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Remarks:

The references to parts of the description (originally filed page 5) are deemed to be deleted (Rule 56(4) EPC).

(54) ONE PIECE PACKAGING BLANK FOR PRESENTATION BOX

(57) The present invention relates to a presentation box such as a chocolate box made from a single blank comprising three section, a lid section, a base section and an inner base section, that are foldably connected to each other. When assembled, the box comprises a base assembly having the presentation compartments

formed from the base and inner base sections, and a lid that covers the presentation compartments. In the preferred construction, the base and lid sections are mirror images, such that the box has a similar structure to a clam shell when in use.

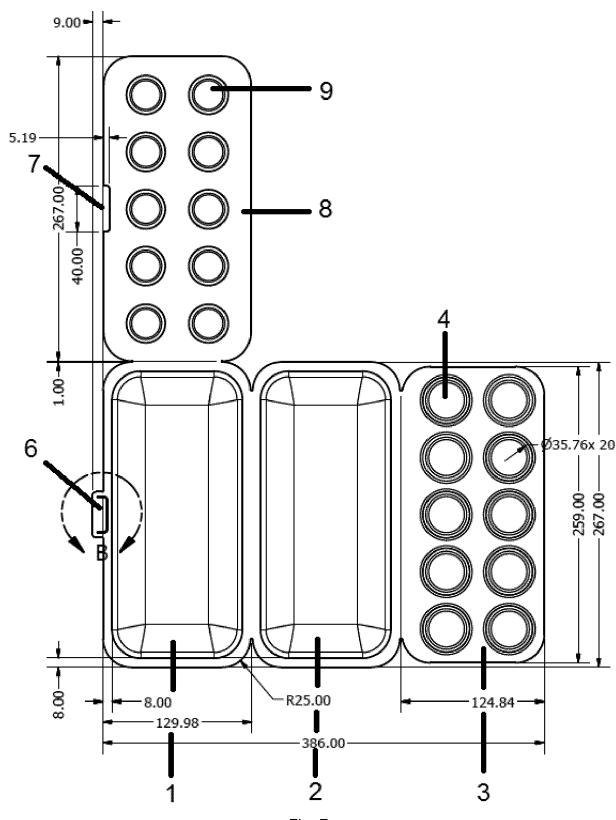


Fig. 7a

Description**TECHNICAL FIELD**

[0001] The present invention relates to a one piece blank for forming a presentation box such as a chocolate box, and a presentation box formed from the same. The blank of the invention allows items such as chocolates and the like to be packaged in high quality packaging which is easy to assemble and disassemble, and easy to recycle. 5

BACKGROUND OF THE INVENTION

[0002] A variety of consumer goods come in so-called presentation boxes, i.e. boxes that have separate wells that store and display the goods contained in the box, such that when opened the user can overview and easily access all of the contents of the box. Presentation boxes of this sort are particularly common in edible products such as chocolates, biscuits and the like. Often, these types of goods are at the higher end of the market, and are particularly common in seasonal products or edible products specifically marketed for consumption at parties. 15

[0003] As presentation boxes are often associated with high quality edible products, it is commonplace for these containers to include high quality packaging solutions. Often, consumers will choose to serve the edible products directly from the as sold packaging rather than removing the packaging and serving the edible products on a plate or the like. With this in mind, it is often important to ensure that the packaging is aesthetically pleasing and easy to use. 20

[0004] Typically, the packaging used for presentation boxes will involve several components, such as a cardboard housing and a plastic tray having wells to hold one or more chocolates. Complex packaging solutions of this sort will typically therefore use multiple materials which can make them difficult to assemble and in turn disassemble prior to recycling. The multiple materials will also increase the complexity of the supply chain during manufacturing, which inevitably leads to increased costs. 25

[0005] DE2802328A seeks to overcome some of these issues by providing a folded box for chocolates and biscuits formed from a single blank that forms the box and wells, with the contents being held in place and kept fresh by a removable foil. A lid is then added over the foil, the lid being attached along one edge to allow it to act as a moveable flap. 30

[0006] There is an ongoing need to provide presentation boxes which are easy to manufacture and assemble and which can be easily recycled. 35

SUMMARY OF THE INVENTION

[0007] The present invention provides a blank for forming a presentation box, said blank consisting of: 50

a lid section and optional inner lid section for forming a lid assembly;
a base section for forming a base; and
an inner base section containing at least one opening or well;
characterised in that
the base and inner base sections are foldably connected via a first foldable connection such that the base and inner base sections can fold together to form a base assembly, wherein the at least one opening or well forms at least one presentation compartment in the base assembly,
the lid and optional inner lid sections (if present) are foldably connected via a third foldable connection such that the lid and optional inner lid sections can fold together to form the lid assembly,
the lid or optional inner lid section is foldably connected via a second foldable connection to either the base section or the inner base section, such that the lid assembly can fold via the second foldable connection to form a lid that covers the at least one presentation compartment in the base assembly, and
wherein the base, lid, inner base and/or optional inner lid sections may optionally comprise a component capable of forming a mechanical fastening means for the presentation box. 55

[0008] The present invention also provides a presentation box consisting of a base assembly and a lid assembly, said lid assembly being foldably connected to said base assembly via a second foldable connection, wherein

said presentation box is formed from a single blank, said blank consisting of a base section, a lid section, an inner base section, and an optional inner lid section,
said inner base section being foldably connected to and folded together with said base section via a first foldable connection and, together with said base section, forms the base assembly containing at least one presentation compartment, and
said lid assembly being formed from either
said lid section if the inner lid section is not present, or
said lid section and said optional inner lid section (if present), wherein said optional inner lid section (if present) is foldably connected to and folded together with said lid section via a third foldable connection, such that said lid section and optional inner lid section together form the lid assembly,
said lid assembly being capable of opening and closing via said second foldable connection so as to expose or cover the at least one presentation compartment in the base assembly, and
wherein the base assembly and/or the lid assembly may optionally comprise a component capable of forming a mechanical fastening means for the presentation box.

[0009] Where the inner lid section is not present, the lid section is the lid assembly.

[0010] By "presentation box" is meant a box that when opened is suitable for displaying or presenting one or more items stored in presentation compartments (i.e. open compartments that contain or hold the items on display). The compartments may be individual wells much like an ice cube tray, or openings that the item may reside in.

[0011] By "foldably connected" and "foldable connection" is meant that the sections share a straight edge which is capable of allowing the sections to be folded together. Typically, this means the foldable connection is capable of being folded by 180°.

[0012] By "fold together" is meant that the foldable connection between two sections is folded to bring one section over the other section. Typically, this is done by folding the foldable connection 180°.

[0013] Preferably, the foldable connection between the lid or optional inner lid section and base or inner base section (i.e. the second foldable connection) is reversibly foldable.

[0014] By "reversibly foldable" is meant that the connection is capable of being folded and unfolded repeatedly, for instance 100 times, without any significant wear.

[0015] Preferably, in the presentation box of the present invention, the base and inner base section are held together as the base assembly with a bonding means such as an adhesive. The bonding means typically secures the base to the inner base section and holds the two sections together while the box is in use. Likewise, the lid section and inner lid section (if present) are preferably held together as the lid assembly with a bonding means such as an adhesive. When secured in this way using the bonding means, the base and inner base section together form the part of the box that holds and displays the items in the presentation box, with the lid assembly capable of covering the items when the box is closed, or revealing them as it is opened.

[0016] Optionally, the presentation box includes a mechanical fastening means such as a flap to hold the lid assembly in place while the box is closed and the lid assembly covers the at least one presentation compartment.

[0017] Various preferred embodiments and aspects of the invention are described in more detail below and in the following non-limiting examples.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The present invention will hereinafter be further explained by means of the non-limiting examples with reference to the appended figures, where;

Figure 1 shows a holding means formed from radial slits in a well in the inner base section,

Figure 2a shows the contact between the lid and

area on the base assembly adjacent to the foldable connection between the base section and inner base section, shows the same area including a height adjustment feature, show a typical blank according to the invention from various angles, shows a close up of a well in the blank of Figure 3a

5 Figure 2b shows another blank according to the invention,

Figure 4b shows a close up of a well in the blank of Figure 4a,

Figure 5a shows a blank according to the invention,

Figure 5b shows the blank of 5a in the folded configuration,

Figure 6a shows a blank according to the invention,

20 Figure 6b shows the blank of 6a in the folded configuration,

Figure 7a shows a blank according to the invention having four sections,

Figure 7b shows a close up of the fastening means in the blank of 7a,

Figure 7c shows the blank of 7a in the folded configuration,

Figure 8a shows a blank according to the invention having four sections,

25 Figure 8b shows a close up of the fastening means in the blank of 8a, and

Figure 8c shows the blank of 8a in the folded configuration.

35 DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0019] The presentation box of the present invention contains at least one presentation compartment.

[0020] By "presentation compartment" is meant an open well or recess which is capable of accommodating the item to be stored in the box.

[0021] The presentation compartment is formed from the combination of an opening or well in the inner base section and the base section.

[0022] When the inner base section of the blank contains a well, the well in the inner base section forms the presentation compartment, and the base section merely serves to form the base (i.e. the back or underside) of the base assembly, providing structural support and aesthetic appeal to the base assembly. In that way, the inner base section can contain various wells of different sizes, depths and shapes and the presentation box will still retain its aesthetic appeal and shape.

[0023] However, it is possible that the inner base section comprises an opening, including an opening with side walls (i.e. a well with no bottom). The bottom of the presentation compartment is then provided by the base

section when it is folded together with the inner base section. Presentation compartments formed from openings in this way are particularly suitable for use with items that do not have a flat bottom such as spherical chocolates. In a standard well, such round-bottomed items may roll around and become displaced, which means the overall look of the contents of the box may lose its aesthetic appeal as the box is moved around, for instance through a retail supply chain. However, using openings such as circular holes which have a smaller size than the item allows the item to remain in a stable position in the presentation compartment. Providing the height of the lid above the compartment when the box is closed is smaller than the item, the item will remain in place while the box is closed, ensuring the aesthetic appeal of the display of items is retained every time the box is opened.

