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(54) **CONTAINER**

(57) A container (100) arranged to receive an item comprises: first and second faces (120) joined at a first side (102) and at a second side (104) opposite the first side, each face comprising: a first line of weakness extending between, and tending inwardly between, end regions of the first side (102), the first line of weakness dividing a first edge region of the face (120) from a central region of the face; and a second line of weakness extending between, and tending inwardly between, end regions of the second side, the second line of weakness dividing a second edge region of the face from the central region of the face; and a pair of internal flaps positioned between the first and second faces and spaced inwardly from the first and second sides (102, 104). The container (100) is moveable between: a first configuration in which the first and second faces are flat and the internal flaps are flat and parallel to the faces such that the container is at least substantially flat, and a second configuration in which the first and second edge regions are at an angle with respect to the central region of the faces and the internal flaps are at an angle with respect to the central region of the faces and arranged to act as spacers between the first and second faces. The container (100) is arranged to adopt the second configuration when a pressure is applied to the first and second sides (102, 104). A net for such a container is also described.

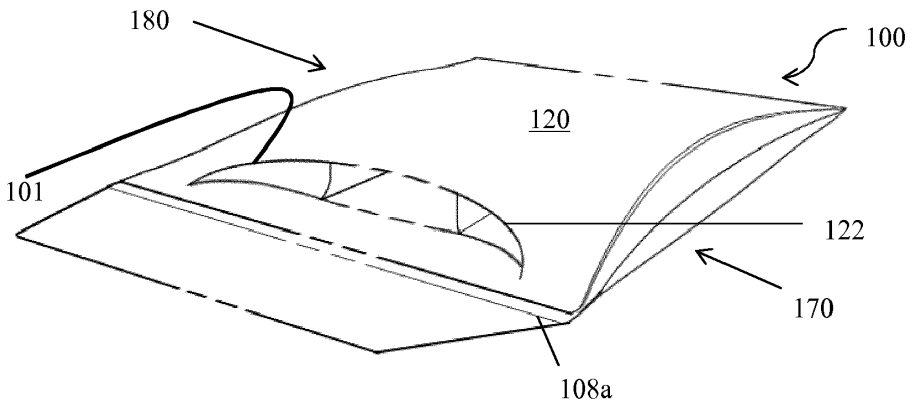


Figure 1B

EP 3 597 550 A1

Description

[0001] The present invention relates to a container, a web for forming a container, and a method of using a container. In particular, but not exclusively, the present invention relates to a packet which can be folded flat in a first configuration and then squeezed so as to adopt a second configuration.

[0002] The skilled person will appreciate that placing an item to be transported in a traditional paper envelope may lead to a discontinuous shape which may lead to a risk of tearing or other damage during handling. Providing a padded envelope or box may require increased storage space when not in use, and would also increase postage costs if the envelope or box is to be distributed by mail prior to use. The skilled person will appreciate that small and delicate items may present a particular issue; for example an item may be too small to be safely or reliably handled by a postal service, or small enough that it could easily be lost. Putting such an envelope into a large box or envelope might result in deleterious movement in transit, excessive packaging requirements, and/or ripping due to a discontinuous shape around the item catching processing machinery or the likes.

[0003] It is desirable to have a container that can be folded flat, for example for ease of distribution or storage, and then easily be reconfigured to contain a three-dimensional item.

[0004] According to a first aspect of the invention, there is provided a container arranged to receive an item and comprising:

first and second faces joined at a first side and at a second side opposite the first side, each face comprising:

a first line of weakness extending between, and tending inwardly between, end regions of the first side, the first line of weakness dividing a first edge region of the face from a central region of the face; and

a second line of weakness extending between, and tending inwardly between, end regions of the second side, the second line of weakness dividing a second edge region of the face from the central region of the face; and

a pair of internal flaps positioned between the first and second faces and spaced inwardly from the first and second sides,

wherein the container is moveable between:

a first configuration in which the first and second faces are flat and the internal flaps are flat and parallel to the faces such that the container is at least substantially flat, and

a second configuration in which the first and second edge regions are at an angle with respect to the central region of the faces and the internal flaps are at an angle with respect to the central region of the faces and arranged to act as spacers between the first and second faces,

wherein the container is arranged to adopt the second configuration when a pressure is applied to the first and second sides.

[0005] The pressure may be applied by squeezing the container, for example between a finger and thumb. The container may be described as a pop-up container, as the container "pops up" into the second configuration when the pressure is applied.

[0006] The container may have a negligible height in the first configuration; it may be substantially flat. There may be only a negligible space, or no space, between the first and second faces.

[0007] The container may have a non-negligible height in the second configuration. There is a non-negligible space between the first and second faces. The skilled person will appreciate that the container design may provide a non-negligible height along most, if not all, of the container's length, and that this may reduce the risk of the container being mistakenly identified as a flat envelope (and handled inappropriately as a result) by mail sorting/handling machinery.

[0008] Once an item is placed within the container and the pressure on the sides is released, the container may relax into an intermediate configuration having a height between that of the first configuration and the second configuration. The container may be described as self-adjusting; when the item is placed inside, the tendency of the container to return to its original shape (the first configuration) may cause the container to close/reduce in height until it touches the top and bottom surface of the item placed inside it - therefore, the container may become as slim as it can be whilst retaining its protection and maintaining the location of the item inside. Advantageously, the size reduction may improve packing efficiency for transportation and storage.

[0009] The height may vary smoothly along the length of the container in the second configuration. Advantageously, smooth variation in height may reduce the chance of the container catching or tearing in transit.

[0010] In the first configuration, the container may have substantially only two faces (having a negligible height). The container may resemble a traditional flat envelope. The container may be substantially rectangular in the first configuration.

[0011] In the second configuration, the first edge region of the first face and the first edge region of the second face may form a third face, and the second edge region of the first face and the second edge region of the second face may form a fourth face.

[0012] The third and fourth faces may be at least substantially perpendicular to the first and second faces in the second configuration. The container may resemble

a box in the second configuration.

[0013] The lines of weakness may extend along at last substantially the full length of the container.

[0014] The lines of weakness may be curved.

[0015] In the second configuration, the central region of each face may be curved to accommodate the position of the edge regions.

[0016] The third and fourth faces may be lens-shaped; having a shape formed by two arcs joined at their end-points. The arcs may be circular arcs.

[0017] The container may have a height that varies between a central maximum (between the apex of the first curved line of weakness of the first face and the apex of the first curved line of weakness of the second face) and decrease to a negligible height in the end regions of the sides.

[0018] The lines of weakness may be angled; for example a wide V-shape or a trapezoidal shape along each side of the container.

[0019] In the second configuration, the central region of each face may have one or more fold lines between differently angled portions to accommodate the position of the edge regions.

[0020] In embodiments with V-shaped lines of weakness, the edge regions may be triangular and the third and fourth faces may be diamond-shaped.

[0021] The third and fourth faces may be diamond-shaped; having a shape formed by two V-shapes joined at their end-points.

[0022] The container may have a height that varies between a central maximum (between the apex of the first V-shaped line of weakness of the first face and the apex of the first V-shaped line of weakness of the second face) and decrease to a negligible height in the end regions of the sides.

[0023] In embodiments with trapezoidal lines of weakness, the edge regions may be trapezia and the third and fourth faces may be hexagons formed by pairs of trapezia (joined at the longer parallel side of each trapezium). The container may have a height that varies between a central portion with a constant maximum height (between the shorter parallel sides of the paired trapezia) and a negligible height in the end regions of the sides.

[0024] The lines of weakness may be symmetrical. The lines of weakness may be aligned such that the first line of weakness of the second face overlies the first line of weakness for the first face.

[0025] The first and second sides may take the form of lines (e.g. fold lines) in the first configuration. The lines may become centre lines of the third and fourth faces in the second configuration. The third and fourth faces may be flat/planar across the height of the container, or may be angled around the centre lines. The third and fourth faces may be curved (or folded so as to have portions at different angles) along the length of the container.

[0026] An edge of a sheet of material forming the central region of the second face may be inwardly offset from the line of weakness. This may facilitate folding and/or reduce the risk of the edge of the sheet of material becoming unstuck with movement between configurations.

[0027] For example, the first face, the edge portions of the second face, and a connection means to allow attachment of the central region of the second face may be provided by a single sheet folded to form the first and second edges. The central region of the second face may be provided by an hourglass -shaped sheet portion (which may or may not be integral with the first sheet). The hourglass shape may be curved (formed by two concave curves) or angled (formed by two V-shapes or two trapezia). There may be a spacing between the inwardly-tending edges of the hourglass and the lines of weakness, with the edges of the hourglass being closer to a central line along the length of the container 100; for example an offset of between 0.5 mm and 2 mm, and optionally of around 1 mm. This spacing may be provided by the connection means, which may take the form of a flap extending from the edge portion of the second face, on the far side of the line of weakness therefrom.

[0028] The skilled person will appreciate that if these inwardly tending lines were matched instead of offset, the amount of force required to fold the pack may be increased. By providing an offset, folding along the line of weakness may be facilitated, so facilitating moving to the second configuration. The offset may allow a central region of the line of weakness to fold/crease more easily, and may aid the popping up of the container into the second configuration. Further, if exerting the pressure between the sides put pressure on the join (e.g. adhesive, such as glue or a heat-bonding coating) between the central region of the second face and the edge regions, the chance of delamination of the sheets may be increased. The offset may provide a lip shielding the join from direct pressure.

[0029] The internal flaps may extend along at least 60% of the length of the container. The internal flaps may extend along substantially the full length of the container.

[0030] The internal flaps may be parallel to each other. The internal flaps may be parallel to the length of the container. In the second configuration, the internal flaps may be at least substantially perpendicular to the first face. The skilled person will appreciate that the flaps may be configured in other orientations in other embodiments, for example depending on the shape of the item that is to be contained.

[0031] The internal flaps may be spaced so as to form a channel therebetween arranged to receive the item when the container is in the second configuration. The channel may have a width of between 4 cm and 1 cm, and optionally of around 3 cm. The channel may be centrally located with respect to the width of the container. The skilled person will appreciate that the internal flaps may therefore prevent or limit rotation of an elongate item, and/or limit movement of the item.

[0032] The internal flaps may be connected to the second face along a line of weakness (fold, score, perforation or the likes), such that the flaps can rotate with respect

to the second face. In the first configuration, the internal flaps may be outwardly directed from the line of weakness; i.e. directed towards the closest side of the container. As the container is moved into the second configuration, the flaps may rotate to be directed towards the first face. The line of weakness may be spaced from the sides of the second face, for example by between 2 cm and 5 cm, and optionally around 3 cm.

[0033] The internal flaps may each be at least substantially rectangular.

[0034] The internal flaps may each be connected to a flap support structure. The flap support structure may comprise a shaped sheet connected to the internal flap along a line of weakness (fold, score, perforation or the likes), which may be parallel to the flap's other line of weakness (connected to the second face).

[0035] The internal flaps may be each connected to a flap support structure, the flap support structure being arranged to be in contact with the first and second sides, and so to actuate the internal flaps when the pressure is applied to the first and second sides.

[0036] The flap support structure may be sized and shaped such that, in the first configuration, the flap support structure lies between the flap and the closest side, the edge of the support structure furthest from the flap being immediately adjacent, and optionally in contact with, the side. As the pressure is applied, the first and second sides may be pushed together, so pushing the flap support structure and causing the flaps to rotate. In the second position, the third and fourth faces may hold the flap support structure in place, so holding the flap in its second position. The flap support structure may slide along the first face between the first and second configurations.

[0037] The flap support structure may maintain the container in the second configuration.

[0038] The internal flaps may provide some resistance against the container returning from the second configuration to the first configuration.

[0039] The internal flaps may provide some resistance against the central region of each face bowing inwardly between the first and second sides when the pressure is applied to the first and second sides.

[0040] The container may have a closed end region extending between an end region of the first side and an end region of the second side.

[0041] The container may have an opening extending between an end region of the first side and an end region of the second side (e.g. the end regions opposite those of a closed end region). The part of the container comprising the opening may be referred to as the open end region.

[0042] The opening may comprise a slit in the first or second face. The slit may be located on a part of the central region of the first or second face. The slit may be curved; for example, the slit may be crescent-shape. An apex of the curve may be central with respect to container width. The curve may be inwardly-directed, such that the apex of the curve is further from the fourth side 108 than the end points of the curve. In alternative embodiments, the slit may not be curved; for example creating a trapezium shape instead of a crescent shape. The shape and/or size of the slit may be selected based on dimensions of the item to be inserted into the container.

[0043] The slit may be positioned and shaped such that it opens automatically when the container is moved into the second configuration.

[0044] An end portion of the first face in the open end region may be connected to the second face - for example adhered thereto - such that the item can only be inserted through the slit. An edge of the end portion may provide a lip along one edge of the slit such that, once the item is inserted, it cannot easily slide out through the opening.

[0045] The internal flaps may extend along substantially the full length of the container that lies between the slit and the closed end region.

