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(54) **TEAR MEMBRANE WITH PULL-TAB, PACKAGING CONTAINER**

REISSMEMBRAN MIT AUFREISSLASCHE, VERPACKUNGSBEHÄLTER

MEMBRANE À DÉCHIRURE COMPORTANT UNE LANGUETTE DE MANIPULATION, CONTENEUR
D'EMBALLAGE

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Description

TECHNICAL FIELD

[0001] The disclosure pertains to a tear membrane for sealing an inner compartment in a packaging container. The tear membrane is a two-layer structure comprising a top member and a bottom member. The tear membrane is provided with a tear-away area and a tear-strip comprising a pull-tab arranged in the top member. Disclosed herein is also a packaging container comprising the tear membrane.

BACKGROUND OF THE INVENTION

[0002] Consumer goods, in particular bulk solids, are often packaged in relatively rigid paperboard packaging containers which protect the bulk solids during transport and storage at the manufacturer and retailer end and during storage and dispensing at the consumer end. One of the important factors in the area of bulk packaging containers is to ascertain that the quality of the packaged goods remains at a high level from the initial opening of the container until the packaged product has been completely consumed. The containers are usually provided with an openable and closable lid, and are additionally provided with an inner transport seal which keeps the contents fresh and protected against contamination up until a first opening of the packaging container by a consumer. One type of transport seal is a tear membrane comprising a top member and a bottom member. The top member is provided with cuts, forming a tear strip and a tear-away area which includes the tear strip. By pulling at the tear-strip formed in the top member, the connection or connections between the top member and the bottom member within the area constituted by the tear strip will cause the bottom member to break along the cuts in the top member. Thereby, both the top member and the bottom member within the tearable area can be removed from the container to make the contents in the container available for use.

[0003] These types of tear membranes are highly effective for providing protection for the bulk solids during transport and storage, and may easily be manufactured from few components and using well known production technology. The top and bottom members are generally made of flexible material layers and it has been found that due to the seal between the layers of the top member and the bottom member and the flexibility of the layers the layers tend to cling to each other also within non-attached areas, such as within the area of the pull-tab. Thereby the user may experience difficulties in identifying and in grasping the pull-tab.

[0004] WO 2018/009134 A1 relates to a sealing disc for sealing an inner compartment of a packaging container, the sealing disc comprises a tear-away area and a sealing strip comprising a pull-tab. EP 3 085 636 A1 relates to a sealing foil for closing a packaging container,

the sealing foil comprises a first layer which is pre-cut with a plurality of tear line defining a tearin path leading from a pull tab. DE 22 09 393 A1 relates to a cover film comprising a tear-away part and a pull tab. EP 0 299 571 A1 relates to a container with a cover film, the cover film comprising a pull tab.

[0005] Accordingly, there remains a need for a further improved opening arrangement for a tear membrane for packaging containers as disclosed herein.

[0006] An object of the present disclosure is to provide a tear membrane having a more reliable opening arrangement, as well as a packaging container being provided with an improved tear membrane.

15 SUMMARY OF THE INVENTION

[0007] One or more of the above objects may be achieved with a tear membrane for a packaging container for bulk solids in accordance with claim 1 and a packaging container for bulk solids in accordance with claim 13. Further embodiments are set out in the dependent claims, in the following description and in the drawings.

[0008] The laminate tear membrane for sealing an inner compartment in a packaging container as disclosed herein comprises a top member and a bottom member, the top and bottom members being sheet materials. The top member has a top member peripheral edge portion and the bottom member has a bottom member peripheral edge portion. A top member second surface faces the bottom member and a bottom member first surface faces the top member second surface. The tear membrane comprises a tear-away area being delimited by a contour line arranged in the top member and a tear strip being arranged in the top member and being part of the tear-away area. The tear-strip comprises a pull-tab arranged at a grip end of the tear strip and the pull-tab faces a pull-tab facing region arranged in the bottom member. The top member and the bottom member are interconnected along the top member peripheral edge portion and the bottom member peripheral edge portion. Furthermore, a plurality of discrete distance elements comprising or consisting of a plurality of embossed elements are arranged in the pull-tab facing region of the bottom member or in the pull-tab, the plurality of distance elements having a height (H) of 0.1 mm or more, as measured from the surface of the first surface of the bottom member or from the second surface of the top member, respectively.

