(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 January 2016 (14.01.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/005773 A1

(51) International Patent Classification:
B65D 5/24 (2006.01)

(21) International Application Number:
PCT/GB2015/052011

(22) International Filing Date:
10 July 2015 (10.07.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1412415.0 11 July 2014 (11.07.2014) GB
1419483.1 31 October 2014 (31.10.2014) GB

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

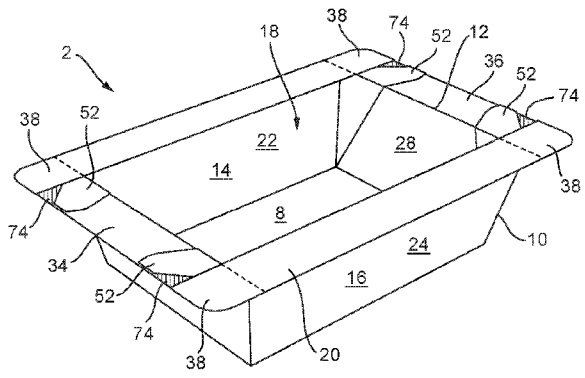
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(54) Title: A CONTAINER BODY AND BLANK

Fig. 2



(57) Abstract: The invention provides a container body which is formed from a folded blank. The container body comprises a base and a peripheral wall extends from said base to a rim. The peripheral wall has an internally directed side and an externally directed side and the rim defines an opening of the container body. The rim supports a flange to which a lid can be secured to the flange to close the container body. The peripheral wall includes at least a first wall portion and a second wall portion adjacent the first wall portion. Each of the first and second wall portions include a flange extension which is folded at the rim to provide a part of the flange. The peripheral wall further includes first and second web parts at the joints between adjacent first and second wall portions. Wall sides of the first and second web parts are attached to the first and second wall portions respectively and web sides of first and second web parts are coupled together. One of said web parts includes a horn projection which extends away from the base and is folded at the rim such that it forms at least a part of the flange. The invention also provides a method of making the container body and a blank from which the container body can be made.

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A Container Body and Blank

The present invention relates to a container body and a blank for making said container body and extends to a container including the container body and methods for making the container body and container. The invention relates particularly to food containers.

It is known to provide food packaging in the form of containers which are typically intended for disposal after use. Such disposable containers may be made from cardboard lined with a film to provide a moisture barrier and help to keep the product contained therein fresher for longer. It is known to manufacture such containers from a cardboard blank which is folded and bonded into place, but ensuring reliable sealing can be difficult, particularly at joins between parts of the blank. It can be particularly difficult if the container is to be made in two parts, a container body and a separate lid. However, when a good seal is achieved, it may be difficult for a consumer to open the container.

The present invention provides a container body, said container body being formed from a folded blank, the container body comprising a base and a peripheral wall extending from said base to a rim, the peripheral wall having an internally directed side and an externally directed side and the rim defining an opening of the container body, the rim supporting a flange that extends along at least some of the rim such that a lid can be secured to the flange to close the container body, the peripheral wall including at least a first wall portion and a second wall portion adjacent the first wall portion, each of the first and second wall portions including a flange extension which is folded at the rim to provide a part of the flange, the peripheral wall further including first and second web parts at the joints between adjacent first and second wall portions, wall sides of the first and second web parts being attached to the first and second wall portions respectively and web sides of first and second web parts being coupled together and one of said web parts further including a horn projection which

extends away from the base and is folded at the rim such that it forms at least a part of the flange.

The container body, and the blank from which it is formed, may be fabricated from any suitable foldable material, for example paper or card based material or a plastics material. In a preferred embodiment the material is a cardboard material. The material may include a polymer or plastics material on one of more surfaces thereof, for example as a coating, or as a film adhered thereto, for example by lamination.

The flange may include a two part flange. By providing a flange on the rim that includes a two part flange a region of additional thickness is created on the flange which can in increase structural rigidity of the container body and a container formed therefrom. The flange surface part preferably extends beyond the spacer part to enable a user to more easily grasp an edge portion of the flange surface part.

The flange surface part of the two part flange can be the part of the two part flange that provides the flange surface to which a lid can be secured, for example by gluing, heat sealing or other means. The spacer part of the two part flange couples the flange surface part from the rim and allows the flange surface part to be offset from the rim. In one embodiment the spacer part extends from the rim across the opening to the interface fold and the flange surface part extends from the interface fold back over the spacer part and over the rim. In this way the interface fold is offset from the rim by the spacer part and a flange is created by the flange surface part that extends on both sides of the rim, at least a portion of that flange comprising two layers of blank material and can provide additional structural rigidity to the container body.

It has also been found that a two part flange arrangement can provide a convenient opening feature for a container in which a lid has been attached to the flange surface part of the two part flange. For example, the flange surface part can be moved away from the spacer part by unfolding the two part flange along the interface fold, an action which is facilitated if the flange surface part extends from the interface fold beyond the rim. This action also moves an edge portion of a lid attached to the flange surface part away from the spacer part and the flange surface part and edge portion of the lid together provide a gripping surface which can be grasped by a user to assist with removal, or peeling, the lid away from the container to expose a product therein. It should be understood that the lid may remain attached to the container after such removal or peeling, but a product within the container is exposed.

During the lid removal described above, the two part flange may be torn along the interface fold. The interface fold may therefore be weakened to a greater extent than is required to define a fold elsewhere on the blank. For example the interface fold may be scored more deeply, perforated, or have material removed from one or both sides of the interface fold to facilitate tearing of the flange surface part from the spacer part. Preferably such weakening by material removal occurs only on the spacer part.

The container body may include an integral lid which can be folded over the opening and attached to the flange to close the container. Alternatively a separate lid may be provided and attached to the flange to close the container. A separate lid may be a film lid, a lid made from the same material as the blank from which the container is made, another board type material, a plastics material or any other suitable material or combination of materials.

The flange on the rim may extend around substantially all of the available portion of the rim. For example if an integral lid is provided on the container body, the lid may extend from a lid portion of the rim and a flange may be provided on substantially all of the remaining rim to

enable the lid to be attached thereto to close the container all the way around the opening. If no integral lid is provided or one is provided that does not extend from the rim, a flange may extend around substantially the entire rim. If a modified atmosphere pack is desired the flange and a lid (either integral or separate) may be sealed to one another to assist with providing a hermetic seal for the container.

A flange may be provided so that it substantially surrounds the opening of container body so that the attachment of a separate lid, for example a film lid, to the container body is made possible so that a container can be formed. With appropriate sealing the container body could be a modified atmosphere container body suitable for use as part of a container to be used as a modified atmosphere packaging container, for example a container with a film lid. It is also noted that by providing a flange that extends substantially entirely around the rim a pre-attached lid, such as a cardboard lid formed integrally with the container body from the same folded blank, is not required and this can simplify container construction.