[0046] The flap support structure may further comprise a protruding portion arranged to lie between the end portion of the first face and the second face. The end portion of the first face may be adhered to the second face only along an edge, so allowing the protruding portion to slide beneath an end portion of the second face; between the first and second faces, in the end region. The end portions may therefore provide a limitation on flap movement.

[0047] In the closed end region, the flap and flap support structure may be arranged to end a short distance before the closed end. The skilled person will appreciate that the container may be opened to retrieve the item by cutting off the end of the container. It may therefore be beneficial to keep the number of layers of material adjacent the closed end to a minimum for ease of cutting. The shape of the internal flaps and flap support structure may be selected so as to have inclined angles to facilitate keeping the amount of material in the cut zone when the container is opened low. This design feature may assist in providing a minimal mechanical loading on a cutting device used to open the container. The skilled person will appreciate that a channel between the internal flaps may keep the item at least substantially aligned with the container, which may facilitate the item sliding out when the container is cut open.

[0048] The container may be a packet. The container may be made of card. The card may have a polymeric coating, for example providing a bio-polymeric bonding surface. The polymeric coating may provide water resistance. The polymeric coating may be used for thermal bonding of portions of the container during assembly.

[0049] The container may further comprise a closure. The closure may comprise a flap arranged to cover the opening. The flap may extend from an end region of the first face (or the second face) and be arranged to be folded onto the second face (or the first face) to seal the container. The closure may comprise a pressure sensitive bonding agent. The pressure sensitive bonding agent may cover the entirety of the opening area. The closure may provide a hermetic seal for the container when

sealed.

[0050] The skilled person will appreciate that, if the opening is in the first face, the closure may extend from the second face, and *vice versa.*

[0051] The container may further comprise an absorbent material. The absorbent material may be provided on an inner surface of the first face or of the second face. The absorbent material may be arranged to lie along the channel created between the internal flaps. The absorbent material may be arranged to absorb any fluid leaked from the item. The skilled person will appreciate that arranging the absorbent material within the channel may minimise height in the first configuration as the internal flaps may fold adjacent to the absorbent material and not overlap therewith.

[0052] The item may be a sample container, for example a medical sample vial arranged to receive a faecal, cervical, blood or urine sample. Such items may be small, relatively delicate and easily lost. The container may therefore be sized to receive such an item, optionally engagingly. The item may be an OC-Auto sampling bottle 3, article number 20000790, available from Clindia (http://www.clindia.nl/product/103/oc-auto-sampling-bottle-3.html) - the container may therefore be arranged to receive a faecal sample bottle such as an OC-Auto sampling bottle 3.

[0053] The height of the internal flaps may be selected to at least substantially match the height of the item. The spacing between the internal flaps may be selected to at least substantially match the width of the item. The length of the flaps may be selected to extend beyond the length of the item, so as to reduce the risk of a discontinuous shape around the item making the item vulnerable to damage, e.g. by mail processing apparatus.

[0054] According to a second aspect of the invention, there is provided a web for creating a container according to the first aspect of the invention from a single sheet of material.

[0055] The web may further comprise an absorbent material. The absorbent material may comprise a strip arranged between the internal flaps. The absorbent material may be adhered to an inner surface of the second face. The strip of absorbent material may be referred to as an absorbent element.

[0056] The sheet of material may be paper or card.

[0057] At least one face of the sheet of material may be coated with a coating. The coating may be a polymeric coating (optionally a bio-polymeric coating). The coating may provide at least one of the following:

(i) water resistance;
(ii) thermal bonding.

[0058] According to a third aspect of the invention, there is provided a web comprising:

a rectangular base element comprising a first line of weakness extending between, and tending inwardly between, end regions of a first side thereof and a second line of weakness extending between, and tending inwardly between, end regions of a second side thereof, the second side being opposite the first side;

a first edge element connected to the first side of the base element by a fold line, the first edge element comprising a third line of weakness symmetrical to the first line of weakness across the fold line;

a second edge element connected to the second side of the base element by a fold line, the second edge element comprising a fourth line of weakness symmetrical to the second line of weakness across the fold line;

a top element with first and second opposing sides extending between, and tending inwardly between, third and fourth opposing sides of the top element, the third side of the top element being flat and connected to the base element along a third side thereof and wherein the first and second opposing sides are arranged to be adhered to the first and second edge elements respectively so as to create a pocket between the base element and the top element;

a first internal flap structure connected to the first edge element by a first straight fold line and comprising a first internal flap and a first actuating element connected to the first internal flap by a second straight fold line parallel to the first straight fold line; and

a second internal flap structure connected to the second edge element by a third straight fold line and comprising a second internal flap and a second actuating element connected to the second internal flap by a fourth straight fold line parallel to the third straight fold line.

[0059] The inwardly-tending sides and lines of weakness may be curved or V-shaped, with the apex of the curve or V-shape being further toward a centre line of the container than each extremity of the curve or V-shape.

[0060] The inwardly-tending sides and lines of weakness may be trapezoidal, with the shorter parallel side of each trapezium being further toward a centre line of the container than each extremity of the line of weakness.

[0061] The lines of weakness may extend along at least substantially the full length of the container.

[0062] The container formed may be a container according to the first aspect.

[0063] The web may further comprise an absorbent element positioned between the internal flaps. The absorbent element may be adhered to the second face.

[0064] The web may be a web according to the second aspect.

[0065] The top element may form the central region of the second face of the container of the first aspect. The first and second edge elements may form the first and second edge region of the second face of the container

of the first aspect.

[0066] The rectangular base may form the first face of the container of the first aspect.

[0067] According to a fourth aspect of the invention, there is provided a web for creating a container capable of moving between a first configuration, in which the container is flat, and a second configuration, in which the container has a non-negligible height, when a pressure is applied between first and second sides of the container, the web comprising:

a rectangular base element comprising a first line of weakness extending between, and tending inwardly between, end regions of a first side thereof and a second line of weakness extending between, and tending inwardly between, end regions of a second side thereof, the second side being opposite the first side;

a first edge element connected to the first side of the base element by a first fold line, the first fold line being arranged to form the first side of the container in the first configuration, the first edge element comprising a third line of weakness symmetrical to the first line of weakness across the fold line;

a second edge element connected to the second side of the base element by a second fold line, the second fold line being arranged to form the second side of the container in the first configuration, the second edge element comprising a fourth line of weakness symmetrical to the second line of weakness across the fold line; and

a top element with first and second opposing sides extending between, and tending inwardly between, third and fourth opposing sides of the top element, the third side of the top element being flat and connected to the base element along a third side thereof and wherein the first and second opposing sides of the top element are arranged to be adhered to the first and second edge elements respectively so as to create a pocket between the base element and the top element,

wherein the first and second opposing sides are shaped such that there is an offset between the first opposing side and the second line of weakness and between the second opposing side and the fourth line of weakness.

[0068] The lines of weakness may be curved, V-shaped, or trapezoidal.

[0069] The offset may be small compared to the size of the container. The offset may be around 1 mm in width.

[0070] The container formed may be a container according to the first aspect. The top element may form the central region of the second face of the container of the first aspect. The first and second edge elements may form the first and second edge region of the second face of the container of the first aspect.

[0071] The rectangular base may form the first face of the container of the first aspect (and part of the third and fourth faces in the second configuration).

[0072] The first and second edge elements may comprise first and second internal flap structures as described for the third aspect.

[0073] According to a fifth aspect of the invention, there is provided a container made from the web of the fourth aspect.

[0074] According to a sixth aspect of the invention, there is provided a method of packaging and sending a medical sample vial comprising:

acquiring a container according to the first or fifth aspect in its first configuration;

squeezing the opposing first and second sides of the container so as to move the container into the second configuration;

inserting the medical sample vial into the container;

sealing the container; and

posting the container.

[0075] When the container is a container according to the first aspect, the inserting the medical sample vial into the container may comprise aligning a length of the container with a length of the vial and inserting the vial into a channel formed between the internal flaps of the container.

[0076] The vial may be a faecal sample bottle such as an OC-Auto sampling bottle 3.

[0077] The acquiring a container may comprise receiving one or more containers in the first configuration by post.

[0078] The squeezing the opposing first and second sides of the container together may be arranged to cause a slit to open, so providing an opening into the container.

[0079] The skilled person will appreciate that features described with respect to one aspect may be applied to any other aspect, *mutatis mutandis*.

[0080] Embodiments of the invention will be described, by way of example only, with reference to the accompanying drawings, in which:

Figures 1A and 1B show schematic perspective views of a container according to an embodiment in the first configuration (flat) and in the second configuration (popped up), respectively;

Figures 2A and 2B show schematic side views of the container of Figures 1A and 1B in the first configuration and in the second configuration, respectively;

Figures 3A and 3B show schematic top and bottom plan views, respectively, of the container of Figures 1 and 2 in the first configuration;

Figures 4A and 4B show schematic top and bottom plan views, respectively, of the container of Figures 1 to 3 in the second configuration;

Figure 5 shows a schematic end view of the container of Figures 1 to 4 in the second configuration;

Figure 6 shows a plan view equivalent to 3A, but

with internal components shown in dotted lines;

Figure 7A and 7B illustrate the web used to form the containers shown in the preceding Figures;

Figures 8A and 8B show schematic top and bottom plan views, respectively, of a container of another embodiment in the second configuration;

Figure 9 shows the container and configuration of Figure 1A alongside an expanded view of an edge region thereof;

Figure 10 illustrates a method of an embodiment;

Figures 11A and 11B show schematic top plan views of a container of another embodiment in the first and second configurations, respectively; and

Figure 12 illustrates a schematic perspective view of the container of any of Figures 1 to 7 in a partially assembled configuration.

In the figures, like reference numerals are used for like components.

[0081] Figure 1 shows a container 100 of an embodiment in a first configuration, in which the container is at least substantially flat. The container 100 is arranged to receive an item 10; in the embodiment being described, the item 10 is a medical sample bottle. The medical sample bottle has dimensions of 8 cm by 1.5 cm by 0.8 cm.

[0082] The skilled person will appreciate that containers of other embodiments may be sized and shaped to receive items of different dimensions, and that embodiments may have particular utility when the items 10 to be contained are relatively small compared to standard mailing envelopes.

[0083] The container 100 has a width (W) of 10 cm and a length (L) of 14.2 cm (not including the sealing flap 112) in the embodiment being described. In the first configuration, the container 100 has a height (H) of less than 0.8cm, and more particularly of 0.2 cm or less in the embodiment being described. The height may be the thickness of four layers of the material used to make the container 100, which is card in the embodiment being described.

[0084] The skilled person will appreciate that the container may have different dimensions in different embodiments (for example as indicated by the broken lines in various Figures), and that the dimensions listed herein are provided by way of example only. For example, the width may be between 5 cm and 50 cm and the length may be between 5 cm and 50 cm. The length and the width may be equal in some embodiments. The height is small with respect to the length and width in all embodiments. For example, the height may be a maximum of 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, or 1cm. The height may be defined by the number of layers of card overlying each other in the first configuration. The height may include a small amount of open space in addition to the number of layers of card.

[0085] The container 100 has first 110 and second 120 faces. The first and second faces 110, 120 are joined along their sides so as to form a pocket 101 (i.e. an enclosed space) therebetween, in which the item 10 can be received.

[0086] The container 100 has first and second sides 102, 104 along the length (L) of the container 100. The first side 102 is opposite the second side 104, and is parallel thereto in the embodiment being described. The skilled person will appreciate that, whilst the container of the embodiment being described is substantially rectangular, other shapes may be used in alternative embodiments (e.g. trapezoidal containers) and the sides may be opposing but not parallel in such embodiments.

[0087] The container 100 has a third side 106 across the width (W) of the container 100. The third 106 side forms a closed end of the container. The third side 106 is perpendicular to the first and second sides 102, 104 in the embodiment being described. The skilled person will appreciate that, whilst the container of the embodiment being described is substantially rectangular, other shapes may be used in alternative embodiments (e.g. trapezoidal containers) and the third sides may not be perpendicular to the first and second sides in such embodiments.

[0088] The container 100 has a fourth side 108 across the width of the container 100. The fourth side 108 is located in an open end region of the container 100. The fourth side 108 is perpendicular to the first and second sides 102, 104 and parallel to the third side 106 in the embodiment being described. This may differ in alternative embodiments, as indicated above.

[0089] In the embodiment being described, a sealing flap 112 extends from the fourth side 108 of the first face 110. A fold line 108a is located on the fourth side 108 of the first face 110; the sealing flap 112 is connected to the first face 110 by the fold line 108a. The sealing flap 112 is arranged to fold over an open end region of the second face 120 and to be adhered thereto so as to seal the container 100. The sealing flap 112 is arranged to cover the opening 122 of the container 100.

[0090] In the embodiment being described, an underside 112a of the sealing flap 112 is provided with an adhesive (e.g. as a double-sided tape or coating). The adhesive may be contact-sensitive adhesive and/or moisture-sensitive adhesive. In the embodiment being described, the sealing flap 112 is provided with a full coverage of a pressure sensitive bonding agent to facilitate the opening 122 being hermetically sealed by covering the full area of the opening 122.