[0024] The wells/openings in the inner base section may optionally include a holding means capable of gripping an object placed in the opening, such as flaps formed by radial slits. Preferably, the flaps abut one another such that in combination the flaps form the well. In other words, the well (i.e. the recess or concave feature) is formed and then slits are made to form flaps from the side and base of the well.

[0025] Alternatively, the flaps may abut one another only down their sides, such that in combination the flaps form the side walls of the recess, and the bottom of the recess is open.

[0026] There should preferably be enough flaps such that an object may easily be placed in and removed from the opening. Preferably, the openings contain at least four flaps, more preferably at least six flaps, more preferably from 6 to 12 flaps.

[0027] An example of a holding means formed from flaps in the opening is shown in Figure 1, in which the recess/well 4 contains an open centre 43, a plurality of flaps 41 formed by making slits 42 in the walls of the opening. When an object is pushed into the opening 43, the flaps 41 move out the way and grip the object, holding it in place. Although radial slits 42 are shown, in principle any type of slit could be used to make the flaps provided that they allow the flaps to move out the way and grip an object placed in the opening.

[0028] The presentation compartments may be deep enough to hold the entire item to be stored, in which case they will typically be 10-30% larger than the items they are intended to accommodate, to allow the item to be easily removed by the user. For chocolates, typical sizes for the openings of the presentation compartments will therefore be from 2 to 5 cm, preferably 3 to 4 cm. Of course, for presentation boxes intended to store larger goods such as biscuits, these dimensions and particularly the size of the openings can be larger. However, presentation compartments may also be smaller than the item they are storing, such as in the embodiment described above with the spherical chocolates.

[0029] The presentation box contains at least one presentation compartment, and typically there is a plurality of

presentation compartments. Typically, the presentation box will contain from 2 to 40, preferably from 4 to 25 presentation compartments, although in principle any number can be used.

5 **[0030]** Preferably, the inner base section contains a plurality of openings or wells.

[0031] Preferably, the inner base section contains at least one well. Preferably, the inner base section contains a plurality of wells.

10 **[0032]** Preferably, the inner base section contains at least one opening having a holding means, such as a plurality of flaps. Preferably, the inner base section contains a plurality of openings, each opening having a holding means, such as a plurality of flaps. Preferably, the flaps are formed by radial slits in the openings.

15 **[0033]** Preferably, the inner base section does not contain any openings.

[0034] By "well" is meant a portion of the surface of the inner base section that protrudes in a given direction, so

20 as to form a recess in the surface. The well may have any shape when viewed in plan (i.e. from the top) or profile (i.e. cross-section). Flat bottomed wells are typically used and are preferred, as these provide a flat surface on which the item in the presentation compartment can be

25 placed. However, flat bottomed wells can be difficult to form using some materials, and therefore concave wells (i.e. wells having a concave curved surface across their entire area) may also be used.

30 **[0035]** Typically, all of the wells in the inner base section protrude in the same direction, since these features are intended to form the presentation compartments. However, there may be some features in the inner base section that protrude in the opposite direction to the wells that form the presentation compartments, for decorative effect.

35 **[0036]** The base and inner base sections are foldably connected to one another via the first foldable connection and together provide the presentation compartments. When the blank is in the folded configuration, the combination of the base section and inner base section is referred to herein as the "base assembly" or "assembled base".

40 **[0037]** The lid and optional inner lid sections are foldably connected to one another via the third foldable connection. When the blank is in the folded configuration, the combination of the lid section and optional inner lid section is referred to herein as the "lid assembly" or "assembled lid".

45 **[0038]** The inner lid section is entirely optional, such that the blank of the invention may consist of three sections (i.e. the lid section, the base section and the inner base section), or four sections (i.e. the lid section, the inner lid section, the base section and the inner base section). When the inner lid section is not present, the lid section is the lid assembly.

50 **[0039]** The lid assembly is foldably connected to the base assembly via the second foldable connection. In embodiments where there is no inner lid section, this can

be achieved by having the lid section foldably connected to either the base section or the inner base section. In embodiments where the inner lid section is present, there are four options for the design of the blank, which are:

1. The lid section being foldably connected to the base section;
2. The lid section being foldably connected to the inner base section;
3. The inner lid section being foldably connected to the base section; or
4. The inner lid section being foldably connected to the inner base section.

[0040] These four options are mutually exclusive. In other words, there is only one foldable connection between the lid assembly and the base assembly, which may be between the lid section and the base or inner base section, or between the inner lid section and the base or inner base section.

[0041] Preferably, the lid section is foldably connected to the base section via the second foldable connection. In this way, the two outer surfaces of the folded box are foldably connected to one another, which often creates the best aesthetic appearance.

[0042] The blank of the invention therefore consists of three or four sections, and has respectively two or three foldable connections.

[0043] Preferably, the lid assembly of the presentation box is capable of covering all of the presentation compartments in the base assembly.

[0044] Thus, it is preferred that the lid assembly of the blank is foldably connected to the base assembly such that the lid assembly can fold, via the second foldable connection, to form a lid that covers the plurality of presentation compartments in the base assembly.

[0045] By "cover" is meant enclose the presentation compartment such that the lid assembly (formed from the lid section and optional inner lid section), together with the presentation compartment (formed from the base and inner base section) are capable of encasing the goods to be stored in the presentation compartment (i.e. the lid assembly closes the presentation compartment such that any goods contained therein are contained in place).

[0046] Preferably, the lid assembly of the presentation box is shaped such that, when closed, the plurality of presentation compartments are isolated from one another. In other words, when the lid assembly closes, each of the presentation compartments becomes covered (or encased) to the extent that any items stored in the compartments are retained in the compartments and incapable of leaving the compartments until the box is opened. In this way, the presentation box can be closed and moved around without any risk of the goods inside moving around and becoming mixed up.

[0047] The lid assembly does not of course need to form a tight seal with the presentation compartments in

order to isolate the presentation compartments from one another. Rather, the gap between the lid assembly and opening of the presentation compartments needs to be smaller than the items stored in the presentation compartments. In this way, the items cannot fall out of the compartments when the box is closed.

[0048] The exact dimensions of the box and lid assembly relative to the presentation compartments will therefore vary depending on the items to be stored in the compartments. In the case of chocolates, it can be aesthetically pleasing to have presentation compartments relatively shallow compared to the chocolate. When opened, the presentation box therefore displays the chocolates as if standing on a (near) flat surface, allowing the consumer to appreciate and enjoy the shape and look of each chocolate and easily access each of the chocolates without any difficulty. In such embodiments, providing the distance between the lid assembly and the opening of the presentation compartment is smaller than the item in the presentation compartment, the item will be retained in the presentation compartment while the lid is closed.

[0049] However, for thinner products such as biscuits which may be stacked in the presentation compartments, the height of the lid assembly above the well surface must be significantly less than the depth of the presentation compartment.

[0050] The inner lid section may be entirely decorative, and merely be present to improve the aesthetic appeal of the inside of the lid of the box. For instance, some materials may be more receptive to decoration and patterning with inks on one side than the other. It is of course preferable to have the side capable of decoration on the outer surface of the box, to allow the box to be decorated (for instance with product branding) and improve its aesthetic appeal. However, this may leave the inside surface of the lid less desirable, reducing the aesthetic appeal of the box when it is opened. The inner lid section when present folds to form the lid assembly, thus presenting the same surface capable of decoration on both the inside and outside of the box. This allows the inside of the box to be decorated to improve its aesthetic appeal. For instance, the menu of chocolates contained in the box could easily be printed on the inner lid section.

[0051] The inner lid section may also play a functional role, for instance in ensuring the presentation compartments are isolated from one another. Thus, the inner lid section may contain at least one feature (e.g. recesses or wells) such that, when the lid assembly and the base assembly are folded together (i.e. when the box is closed), the at least one feature in the lid assembly is in registration with the at least one presentation compartment in the base assembly.

[0052] Preferably, the inner lid section may contain a plurality of features (e.g. recesses or wells) such that, when the lid assembly and the base assembly are folded together (i.e. when the box is closed), the plurality of features in the lid assembly is in registration with the plurality of presentation compartments in the base assembly.

[0053] Typically, the inner base section and base section are foldably connected and shaped such that when folded to form the presentation compartments, the perimeter of the inner base section (except any components intended to act as fastening means) is congruent with or lies completely within the perimeter of the base section. Likewise, typically the inner lid section and lid section are foldably connected and shaped such that when folded to form the lid assembly, the perimeter of the inner lid section (except any components intended to act as fastening means) is congruent with or lies completely within the perimeter of the lid section. In this way, the only visible parts when the box is closed are the lid and base section, and optional fastening means.

[0054] Preferably, the inner base section and base section are foldably connected and shaped such that when folded to form base assembly, the perimeter of the inner base section lies completely within the perimeter of the base section, and, the inner lid section and lid section are foldably connected and shaped such that when folded to form the lid assembly, the perimeter of the inner lid section lies completely within the perimeter of the lid section. In this way, the entire perimeter of the lid section is able to come into contact with and abut the entire perimeter of the base section when the box is closed, much like a clam shell. Any fastening means is therefore comprised of components from the lid and/or base sections of the blank.

[0055] Although the perimeter of the inner base section is preferably congruent with or completely within the perimeter of the base section in the base assembly, it is preferred that the entire perimeter of the inner base section abuts the base section. In this way, the base assembly encloses a volume and the aesthetic appeal of the box is improved. Additionally, when constructed in this way, the base section can support the inner base section providing stability to the presentation compartments, and the inner base section can be held more firmly in place by any bonding means.

[0056] Likewise, although the perimeter of the inner lid section is preferably congruent with or completely within the perimeter of the lid section in the lid assembly, it is preferred that the entire perimeter of the inner lid section abuts the lid section. In this way, the lid assembly encloses a volume and the aesthetic appeal of the box is improved. Additionally, when constructed in this way, the lid section can support the inner lid section providing stability to the foldable lid, and the lid assembly can be held together by any bonding means.

[0057] Preferably, the entire perimeter of the lid assembly is in contact with (i.e. abuts) the base assembly when the box is closed. In this way, the contents of the box contained in the presentation compartments are completely encased in the box. The aesthetic appeal of the box is also improved.

[0058] Typically, the base and lid sections will have complementary perimeters, and the lid will be foldably connected to the base section such that the perimeter of

the lid section is in registration with and abuts the perimeter of the base section when the box is folded together. Preferably, the entire perimeter of the lid section is in registration with and abuts the entire perimeter of the base section when the box is folded together.