If the container body is to be arranged as a tray the base of the container body is preferably substantially flat, although it may include non-flat, for example, embossed or folded portions and the base can be any acceptable shape. The base may define a plane upon which it rests when the container body is placed, for example, on a table or other surface. To facilitate folding and subsequent manufacturing operations it is preferred that the base includes a periphery that is formed from a series of substantially straight lines and is most preferred that the base is four sided, for example square, rectangular, but other shapes are possible. However, in other presentations of the container body, for example a triangular sandwich pack, the base may be an apex of the pack, for example a snub nose, which is arranged opposite the opening and the peripheral wall may include substantially rectangular and substantially triangular wall portions. In some embodiments the base may provide at least a portion of the peripheral wall.

The peripheral wall may be made up of a plurality of substantially planar wall portions linked together and may therefore be substantially continuous. For example if the base is a square shape then the peripheral wall may be made up of four wall portions which extend from the sides of the base. The peripheral wall may taper outwards from the base such that the opening defined by the rim is larger than the base as this can facilitate stacking of the container bodies. The taper on the peripheral wall may be provided by just one wall portion tapering outwards, by two or more wall portions tapering outwards or by all wall portions tapering outwards.

The rim may define a top (in an in-use orientation in which the base forms a bottom of the container body) of the container body and may be of any suitable shape, but is preferably substantially planer as this simplifies flange formation. In one embodiment the plane defined by the rim and a plane defined by the base are substantially parallel, although they may be offset by an angle, for example for enhanced display. The rim may further define a maximum opening aperture of the container body, although the usable opening may be restricted by other parts of the container body.

The base and peripheral wall together define an interior of the container body that would be enclosed by a lid secured to the flange. The base and peripheral wall therefore have internally directed sides towards the interior and externally directed sides away from the container.

The flange may extend around substantially the entire rim, or circumference of the opening defined thereby, such that a lid can be secured to the flange to close the container body. In a preferred embodiment in which a separate lid is to be used, the flange extends around the entire rim. In another embodiment in which an integral lid extends from a lid portion of the

rim a flange may be provided on substantially all of the remaining rim to enable the lid to be attached thereto to close the container all the way around the opening. The flange may be of any suitable shape and formed by any suitable combination of parts. The thickness of the flange may vary around the circumference and at some points it may be one, two, three or more layers of blank material thick plus any layers of film and/or coating.

The peripheral wall may include at least a first wall portion and a second wall portion, the second wall portion being located adjacent the first wall portion. One, or each, of the first and second wall portions may include a flange extension which is folded at the rim to provide at least part of the flange. The flange provided on the first wall portion may be provided by the two part flange. In some embodiments is may be preferred that each wall portion includes a flange extension. Such an arrangement facilitates manufacturing as the wall portions surround the container and having the wall portions not carrying an integral lid carry flange extensions which make up at least part of the flange allows a circumferential flange to be more easily formed around the rim.

The flange extension provided by the first wall portion may include a coupling extension. At least part of the coupling extension extends over, and can be coupled to, at least some of the flange extension provide by the second wall. This provides a simple way to couple flange extensions together to form the flange. The flange extension from the first wall may be provided by the two part flange and may be folded at the rim and along its length along the interface fold line such that the flange extension extends on both sides of said peripheral wall. Extending on both side of the peripheral wall means that the flange extends at least partly within the opening defined by the rim and partly outside the opening. This can be achieved with the two part flange which includes a spacer part and a flange surface part. The spacer part is arranged between the between the rim and the flange surface part. The flange extension is folded from the rim such that the spacer part extends towards the interior

of the container body. The flange extension is also folded along the interface fold line at the interface between the two parts such that the flange surface part overlies the spacer part and extends beyond the rim so that it extends towards the exterior of the container body. Such an arrangement allows an outwardly directed flange to be created around the container to facilitate holding the container. This arrangement also allows the flange surface part to be separated from the spacer part more easily and to create a larger gripping surface when separated.

By folding the flange extension from the first wall portion in this way to create the two part flange it is possible to arrange for the coupling extension to overlie, and so be able to be secured to, the flange extension from the second wall portion without the need to extend the length of the flange extension from the second wall beyond the length of the second wall portion. This means that in some embodiments the flange extension provided by the second wall portion may have a length not greater than the length of the associated second wall portion and may by folded at the rim such that the flange extension extends only on the externally directed side of the peripheral wall to provide an outwardly directed flange. This simplifies construction of flange extension on the second wall portions.

The coupling between the coupling extension and the flange extension may be by any suitable means, for example glue or other adhesive, but it is preferred that the coupling is by a heat sealing operation. For example this heat sealing could be achieved using a heat sealable film or coating on the blank. A film or coating applied to the blank is preferably heat sealable.

The peripheral wall may include first and second web parts at the joints between adjacent first and second wall portions. The web parts are joined to the wall portions and each other such that wall sides of the first and second web parts are attached to the first and second

wall portions respectively and web sides of first and second web parts are coupled together. The wall side and the web sides of the web parts are non-parallel such that, when a fold is made along the joint between the web sides, the first and second wall portions are brought together to form a corner of the container body. The web parts may be substantially triangular in shape. One of the web parts may include a horn projection therefrom which extends away from the base and is folded at the rim such that it forms at least part of the flange. Although it is described as a horn projection it should be understood that it could be any suitable shape. In one embodiment it may be substantially triangular, for example a truncated triangular shape in other embodiments it may be substantially rectangular. In some embodiments it is the first web part that includes the horn projection and the horn projection forms part of the flange in combination with a part of the flange extension from a second wall portion. A more detailed description of the function of horn projections will be provided below in relation to a description of the blank. It will be understood from the description below that a horn projection is a particularly helpful feature if the blank includes a film attached to a first face thereof.

The folded blank may include a heat sealable film attached to a first face thereof, the first face defining an interior surface of the container. The heat sealable film may help to protect the material of the blank from moisture that may be contained within a product in the container and may help to provide environmental protection for a product within the container. The heat sealable film may be any suitable plastics or polymer material heat sealable film.

The flange may include a sealing surface to which a lid could be attached, for example by heat sealing. The sealing surface may be directed away from the base of the container and include heat sealable film bonded thereto. The heat sealable film is preferably the heat

sealable film bonded to the folded blank as this reduces the number of joints, but one or more separate films may be used, which may, or may not, be of the same material.

To facilitate sealing the sealing surface may be substantially planar. It should be understood that a perfectly flat plane is not required and distortions or an uneven surface on the plane can provide acceptable sealing, as can non-planar surfaces in general. In order to further enhance sealing between a lid and the sealing surface of the flange, particularly in regions of the flange in which an uneven surface is predicted, for example transitions between areas having a different number of layers of blank material such as transitions between regions of two or more layers of blank material and regions of only one layer of blank material, the blank may be contoured, for example by embossing or stamping, such that the flange is shaped to reduce the severity of such unevenness, for example by raising or lowering an area of providing a tapered or stepped slope.