[0091] In the embodiment being described, the first and second faces 110, 120 are adhered together in a region of the fourth side 108. The item 10 therefore cannot be inserted into the container 100 by insertion between the edges of the faces where they meet. Instead, a slit 122 in the second face provides the opening 122. In alternative embodiments, the first and second faces 110, 120 may not be adhered together along the fourth side 108 and insertion between the edges may be possible.

[0092] In the embodiment being described, the slit 122 is curved. The curve has the shape of half of an oval / a

semi-ellipse. The span of the curve (at least substantially parallel to the width of the container) is greater than the maximum height of the curve (at least substantially parallel to the length of the container 100). The curve is symmetrical about a central line down the length of the container 100.

[0093] In the embodiment being described, the slit 122 has a span of 7.6 cm; i.e. around 76% of the width of the container 100. In alternative embodiments, the slit 122 may have a span of between 50% and 90%, and preferably between 70% and 90%, of the container width. The skilled person will appreciate that the length of the slit should be sufficiently long to allow insertion of the item 10 and sufficiently short to allow space at either side of the slit such that a complete seal of the opening 122 can be provided by the sealing flap 112.

[0094] In the embodiment being described, the slit 122 has a maximum height (at the curve's apex) of around 17 mm; i.e. around 200% of the thickness of the item 10. In alternative embodiments, the slit 122 may have a height of between 150% and 400%, and preferably between 175% and 225%, of the container width. The skilled person will appreciate that the height of the slit should be sufficient to allow insertion of the item 10, and is preferably sufficiently short for the sealing flap 112 to be able to cover the entirety of the slit 122.

[0095] In the embodiment being described, the curvature of the slit 122 is designed to provide a sufficient entry height for the item 10 and is arranged to automatically open when the container 100 is compressed/squeezed.

[0096] In the embodiment being described, the portion of the second face 120 between the slit 122 and the fourth edge 108 is arranged to lie on an inner surface of the first face 110. In the embodiment being described, the portion of the second face 120 between the slit 122 and the fourth edge 108 is adhered to the inner surface of the first face 110 in the region of the fourth edge 108.

[0097] As such, once an item 10 is inserted fully through the opening 122, the slit edge adhered to the inner surface of the first face 110 may act as a lip 122a and may serve to restrain movement of the item 10 even if the container 100 is tipped up before the sealing flap 112 is closed. In the embodiment being described, the slit edge is not directly adhered to the first face 110, so the lip created in the second configuration may be slightly deeper than the material thickness of the lip.

[0098] The first and second faces 110, 120 each comprise two inwardly-tending lines of weakness 114a, 114b, 124a, 124b.

[0099] The first lines of weakness 114a, 124a are adjacent the first side 102; one 114a is on the first face 110 and the other 124a on the second face 120. The first lines of weakness 114a, 124a each separate a first edge region 116a, 126a of the face 110, 120 from a central region 117, 127 of that face.

[0100] The second lines of weakness 114b, 124b are adjacent the second side 104; one 114b is on the first face 110 and the other 124b on the second face 120. The second lines of weakness 114b, 124b each separate a second edge region 116b, 126b of the face 110, 120 from the central region 117, 127 of that face.

[0101] Each face 110, 120 therefore comprises a central region 117, 127 and two edge regions 116a, 116b, 126a, 126b.

[0102] In the embodiment being described, the lines of weakness 114a, 114b, 124a, 124b extend along substantially the full length of the container 100. The edge regions 116a, 116b, 126a, 126b therefore also extend along at last substantially the full length of the container 100.

[0103] In the embodiment being described, the lines of weakness 114a, 114b, 124a, 124b terminate approximately 5 mm from the fourth side 108 of the container 100. The gap, G, may facilitate sealing, preferably hermetic sealing, of the container. In the embodiment being described, the spacing between the end of the lines of weakness and the fourth side 108 is used to adhere the fourth edge region 108 of the second face 120 to the fourth edge region of the first face 110.

[0104] In the embodiment being described, the lines of weakness 114a, 114b, 124a, 124b are curved. In the embodiment being described, the apex of each curve, which is the furthest point on the curve from the side 102, 104 it extends along, is around 6-8 mm from that side 102, 104. In alternative embodiments, the apex may be differently positioned, for example being between 3mm and 20 mm, and optionally between 5 mm and 10 mm from the side. The skilled person will appreciate that the spacing chosen may depend on the size of the item 10.

[0105] In the second configuration, the container 100 folds along the lines of weakness, so creating third and fourth faces 170,180 of the container 100. The envelope-shaped container of the first configuration therefore becomes more box-shaped, having a non-negligible height. In the embodiment being described, a maximum height, H, of the container 100 is around 1.5 cm in the second configuration. The maximum height is located between the apices of the pairs of lines of weakness along each side 102, 104. The height decreases towards ends of the container 100.

[0106] The skilled person will appreciate that V-shaped lines of weakness could be used in the same manner in alternative embodiments, such as that shown in Figures 8A and 8B optionally with a central fold-line 1119, 1129 across the width of the container 1000, between apices of V-shaped lines of weakness. In the embodiment shown, one fold line is provided across each opposing face 1110, 1120.

[0107] The skilled person will appreciate that trapezoidal lines of weakness could be used in the same manner in alternative embodiments, such as that shown in Figures 11A and 11B optionally with fold-lines 1129a-b across the width of the container 1100, between aligned vertices of the trapezoidal lines of weakness on opposing sides of the container 1100. The fold lines 1129a-b may continue across the edge elements 1126a, 1126b, to fa-

cilitate their transition to becoming part of the third and fourth faces in the second configuration. The skilled person will appreciate that the angled sides of the trapezia could instead be curved, forming curved lines of weakness with a straight central portion, or the likes - straight and curved lines may be combined in some embodiments.

[0108] The skilled person will therefore appreciate that the inwardly-tending sides and lines of weakness may be curved, trapezoidal, V-shaped, or the likes in various embodiments, with the apex of the curve or V-shape, or the shorter parallel side of the trapezium, being further toward a centre line of the container 100, 1000 than each extremity of the line of weakness.

[0109] The skilled person will appreciate that the slit opening 1122 could be angled instead of curved in alternative embodiments, as shown in Figures 8A and 8B, or not present at all as shown in Figures 11A and 11B.

[0110] The container 100 of the embodiment being described with respect to Figures 1 to 7 further comprises internal flaps 130a, 130b. The internal flaps 130a, 130b are located between the first 110 and second 120 faces. In the embodiment being described, the container 100 comprises a pair of symmetrical flaps; in other embodiments, the flaps 130a, 130b may not be symmetrical. In the embodiment being described, the flaps 130a, 130b are substantially rectangular.

[0111] In the embodiment being described the internal flaps 130a, 130b are parallel to the length of the container 100. In alternative embodiments, the internal flaps may be differently angled.

[0112] In the embodiment being described the internal flaps 130a, 130b have a constant height along the majority of their lengths. In the embodiment being described, the internal flaps 130a, 130b have a height of around 1 cm. In alternative embodiments, the flaps may have a different height, for example between 0.5 cm and 3 cm. The height of the flaps may depend on the item 10 to be contained.

[0113] In the embodiment being described, the internal flaps 130a, 130b extend along at least two thirds of the length of the container 100. The skilled person will appreciate that the length of the internal walls is arranged to provide not only guidance and positioning for the item 10, but also to increase compression strength of the container 100 in the second configuration.

[0114] In the embodiment being described, the internal flaps 130a, 130b are arranged to form internal walls 130a, 130b in the second configuration, as shown in Figure 5, and to create a channel 131 therebetween to receive the item 10. In the embodiment being described, the item 10 is elongate and the channel 131 is sized such that the item 10 is retained at least substantially aligned with the length of the container 100; i.e. so that the item 10 cannot rotate by 90°, and optionally not by more than 30° or not by more than 15° or 10°. The internal walls/flaps 130a, 130b are at least substantially perpendicular to the central regions of the first and second faces 110, 120 in the second configuration.

[0115] In the first configuration, the internal flaps are parallel to the central regions of the first and second faces 110, 120, such that the container 100 can be substantially flat. In the second configuration, the internal flaps may act as spacers; separating the first and second faces 110, 120. The flaps 130 may maintain, or help to maintain, a gap between the first and second faces 110, 120.

[0116] The internal flaps 130a, 130b are each connected to a flap support structure. The flap support structures are arranged to hold the flaps in place and to facilitate movement of the flaps between the first and second configurations.

[0117] In the embodiment being described, each flap 130a-b is connected to two shaped sheets 132a-b, 134a-b.

[0118] The first shaped sheet 134a, 134b is connected to the respective internal flap 130a, 130b along a first line of weakness 133a, 133b. In the embodiment being described, the line of weakness 133a, 133b is a perforated line; in other embodiments folds, scores, or the likes may be used instead of or as well as perforation.

[0119] In the embodiment being described, the first shaped sheet 134 is adhered to the internal side of the second face 120 of the container 100 when assembled. The first shaped sheet 134 serves to mount the flaps 130 to the container 100.

[0120] The first shaped sheet 134 serves to rotatably mount the internal flap 130 within the container 100 at a position spaced from an edge 102, 104 of the container 100. The internal flap 130 is rotatable with respect to the container 100 about the fold line 133. In the embodiment being described, the first shaped sheet 134 extends between the internal flap 130 and the line of weakness 124 - the skilled person will appreciate that this may facilitate making the container 100 from a single sheet of material, as described below. In alternative embodiments, the first shaped sheet 134 may be or comprise one or more strips adhered to the internal side of the second face 120 of the container 100.

[0121] In the embodiment being described, an edge of the first shaped sheet 134 nearest the fourth side 108 of the container 100 (the open end) is shaped so as not to cover the slit 122. In the embodiment being described, the edge of the first shaped sheet 134 nearest the fourth side 108 of the container 100 is curved - in alternative embodiments, the edge could be straight and optionally angled. In the embodiment being described, the edge nearest the fourth side 108 of the container 100 is arranged to lie around 2 mm within the opening 122/from the slit 112 when assembled. The skilled person will appreciate that it may be advantageous for the shaped sheet 134 not to extend to or past the slit 122 so as to avoid narrowing the opening 122 in the second configuration.

[0122] In the embodiment being described, an edge of the first shaped sheet 134 nearest the third side 106 of the container 100 (the closed end) is curved away from

the third side 106. The curve is relatively shallow (0.8cm along the length of the container 100/away from the side 106 for 3.5cm along its length in the embodiment being described), so allowing the flap 130 to extend along most of the length of the container 100. In the embodiment being described, the container 100 is arranged to be opened by cutting off the third side 106 - the skilled person will appreciate that the first shaped sheet 134 curving away from the side 106 may allow there to be less material/fewer layers to cut through, so facilitating opening of the container 100.

[0123] In the embodiment being described, the edge of the internal flap 130 nearest the third side 106 continues the curve, C. The skilled person would appreciate that a straight line could be used instead of a curve in other embodiments. In the embodiment being described, the internal flaps 130 are angled/curved upwards towards the middle of the container 100 from the lower edge 106 thereof. The skilled person will appreciate that the curvature may reduce the amount of material to be cut through when a machine or other cutting tool is used to cut off the bottom of the container 100, so reducing wear and load on the cutting tool.

[0124] The second shaped sheet 132a, 132b is connected to the respective internal flap 130a, 130b along a second line of weakness 131a, 131b. In the embodiment being described, the line of weakness 131a, 131b is a perforated line; in other embodiments folds, scores, or the likes may be used instead of or as well as perforation. In the embodiments being described, the first and second lines of weakness 131, 133 are parallel and define the lengths of the respective flaps 130. The second shaped sheet 132 extends from the opposite side of the internal flap 130 as compared to the first shaped sheet 134.

[0125] The second shaped sheet 132 is sized and shaped such that the second shaped sheet 132 lies between the flap 130 and the closest side 102/104 of the container. The second shaped sheet 132 is parallel to and in the same plane as the flap 130 in the first configuration. The second shaped sheet 132 is parallel to and in an adjacent plane to the first shaped sheet 134 in the first configuration. The second shaped sheet 132 is at an angle to the flap 130 (optionally an angle between 45 ° and 90°) in the second configuration. The second shaped sheet 132 is spaced from the first shaped sheet 134 in the second configuration.

[0126] In the embodiment being described, the edge of the second shaped sheet 132 furthest from the flap 130 is immediately adjacent, and optionally in contact with, the side 102, 104 of the container 100. When pressure is applied to move the container 100 from the first configuration into the second configuration, the first and second sides 102, 104 are pushed together (forming centre lines of the third 170 and fourth 180 faces), so pushing the flap support structure and causing the flaps 130 to rotate about the first line of weakness 133a. In the second configuration, the third and fourth faces 130, 140 hold the flap support structure 132 in place, so holding the flap 130 in its second position. Figure 12 shows a view of the container 100 in a partly-assembled configuration; it can be seen that the third and fourth faces 170, 180 each make contact with the respective flap support structure 132a, 132b.