[0059] Thus, the base assembly and lid assembly are sized and arranged such that they preferably interact with each other like a "clam shell" connected along one edge by a fold, typically a fold capable of being reversibly folded to allow the box to be repeatedly open and shut.

[0060] It is recognised that the perimeter of the base assembly adjacent to the foldable connection between the base and inner base sections can have an increased thickness compared to other parts of its perimeter where

the perimeter of the inner base section lies within the perimeter of the base section, due to the overlapping layers of the inner base section and base section. The same is also true of the lid and inner lid sections, when the inner lid section is present. This small difference in

thickness is not usually an issue and does not affect the overall aesthetics of the folded box, typically because the material that the box is made from is relatively thin. However, to ensure the lid assembly perfectly abuts the base assembly around the entire perimeter (particularly with thicker materials), the perimeter of the base section may be lowered by a height compensation feature along the portions adjacent to the foldable connection with the inner base section, such that when folded to form the base assembly, the perimeter of the base assembly is at an even level adjacent to the foldable connection.

[0061] Such a feature is shown schematically in Figures 2a and 2b. Thus, in Figure 2a, the base 2 and inner 3 sections overlap adjacent to the foldable connection between the two, which creates a step in the perimeter of the base assembly. The lid 1 cannot therefore close tightly around the perimeter adjacent to the foldable connection. As shown in Figure 2b, if the perimeter of the base is lowered around the foldable connection by means of a height compensation feature 10, the base assembly

has a more level perimeter that is able to form a better seal with the lid.

[0062] Of course, the height compensation feature may alternatively be in the perimeter of the lid assembly, wherein the perimeter of the lid can contain a small step to allow for the increased thickness of the base assembly adjacent to the foldable connection between the base and inner base sections.

[0063] Thus, the perimeter of the base section and/or the perimeter of the lid section preferably contain (a) height compensation feature(s) to ensure the perimeter of the lid assembly abuts the perimeter of the base assembly adjacent to the foldable connection between the base and inner base sections, and adjacent to the foldable connection between the lid and inner lid sections.

[0064] As noted above, the height compensation feature is generally only required when the material used to make the box is quite thick. Materials that are under 1 mm in thickness can often form a satisfactory seal even

without a height compensation feature. Often, any height compensation feature is naturally formed when press-sealing the box closed (i.e. when the box is filled with items, closing and sealing the box with a sealing means, optionally at a raised temperature), though they can be pre-formed when the box is formed from less flexible materials.

[0065] Preferably, the base section contains an outer perimeter and an inner perimeter, wherein the outer perimeter is complementary to the perimeter of the lid assembly, and wherein the inner perimeter is complementary to the perimeter of the inner base section. When configured in this way, the inner base section abuts the base section around the inner perimeter in the base assembly (optionally fixed to the base section via the bonding means), and the lid assembly abuts the base section around the outer perimeter when the box is closed, providing a particularly aesthetically appealing result.

[0066] Likewise, preferably the lid section contains an outer perimeter and an inner perimeter, wherein the outer perimeter is complementary to the perimeter of the base assembly, and wherein the inner perimeter is complementary to the perimeter of the inner lid section (if present). When configured in this way, the inner lid section abuts the lid section around the inner perimeter in the lid assembly (optionally fixed to the lid section via the bonding means), and the base assembly abuts the lid section around the outer perimeter when the box is closed, providing a particularly aesthetically appealing result.

[0067] Preferably, the outer perimeter is from 1-7 mm wide, preferably 2-5 mm wide, more preferably 3-5 mm wide. Likewise, preferably, the inner perimeter is from 1-7 mm wide, preferably 2-5 mm wide, more preferably 3-5 mm wide.

[0068] As the box is made from three (or four) sections in the one piece blank, it is self-evident that the blank itself is not planar.

[0069] When the inner base section contains openings, it may be planar. However, when the inner base section contains at least one well, it is always non-planar.

[0070] Preferably, the base section is also non planar. Typically, the back section bulges as a large, flat-bottomed dish that accommodates the inner base section in the base assembly.

[0071] The base section bulges or protrudes in the opposite direction as any wells in the inner base section in the non-folded blank (i.e. the blank in which the foldable connections between the base and inner base sections, and lid and base or inner base sections are flat). In this way, the wells form recesses in the surface of the base assembly that are capable of acting as presentation compartments.

[0072] Moreover, the depth of the bulge in the base section is typically larger than the depth wells in the inner base section, such that the wells are contained within the bulge of the base section in the base assembly. If the wells are deeper than the bulge of the base section, then

the top of the wells is typically raised above the perimeter rim of the base assembly to compensate for the differences in depth (i.e. the opening of the at least one presentation compartment in the inner base section is typically higher than the point where the lid section abuts the base assembly).

[0073] The lid section can be planar, although typically the lid section also bulges preferably like a flat bottomed dish. Preferably, the lid section is a mirror image of the base section (except for any height compensation feature or fastening means).

[0074] The inner lid section can also be planar, although again typically it also bulges like a flat bottomed dish (which may include further wells or recesses that are in registration with the presentation compartments in the base assembly when the box is folded shut). If the inner lid section is non-planar, it always bulges in the opposite direction to the lid section in the non-folded blank, such that when folded together (i.e. when the foldable connection between the inner lid section and lid section is folded 180°), the bulge of the inner lid section lies within the bulge of the lid section. Thus, if the inner lid section bulges, the lid section itself also bulges by at least the same amount such that the lid and inner lid section are capable of being folded together to have the inner lid section within the lid section.

[0075] The lid assembly may be foldably connected to the base section or the inner base section.

[0076] When the lid section is foldably connected to the base section, any bulge in the lid section is in the same direction as the bulge in the base section in the non-folded blank. In this way, the lid folds closed on the base assembly to enclose the presentation compartments, much like a clam shell.

[0077] When the lid section is foldably connected to the inner base section, any bulge in the lid section is in the same direction as the bulges of any wells in the inner base section in the non-folded blank. In this way, the lid encloses the presentation compartments formed by the wells, with the base section folding up underneath the wells to make the underside of the box more aesthetically appealing.

[0078] Likewise, when the inner lid section is foldably connected to the base section, any bulge in the inner lid section is in the same direction as the bulge in the base section in the non-folded blank. In this way, the lid folds closed on the base assembly to enclose the presentation compartments much like a clam shell.

[0079] When the inner lid section is foldably connected to the inner base section, any bulge or recesses in the inner lid section is in the same direction as the bulges of any wells in the inner base section in the non-folded blank. In this way, the lid encloses the presentation compartments formed by the wells, with the base section folding up underneath the wells to make the underside of the box more aesthetically appealing.

[0080] It is preferred that the lid section is foldably connected to the base section.

[0081] Preferably, the blank of the invention consists of:

a lid section for forming a lid comprising a bulge; optionally an inner lid section; a base section for forming a base comprising a bulge; and an inner base section containing at least one opening or well; characterised in that the lid and (if present) optional inner lid sections are foldably connected via a third foldable connection such that the lid and optional inner lid sections can fold together to form a lid assembly having a perimeter defining a rim, wherein when the optional inner lid section is not present, the lid assembly corresponds to the lid section, the base and inner base sections are foldably connected via a first foldable connection such that the base and inner base sections can fold together to form a base assembly having a perimeter defining rim, the perimeter of the base assembly being complementary to the perimeter of the lid assembly, wherein the at least one opening or well forms at least one presentation compartment in the base assembly, the lid section or optional inner lid section is foldably connected to either the base section or the inner base section via a second foldable connection, such that the lid assembly can fold via the second foldable connection to form a lid that covers the at least one presentation compartment in the base assembly, said second foldable connection being either:

from the lid section to the base section; or from the lid section to the inner base section; or from the optional inner lid section to the base section; or from the optional inner lid section to the inner base section; wherein when assembled into a box, the rims of the lid assembly and base assembly are in registration with and abut each other around the entire perimeter of the base assembly and lid assembly such that the bulges of the lid and base sections enclose the at least one presentation compartment of the base assembly, and wherein the base section, inner base section, lid section or optional inner lid section may optionally comprise a component capable of forming a mechanical fastening means for the presentation box.

[0082] By "complementary profiles" is meant that the entirety of the rim of the base assembly is capable of overlapping with the entirety of the rim of the lid assembly when the box is folded together. For the avoidance of

any doubt, any height differences along the area adjacent to the foldable connection between the base section and inner base section should be disregarded, such that a base and lid section may still have complementary profiles irrespective of whether there is any height compensation feature in the base or lid section.

[0083] Preferably, the perimeter of the inner base section (except any components intended to act as a fastening means) is congruent with or lies completely within the perimeter of the base section when the blank is folded to form the base assembly. In this way, the perimeter of the base assembly substantially corresponds to the perimeter of the base section, such that the two bulges of the base and lid sections appear to meet at their perimeters, with the presentation compartments being enclosed within the bulges of the lid and base sections.

[0084] Moreover, the entire perimeter of the inner base section preferably abuts the base section in the base assembly.

[0085] Likewise, the perimeter of the inner lid section (except any components intended to act as a fastening means) is preferably congruent with or lies completely within the perimeter of the lid section when the blank is folded to form the lid assembly. In this way, the perimeter of the lid assembly substantially corresponds to the perimeter of the lid section, such that the two bulges of the base and lid sections appear to meet at their perimeters, with the presentation compartments being enclosed within the bulges of the lid and base sections.

[0086] Moreover, the entire perimeter of the inner lid section preferably abuts the lid section in the lid assembly.

[0087] Typically, the rim of the lid assembly or base assembly will lie in a plane, however it is possible that there may be a portion which deviates above or below a plane (in addition to any height compensation feature as described above). For each portion in the base assembly that deviates above a plane, there is a corresponding portion in the lid assembly that deviates below the plane so as to complement the base assembly, and vice versa. In this way, the box forms a clam shell type structure when closed.

[0088] Preferably, the bulges in the base and lid sections are flat bottomed (i.e. the bottom of the bulge is substantially planar and lies parallel to the plane substantially defined by the rim of the bulge).