In some embodiments the base of the container is substantially rectangular and the peripheral wall comprises an opposed pair of first wall portions and an opposed pair of second wall portions. There may be first and second web parts between each adjacent set of first and second wall portions. One, some or all of the sets of web parts may include a horn projection.

The invention also provides a container, the container body of the container being substantially as described above and the container comprising a lid, for example a film lid, attached to the flange, preferably heat sealed to the flange such that the container can act as a modified atmosphere packaging container.

The invention also provides a forming a container body, the container body being as claimed in any preceding claim, the blank comprising a base, and wall portions extending from the

base to a rim such that, when folded, the wall portions will define a substantially continuous peripheral wall and at least some of the wall portions including flange extensions that extend from the rim such that, when folded, a flange that extends around at least some of the rim, the blank including a first wall portion and a second wall portion adjacent the first wall portion, each of the first and second wall portions including a flange extension extending from the rim, the blank further includes first and second web parts between the adjacent first and second wall portions, wall sides of the first and second web parts being attached to the first and second wall portions respectively and web sides of first and second web parts being coupled together and the first web part further including a horn projection which extends away from the base.

Providing such a blank allows for the simplified formation of a container body as described above.

The blank may include a heat sealable film on a first face thereof. It is preferred that the first face, including the heat sealable film, is the face that will, after folding, form the majority of the interior of the container body. The heat sealable film may be laminated to the blank after the fold lines and cut lines have been formed on the blank.

The heat sealable film may include film webs that extend over spaces between parts of the blank. The spaces in the blank may be apertures cut, punched or otherwise formed into the blank prior to the film being attached, for example, as windows or to facilitate folding of the blank along the desired lines, in which case the film webs may enhance sealing of the container body in that region. The spaces may also include regions between parts that may move into proximity during a folding operation. The heat sealable film attached to the blank is preferably shaped at its periphery only and includes no holes or apertures.

In some embodiments the film webs may be positioned and arranged to enable additional heat sealable film to be arranged between attachment areas of the blank during forming. For example in areas in which portions of a second face of the blank, which may not include a heat sealable film, will, when folded, be in contact with an area of the first or second face of the blank and it is desired to create a seal in that location it may be preferred to position at least some of the film web between those portions to enable, or enhance, a heat sealing operation. In some embodiments the film web positioned between such regions may comprise a single layer of heat sealable film and in others it may comprise more than one layer of heat sealable film, or a mixture of single and multiple layers may be used at different locations, or even within the same region.

In some preferred embodiments of the blank the blank may include a first wall portion and a second wall portion adjacent the first wall portion. Each of the first and second wall portions may include a flange extension extending from the rim so that the blank can be folded at the rim to provide the flange, the flange provided on the first wall portion may be a two part flange. The flange extension provided by the first wall portion may extend further from the rim than the flange extension of the second wall portion and may further include including a coupling extension extending from a side adjacent the second wall portion. As noted above, the coupling extension is arranged such that, when the blank is folded, the coupling portion overlies and may be coupled to the flange extension of the second wall portion.

The blank may further include first and second web parts between the adjacent first and second wall portions. As noted above, wall sides of the first and second web parts may be attached to the first and second wall portions respectively and web sides of first and second web parts are coupled together. The first web part may further include a horn projection extending therefrom which extends away from the base. The horn projection is preferably arranged such that, when the blank is folded, the horn projection is folded at the rim such

that it forms at least a part of the flange. The blank may also include a film web extending between the horn projection and the flange extensions from at least one of the first and second wall portions. This means that, during the folding operation, the movement of the horn projection guides the associated film web portion of heat sealable film into a desired or appropriate location. The provision of such horn projections may facilitate automated manufacture as the film web is reliably moved into the correct place during folding of the blank. In some embodiments it is preferred that the horn projection extends from the first web portion. Although the horn projection is particularly useful for helping with film web handing to enhance sealing and helping to create a container body suitable for use in a modified atmosphere packaging container, a horn projection may be useful without such a film for stabilising the position of the web portions. It should be noted that the first and second web parts may be substantially the same size as one another, or may be different sizes. By varying the relative sizes of the web parts angles between the wall portions in the assembled container body can be adjusted.

A film web may extend between the horn projection and both of the adjacent flange extensions. In embodiments in which the horn projection extends from the first web portion it may be preferred that the film web extending between the horn projection and the flange extension from the second wall portion is deeper than the film web between the horn projection and the flange extension from the first wall portion. When folded with the web portions inside the container, it is this film web that will be positioned beneath the horn projection and a coupling projection from the flange extension from the first wall portion so automatic positioning of this film web by the horn projection facilitates manufacture. In other embodiments a film web may extend between the horn projection, coupling projection and the flange extension of the first wall. By coupling the film web to all three of these parts of the blank the positon of the film web during a folding operation is better controlled so that the film always folds in a particular way. This may make it possible to fold the blank into the

container base on a high speed automated line. Such automated production requires blanks that reliably assemble in a repeatable way each time, so better control over the folding of a film web during assembly can be important.

The invention extends to a method for making a container body using a blank as described above, in which wall portions are folded from the base to form a peripheral wall and in which the flange extensions are folded from the rim to provide a flange, the method further comprising a step in which the folded assembly is secured.

The assembly may be secured using any suitable means, but in a preferred embodiment the assembly is secured using adhesive between predetermined parts to hold the container body in a usable state. In the usable state the flange may not be secured in place, but can be readily folded into a suitable state for attaching a lid. The lid may be fabricated from, for example film, cardboard, plastic, or a combination of one of more of these or other materials and may be formed integrally with the container body.

The method may include a forming step in which a two part flange is folded along the interface fold. The two part flange may be secured in the folded position using adhesive or other means. Such an operation involves folding the blank onto itself and attaching one face of the blank to the same face, it is preferred that the fold is made such that a heat sealable film attached to the first face of the blank is on the outside of the fold and adhesive is used to attach the second face of the blank to the second face of the blank inside the fold. Providing a heat sealable film on only one face of the blank helps to reduce costs and means that for certain operations an adhesive might be needed. The amount and position and any adhesive used to hold the two part flange in the folded position can be varied depending upon the desired retaining force. For example if the two part flange is to be used as an

opening assistance feature as described above, it might be preferred to use less adhesive than would be used if the two parts of the flange were never intended to be separated.

The blank may include first and second web parts as described above and the method may include the step of folding the blank so that at least a portion of the first and second web parts overlap and then attaching the overlapping first and second web parts together. As above, such attachment could be made using an adhesive. It is preferred that the web parts are folded such that they are inside the container body as this means that, if a heat sealable film has been applied to the first face of the blank, which is to form the interior of the container body, the overlap between the web parts will be second face to second face.