[0127] The shaped second sheet 132 of the flap support structure may slide along the first face 110 between the first and second configurations. The second shaped sheet 132/flap support structure may therefore be described as an actuating element for the corresponding internal flap 130.

[0128] In the embodiment being described, the edge of the second shaped sheet 132 closest to the fourth side 108 has a protruding portion 135 (the protruding portion is substantially triangular in shape in the embodiment shown but may take an alternative shape in alternative embodiments) extending toward the fourth side 108. The protruding portion 135 extends closer to the fourth side 108 than the flap 130 does. The protruding portion 135 extends beyond the slit 122, such that at least a tip of the protruding portion 135 is beneath the portion 127a of the second face 120 between the slit 122 and the fourth side 108. The protruding portion 135 ends before the point at which the first and second faces 110, 120 are adhered together 127b. The protruding portion 135 can therefore slide beneath the portion 127a of the second face 120 between the slit 122 and the fourth side 108. The skilled person will appreciate that being beneath the portion 127a of the second face 120 may limit the motion of the second shaped sheet 132 at least substantially to the plane parallel to the second face 120. The end portion of the first face is adhered to the second face only along the edge 108 in the embodiment being described, so allowing the protruding portion 135 to slide beneath the portion 127a of the second face. The sliding therefore provides a limitation on flap movement.

[0129] The internal flaps 130 and support structure 132 have a width selected to contact the inside of sides 102, 104, so that when the container 100 is squeezed the flaps 130 are pushed into position, forming internal walls. The walls can be vertical (i.e. perpendicular to the first and second faces) in the embodiment being described. The skilled person will appreciate that the angle may depend upon the pressure exerted.

[0130] In the embodiment being described, friction on the flap support structure is such that the container 100 relaxes into an intermediate configuration after the applied pressure is released (i.e. with the central regions 117, 127 of the first and second faces 110, 120 closer together than in the second configuration, but with a space remaining therebetween). The internal flaps can therefore provide some resistance against the container returning from the second configuration to the first configuration. The skilled person will appreciate that the inward motion of the faces 110, 120 as the container 100 relaxes may exert a pressure on the item 10, so potentially maintaining the item 10 in place even if the container

100 is tipped upside-down before being sealed. The skilled person will appreciate that this relaxation may also reduce the space taken up by the container 100 when the item 10 is inside it - the container of such embodiments may become as slim as it can be whilst retaining its protection and location of the item 10 inside. The size reduction may be advantageous in transportation.

[0131] In alternative embodiments, the container 100 may be maintained in the second configuration or return to the first configuration when the pressure is released. In embodiments in which the container 100 does not return to the first configuration when the pressure is released, applying a pressure between the first and second faces 110, 120, in some cases after pushing the internal flaps 130 away from an angle substantially perpendicular to the first and second faces 110, 120, may cause the container 100 to return to the first configuration. Movement between the configurations is reversible in the embodiments being described.

[0132] In the embodiment being described, the internal flaps 130 provide some resistance against the central region 117, 127 of each face 110, 120 bowing inwardly between the first and second sides 102, 104 when the pressure is applied to the first and second sides. The height of the flaps 130 may help to maintain the height of the container 100 in the second configuration.

[0133] In the embodiment being described, the internal flaps 130 are locked in the second configuration (the "popped up" form) and will not return to the first configuration until a sideways force is applied thereto - for example by inserting a finger or implement through the opening to push the flaps 130 from inside the container 100. The third and fourth faces 170, 180 are not locked in the popped-up position in the embodiment being described, however, and relax to the intermediate configuration, supported by the internal flaps 130.

[0134] In the embodiment being described, an absorbent material 140 is provided within the channel 131 formed between the internal walls 130. In the embodiment being described, the absorbent material is provided in a strip oriented along the channel. In alternative or additional embodiments, different shapes and/or locations may be used.

[0135] In the embodiment being described, the absorbent material 140 is positioned spaced away from the opening (by 8 mm in the embodiment being described, although the skilled person will appreciate that the spacing may vary); the skilled person will appreciate that this may reduce the risk of the item 10 catching on the absorbent material 140 when inserted into the container 100.

[0136] In the embodiment being described, the absorbent material 140 is adhered to the second face 120. In alternative embodiments, the absorbent material 140 may be adhered elsewhere on an internal surface of the container 100, for example to the first face 110.

[0137] In the embodiment being described, the absorbent material 140 is a cellulosic absorbent material. In additional or alternative embodiments, different absorbent materials may be used. In the embodiment being described, the absorbent material 140 is selected and sized to be able to absorb a volume of moisture equivalent to the item's maximum fluid content, such that the entirety of a leak may be absorbed. In alternative embodiments, the absorbent material 140 may only be capable of absorbing a portion of the maximum fluid content.

[0138] A web 200 for making the container 100 is shown in Figures 7A and 7B.

[0139] The web 200 is made from a single sheet of material, and in particular from a single sheet of card, in the embodiment shown. Figure 7A shows the web 200 flat and in a single layer; Figure 7B shows the web 200 with one flap 130b and a corresponding part of the flap support structure 132b folded inwards, towards a centre line of the web 200.

[0140] In the embodiment being described, the card has a glossy surface arranged to form an outer surface of the container 100, and a coated surface arranged to form an inner surface of the container 100. The polymeric coating (which is a polyethylene coating in the embodiment being described, although the skilled person will appreciate that alternative or additional materials could be used in other embodiments; for example a biopolymer or wax) is arranged to make the card moisture-resistant, so protecting the container from any leaks from the contained item 10. The polymeric coating is selected to act as an adhesive; in the embodiment being described, the coating is of a thermal bonding material, arranged to become sticky when heated and set when cooled. The polymeric coating is used to adhere portions of the web 200 together so as to form the container 100. The skilled person would appreciate that a different or additional adhesive, stitching, and/or the likes may be used in other embodiments.

[0141] The web 200 comprises a rectangular base element 110. The rectangular base element 110 is arranged to form the first face 110 of the container 100 (and half of each of the third and fourth faces 130, 140 in the second configuration). The rectangular base element 110 has first 102, second 104, third 106, and fourth 108 sides. The first and second sides 102, 104 form one pair of opposing sides, extending along the length of the rectangular base element 110 (which is longer than the width in the embodiment being described, although this may vary in other embodiments). The third and fourth sides 106, 108 form a second pair of opposing sides, extending across the width of the rectangular base element 110

[0142] The rectangular base element 110 comprises a first line of weakness 114a extending between end regions of the first side 102 thereof. The rectangular base element 110 comprises a second line of weakness 114b extending between end regions of the second side 104 thereof.

[0143] In the embodiment being described, the lines of weakness 114a, 114b are symmetrical. The lines of weakness 114a, 114b tend inwardly - curving towards a

centre line of the rectangular base element 110 in their middle regions and out towards their ends.

[0144] In the embodiment being described, the lines of weakness 114 divide half-lens-shaped edge regions 116 (having one straight edge and one curved edge) from the remainder of the base element 110. The half-lens shaped region 116a on the first side 102 of the container 100 is arranged to form part of the third face 170 of the container 100 in the second configuration. The half-lens shaped region 116b on the second side 104 of the container 100 is arranged to form part of the fourth face 180 of the container 100 in the second configuration.

[0145] The web 200 comprises a first edge element 126a, 134a connected to the first side 102 of the base element 110 by a fold line 110a. The first edge element 126a, 134a comprises a third line of weakness 124a symmetrical to the first line of weakness 114a across the fold line 110a. A region 126a of the first edge element 126a, 134a is arranged to form a part of the second face 120 of the container 100 in the flat configuration, and a part of the third face 170 in the popped up configuration, once assembled.

[0146] The web 200 comprises a second edge element 126b, 134b connected to the second side 104 of the base element 110 by a fold line 110b. The second edge element 126b, 134b comprises a fourth line of weakness 124b symmetrical to the second line of weakness 114b across the fold line 110b. A region 126ba of the second edge element 126b, 134b is arranged to form a part of the second face 120 of the container 100 in the flat configuration, and a part of the fourth face 180 in the popped up configuration, once assembled.

[0147] In the embodiment being described, the region 126 that is arranged to form a part of the second face 120 in the first configuration is half-lens-shaped.

[0148] In the embodiment being described, two half-lens-shaped regions 116, 126 are located along each fold line 110, forming matched pairs of half-lens-shaped regions 116a, 126a and 116b, 126b). These pairs of half-lens-shaped regions form the lens-shaped third 170 and fourth 180 faces of the container 100 in the second configuration.

[0149] In the embodiment being described, a second portion 134 of the edge element 126, 134 extends on the other side of the line of weakness from the half-lens-shaped region 126.

[0150] The web 200 comprises a top element 127. The skilled person will appreciate that the terms "base" and "top" are used for ease of description and refer to the orientation shown in Figure 1; the web 200 may be rotated at any angle, so the "top" element 127 may in fact be lowest in some orientations.

[0151] The top element 127 is arranged to form the central part of the second face 120 of the container once assembled. The top element 127 has first 125a and second 125b opposing sides. The sides 125 extend between, and tend inwardly between, end regions of the top element 127. In the embodiment being described, the top element 127 is substantially hourglass shaped.

[0152] The top element 127 further comprises third 106 and fourth 108 sides, which are opposing. The third side 106 of the top element 127 is flat and connected to the base element 110 along a third side 106 thereof by a fold line.

[0153] The first and second opposing sides 125a-b are arranged to be adhered to the first and second edge elements 126a-b respectively so as to create a pocket between the base element 110 and the top element 127.

[0154] In the embodiment being described, the web 200 further comprises a first internal flap structure 130a, 132a connected to the first edge element 126a, 134a by a first straight fold line 133a. The first straight fold line 133a separates the second portion 134a of the first edge element 126a, 134a from the first internal flap structure 130a, 132a.

[0155] In the embodiment being described, the fold lines 131, 133 on either side of each flap 130 are perforated. The skilled person will appreciate that this may improve ease of rotation of the flaps 130. In alternative embodiments, the fold lines 131, 133 may not be perforated; optionally, they may be scored.

[0156] The first internal flap structure 130a, 132a comprises a first internal flap 130a and a first actuating element 132a. The first actuating element 132a is connected to the first internal flap 130a by a fourth straight fold line 131a parallel to the third straight fold line 133a.

[0157] In the embodiment being described, the web 200 further comprises a second internal flap structure 130b, 132b. In the embodiment being described, the second internal flap structure 130b, 132b is the mirror image of the first internal flap structure 130a, 132a across a centre line of the web 200 down the length of the web 200.

[0158] In the embodiment being described, the second internal flap structure 130b, 132b is connected to the second edge element 126b, 134b by a third straight fold line 133b. The third straight fold line 133b separates the second portion 134b of the second edge element 126b, 134b from the second internal flap structure 130b, 132b.

[0159] The second internal flap structure 130b, 132b comprises a second internal flap 130b and a second actuating element 132b. The second actuating element 132b is connected to the second internal flap 130b by a fourth straight fold line 131b parallel to the third straight fold line 133a.

[0160] In the embodiment being described, the first edge element 126a, 134a is connected to the first side 102 of the base element 110 by a first fold line 110a, the first fold line 10a being arranged to form the first side of the container 100 in the first configuration.

[0161] In the embodiment being described, the second edge element 126b, 134b is connected to the second side 104 of the base element 110 by a second fold line 110b, the second fold line 110b being arranged to form the second side 104 of the container 100 in the first configuration.

[0162] In the embodiment being described, the first

side 125a of the top element 127 is shaped such that there is an offset between the first opposing side 125a and the adjacent line of weakness 124a when the web 200 is assembled to form the container 100.

[0163] In the embodiment being described, the second side 125b of the top element 127 is shaped such that there is an offset between the second opposing side 125b and the adjacent line of weakness 124b when the web 200 is assembled to form the container 100.

[0164] The offset is shown in an expanded view in Figure 9. In the embodiment being described, the offset is formed by the top element 127 being arranged to overlie the majority, but not all of, the second portion 134a, b of each edge element 126, 134. In the embodiment being described, a narrow arc of each second portion 134a,b remains exposed between the line of weakness and the edge of the top element 127. The second portion 134 may be described as a connection means as it serves to allow connection of the top element 127 to the edge element (and of the internal flaps 130 to the top element 127).

[0165] In the embodiment being described, the offset is small compared to the size of the container 100 formed from the web 200. The offset is between 0.5 mm and 3 mm, and in particular between 0.5 mm and 1.5 mm, and may be around 1 mm, at its widest point.

[0166] In the embodiment being described, the offset size decreases towards each end of the container 100 / web 200. The curvature of the line of weakness differs from that of the side 125 of the top element 120. The skilled person will appreciate that more bending may be required in moving between the first and second configurations in the central area of the container 100 than at the ends of the container, and that the offset may therefore be of less utility in the end regions. In other embodiments, the offset may have a constant width.

