lid (3),
- the lid (3) comprises a first lid part (8) and an opposite second lid part (9) that extend from at least a part of a circumferential edge of the opening (17), **characterized in that**
- the first and second lid parts (8,9) are configured for being joined in a transport state to serve as a handle (12), and being folded away from each other in a transport state to serve as a lap tray.

2. A transport box (1) according to claim 1, **characterized in that** the compartment (2) comprises two opposite facing side walls (6,7) having diverging faces.

3. A transport box (1) according to claim 1 or 2, **characterized in that** the interior angle between at least one of the side walls (6,7) and a bottom of the compartment (2) is equal to or at least 45°, more preferred equal to or at least 75°, and most preferred equal to or at least 90°.

4. A transport box (1) according to any of the claims 1, 2 or 3, **characterized in that** a cross-section of the compartment (2) in a plane parallel to a bottom has a substantially isosceles trapezoidal shape.

5. A transport box (1) according to any of the preceding claims 1 - 4, **characterized in that** at least one of the first and second lid parts (8,9) is provided with at least one rim (24a,25a) extending from at least a part of a free edge of the respective lid part (8,9) in an upwards direction out of the plane of the lid part (8,9).

6. A transport box (1) according to any of the preceding claims 1 - 5, **characterized in that** at least one of the first and second lid parts (8,9) comprises an opening with a hinged flap (13,15) adapted to cover said opening in the transformed state, preferably each of the first and second lid parts (8,9) comprises an opening with a hinged flap (13,15).

7. A transport box (1) according to any of the preceding

claims 1 - 6, **characterized in that** the transport box (1) further comprises an insert (30,30') being positionable inside the compartment (2) with a top wall (32) at a distance from the bottom of the compartment (2), where said top wall (32) optionally is provided with at least one opening (33) for holding at least one object.

8. A transport box (1) according to claim 7, **characterized in that** the compartment (2) and the top wall (32) of the insert (30,30') have substantially the same shape and dimensions.

9. A first blank for a transport box (1) according to any of the preceding claims 1 - 8, **characterised in that** the first blank (34) comprises a number of panels (4,5,6,7,18,19,20,21,38,39) interconnected via fold lines, where the panels comprise:

- a rear wall panel (4),
- a first side wall panel (6) connected to the rear wall panel (4),
- a second side wall panel (7) connected to the rear wall panel (4) opposite the first side wall panel (6),
- a first bottom wall panel (38) connected to the first side wall panel (6),
- a second bottom wall panel (39) connected to the second side wall panel (7),
- a first top wall panel (18) connected to the first side wall panel (6) opposite the first bottom wall panel (38),
- a second top wall panel (19) connected to the second side wall panel (7) opposite the second bottom wall panel (39),
- a first handle wall panel (20) connected to the first top wall panel (18) opposite the first side wall panel (6),
- a second handle wall panel (21) connected to the second top wall panel (19) opposite the second side wall panel (7), and
- a front wall panel (5) connected to the first side wall panel (6) opposite the rear wall panel (4), where
- the first and second bottom wall panels (38,39) are provided with first connection means (42a,42b,42c,44a,44b,44c,44d) for connecting the bottom wall panels (38, 39) to each other,
- the front wall panel (5) and the second side wall panel (7) are provided with second connection means (50,52,54) for connecting the front wall panel (5) to the second side wall panel (7),
- the first and second top wall panels (18, 19) and the front wall panel (5) are provided with third connection means (60,61,62,63,64,65,66,67) for releasable connecting the first and second top wall panels (18,19) to the front wall panel (5), and

- the first and second handle wall panels (20,21) are provided with fourth connection means (24a,25a) for releasable connecting the first and second handle wall panels (20,21) to each other.

10. A first blank (34) according to claim 9, **characterized in that** at least one of the first and second handle wall panels (20,21) comprises:

- a first rim panel (86,87) connected to the handle wall panel (20,21) opposite the top wall panel (18,19),
- a second rim panel (90,91) connected to the first rim panel (86,87) opposite the handle wall panel (20,21),
- a third and fourth rim panel (70,71,78,79) connected to opposite side edges of the handle wall panel (20,21), and
- a first and second tuck-in tab (74,75,82,83) connected to the third and fourth rim panel (70,71,78,79), respectively, where
- the second rim panel (90,91) and the handle wall panel (20,21) are provided with assembly means (94,95,96,97,98,99,100,101) for releasable assembling the first, second, third and fourth rim panel (86,87,90,91,70,71,78,79) and the first and second tuck-in tab (74,75,82,83) into a rim (24a,25a) extending from the handle wall panel (20,21).