The invention also extends to a method of opening a container, the container comprising a container body substantially as described above and including a two part flange and having a lid secured to the flange of the container body, the method comprising the steps of:

separating the two part flange by moving the flange surface part away from the spacer part and rim to provide a gripping part,

using the gripping part to tear the two part flange substantially along the interface fold, and

removing the lid from the container.

The invention extends to a method of making a container using a container body as described above, the method including the step of heat sealing a lid to the flange of the container body. Such a method may create a container suitable for use as a modified atmosphere packaging container.

The invention will now be further described, by way of example only, with reference to the following figures in which:

Figure 1 shows a perspective view of a container comprising a container body and a lid;

Figure 2 shows a perspective view of the container body of Figure 1;

Figure 3 shows a blank for forming the container body of Figure 2;

Figure 4 shows a detailed view of a corner of the blank of Figure 3;

Figure 5 shows a container comprising a container body and an integral lid;

Figure 6 shows the container of Figure 5 with the two part flange separated;

Figure 7 shows the container of Figure 5 with the lid peeled back or removed;

Figure 8 shows a blank for forming the container of Figure 5; and

Figure 9 shows a detailed view of a corner of the blank of Figure 8.

Figure 1 shows a container 1, comprising a container body 2 and a film lid 4, the lid 4 is shown partially removed for clarity, but may be heat sealed to a flange 20 to seal the film lid to the container body 2 to provide a container suitable for use as a modified atmosphere packaging container. The detail of the container body is more clearly shown in Figure 2.

Figure 2 shows a container body 2 which is formed from a folded blank 6 (the blank 6 is shown in Figure 3). The container body comprises a base 8 and a peripheral wall 10 extending from the base 8 to a rim 12. The peripheral wall 10 has an internally directed side 14 and an externally directed side 16 and the rim 12 defines an opening 18 of the container body 2. The rim 12 includes a flange 20 that extends around the rim 12 and opening 18 such that a lid 4 can be secured to the flange 20 to close the container body 2 to form a container 1 as shown in Figure 1. Further details shown in this figure will be best understood following the description of Figures 3 and 4 below.

Figure 3 shows a blank 6 for forming a container body 2. The blank 6 comprises a base 8, and wall portions 22,24,26,28 extending from the base 8 to a rim 12 such that, when folded, the wall portions will define the substantially continuous peripheral wall 10 of the container body 2. In this case the base 8 is substantially rectangular and there are four wall portions 22,24,26,28 which form two opposed pairs. The longer wall portions 22,24 provide a pair of first wall portions 22,24 and the shorter pair 26,28 provide a pair of opposed second wall portions 26,28.

The wall portions 22,24,26,28 shown all include flange extensions 30,32,34,36 that extend from the rim 12 such that, when folded, a flange 20 that extends around substantially the entire circumference of the rim 12 will be formed. As shown in the Figure, the flange extensions 30,32 provided by the first wall portions 22,24 extend further from the rim 12 than the flange extensions 34,36 of the second wall portions 26,28, the reason for which will explained below. The extensions 30,32 provided by the first wall portions 22,24 further include a coupling extension 38 extending from each side adjacent the second wall portions 26,28.

The blank 6 further includes first and second web parts 40,42 between the adjacent first and second wall portions 22,24,26,28, wall sides 44,46 of the first and second web parts 40,42 being attached to the first and second wall portions 22,26 respectively and web sides 48,50 of first and second web parts 40,42 being joined together. The web parts 40,42 are integrally formed in the blank 6 and are triangular in shape with the a point of the triangle directed at the base 8 and an opposing flat wall arranged to match the location of the rim 12 when folded, although they could be other shapes. The first web part 40 further includes a horn projection 52 therefrom which extends away from the base 8.

The blank 6 includes a heat sealable film 54 laminated thereto which extends over an entire first face 64 of the blank 6 and forms film webs 56,58,60 across gaps in the blank 6, in this case the visible face is the first face which includes the heat sealable film 54. The blank 6 includes some folding gaps 62 on or adjacent lines along which a fold is to be made to facilitate folding the blank 6. Film webs 60 can simply cover such gaps to enhance sealing of the container body. As shown in the Figures, a film web 56 extends between the horn projection 52 and the flange extension 34 of the second wall portion 26. In this case the film web 56 is substantially as deep as the flange extension 34. A film web 58 is also shown between the horn projection 52 and the flange extension 30. In this case film web 58 is rather small, extending less than half way along the flange extension 30 and horn projection 52.

Large film webs 56 that extend over spaces between parts of the blank 6 are arranged to enable additional heat sealable film 54 to be located between attachment areas of the blank 6 during forming as will be explained in more detail below.

To form the container body 2 from the blank 6 a first operation is to fold the flange extensions 30,32 and along interface fold lines 66 which are substantially parallel with the rim 12 and divide the flange extension into a spacer part 68 and a flange surface part 70. The flange surface part 70 is folded onto the spacer part 68 along interface fold line 66 to form an interface fold 76 and is glued in place. The first face 64 of the blank 6 which includes the heat sealable film 54 remains facing outward after the folding operation so it is the second face of the blank to which the glue is applied. Such a folding operation on the longer sides of the container body 2 results in a flange 20 which is formed of a two part flange which includes a double thickness region along the long edges and this can enhance the structural rigidity of the container body 2.

The web parts 40 and 42 are folded towards the base 8 and towards each other so that the first and second wall portions 22,24,26,28 are brought together to provide the peripheral wall 10. The web parts 40 and 42 are glued together on the second face of the blank to provide the basic shape of the container body 2.

To form the circumferential flange 20 the flange extensions 34 and 36 are folded outwards, away from the base so that the first face 64 of the blank is facing away from the base 8. The web parts 40,42 are arranged adjacent the second wall portions 26,28 and the horn projection 52 is folded such that it overlies a part of the adjacent flange extension 34,36. The act of moving and folding the horn projection 52 into place causes film web 56 to wrap around underneath the horn projection 52 so that it is arranged between the horn projection 52 and the adjacent flange extension 34,36 and also extends from an adjacent end of the adjacent flange extension 34,36 to the horn projection 52.

The flange extensions 30,32 are folded into place by folding along the rim 12 such that the spacer part 68 extends into the container opening 18 and the flange surface part 70 is directed away from the base 8. In this position the coupling extension 38 overlies the adjacent flange extension 34,36 and, due to the positioning of the film web 56 by the horn projection 52, there is an additional layer of heat sealable film 54 between the coupling extension 38 and the adjacent flange extension 34,36. This means that, in total there are two layer of heat sealable film between the coupling extension 38 and the adjacent flange extension 34,36, the one bonded to the first face of the blank 6 and the one formed by the web portion 56 which was arranged in place as the horn projection 52 was moved into place. It may be possible to arrange heat sealable film in desired locations manually or by machine, but the provision of horn projections 52 facilitates manufacture.

It should be noted that web portion 58 also provides additional heat sealable film material between a region of the horn projection 52 and the part of the coupling extension 52 which overlies it.