[0167] The lines of weakness are curved in the embodiment being described, but may not be curved, and may for example be V-shaped, in other embodiments.

[0168] The skilled person will appreciate that, in other embodiments, the internal flaps 130 and associated supports/actuating elements 132, 134 may not be present. The offset may provide increased ease of folding without use of flaps 130. In alternative embodiments, the offset may not be present. In the embodiments being described herein, both features are present but the skilled person will appreciate that they are separable.

[0169] In the embodiment being described, an absorbent element 140, and in particular a piece of absorbent material 140, is adhered to the web 200.

[0170] In the embodiment being described, the web 200 further comprises a sealing flap 112 connected to the base element 110 by a fold line along the fourth side 108 of the base element 110. The sealing flap 112 is arranged to be folded so as to make contact with the top element 127 and seal the container 100 once assembled.

[0171] In the embodiment being described, the web 200 further comprises a slit 122 in the top element 127, the slit 122 being arranged to act as an opening once the container 100 is assembled. In alternative embodiments, no slit 122 may be provided. In such embodiments, edge regions of the base element 110 and top element 127 near the fourth side 108 may be open/not adhered together, such that the item 10 can be inserted between the elements 110, 127 rather than through a slit 122 in one of the elements.

[0172] In alternative embodiments, the sealing flap 112 may be connected to the top element 127 and arranged to be folded so as to make contact with the base element 110 and seal the container 100 once assembled. In such embodiments, the slit 122 (if present) may be in the base element 110.

[0173] A method 800 of using a container 100, 1000, 1100 as described herein is discussed in relation to Figure 10.

[0174] At step 802, a container 100, 1000 is acquired. The container 100, 1000, 1100 is capable of being moved between a first configuration, in which the container is at least substantially flat (i.e. has a negligible height), and a second configuration, in which the container has a non-negligible height, when a pressure is applied between first and second sides of the container. The container 100, 1000, 1100 is acquired in the first configuration in the embodiment being described.

[0175] In the embodiment being described, the acquiring 802 a container 100, 1000, 1100 comprises receiving the container 100, 1000 in the first configuration by post. The skilled person will appreciate that, as the container 100, 1000, 1100 is at least substantially flat in the first configuration, it may be posted in a standard envelope, for example accompanied by a reminder letter requesting a medical sample.

[0176] In various embodiments, the sender of the empty container may provide the container 100, 1000 with an address, barcode, QR code, and/or reference information for the sample (such as a patient reference or container reference) printed thereon or adhered thereto. The sender of the empty container may provide a label to be adhered to the sample bottle 10 with the container 100, 1000, 1100. Information on the label may include the same address, barcode, QR code, and/or reference information, or different information.

[0177] At step 804, the opposing first 102 and second 104 sides of the container 100, 1000, 1100 are squeezed together so as to move the container 100, 1000, 1100 into the second configuration.

[0178] In the embodiment being described, the movement into the second configuration causes an opening 122 of the container 100, 1000, 1100 to open, facilitating insertion of the vial.

[0179] At step 806, a medical sample bottle/vial 10 is inserted into the container 100, 1000, 1100.

[0180] In the embodiment being described, the vial 10 is aligned with a channel 131 formed between internal flaps 130 of the container 100, 1000 for insertion 806, and is inserted into the channel 130.

[0181] At step 808, the container 100, 1000, 1100 is sealed.

[0182] In the embodiment being described, the sealing 806 is performed by moistening a sealing flap 112, folding this along a fold line 108 provided to make contact with the top/second surface 120, and applying pressure to secure the sealing flap 112 to the top surface 120 of the container 100, 1000, 1100. The skilled person will appreciate that any suitable known sealing technique may be used instead of, or as well as, this approach.

[0183] At step 810, the container 100, 1000, 1100 is posted (mailed).

[0184] In the embodiment being described, a standard postage/mailing service such as the Royal Mail is used. In alternative embodiments, a specialist carrier may be used.

[0185] The skilled person will appreciate that webs and containers as described herein may be used for, and designed to fit, a wide variety of different items 10 in various embodiments.

[0186] The skilled person will appreciate that there are physical restraints on the size of the container 100 in various embodiments. In the embodiment being described, the container 100 has been designed to comply with the smallest acceptable size for the Royal Mail postal service. The skilled person will appreciate that this may reduce or minimise the amount of material used and help to keep costs low. In the embodiment being described, the sealing flap 112 is selected to be at or near the maximum length permissible in this Royal Mail design. The sealing flap has a length of 3.2 cm in the embodiment being described. The curved slot opening 122 is arranged to be of a shape and size to fit within the dimensions of the flap 112 when it was closed so as to ensure that the opening 122 can be sealed. In the embodiment being described, the curvature of the slit 122 was selected to utilise this available space - ensuring that the container 100 could be sealed and that the opening 122 was large enough to facilitate entry of the item 10 into the container 100.

Claims

1. A container arranged to receive an item and comprising:

first and second faces joined at a first side and at a second side opposite the first side, each face comprising:

a first line of weakness extending between, and tending inwardly between, end regions of the first side, the first line of weakness dividing a first edge region of the face from a central region of the face; and

a second line of weakness extending between, and tending inwardly between, end regions of the second side, the second line of weakness dividing a second edge region of the face from the central region of the face; and

a pair of internal flaps positioned between the first and second faces and spaced inwardly from the first and second sides,

wherein the container is moveable between:

a first configuration in which the first and second faces are flat and the internal flaps are flat and parallel to the faces such that the container is at least substantially flat, and

a second configuration in which the first and second edge regions are at an angle with respect to the central region of the faces and the internal flaps are at an angle with respect to the central region of the faces and arranged to act as spacers between the first and second faces,

wherein the container is arranged to adopt the second configuration when a pressure is applied to the first and second sides.

2. The container of claim 1, wherein the height of the container varies smoothly along the length of the container in the second configuration.

3. The container of claim 1 or claim 2, wherein the lines of weakness are curved, V-shaped, or trapezoidal.

4. The container of any preceding claim wherein an edge of a sheet of material forming the central region of the second face is inwardly offset from the line of weakness to which it is adjacent.

5. The container of any preceding claim wherein at least one of the following applies:

(i) the internal flaps extend along at least 60% of the length of the container, and are arranged to be at least substantially perpendicular to the first face in the second orientation;

(ii) the internal flaps are spaced so as to form a channel therebetween arranged to receive the item when the container is in the second configuration; and/or

(iii) the internal flaps are each connected to a flap support structure, the flap support structure being arranged to be in contact with the first and second sides, and so to actuate the internal flaps when the pressure is applied to the first and second sides.

6. The container of any preceding claim wherein the

container further comprises an opening, the opening being provided by a curved slit in the first or second face.

7. The container of any preceding claim, wherein the container is arranged to contain a fecal sample bottle.

8. A web for creating a container according to any preceding claim from a single sheet of material.

9. The web of claim 8, wherein at least one of the following applies:

(i) the web further comprises an absorbent material adhered to an inner surface of the container; and/or
(ii) at least one face of the sheet of material is coated with a coating arranged to provide at least one of the following:

(i) water resistance;
(ii) thermal bonding.

10. A web for making a container and comprising:

a rectangular base element comprising a first line of weakness extending between, and tending inwardly between, end regions of a first side thereof and a second line of weakness extending between, and tending inwardly between, end regions of a second side thereof, the second side being opposite the first side;
a first edge element connected to the first side of the base element by a fold line, the first edge element comprising a third line of weakness symmetrical to the first line of weakness across the fold line;
a second edge element connected to the second side of the base element by a fold line, the second edge element comprising a fourth line of weakness symmetrical to the second line of weakness across the fold line;
a top element with first and second opposing sides extending between, and tending inwardly between, third and fourth opposing sides of the top element, the third side of the top element being flat and connected to the base element along a third side thereof and wherein the first and second opposing sides are arranged to be adhered to the first and second edge elements respectively so as to create a pocket between the base element and the top element;
a first internal flap structure connected to the first edge element by a first straight fold line and comprising a first internal flap and a first actuating element connected to the first internal flap by a second straight fold line parallel to the first straight fold line; and
a second internal flap structure connected to the second edge element by a third straight fold line and comprising a second internal flap and a second actuating element connected to the second internal flap by a fourth straight fold line parallel to the third straight fold line.

11. The web of claim 10, wherein:

(i) the inwardly-tending sides and lines of weakness are curved, trapezoidal, or V-shaped; and/or
(ii) the web is configured to create a container according to any of claims 1 to 7.

12. A web for creating a container capable of moving between a first configuration, in which the container is flat, and a second configuration, in which the container has a non-negligible height, when a pressure is applied between first and second sides of the container, the web comprising:

a rectangular base element comprising a first line of weakness extending between, and tending inwardly between, end regions of a first side thereof and a second line of weakness extending between, and tending inwardly between, end regions of a second side thereof, the second side being opposite the first side;
a first edge element connected to the first side of the base element by a first fold line, the first fold line being arranged to form the first side of the container in the first configuration, the first edge element comprising a third line of weakness symmetrical to the first line of weakness across the fold line;
a second edge element connected to the second side of the base element by a second fold line, the second fold line being arranged to form the second side of the container in the first configuration, the second edge element comprising a fourth line of weakness symmetrical to the second line of weakness across the fold line; and
a top element with first and second opposing sides extending between, and tending inwardly between, third and fourth opposing sides of the top element, the third side of the top element being flat and connected to the base element along a third side thereof and wherein the first and second opposing sides of the top element are arranged to be adhered to the first and second edge elements respectively so as to create a pocket between the base element and the top element,

wherein the first and second opposing sides are shaped such that there is an offset between the first

opposing side and the second line of weakness and between the second opposing side and the fourth line of weakness.

13. The web of claim 12, wherein:

(i) the lines of weakness are curved, V-shaped, or trapezoidal;
(ii) the offset is small compared to the size of the container; and/or
(iii) the offset is around 1 mm in width.

14. The web of claim 12 or claim 13, wherein the web further comprises internal flaps and is configured to create a container according to any of claims 1 to 7, and wherein optionally the first and second edge elements comprise first and second internal flap structures.