11. A first blank (34) according to claim 9 or 10, **characterized in that** at least one of the first and second handle wall panels (20,21) comprises an opening with a hinged flap panel (13,15) adapted to cover said opening, preferably each of the first and second handle wall panels (20,21) comprises an opening with a hinged flap (13,15).

12. A second blank (102) for a transport box (1) according to any of the claims 1 - 8, **characterised in that** the second blank (102) comprises:

- a top wall panel (32) having substantially the same shape and dimensions as the bottom (38,39) of the compartment (2), and optionally an opening (33), and
- at least one support panel (31a,31b,31c,31d,31a',31b',31c',31d') connected to the top wall panel (32) via a fold line (103,104,105,106).

13. A first and/or second blank (34,102) according to any of the preceding claims 9 - 12, **characterized in that** the first and/or second blank (34,102) is made from a foldable material.

14. Use of the transport box (1) according to any of the claims 1 - 8, **characterised in that** the transport box

(1) in a transport state defines a closed compartment (2) and a handle (12) for transporting one or more objects, such as food and/or a drinking cup, and in a transformed state defines a lap tray for placing the objects on.

15. Use of the first and/or second blank (34,102) according to any of the claims 9 - 13 as a transport box (1) according to any of the claims 1 - 8, **characterized in that** the transport box (1) in a transport state defines a closed compartment (2) and a handle (12) for transporting one or more objects, such as food and/or a drinking cup, and in a transformed state defines a lap tray for placing the objects on.