In this way, a flange 20 is provided which includes a heat sealable film sealing surface 72 which comprises some or all of the flange surface part 70 of flange extensions 30 and 32, the horn projection 52 and the flange extensions 34,36. Since the flange 20 is of various thicknesses due to the different number of layers of blank 6 which make it up the flange extensions, for example 34,36 may be shaped, for example embossed to try to flatten the sealing surface 72. In the example shown in Figure 2, regions 74 are embossed to raise their surface towards that of the surrounding material.

By providing such a sealing surface 72 to a flange 20 of a container body 2 it is possible to heat seal a film lid 4 to the flange 20. Heat sealing of the flange 20 will bond the various components together to form a seal and may be used to pre-form the container body prior to lidding. Alternatively the flange may not be in its final configuration prior to filling and heat sealing a film lid to the container body.

Since the heat sealable film 54 covers the entire blank, the film webs 56,58 ensure sealing at important joints and the sealing surface 72 of the flange 20 includes heat sealable film 54 it is possible to heat seal a film lid 4 to the sealing surface 72 such that the container 1 created can be used as a modified atmosphere packaging container.

Figure 5 shows a different container 101 comprising a container body 102 which includes an integral lid 104 which is sealed to a flange (not visible in Figure 5). The lid 104 includes a film window 78 through which a product within the container can be viewed. As will be seen from a comparison of the blanks 106 (shown later) and 6, the construction of the containers

1 and 101 is very similar and like parts are labelled with the same reference numerals incremented by 100.

Figure 6 shows the container 101 in a pre-opening arrangement in which the two part flange 80 has been opened by a user. This opening may involve the breaking of adhesive bonds between the two part of the two part flange 80. The two part flange 80 is provided by a flange extension 132 folded at the rim 112 and again at the interface fold line 166 such that portions of the a second face of the blank 106 can be brought together when the flange surface part 170 overlies the spacer part 168. In this case those portions are glued together to secure the two part flange 80 in the folded configuration. The container 101 is formed by sealing the lid 104 to a flange surface part 170 of the two part flange 80 and opening the two part flange 80 as shown in this figure provide a gripping part 82 formed of an edge portion of the lid 104 and the flange surface part 170 of the two part flange 80. As the flange surface part 170 extends from the interface fold 166 beyond the rim 112 in the un-opened configuration a user is able to provide an opening force to the two part flange 80 to separate the parts of the two part flange.

By grasping the gripping part 82 a user can tear along the interface fold line 166, which in this case is significantly weakened by the removal of material from the spacer part along the fold line 166. By tearing along the interface fold line 166 the lid may be easily removed 104, or at least peeled back from the container 101 to allow access to a product within the container 101. The gripping portion 82 is significantly larger than would be possible if the two part flange 80 was not used. A simple flange, such as those provided on other wall portions, provides a user with material to grasp only to the extent that it extends beyond the rim 112, but with the two part flange 80 this is increased by the depth of the spacer part 168. This means that the user is provided with an easy to grasp part 82 without having to increase the extent to which a flange 120 protrudes beyond the rim 112.

Figure 8 shows a blank 106 suitable for folding into a container similar to that shown in Figure 5. The blank 106 comprises a base 108, and wall portions 84,124,126,128 extending from the base 108 to a rim 112 such that, when folded, the wall portions will define the substantially continuous peripheral wall 110 of the container body 102. In this case the base 108 is substantially rectangular and there are four wall portions 84,124,126,128. A shorter pair of wall portions 126,128 provide a pair of opposed second wall portions 126,128, while one of the longer wall portions 124 provides a first wall portion 124 and the opposing wall portion 84 provides a third wall portion 84 with which the lid 104 is integrally formed. The third wall portion also includes a film window 86.

The wall portions 124,126,128 shown all include flange extensions 132,134,136 that extend from the rim 112 such that, when folded, a flange 120 that extends around the rim excluding a lid portion 88 of the rim 112 to which the lid 104 is attached. The flange extensions 132,134,136 work in the same way as the flange extensions of the blank 6.

The blank 106 further includes first and second web parts 140,142 between adjacent wall portions 84,124,126,128 which function in the same way as the web parts 40,42 of the blank 6.

There are a few key differences between the blanks 6 and 106. The main difference is the inclusion of an integral lid 104 in the blank 106. The lid 104 is formed integrally with the third wall portion 84 and is attached to the adjacent first web parts by modified horn projections 88. The horn projections 88 are modified in that they are coupled to the lid 104, but otherwise they function in a similar way to those described above.

Film webs 156 extend between the flange projections 134, 136 of the second wall parts and the horn projections 152 on first web parts adjacent the first wall portion 124. However, the film webs 158 between the horn projections 152 and the flange extension 132 on the first wall portion 124 are different in the blank 106 from those in blank 6 and are shown in more detail in Figure 9. The film webs 158 not only extend between horn projections 152 and the spacer part 168, but extend also to the coupling projection 138. This means that the film web 158 is larger than the film web 58, but its position during a folding operation is more controlled due to the attachment with the coupling projection 138. This control prevents the possibility of the film web 158 folding the wrong way during a folding operation during assembly and therefore facilitates automated assembly of the container body 102.

It should also be note that the interface fold line 166 between the spacer part 168 and the flange surface part 170 has been significantly weakened in blank 106 by the removal of material from the spacer part to form windows 90.

It should be understood that the above description of the invention is by way of example only and modifications in detail are possible within the scope of the attached claims.

Claims

1. A container body, said container body being formed from a folded blank, the container body comprising a base and a peripheral wall extending from said base to a rim, the peripheral wall having an internally directed side and an externally directed side and the rim defining an opening of the container body, the rim supporting a flange that extends along at least some of the rim such that a lid can be secured to the flange to close the container body, the peripheral wall including at least a first wall portion and a second wall portion adjacent the first wall portion, each of the first and second wall portions including a flange extension which is folded at the rim to provide a part of the flange, the peripheral wall further including first and second web parts at the joints between adjacent first and second wall portions, wall sides of the first and second web parts being attached to the first and second wall portions respectively and web sides of first and second web parts being coupled together and one of said web parts further including a horn projection which extends away from the base and is folded at the rim such that it forms at least a part of the flange.

2. A container body as claimed in claim 1, in which the container body further includes an integral lid extending from a lid portion of the rim and which can be secured to the flange to close the container.

3. A container body as claimed in claim 2, in which the flange extends around substantially the entire rim with the exception of the lid portion.

4 A container as claimed in claim 1, in which the flange extends around substantially the entire rim.

5. A container body as claimed in claim 1, in which it is the first web part that includes the horn projection.

6. A container body as claimed in any preceding claim, in which the folded blank includes a heat sealable film attached to a first face thereof, the first face defining an interior surface of the container.

7. A container body as claimed in claim 6, in which the flange includes a sealing surface to which a lid can be attached, the sealing surface being directed away from the base of the container and including the heat sealable film bonded thereto.