15. A container made from the web of any of claims 12 to 14.

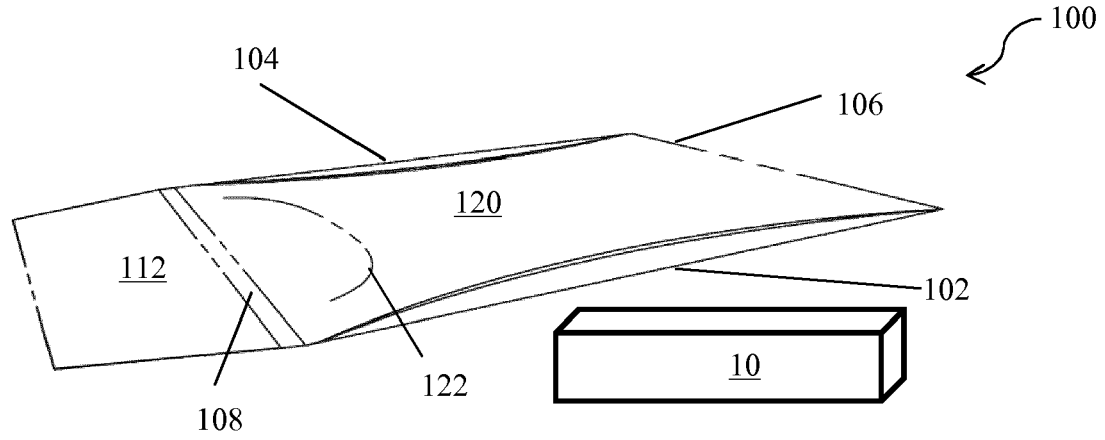


Figure 1A

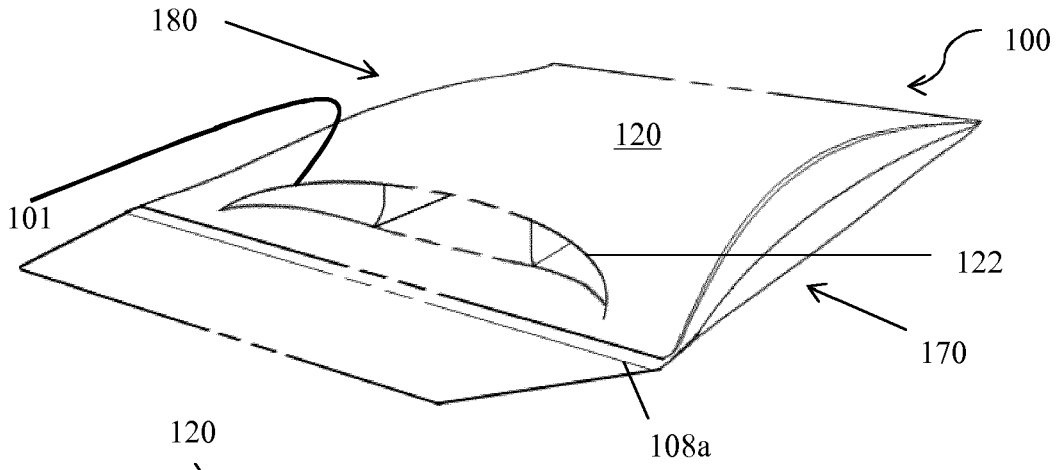


Figure 1B

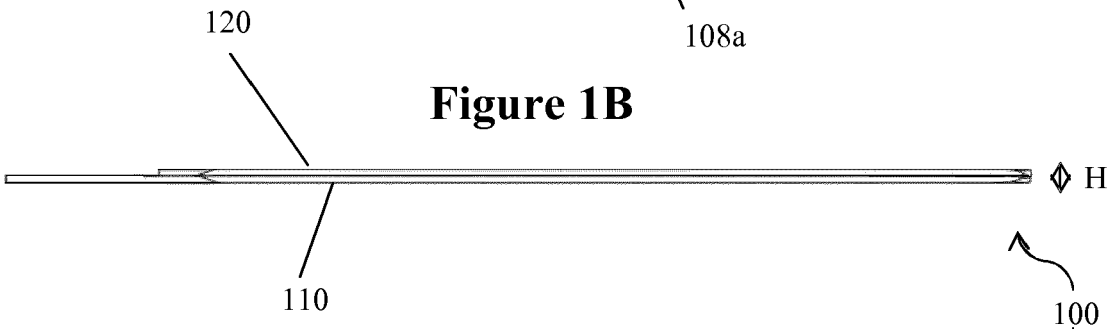


Figure 2A

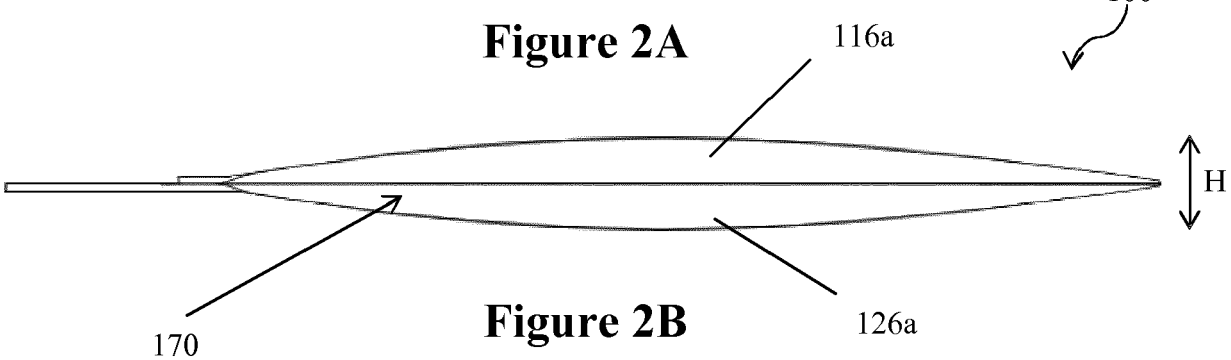


Figure 2B

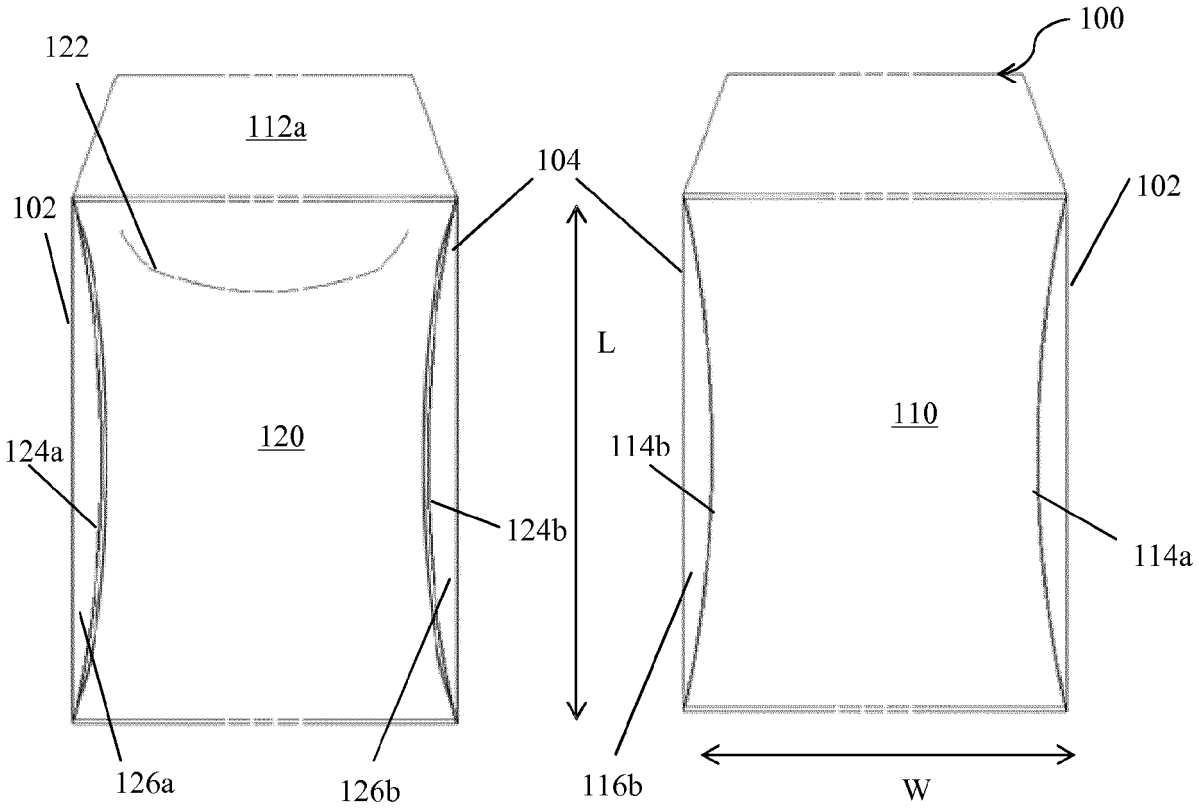


Figure 3A

Figure 3B

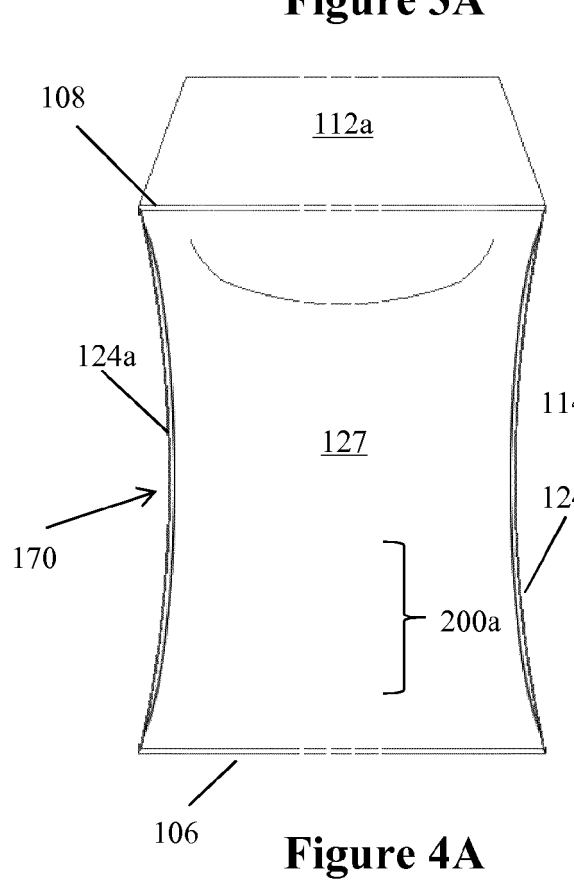


Figure 4A

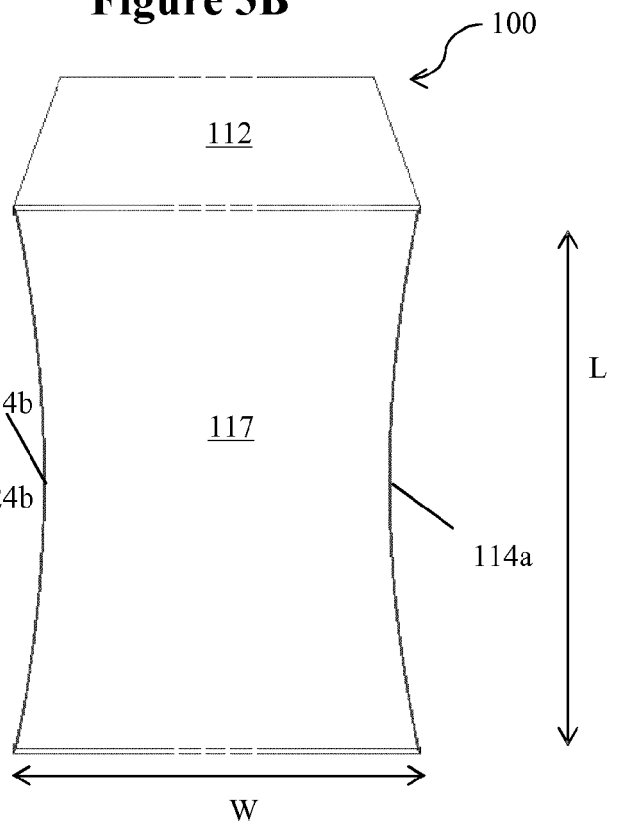


Figure 4B

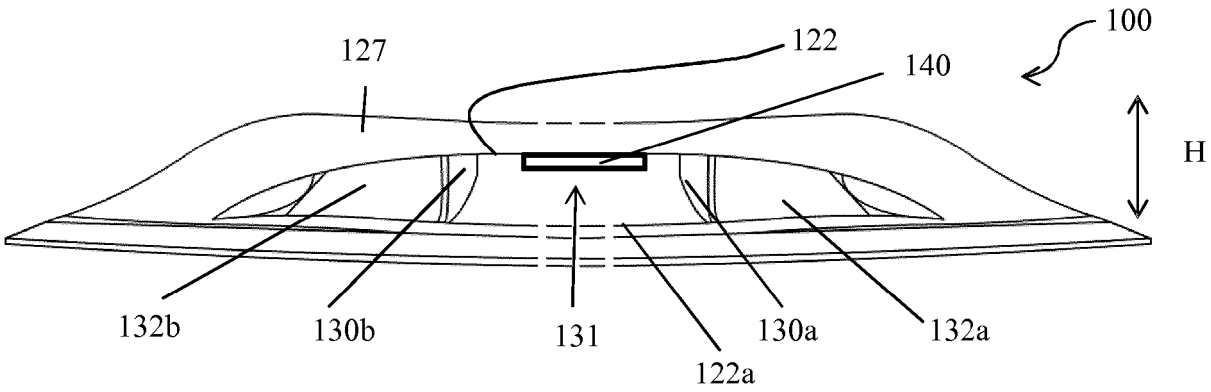


Figure 5

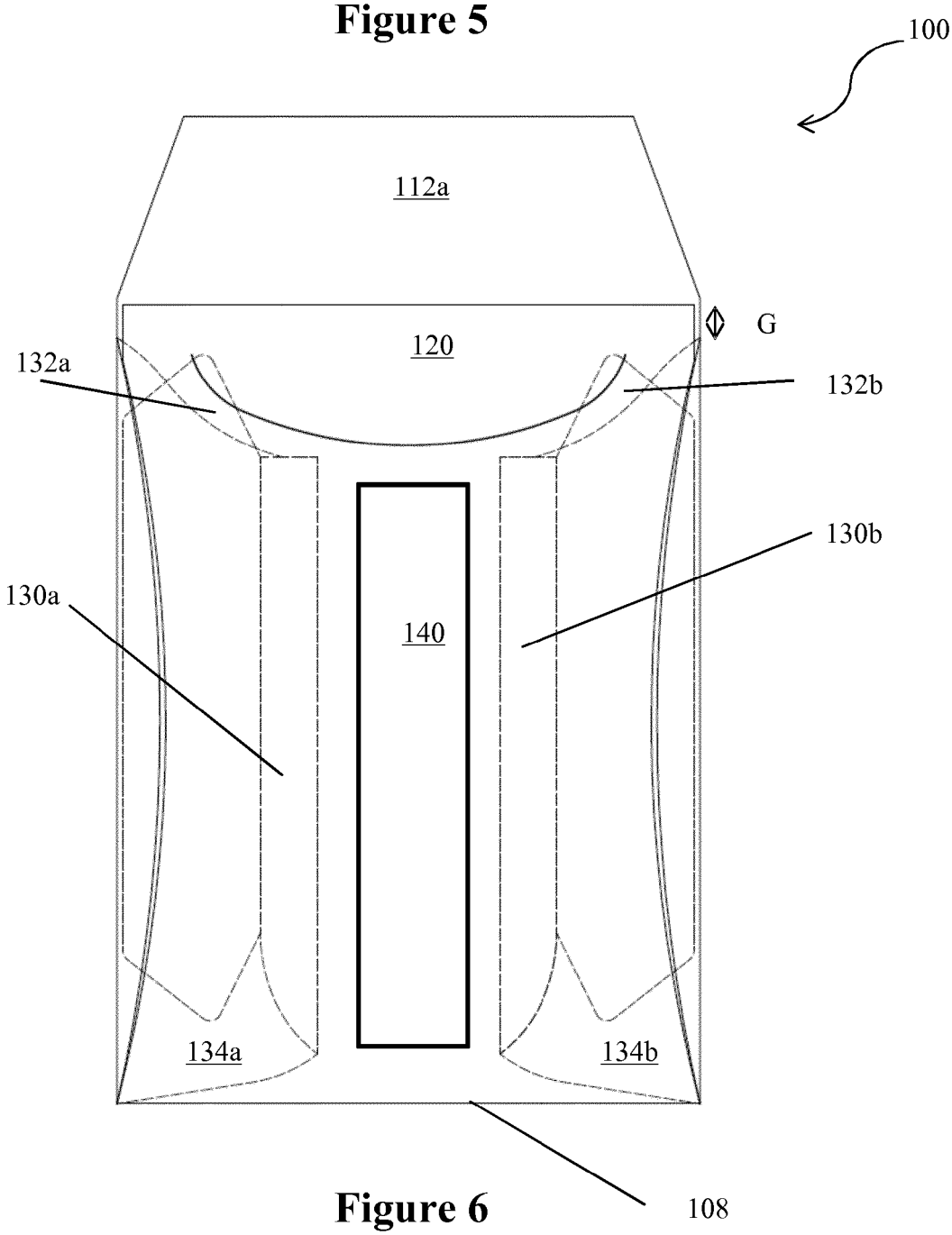
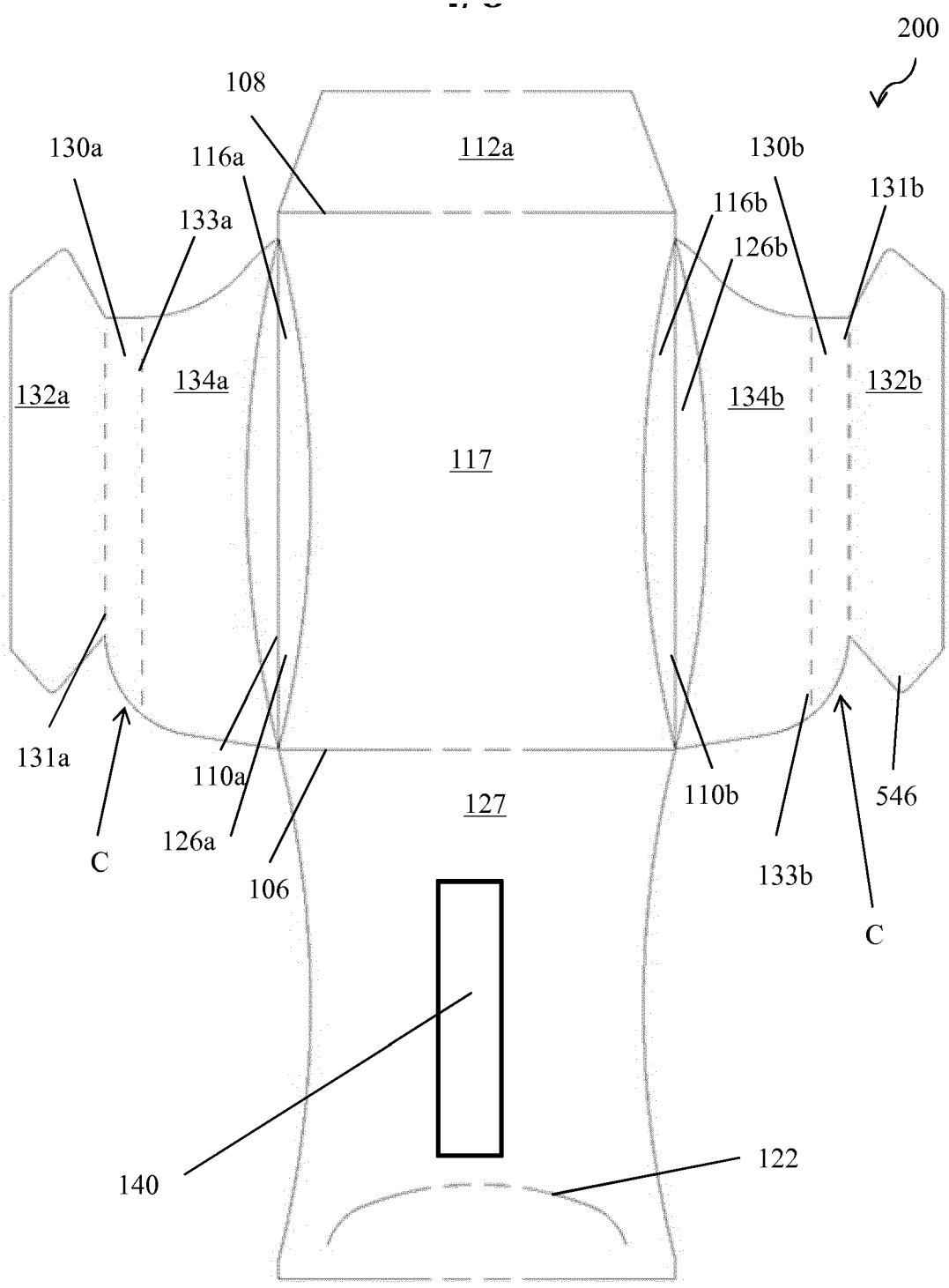