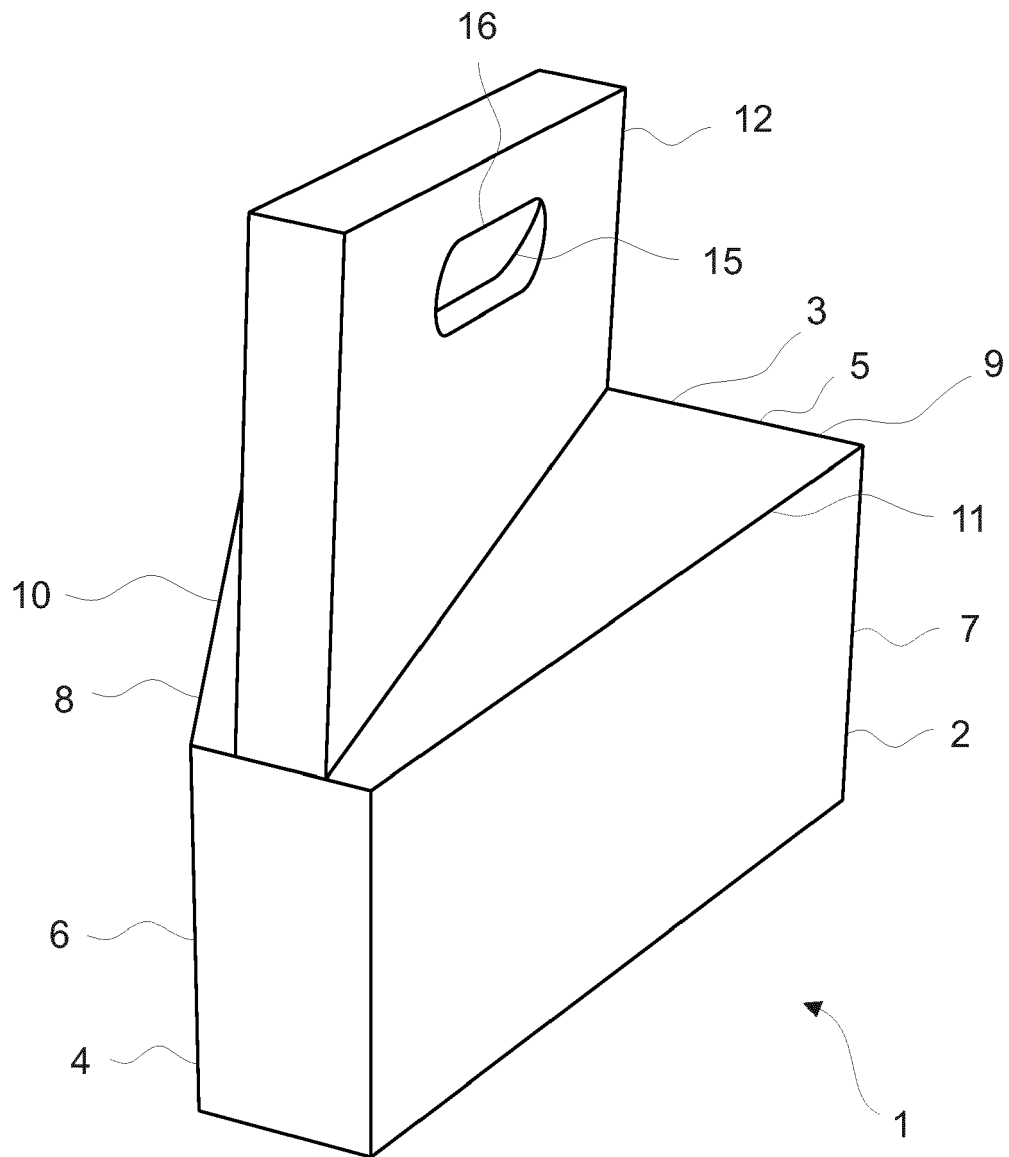
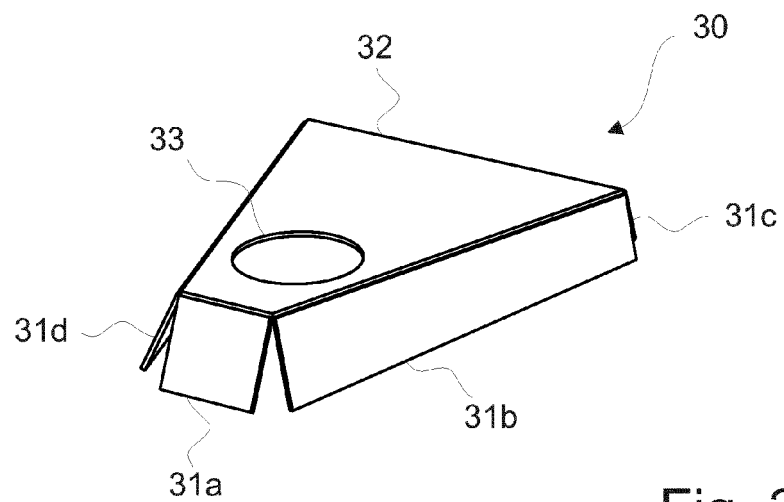