[0089] The depth of the bulge in the base section (i.e. the distance between the perimeter rim and the flat floor) may be identical to the depth of bulge of the lid section.

[0090] By "mirror image" as used herein, any height differences due to a height compensation means or features associated with a fastening means are disregarded.

[0091] In embodiments where the depth of the bulge in the lid section is the same as the depth of bulge in the base section, the opening of the at least one presentation compartment in the inner base section is typically higher

than the point where the lid assembly abuts the base assembly in the closed box (and preferably higher than where the inner base section abuts the base section in the base assembly). This causes the opening of the presentation compartment to be closer to the lid when the box is closed, ensuring that the plurality of presentation compartments are isolated from one another.

[0092] Alternatively (or additionally), the inner lid section may contain features (such recesses or wells) that are in registration with the plurality of presentation compartments in the base assembly in the folded box. In such embodiments, the presentation compartments may be isolated from one another even without the opening of the presentation compartments being higher than the point where the lid assembly abuts the base assembly in the closed box.

[0093] Preferably, the box includes a mechanical fastening means to hold the lid in place when the box is closed and the lid assembly covers the presentation compartment(s).

[0094] By "mechanical fastening means" is meant a fastening means capable of holding the lid closed via a mechanical interaction rather than via chemical (such as adhesives) or magnetic interactions.

[0095] Preferably, the fastening means consists of a flap that extends beyond the perimeter of the lid assembly that encases the presentation compartments when the box is closed, such that the flap is capable of fastening to the base assembly when the box is closed. Of course, the flap could also be in the base assembly and hooks onto the lid assembly when the box is closed. Such a flap may comprise a slit which allows the flap to hook onto lid or base assembly (as the case may be) when the box is closed.

[0096] The fastening means may be a mutual fastening means comprising two components which are respectively on the base assembly and lid assembly, said components being shaped so as to reversibly engage with one another and positioned so as to be in registration with one another to allow such reversible engagement when the box is closed. Suitable types of mutual fastening means include a flap with an opening and a corresponding protrusion, whereby the protrusion is sized and shaped so as to reversibly hook onto the opening when the box is closed.

[0097] Another type of mutual fastening means includes two flaps, one located on the lid assembly and having an engagement portion extending away from the perimeter of the lid section at an acute angle, the other on the base assembly and having a corresponding engagement portion extending away from the perimeter of the base assembly at an acute angle, wherein the flaps are positioned such that when the box is closed the engagement and corresponding engagement portion overlap and allow engagement to fasten the box closed.

[0098] As noted above, the fastening means may comprise components such as a protrusion or flap on the base assembly. The fastening means components may

form part of the base section of the blank, or form part of the inner base section of the blank, provided that when the base assembly is formed the components are suitably positioned to engage with and fasten the lid assembly, optionally via the corresponding components of a mutual fastening means on the lid assembly. Likewise, the fastening means components on the lid assembly may be on the lid section of the blank, or form part of the inner lid section of the blank, provided that when the lid assembly is formed the components are suitably positioned to engage with and fasten the base assembly, optionally via the corresponding components of a mutual fastening means on the base assembly.

[0099] The fastening means need not derive from the blank itself and may be a separate means attached to the blank (or box) at a suitable location to allow lid of the assembled box to be reversibly held in place. However, using an additional fastening means of this sort is often aesthetically less pleasing, and it is therefore preferred that the fastening means is integral to the blank.

[0100] Typically, the base assembly is held together using a bonding means. The bonding means may be an adhesive, in which case the blank may contain an adhesive on at least part of the inner base section and/or base section which overlap in the base assembly, or it may be by thermally fusing the blank when the base layer and inner layer are folded into position, in which case the blank comprises a thermally fusible material such as a thermoplastic polymer.

[0101] Likewise, when the inner lid section is present, the lid assembly is preferably held together using a bonding means, in similar manner to the base assembly.

[0102] Preferably, the inner base section is a continuous material. In other words, the inner base section does not contain any holes or openings. In the most preferred embodiments, the inner base section comprises an otherwise flat surface having at least one well that forms the presentation compartment, and the entire perimeter of the inner base section is in contact with the base section in the base assembly. In this way, the base assembly encloses a volume and the aesthetic appeal of the box is improved.

[0103] Likewise, the inner lid section is preferably a continuous material.

[0104] Typically, the entire blank is made out of continuous material, preferably the same material. As the blank is non-planar, the material used to make the blank must be capable of being formed into a three dimensional shape that is capable of holding its form. Suitable materials for forming the blank include formable materials such as formable plastics or formable paper composites.

[0105] By "formable" is meant capable of being formed into shapes by mechanical forming under pressure using a male and female press (i.e. mechanical forming), optionally at a raised temperature (i.e. mechanical thermo-forming), or by thermoforming using a vacuum (vacuum thermoforming, i.e. heating the material and forcing it against a mold using a vacuum). Formable materials

therefore include materials that are capable of being manipulated by thermoforming using a press or a vacuum. [0106] Suitable formable plastics include polyethylene such as low density polyethylene; polypropylene; polyester such as polyethylene terephthalate (PET); styrene such as high impact polystyrene, acrylonitrile butadiene styrene; polycarbonate; acrylic; and polyvinyl chloride. Polyester and polyethylene are preferred.

[0107] Formable paper composites are composites of paper fibres and plastic films, which provide the advantages of plastics such as formability and barrier properties, yet retain the aesthetic advantages of paper/card materials such as ink retaining properties and hand feel. Suitable formable paper composites include PaperLite, FibreLite, HiLite and AirLite available from Flextrus AB.

[0108] Typically, these formable paper composites are from 200 to 600 μm thick, preferably from 250 to 500 μm thick, and have a typical basis weight of from 300 to 600 g/m^2 .

[0109] Typically, the formable material will be capable of being heat sealed to itself (or at least one side will be capable of being thermally sealed to itself), such that the bonding means holding the base assembly together (i.e. the base and inner base section) and lid assembly together can be thermally sealing of the material to itself. Typical thermal sealing temperatures are above 100°C, preferably above 120°C.

[0110] It is also possible to form the blank from non-thermoformable materials, such as using moulded pulp in a mechanised papier-mâché process.

[0111] While forming the blank from a single material provides the advantage that it is easy to recycle the box after use, it can be aesthetically appealing to have an opening in the lid section to allow part or all of the contents of the presentation box to be visible while the box is closed. To ensure the contents of the box are protected, any opening in the lid is preferably formed from a transparent material such as plastic.

[0112] In such embodiments, the lid section and inner lid section will both have an opening, and the openings are positioned such that the opening in the inner lid section is in registration with the opening in the lid section when the sections are folded together to form the lid assembly. These openings then form the window which allows the contents of the box to be seen without opening the box. Typically, the transparent material will be incorporated by adhering it to the inside of the lid assembly, for instance on the inside of the lid section, or adhered between the lid and inner lid section.

[0113] When the presentation box is used to hold edible goods, a tear away foil can be included on the inner base section to cover the at least one presentation compartments. Such a foil is typically fixed to the inner base section with an adhesive, preferably an adhesive applied as a continuous perimeter around all of the presentation compartments so as to provide a continuous, sealed cover for the plurality of presentation compartments in the box. Suitable materials for the tear away foil are known

in the art and include plastics, metal laminates and the like. Preferably, the foil is transparent, particularly in embodiments where the lid assembly of the box contains a window.

5 [0114] Preferably, the adhesive used to hold the tear away foil in place does not extend around the entire perimeter of the foil. It is preferred to leave at least one area of the foil that can act as a tab to enable the user to easily remove the foil and open the presentation compartments.

10 [0115] While the box preferably includes a fastening means, such means is generally intended to ensure the box does not fold open of its own accord. Such means would typically not be suitable for holding the box closed while it is being used in a commercial supply chain (e.g. 15 during transport from the packing factory, storage and display in a retail shop, handling by the consumer in the shop prior to purchase, or via shipment in mail order sales). In any event, health and safety regulations for packaged food products often require that some form of

20 tamper proof seal is included, such that it is evident that the box has not been opened after leaving the factory. It is therefore typical that the assembled box also includes a further sealing means when used for commercial packaging.

25 [0116] A suitable sealing means includes a plastic film which covers at least the join between the lid assembly and base assembly of the box. Optionally, the sealing means covers the entire box.

[0117] A further sealing means includes an adhesive 30 tape that is adhered to the lid and base and extends over the join between the lid and base assembly while the box is closed. Such a tape is preferably located opposite the foldable connection between the lid and base assembly, such that the lid cannot be opened to access the contents 35 of the box without damaging the tape.

[0118] A further sealing means includes an adhesive with a low peel strength applied around the abutting perimeter of the lid and base assembly, such that the box is sealed shut before use but may be opened by simply 40 pulling on the lid with sufficient force. Suitable adhesives with low peel strengths are known in the art and would be familiar to the skilled person. Preferably, the adhesive is a thermal adhesive which has low tackiness at room temperature. In this way, a sufficiently strong seal can 45 be obtained without risk of the residual tackiness of the adhesive causing a problem with repeated opening of the box during use.

[0119] It is also possible to seal the box by thermally sealing the lid assembly to the base assembly (i.e. thermally sealing the lid assembly to the base assembly 50 around their abutting perimeters). In such embodiments, the width of the thermally sealed area is typically 1-3 mm.

[0120] Preferably, when the box is sealed with an adhesive or by thermally sealing, it contains an easy open corner, i.e. a portion which does not have any sealing means and may be easily separated. This allows the user to gain the necessary leverage to pull apart the base assembly and lid assembly, peeling the sealing means 55

apart.

[0121] The blank of the present invention is preferably made by a process comprising:

- a. providing a formable material which is planar;
- b. forming the formable material to make it non-planar; and
- c. removing portions of the formable material to provide the blank of the invention.

[0122] Step b. may comprise mechanically (thermo)forming the formable material and/or vacuum (thermo)forming the formable material.

[0123] Step c. may comprise cutting the outline of the blank from the formable material and removing the waste material. Suitable cutting techniques include using a stamp. Step c. may also include removing portions inside the blank, such as by forming openings in the inner base section or forming a window in the lid section. These internal portions can either be removed before or after the forming process (step b.), though typically they are removed after to ensure that the edges of the remaining opening are not deformed by the formation process.