8. A container body as claimed in either of claims 6 or 7, in which the heat sealable film forms a film web that extends between the horn projection and at least one of the flange extensions.

9. A container body as claimed in any of claims 1 to 3, in which the base of the container is substantially rectangular and in which the peripheral wall comprises a first wall portions and a pair of opposed second wall portions and third wall portion opposite the first wall portion, the third wall portion carrying a lid.

10. A container as claimed in any preceding claim, in which at least a part of the flange is provided by a two part flange, the two part flange comprising a spacer part and a flange surface part, the spacer part arranged between the rim and the flange surface part and the two part flange being folded along an interface fold between the spacer part and the flange surface part such that the flange surface part overlies the spacer part and extends from the interface fold towards the exterior of the container body away from the opening, the flange surface part thereby providing at least part of the flange to which a lid can be secured.

11. A container body as claimed in claim 10, in which the flange provided on the first wall portion is the two part flange and the flange surface part of the two part flange on the first wall portion includes a coupling extension, at least part of which extends over, and can be coupled to, at least some of the flange extension provide by the second wall.

12. A blank for forming a container body, the container body being as claimed in any preceding claim, the blank comprising a base, and wall portions extending from the base to a rim such that, when folded, the wall portions will define a substantially continuous peripheral wall and at least some of the wall portions including flange extensions that extend from the rim such that, when folded, a flange that extends around at least some of the rim, the blank including a first wall portion and a second wall portion adjacent the first wall portion, each of the first and second wall portions including a flange extension extending from the rim, the blank further includes first and second web parts between the adjacent first and second wall portions, wall sides of the first and second web parts being attached to the first and second wall portions respectively and web sides of first and second web parts being coupled together and the first web part further including a horn projection which extends away from the base.

13. A blank as claimed in claim 12, in which the blank includes a heat sealable film on a first face thereof, the heat sealable film including film webs that extend over spaces between parts of the blank, the film webs positioned to enable additional heat sealable film to be arranged between attachment areas of the blank during forming.

14. A blank as claimed in claim 13, in which the blank includes a film web extending between the horn projection and the flange extensions from at least one of the first and second wall portions.

15. A blank as claimed in any of claims 12 to 14, in which at least a part of the flange is a two part flange, the two part flange comprising a spacer part and a flange surface part, the spacer part arranged between the rim and the flange surface part and the two part flange including an interface fold between the spacer part and the flange surface part.

16. A method for making a container body using a blank as claimed in any of claims 12 to 15, in which the wall portions are folded from the base to form a peripheral wall and in which the flange extensions are folded from the rim to provide the peripheral flange and the folded assembly is secured.

17. A method as claimed in claim 16, in which the method includes the step of folding the blank so that at least a portion of the first and second web parts overlap, attaching the overlapping first and second web parts together and folding the horn projection at the rim and sealing it onto the flange.

18. A container body substantially as herein described with reference to, or as shown in, the accompanying Figures.

19. A container substantially as herein described with reference to, or as shown in, the accompanying Figures.

20. A blank substantially as herein described with reference to, or as shown in, the accompanying Figures.

21. A method for making a container body, the method being substantially as herein described with reference to the accompanying Figures.

22. A method for making a container, the method being substantially as herein described with reference to the accompanying Figures.

Fig. 1

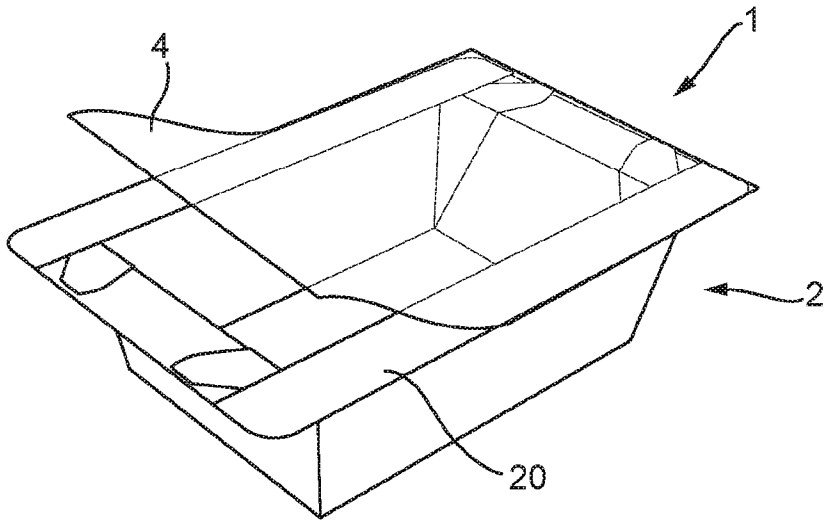
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Fig. 2

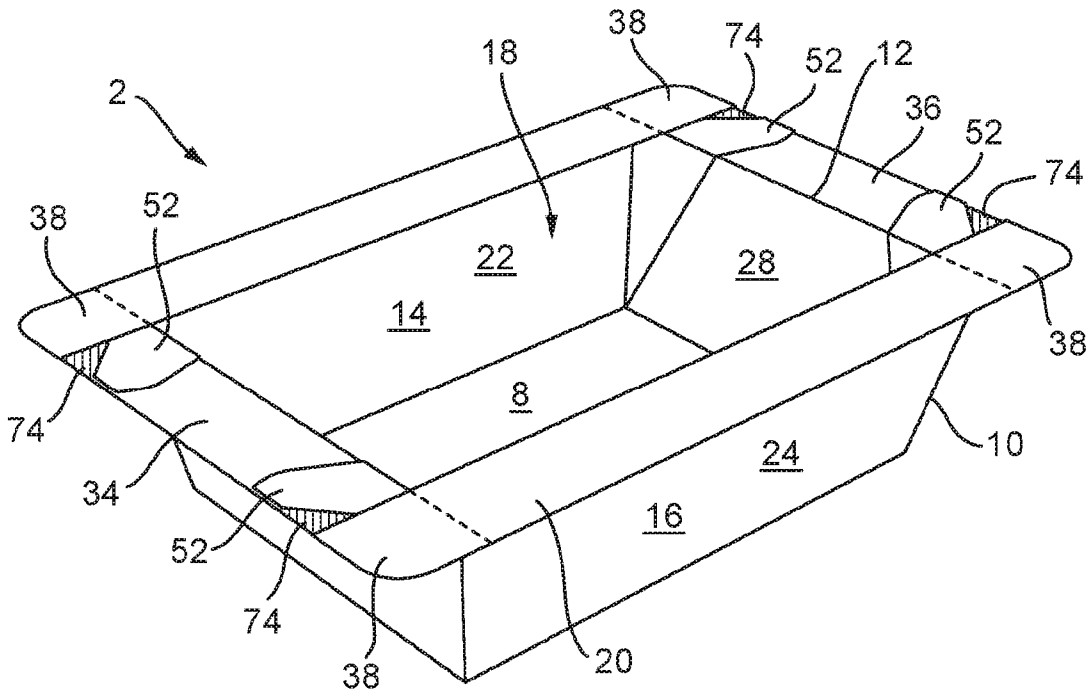
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Fig. 3