Figure 6


200
108
130a
116a
112a
130b
131b
116b
133a
126b
132a
134a
134b
132b
117
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110b
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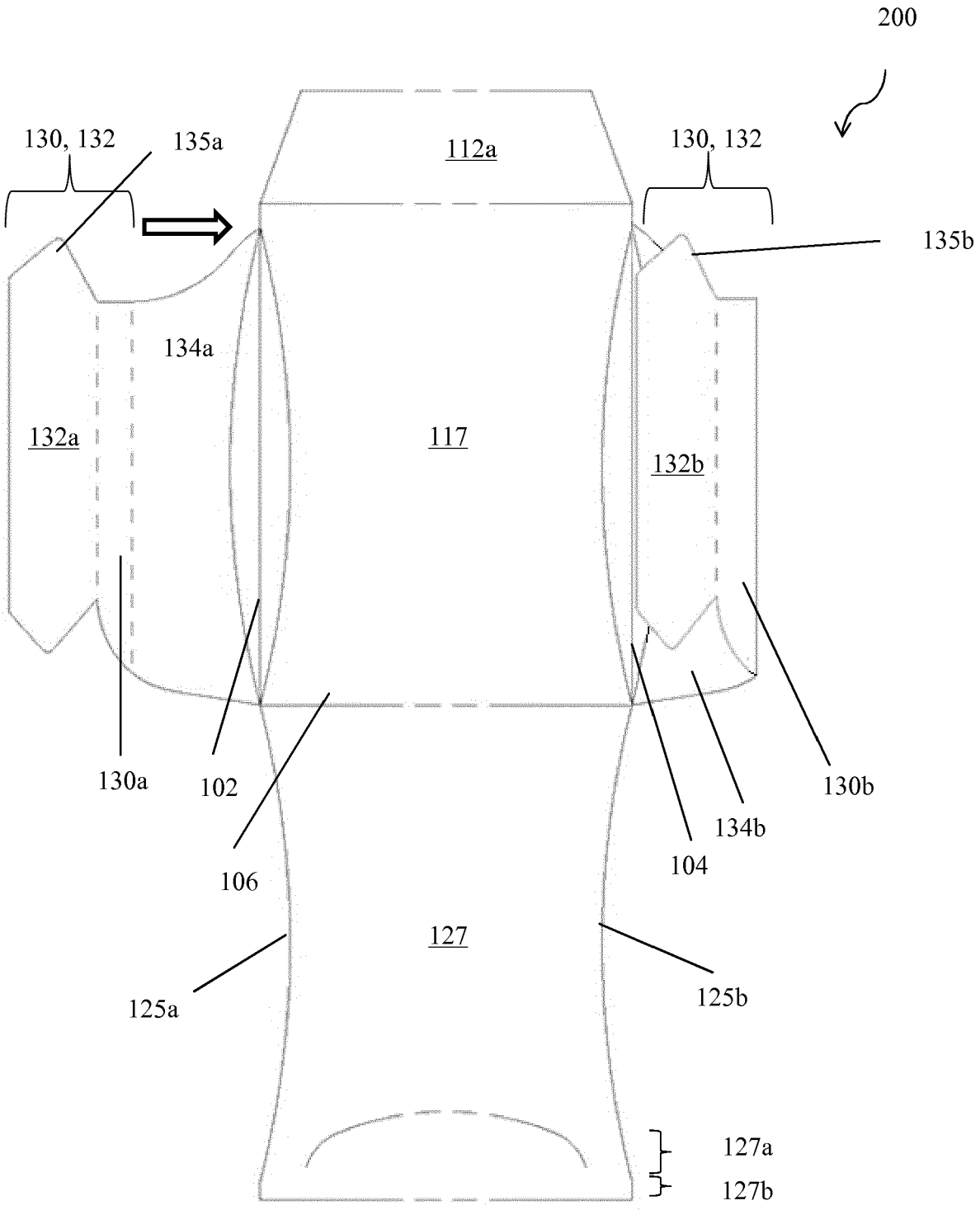
127
C
126a
106
133b
C
140
122

Figure 7A


200
130, 132
135a
112a
130, 132
135b
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132b
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102
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104
134b
130b
127
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125b
127a
127b