[0124] The process may further comprise providing an adhesive material on portions of the formable material, which can take place either between steps b. and c., or after step c..

[0125] The present invention further relates to a method comprising

- i. providing the blank of the present invention;
- ii. folding the first foldable connection and bonding the inner base section to the base section using a bonding means to provide the base assembly;
- iii. folding the third foldable connection and bonding the optional inner lid section (if present) to the lid section using a bonding means to form the lid assembly; whererin steps ii. and iii. may be carried out in any order; and
- iv. folding the second foldable connection such that the lid assembly folds together with the base assembly and encloses the at least one presentation compartment.

[0126] Step iv. in the method of the invention may comprise enclosing at least one item in the at least one presentation compartment.

[0127] The method of the invention may further comprise the step of:

- v. sealing the box using a sealing means.

[0128] The invention further relates to a mould for forming the blank of the invention. Said mould may be configured for vacuum thermoforming the mould of the invention, or comprise a male and counterpart female component configured to mechanically form the blank of the invention, optionally at a raised temperature. Such a

mould of course finds use in the process of the present invention.

[0129] The presentation box of the present invention can in principle be any shape, provided that the lid is capable of covering the presentation compartments. Nevertheless, several possible shapes are shown in the attached Figures.

[0130] Thus, Figure 3a shows a three section blank according to the invention comprising a lid section 1, a base section 2 and an inner base section 3 containing a plurality of wells 4. The lid section 1 is foldably connected to the base section 2 via a straight edge capable of being reversibly folded, and likewise the inner base section 3 is foldably connected to the base section 2. The blank 10 additionally contains an adhesive strip 5 to act as a bonding means to hold the inner base section in place thus forming the base assembly.

[0131] Figures 3b and 3c show plan and profile views of the blank in Figure 3a, while Figure 3d shows a close 20 up of a well 5 in the inner base section 3, highlighted as feature A in Figure 3c.

[0132] Feature B in Figure 3b is an easy open corner.

[0133] Figure 4a shows an alternative blank according to the invention comprising a lid section 1, a base section 2, and an inner base section 3 having a plurality of well structures. Figure 4b shows a close up of the well structure highlighted as feature B-B in Figure 3a.

[0134] Figure 5a shows a further blank that would form a heart shaped box consisting of a lid section 1, base section 2, inner base section 3 and having a mechanical fastening means 6. The mechanical fastening means 6 consists of a flap with a slit that is capable of catching on the base assembly when the lid is closed. Figure 5b shows the blank of Figure 5a in the folded configuration.

[0135] Figure 6a shows a further blank with a lid section 1, base section 2 and inner base section 3. The inner base section 3 is slightly smaller than the base section 2, such that when folded the perimeter of the inner base section 3 lies within the perimeter of the base section 2 in the base assembly, as shown in Figure 6b.

[0136] Figure 7a shows a four section blank having a lid section 1, a base section 2, an inner base section 3 having a plurality of wells 4, an inner lid section 8 having a plurality of features 9. The inner base section 3 is slightly smaller than the base section, to ensure that the perimeter of the base section 2 is in contact with the lid assembly formed from the base section 1 and inner base section 8 in the folded configuration. The plurality of features 9 are positioned so as to be in registration 45 with the plurality of wells 4 that form the presentation compartments in the base assembly.

[0137] The blank further contains a fastening means 6, which is in registration with a recess 7 in the inner lid section to allow it to easily hook onto the base assembly.

[0138] The fastening means is shown in close up in Figure 7b.

[0139] Figure 7c shows the blank of Figure 7a in the folded configuration.

[0140] Figure 8a shows a further four section blank

having the same features as that of the blank of Figure 7a, but with the inner lid section 8 being foldably connected to a different edge of the lid section 1. A close up of the mechanical fastening means 6 is shown in Figure 8b, wherein a slit 62 allows the inner lid section 8 to fold together with the lid section 1 via the third foldable connection to form the lid assembly, leaving the fastening means 6 protruding out. The fastening means then is operable due to the second slit 61, which latches on to the base assembly in the folded box. When folded, the box is identical to the box schematically shown in Figure 7c.

Claims

1. A blank for forming a presentation box, said blank consisting of:

a lid section and optional inner lid section for forming a lid assembly; 20
a base section for forming a base; and
an inner base section containing at least one opening or well;

characterised in that

the base and inner base sections are foldably connected via a first foldable connection such that the base and inner base sections can fold together to form a base assembly, wherein the at least one opening or well forms at least one presentation compartment in the base assembly,

the lid and optional inner lid section (if present) are foldably connected via a third foldable connection such that the lid and optional inner lid sections can fold together to form the lid assembly;

the lid or optional inner lid section is foldably connected via a second foldable connection to either the base section or the inner base section, such that the lid assembly can fold via the second foldable connection to form a lid that covers the at least one presentation compartment in the base assembly, and

wherein the base, lid, inner base and/or optional inner lid sections may optionally comprise a component capable of forming a mechanical fastening means for the presentation box.

2. The blank of claim 1, wherein the blank consists of:

a lid section for forming a lid comprising a bulge; 50
optionally an inner lid section;
a base section for forming a base comprising a bulge; and
an inner base section containing at least one opening or well;

characterised in that

the lid and (if present) optional inner lid sections are foldably connected via a third foldable connection such that the lid and optional inner lid sections can fold together to form a lid assembly having a perimeter defining a rim, wherein when the optional inner lid section is not present, the lid assembly corresponds to the lid section, the base and inner base sections are foldably connected via a first foldable connection such that the base and inner base sections can fold together to form a base assembly having a perimeter defining rim, the perimeter of the base assembly being complementary to the perimeter of the lid assembly, wherein the at least one opening or well forms at least one presentation compartment in the base assembly, the lid section or optional inner lid section is foldably connected to either the base section or the inner base section via a second foldable connection, such that the lid assembly can fold via the second foldable connection to form a lid that covers the at least one presentation compartment in the base assembly, said second foldable connection being either:

from the lid section to the base section; or
from the lid section to the inner base section; or

from the optional inner lid section to the base section; or
from the optional inner lid section to the inner base section;

wherein
when assembled into a box, the rims of the lid assembly and base assembly are in registration with and abut each other around the entire perimeter of the base assembly and lid assembly such that the bulges of the lid and base sections enclose the at least one presentation compartment of the base assembly, and

wherein the base section, inner base section, lid section or optional inner lid section may optionally comprise a component capable of forming a mechanical fastening means for the presentation box.

3. The blank of claim 2, wherein the bulges in the base and lid sections are flat bottomed.

4. The blank of any preceding claim, wherein the lid section and base section are mirror images.

5. The blank of any preceding claim, wherein the inner base section contains a plurality of wells or openings.

6. The blank of any preceding claim, wherein the entire perimeter of the inner base section (except the op-

tional components intended to act as a fastening means) abuts the base section in the base assembly when the blank is folded to form the base assembly.

7. The blank of any preceding claim, wherein the base section contains an outer perimeter and an inner perimeter, wherein the outer perimeter is complementary to the perimeter of the lid section, and wherein the inner perimeter is complementary to the perimeter of the inner base section. 10

8. The blank of any preceding claim, wherein the blank consists of a lid section, a base section and an inner base section, wherein the base, lid, or inner base sections may optionally comprise a component capable of forming a mechanical fastening means in the presentation box.

9. The blank of any preceding claim, wherein the blank has an inner lid section, said inner lid section preferably having a plurality of features which, when the lid assembly and base assembly are folded together, are in registration with the plurality of presentation compartments in the base assembly. 20

10. A presentation box formed from the blank of any preceding claim.

11. A presentation box consisting of a base assembly and a lid assembly, said lid assembly being foldably connected to said base assembly via a second foldable connection, wherein said presentation box is formed from a single blank, said blank consisting of a base section, a lid section, an inner base section, and an optional inner lid section, said inner base section being foldably connected to and folded together with said base section via a first foldable connection and, together with said base section, forms the base assembly containing at least one presentation compartment, and said lid assembly being formed from either said lid section if the inner lid section is not present, or said lid section and said optional inner lid section (if present), wherein said optional inner lid section (if present) is foldably connected to and folded together with said lid section via a third foldable connection, such that said lid section and optional inner lid section together form the lid assembly, said lid assembly being capable of opening and closing via said second foldable connection so as to expose or cover the at least one presentation compartment in the base assembly, and wherein the base assembly and/or the lid assembly may optionally comprise a component capable of forming a mechanical fastening means for the presentation box. 30 40 45 50 55

12. The presentation box or blank of any preceding claim, wherein the blank/box is made from a formable material, preferably a formable paper composite.

13. The presentation box of any of claims 10 to 12, wherein the base and inner base sections of the base assembly are held together by a bonding means, preferably wherein the bonding means comprises thermally fusing the inner base section to the base section. 10

14. The presentation box of any of claims 10 to 13, additionally including a mechanical fastening means.

15. The presentation box of any of claims 10 to 14, wherein the box contains a plurality of presentation compartments. 15

16. The presentation box of claim 15, wherein the box contains items in the presentation compartments, wherein the items are sized to ensure that the plurality of presentation compartments are isolated from one another. 20

17. A process for making a blank as defined in any of claims 1-9, comprising

- a. providing a formable material which is planar;
- b. forming the formable material to make it non-planar; and
- c. removing portions of the formable material to provide the blank of any of claims 1-9.

18. A method for forming a presentation box as defined in any of claims 10-16, comprising:

- i. providing the blank of any one of claims 1-9;
- ii. folding the first foldable connection and bonding the inner base section to the base section using a bonding means to provide the base assembly;
- iii. if the inner lid section is present, folding the third foldable connection and bonding the optional inner lid section to the lid section using a bonding means to form the lid assembly;

whererin steps ii. and iii. may be carried out in any order; and

- iv. folding the second foldable connection such that the lid assembly folds together with the base assembly and encloses the at least one presentation compartment.

19. A mould for forming the blank of any one of claims 1-9, preferably wherein the mould comprises a male and counterpart female component for mechanically forming the blank, optionally at a raised temperature.