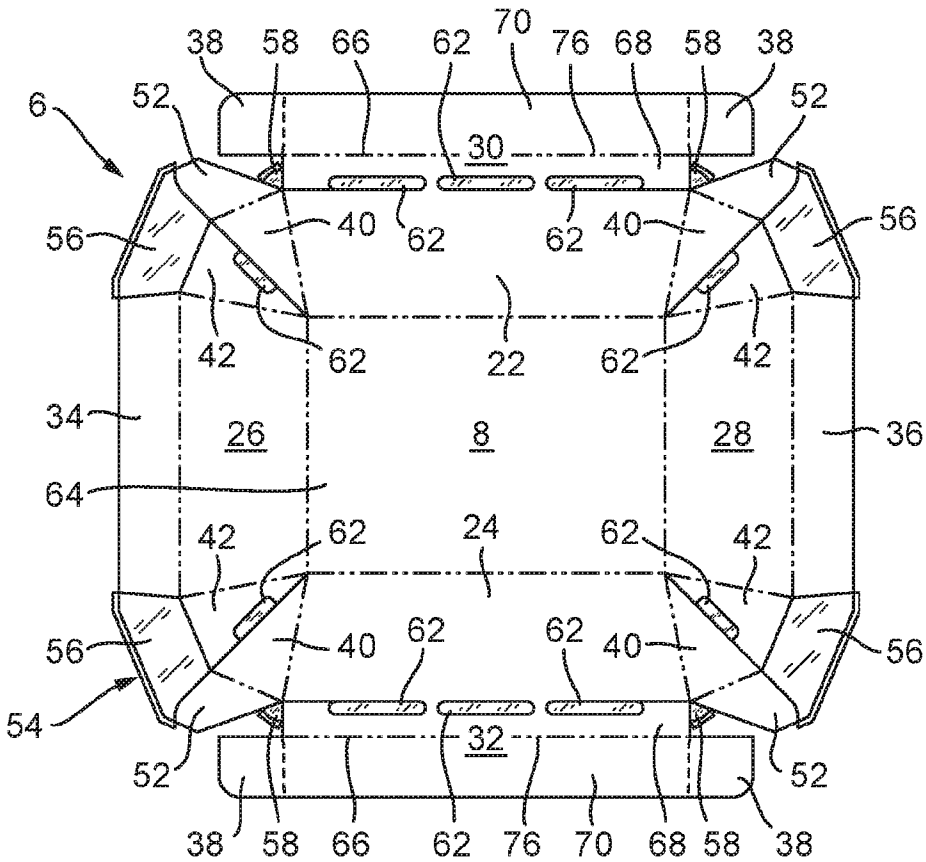
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Fig. 4

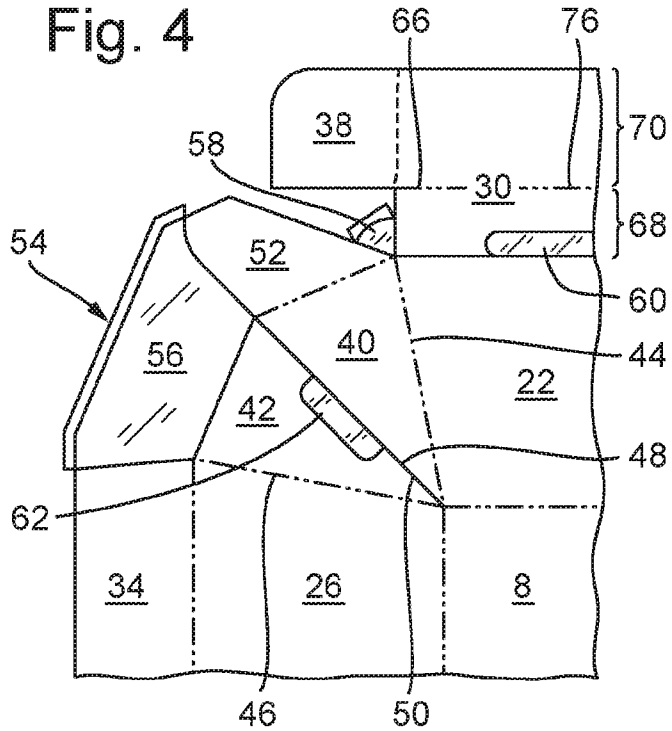
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Fig. 5