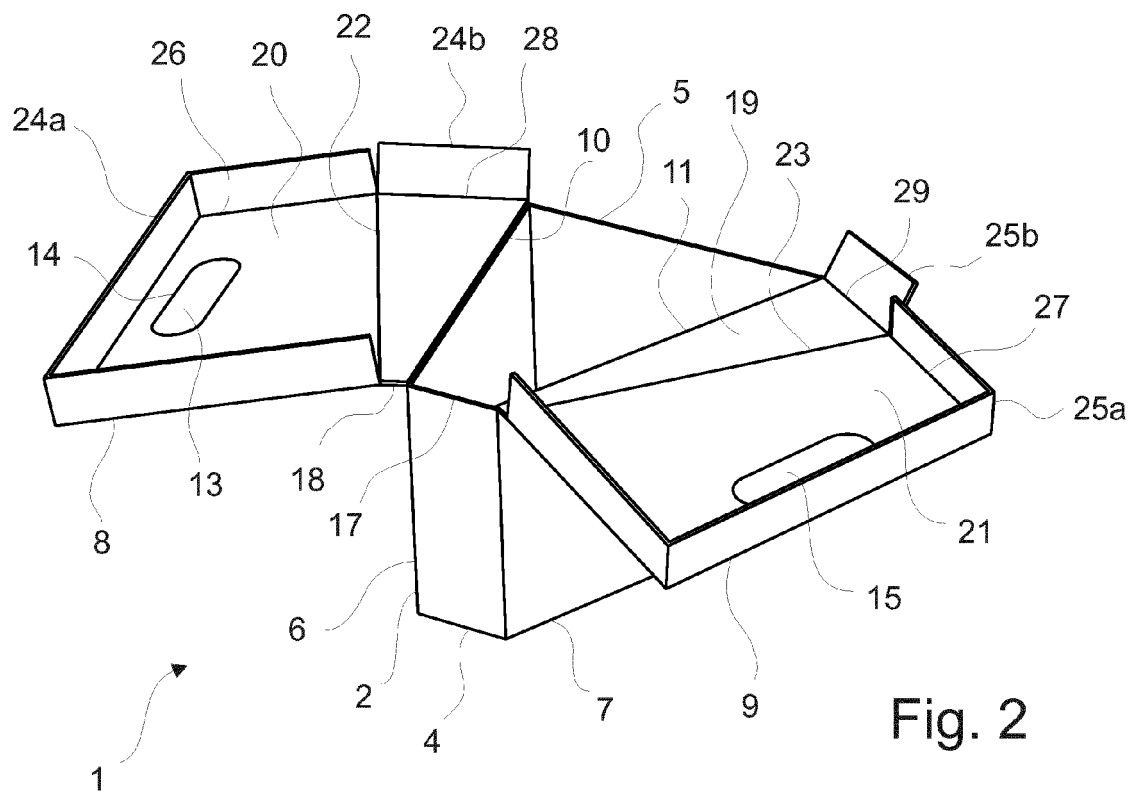