Figure 7B

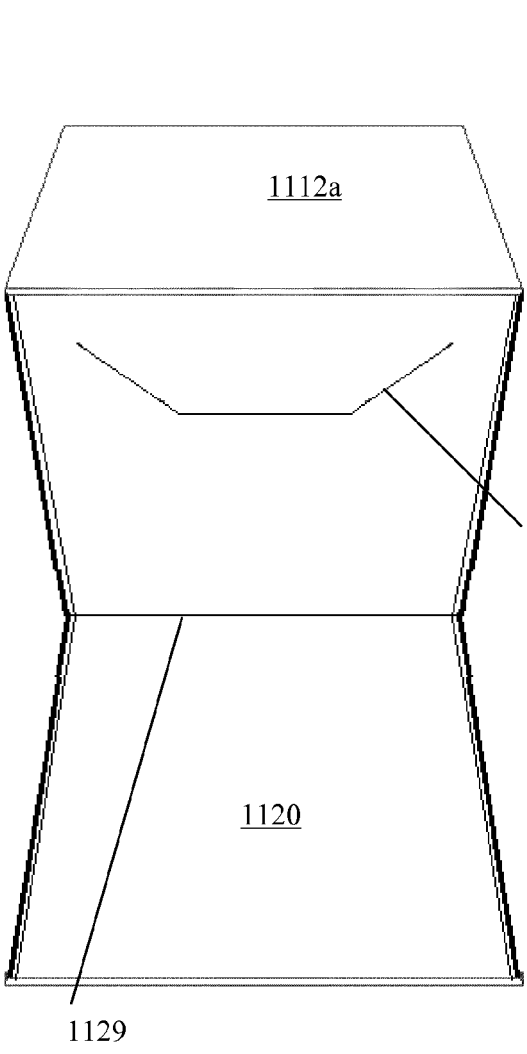

Figure 8A

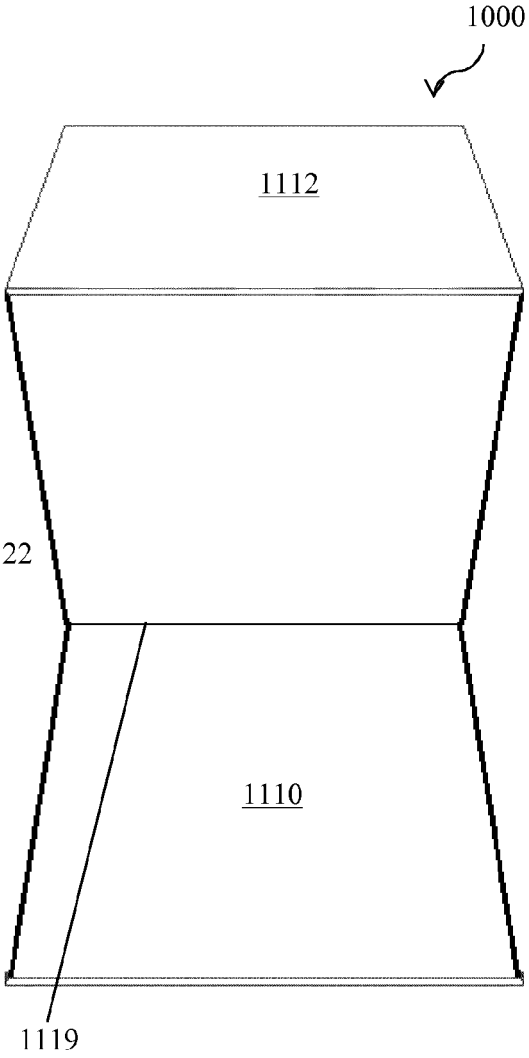

Figure 8B

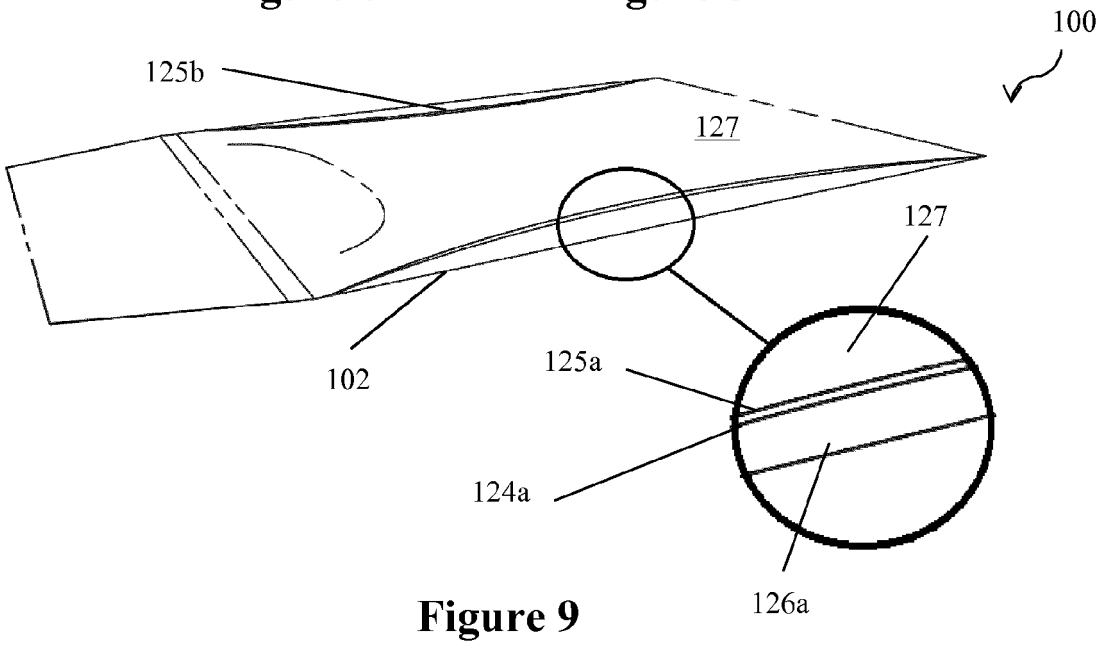

Figure 9

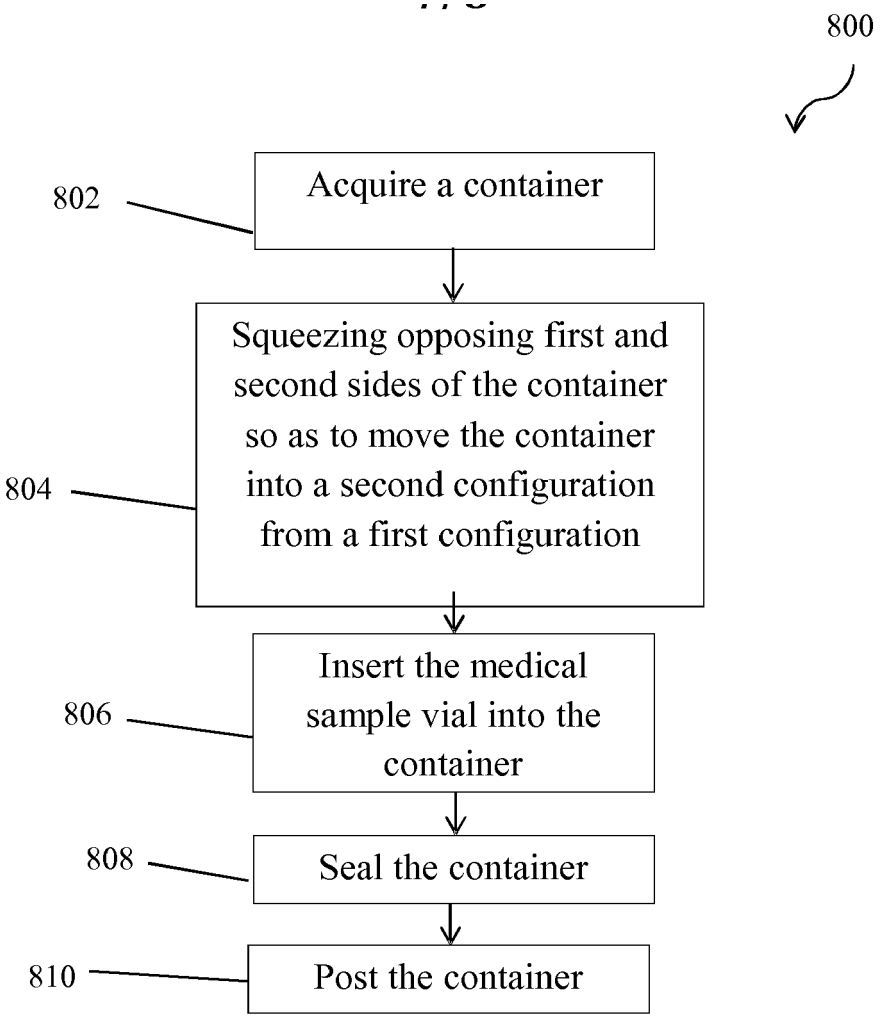
800
802
Acquire a container
804
Squeezing opposing first and second sides of the container so as to move the container into a second configuration from a first configuration
806
Insert the medical sample vial into the container
808
Seal the container
810
Post the container

Figure 10

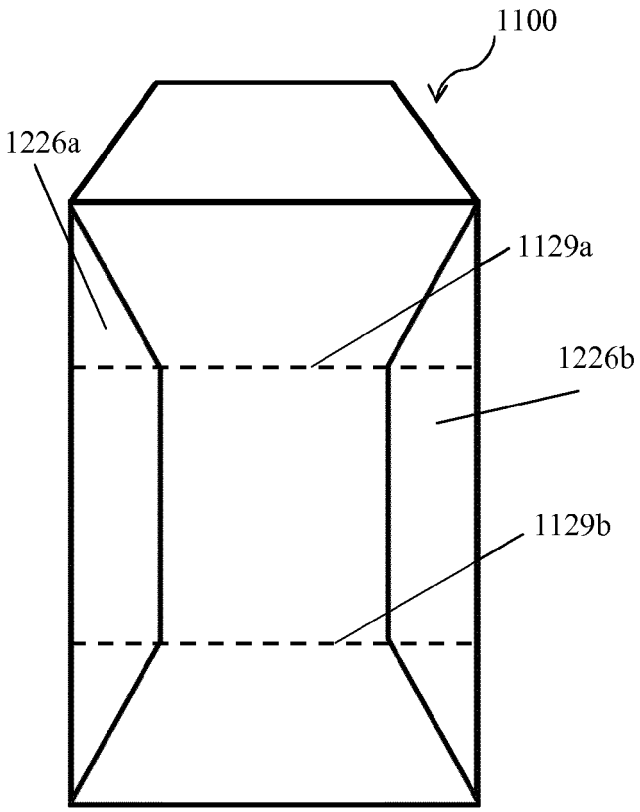

Figure 11A

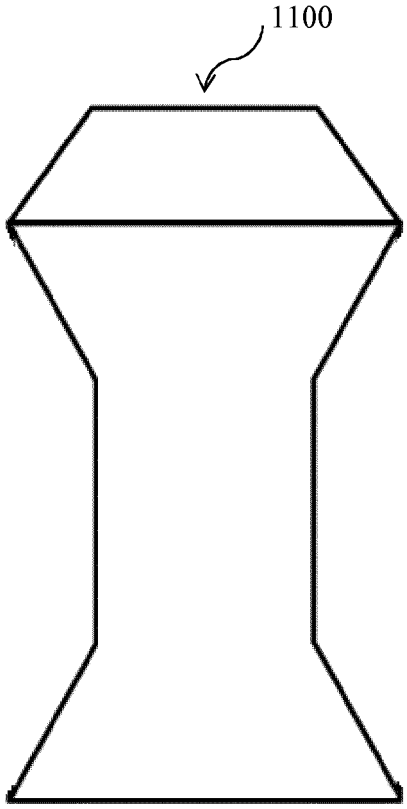

Figure 11B

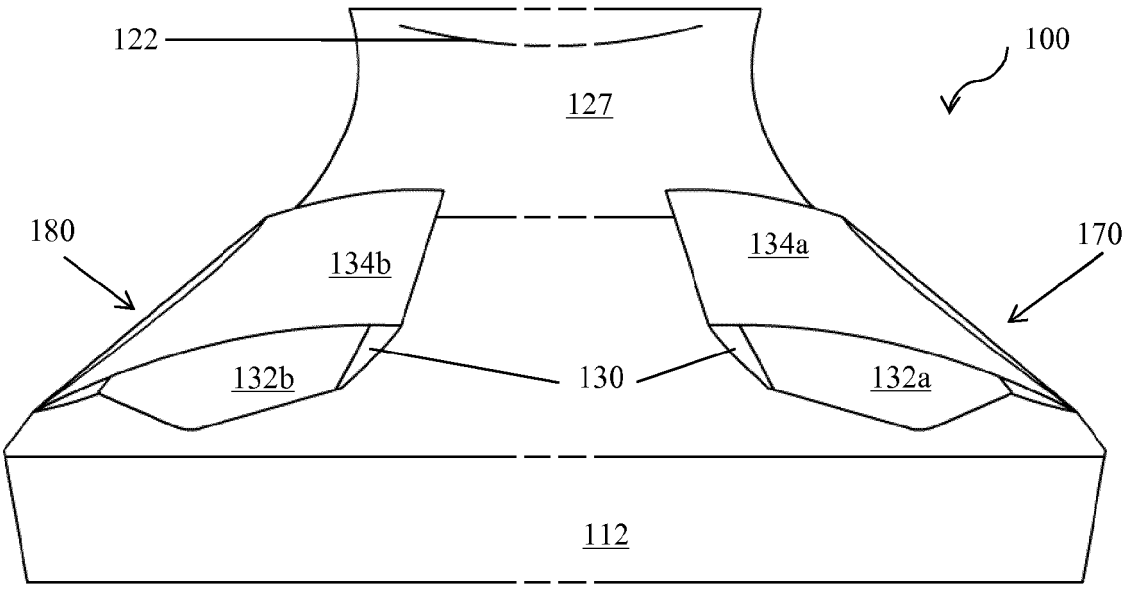

Figure 12

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 19 18 6266

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 3 790 019 A (MURRAY L ET AL) 5 February 1974 (1974-02-05) * column 1, line 44 - column 3, line 22; figures 1-8 * -----	1-15	INV. B65D5/02 B65D5/36 B65D5/42 B65D5/50
A	DE 19 76 542 U (CARL SCHWENDEMANN FA [DE]) 4 January 1968 (1968-01-04) * page 4, paragraph 2; figures 1-2 * -----	1-15	ADD. B65D81/26 B65D5/54
A	US 2 964 227 A (MORTON GOLDSHOLL) 13 December 1960 (1960-12-13) * figures 1-6 * -----	1-15	B65D5/56
A	US 2005/035019 A1 (LUO ERIC [TW]) 17 February 2005 (2005-02-17) * paragraph [0016]; figures 3-4 * -----	1-15	
A	GB 1 033 661 A (AUSTIN PACKAGING LTD) 22 June 1966 (1966-06-22) * page 2, line 28 - page 3, line 77; figures 1-10 * -----	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	4 October 2019	Leijten, René

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Application Number
EP 19 18 6266

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☒ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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European Patent Office
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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 19 18 6266

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-15

A container movable between a first substantially flat configuration and a second non-flat configuration wherein the container is provided with a pair of internal flaps, and related web for making a container.

1.1. claims: 12, 13(completely); 15(partially)

A web for creating a container capable of moving between a first substantially flat configuration and a second configuration in which the container has a non-negligible height.

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 18 6266

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-10-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3790019 A	05-02-1974	NONE	
DE 1976542 U	04-01-1968	NONE	
US 2964227 A	13-12-1960	NONE	
US 2005035019 A1	17-02-2005	TW M242485 U	01-09-2004
		US 2005035019 A1	17-02-2005
GB 1033661 A	22-06-1966	NONE	

EPO FORM P0459

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