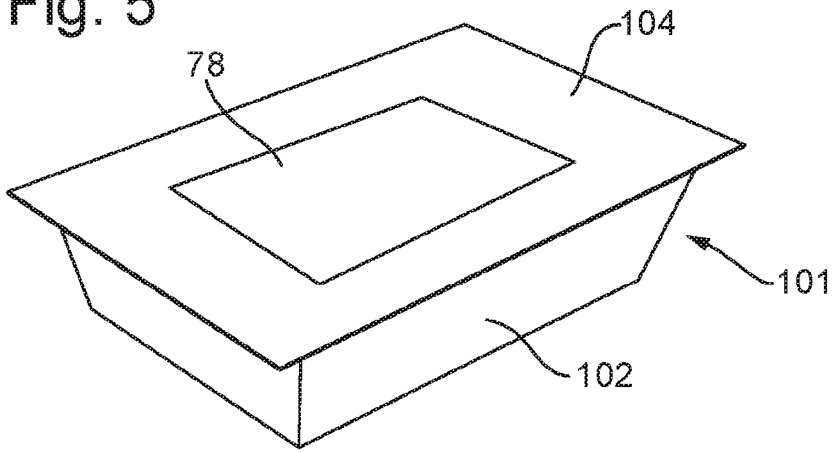

Fig. 6

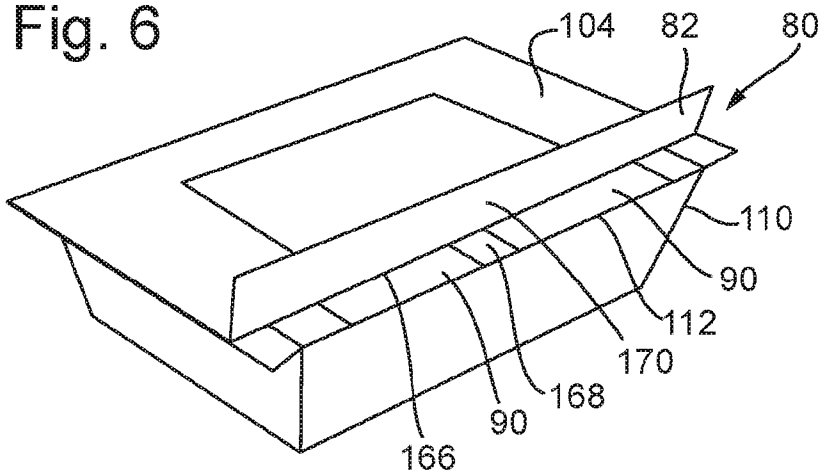

Fig. 7

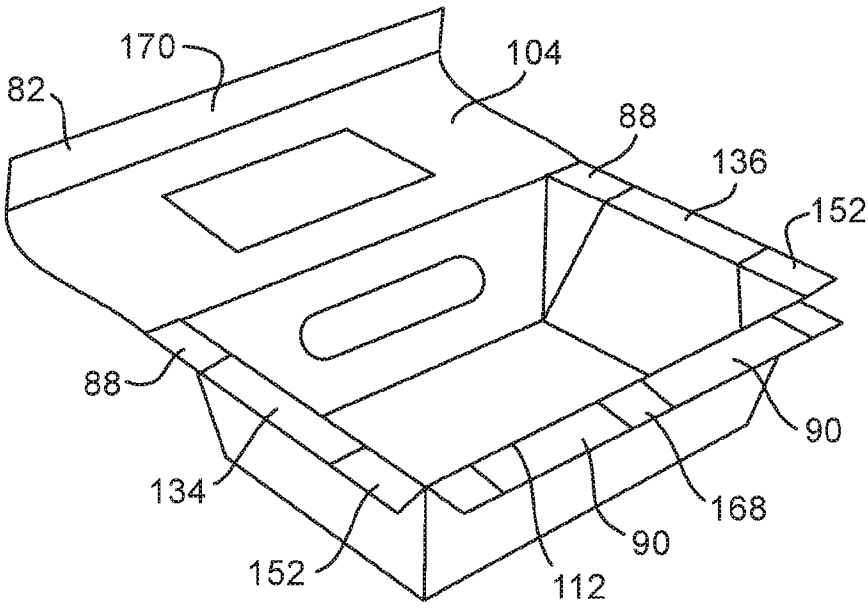

Fig. 8

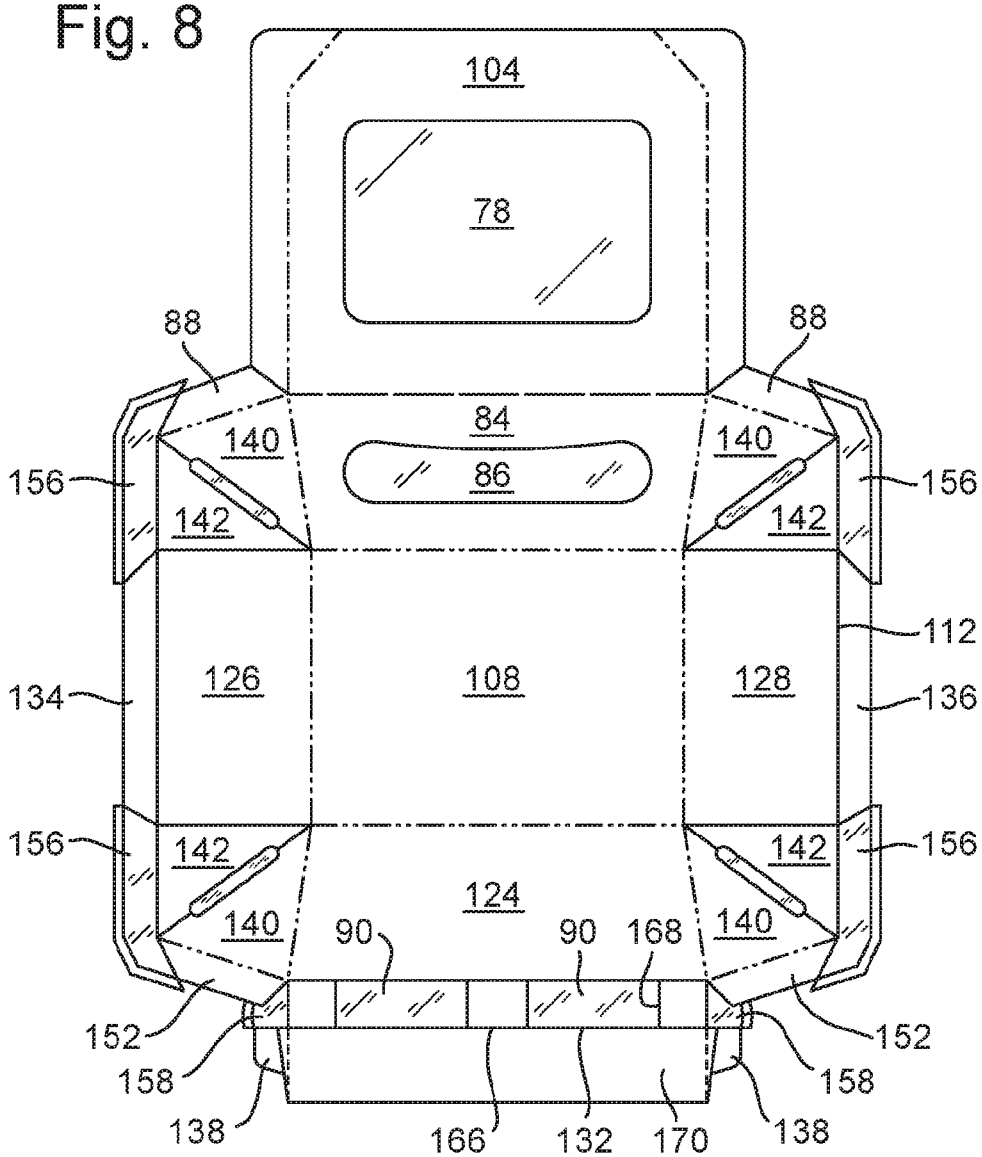
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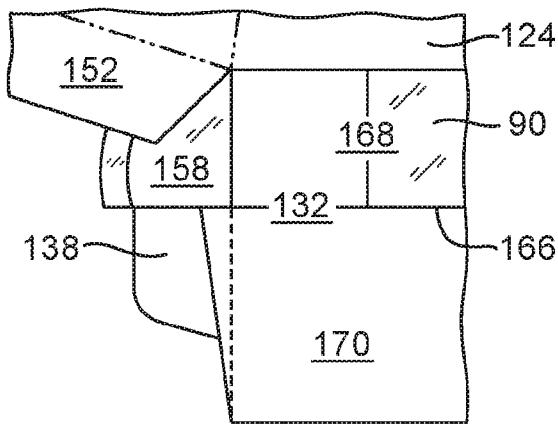
Fig. 9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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2015/052011

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D5/24
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 September 2015	06/10/2015

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Grondin, David

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Form PCT/ISA/210 (second sheet) (April 2005)

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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