Fig. 1



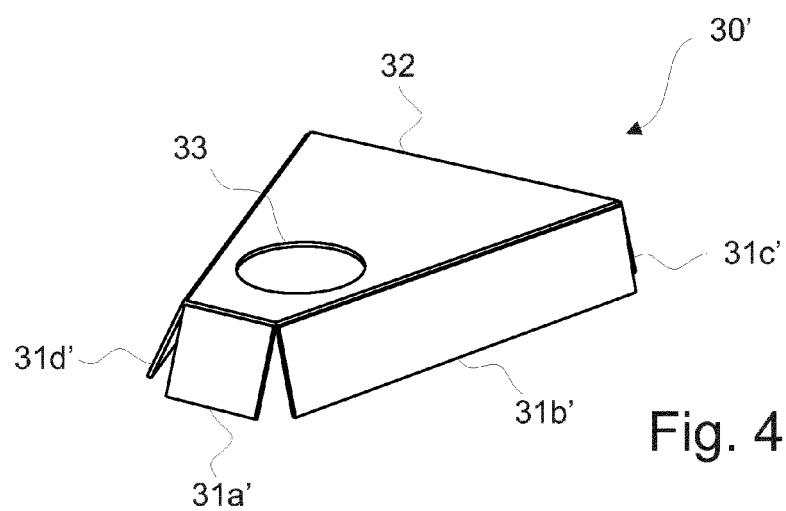


Fig. 4

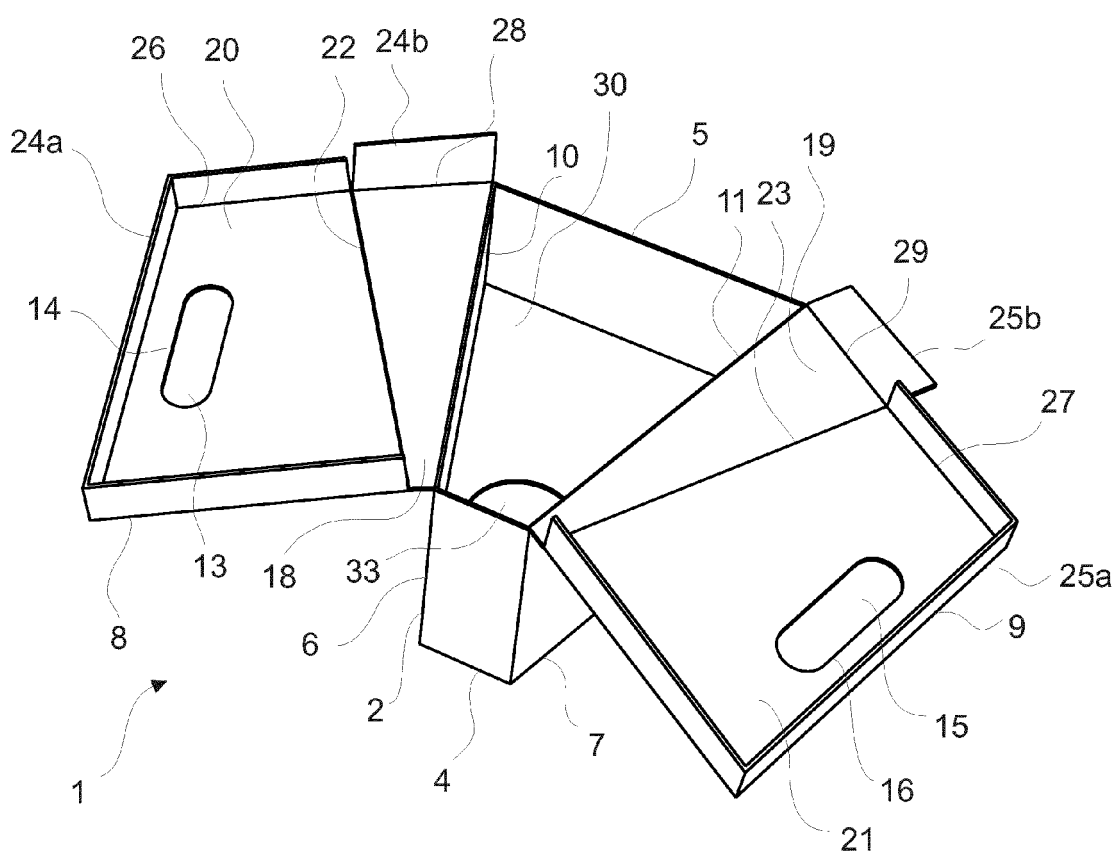


Fig. 5

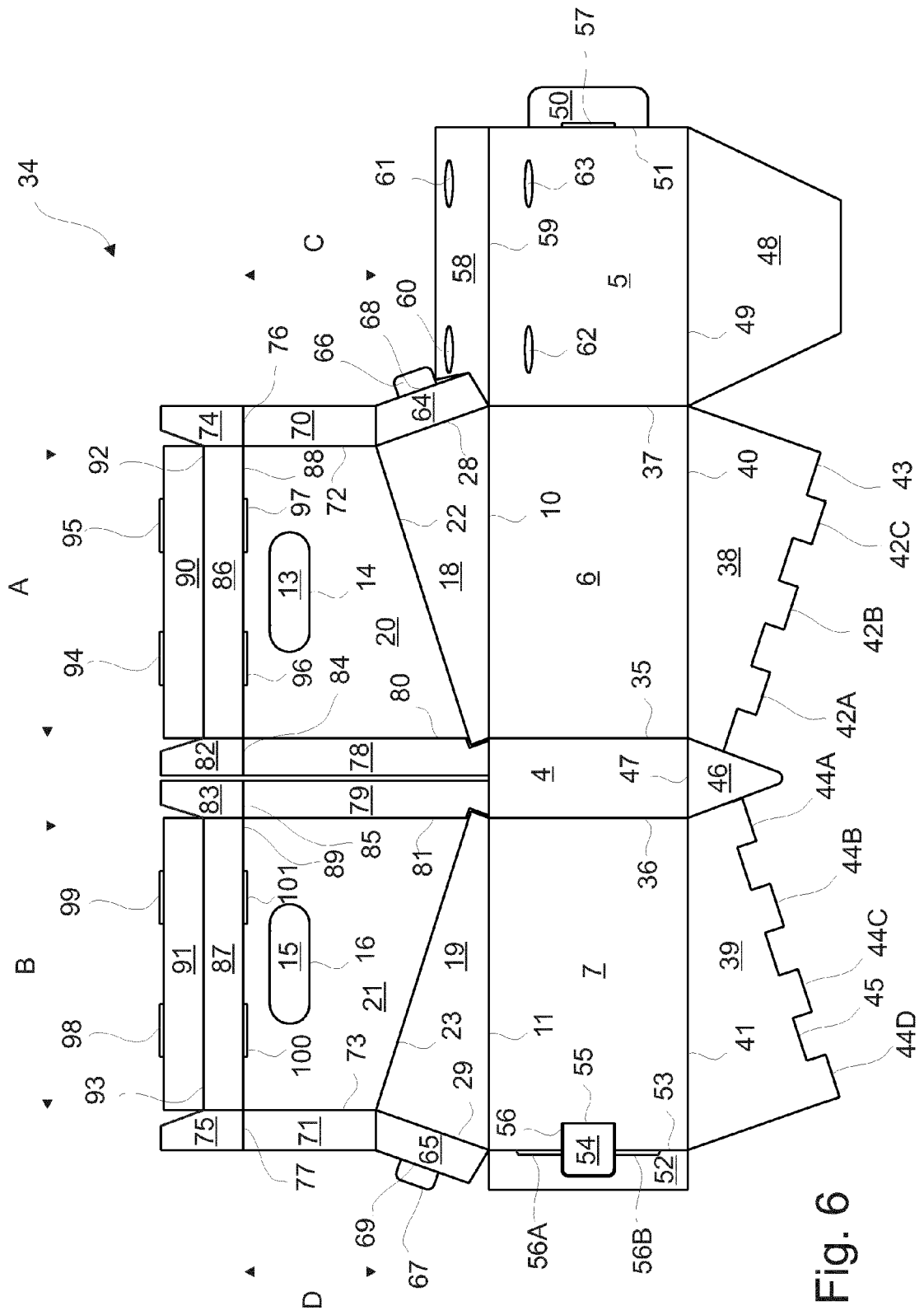


Fig. 6

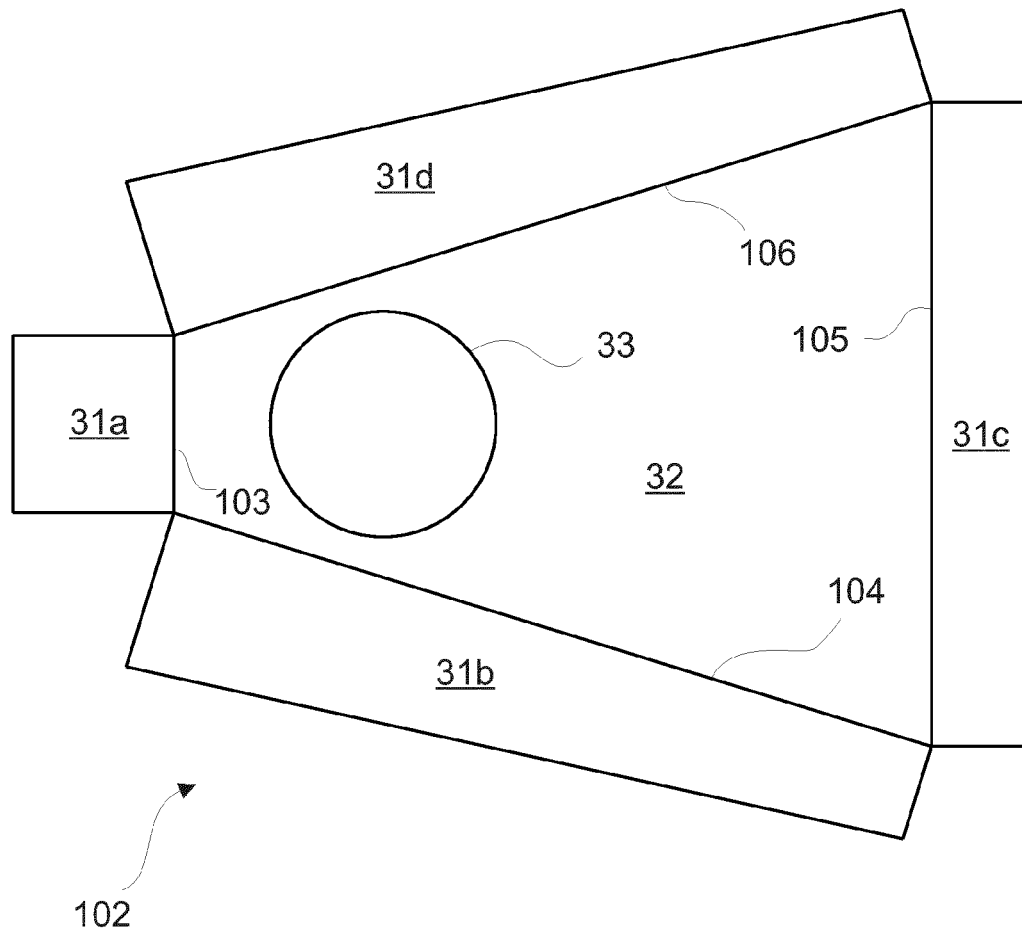


Fig. 7



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Place of search Munich		Date of completion of the search 16 October 2013	Examiner Visentin, Mauro
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