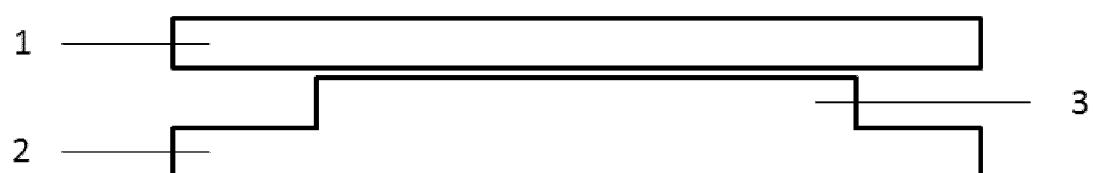
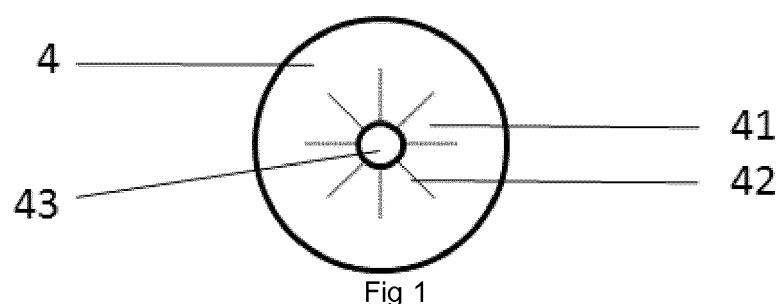


Fig. 2a

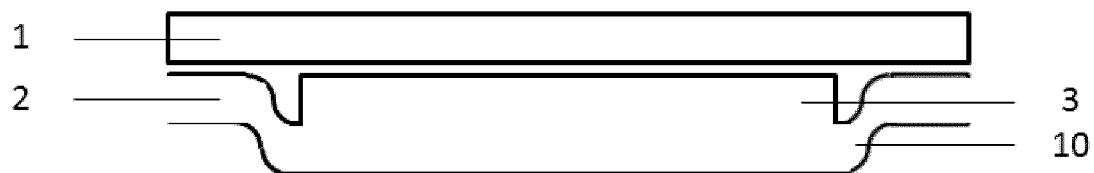


Fig. 2b

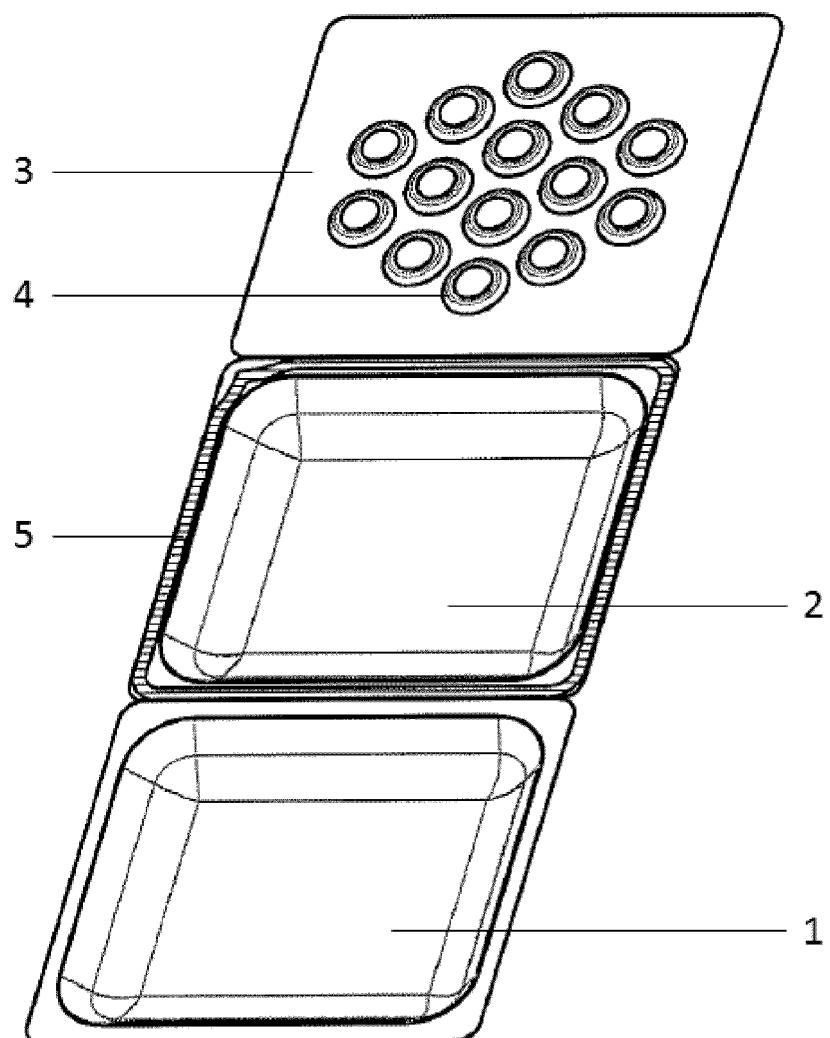


Fig. 3a

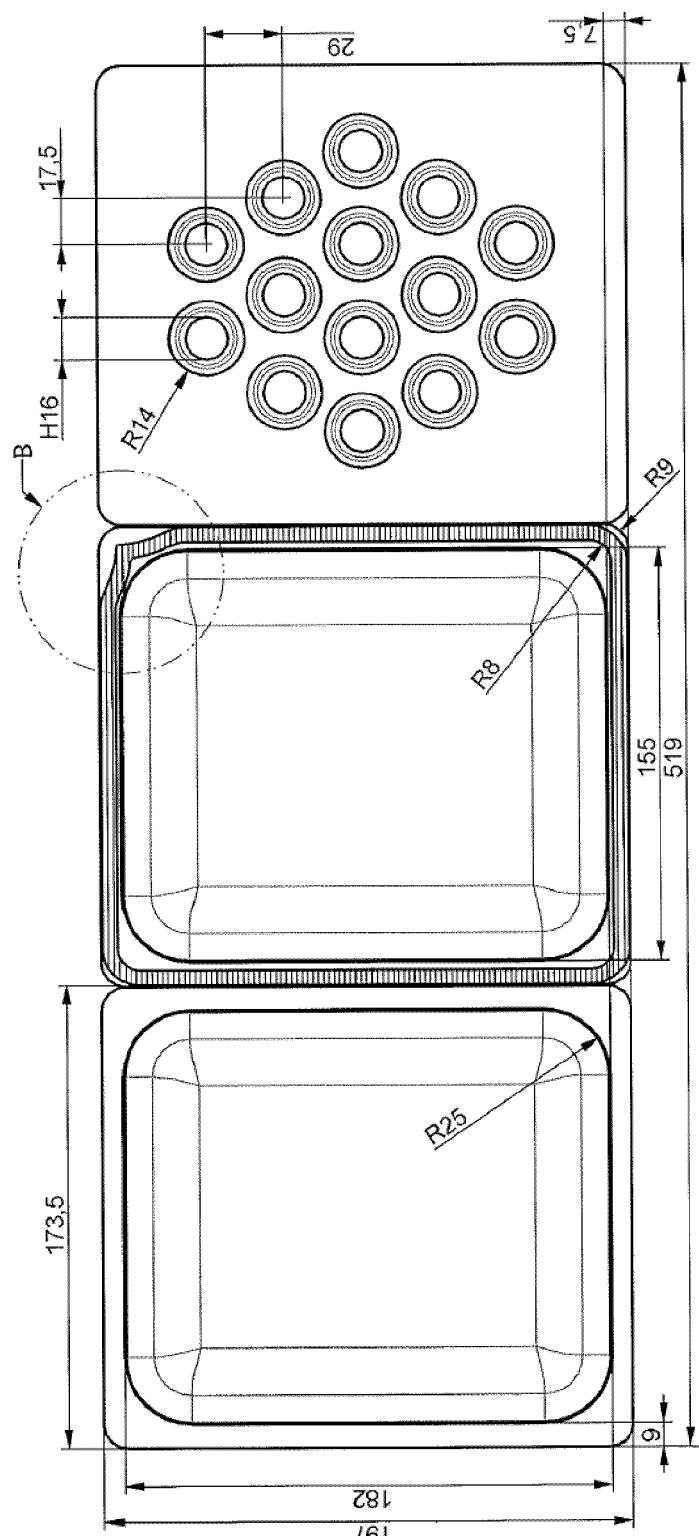


Fig. 3b

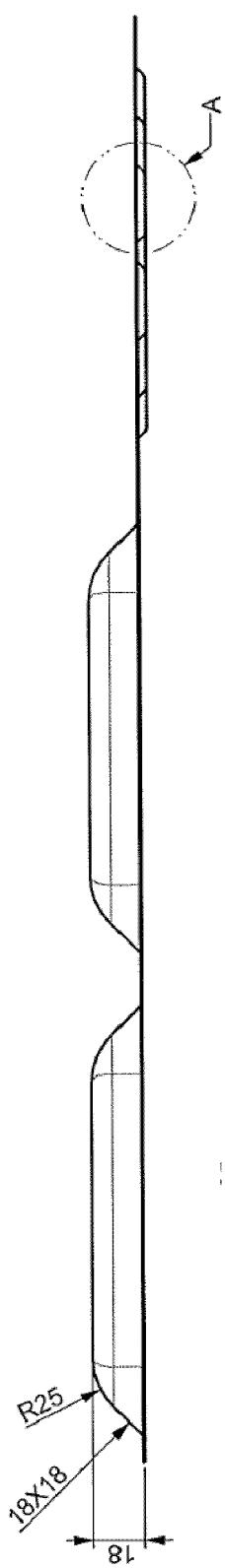


Fig. 3c

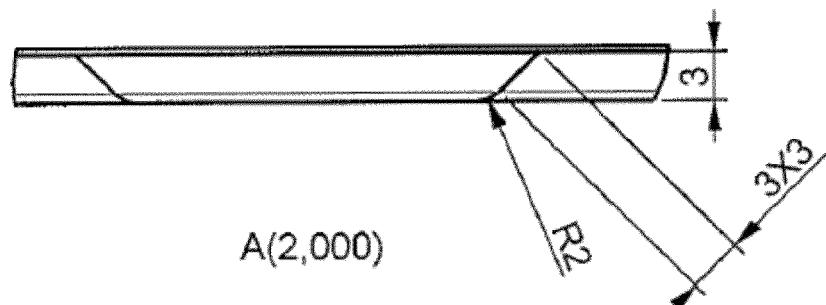


Fig. 3d

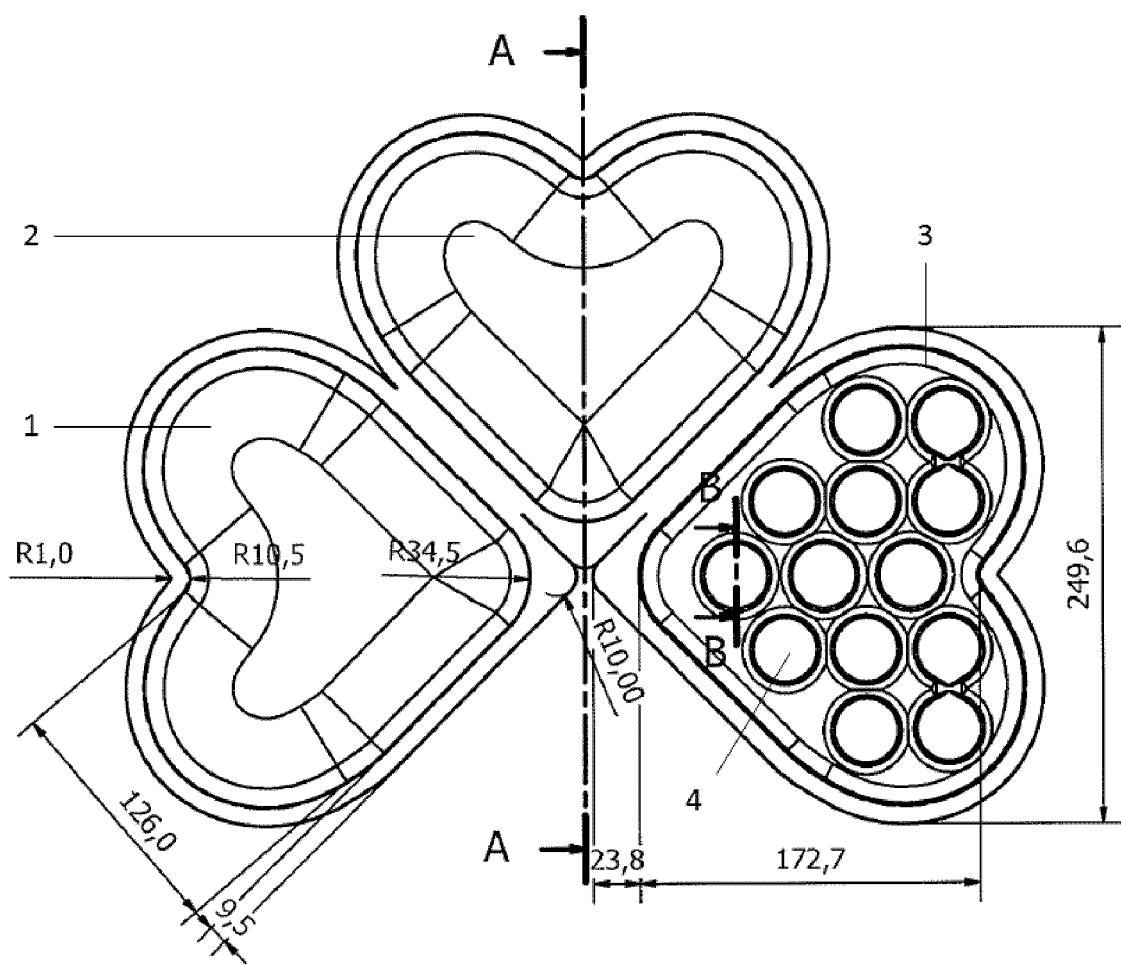


Fig. 4a

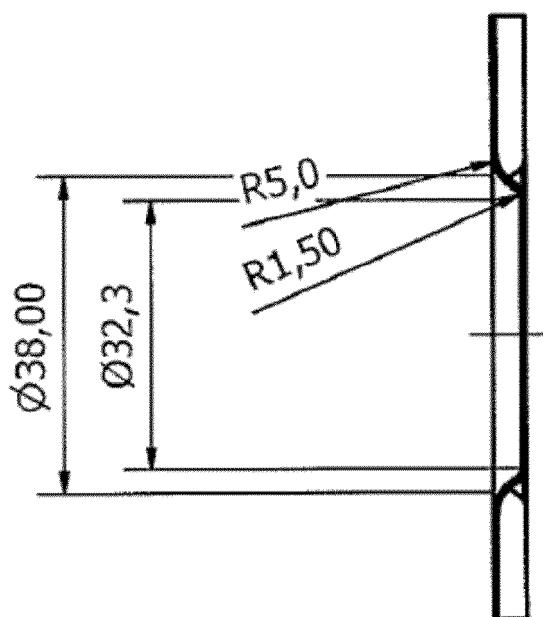


Fig. 4b

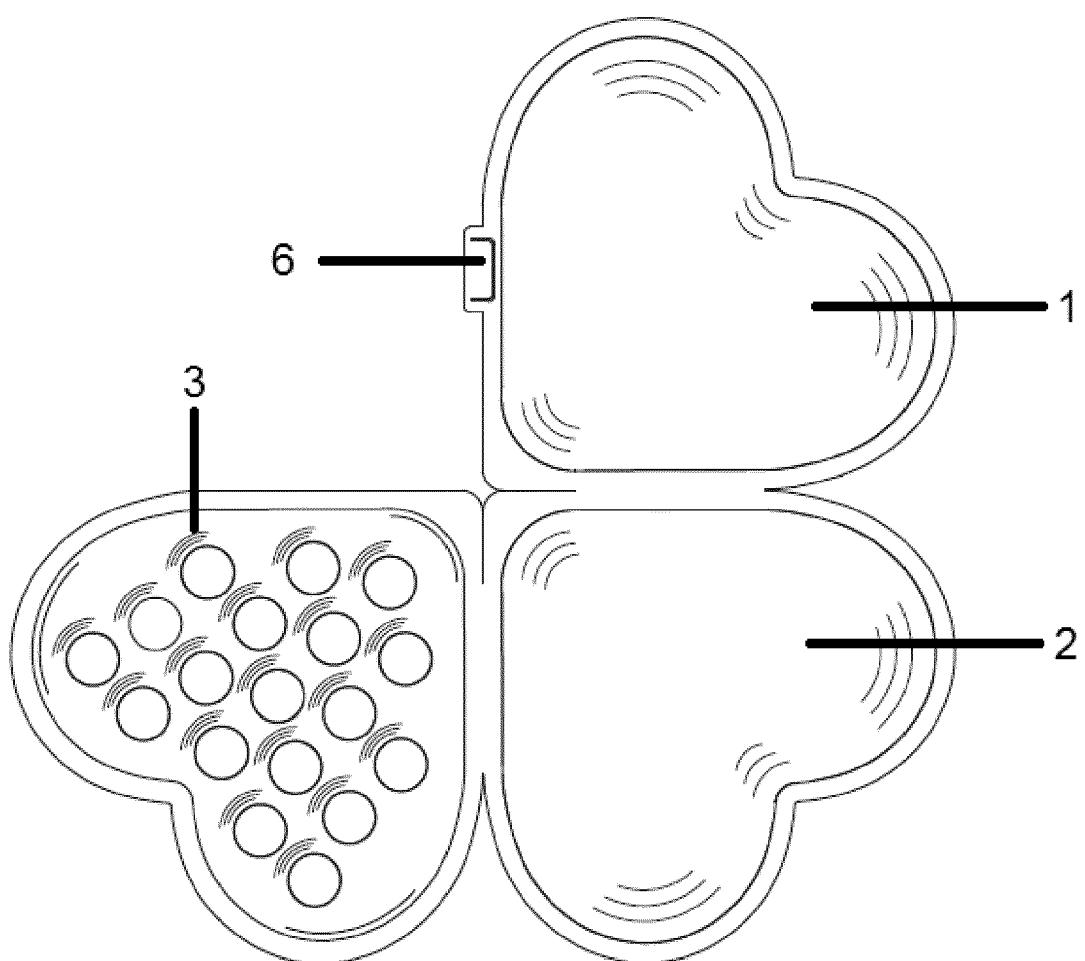


Fig. 5a



Fig. 5b

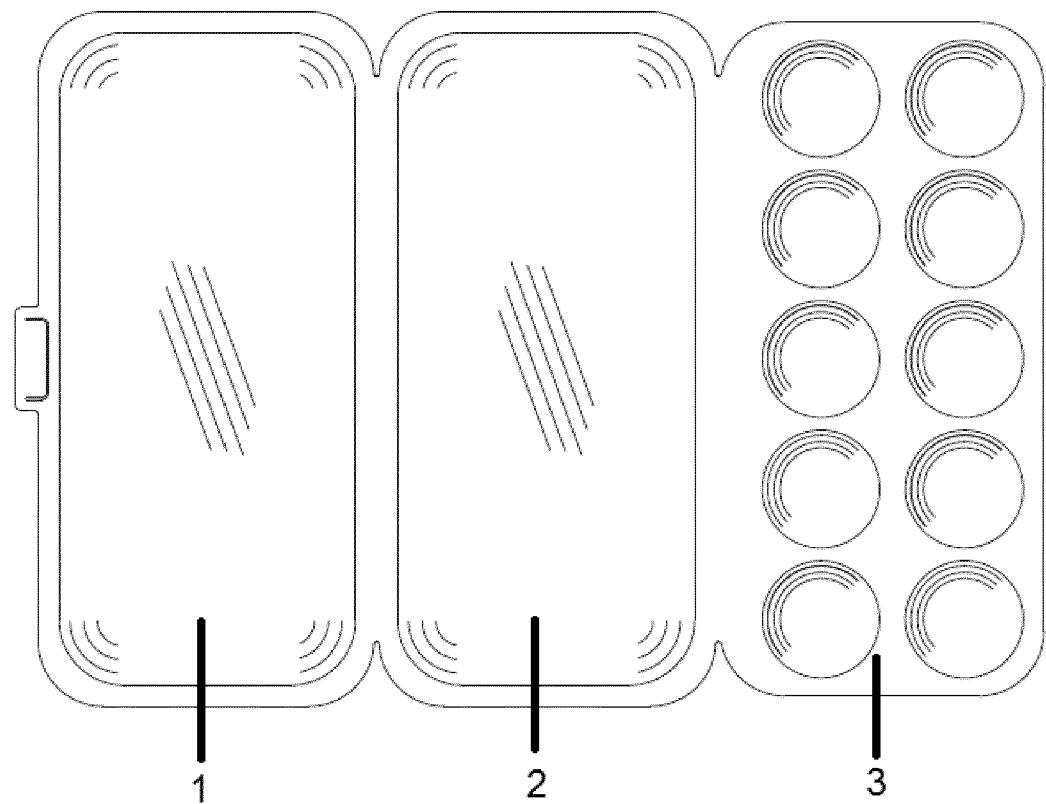


Fig. 6a



Fig. 6b

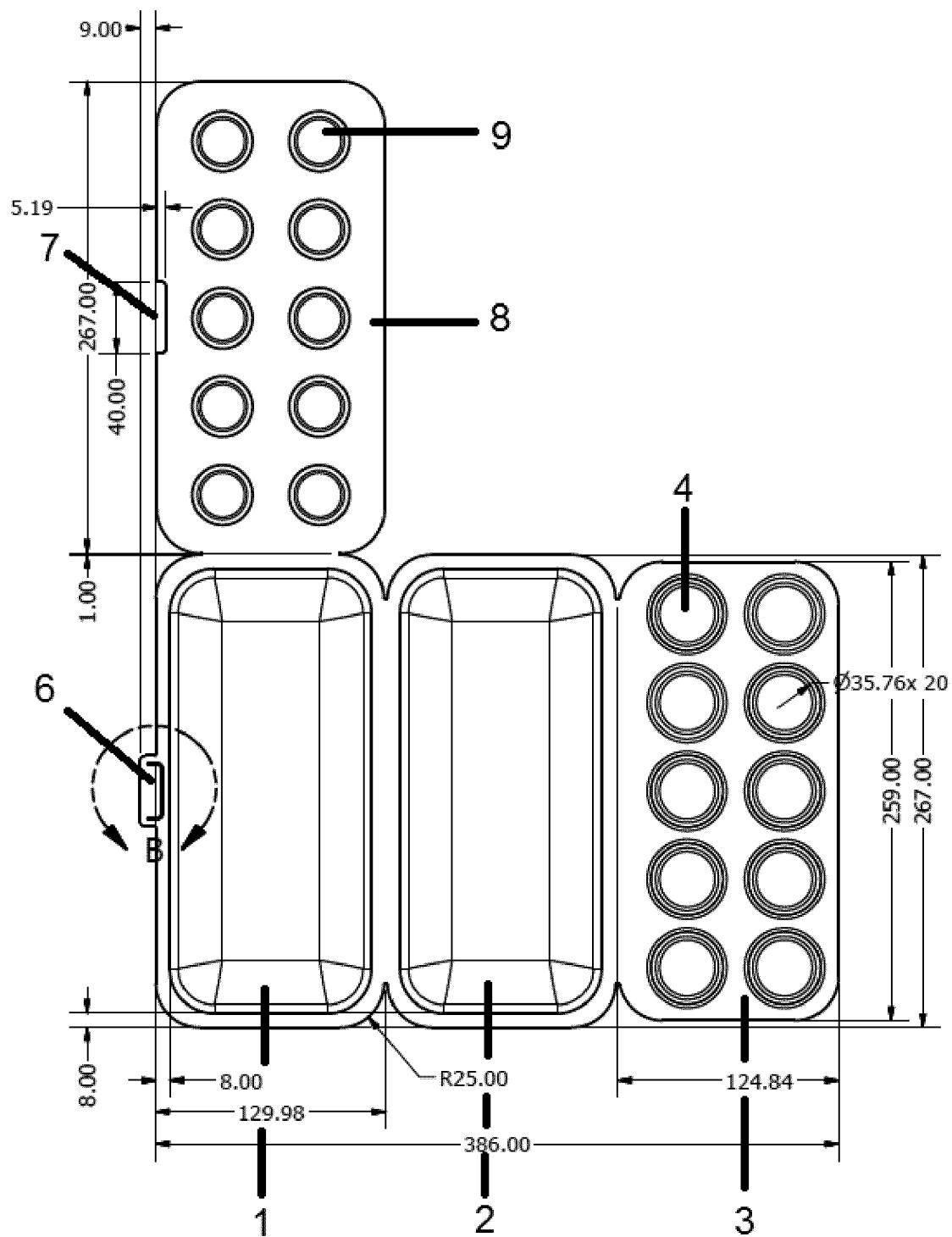


Fig. 7a

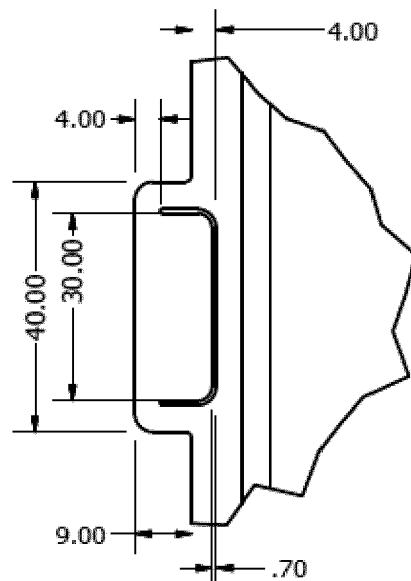


Fig. 7b

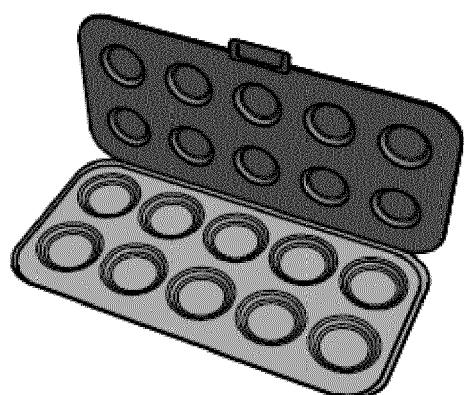


Fig. 7c

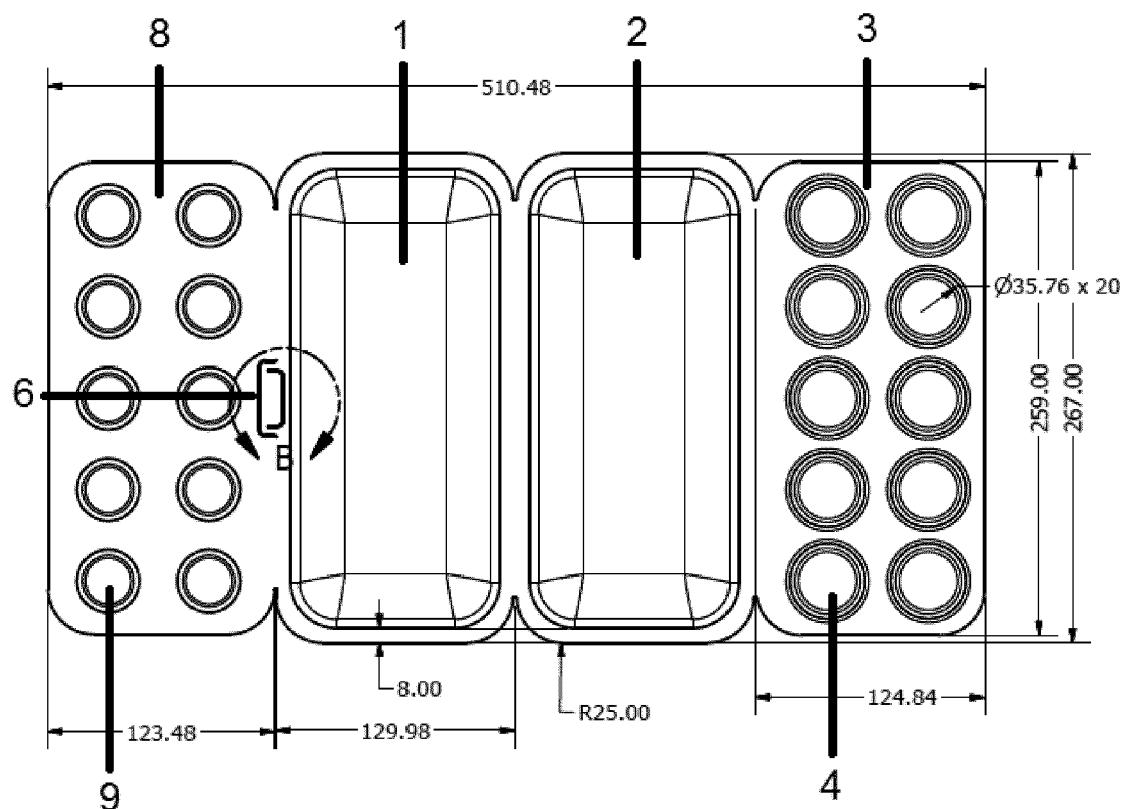


Fig. 8a

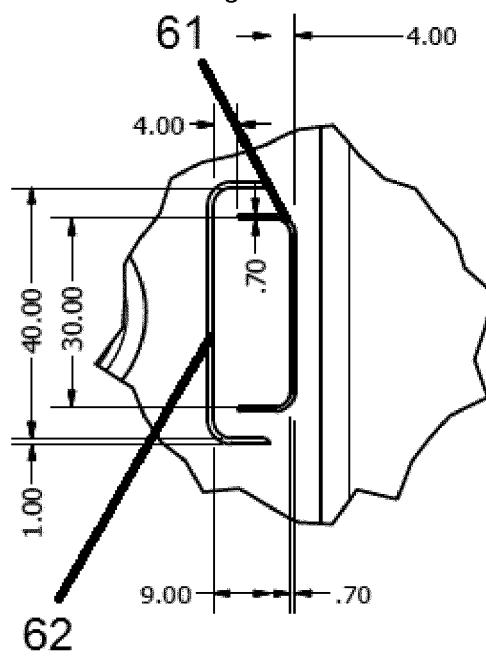


Fig. 8b



EUROPEAN SEARCH REPORT

Application Number
EP 15 18 8139

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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