[0009] The arrangement with a pull-tab integrated in the top member and being a part of the tear-away area, i.e. not being a separate part protruding outside the general circumference of the tear membrane, imparts advantages both in terms of appearance, manufacturing and separate storage of the tear membrane prior to insertion into packaging containers. However, the fact that the sheet materials are relatively thin and that the pull-tab is integrated in the top-member may cause difficulties both to visually detect the pull-tab and physically to separate the top member from the bottom member and grasp a

front edge of the pull-tab for tearing off the tear-away area for a partial or complete removal of the tear membrane from a packaging container. The distance element(s) of the bottom member bulge against the top member creating corresponding imprints in the pull-tab material making it easy for the consumer to visually identify the pull-tab and also serve to free the pull-tab from the bottom member and thereby facilitate gripping of the pull tab. Alternatively, the distance element(s) of the pull-tab, constituted by the top member, bulge against the bottom member creating shadows in the pull-tab, making it easy for the consumer to identify the pull-tab and also serve to freeing the pull-tab from the bottom member and thereby facilitate gripping of the pull tab

[0010] The tear membrane as disclosed herein may have any shape adapted to a corresponding cross-section of a packaging container body, including circular, oval, rectangular and modified rectangular shapes.

[0011] It may be preferred that the tear membrane as disclosed herein has a modified rectangular shape with four side edges joined by four curved corner portions. Modified rectangular shapes include modified square shapes, i.e. rectangular shapes having side edges of equal length.

[0012] The side edges of a tear membrane having rectangular or modified rectangular shape may consist of first and second longitudinal side edges and first and second transverse side edges, the longitudinal side edges having a length greater than a length of the transverse side edges. The side edges may be straight side edges or may have a slight curvature, with a radius of curvature in the range of from 200-700 mm, preferably 300-600 mm, more preferably 400-500 mm.

[0013] The side edges are connected by curved corner portions, wherein the radius of curvature of the corner portions may be in the range of 5-60 mm, preferably 10-40 mm, more preferably 15-30 mm.

[0014] In a tear membrane as disclosed herein, the tear strip may have a width in the range of from 10 millimetres to 30 millimetres, such as from 15 millimetres to 25 millimetres.

[0015] The width of the tear strip is the distance between the outer edge of the tear strip defined between the contour section of a tear strip cut line, and the inner edge of the tear strip. The width of the tear strip is measured in a portion of the tear strip which is not the pull tab and may be constant along the length of the tear strip or may vary along the length of the tear strip. By way of example, the pull-tab part of the tear strip may have a width which is different from the width of other parts of the tear strip, such as a larger width to provide an enlarged grippable portion at the pull-tab end of the tear strip.

[0016] Bonding of the top member to the bottom member is preferably made by heat sealing, although adhesive attachments may be used as an alternative or as a complement. The top member and the bottom member are preferably laminates comprising a polymer protective

and/or bondable layer and a structural layer, such as a layer of aluminium foil, paper, etc.

[0017] The attachments between the top member and the bottom member are permanent attachments, implying that the material in the layers will break before an attachment is broken when pulling at the tear strip.

[0018] The border seal is preferably a continuous seal such as a continuous weld seal which extends around the full periphery of the tear membrane. The border seal is preferably gas-tight. The width of the border seal may be from 1 millimetres to 5 millimetres, such as from 1.5 millimetres to 4 millimetres.

[0019] In addition to the border seal further attachments may be arranged between the top member and the bottom member, such as a tear strip attachment area. The tear strip and/or the tear-away area may comprise one or more attachments, such welded regions. One such example is discrete attachments in the tear-away area along the contour of the tear strip e.g. in the form of arrows which at the same time may serve as indicators of a proper tear direction.

[0020] The pull-tab/pull-tab facing region may be delimited by a base line extending perpendicularly over a total width of the pull-tab/pull-tab facing region, the base line being arranged to extend over the width of the pull-tab/pull-tab facing region at the point of the tear strip attachment area having the shortest distance to a front edge of the pull-tab. The tear-strip, including the pull-tab, may be delimited by a tear-strip cut-line. The total area of the pull-tab/pull-tab facing region then corresponds to the region extending between the base line and the tear-strip cut-line. The base line may be determined by an outer border of the interconnected region in the area of the tear-strip, such as a welded region interconnecting the top member and the bottom member in the tear away area. Such base line of the pull-tab/pull-tab facing region may be arranged at from 2.5 to 1 cm from the front edge of the pull-tab.

[0021] Optionally, the pull-tab facing region may have a greater surface area than a corresponding area of the pull-tab overlying the pull-tab facing region. The pull-tab may however have a smaller surface area than the pull-tab facing region. The front edge of the pull-tab facing region may be provided at a lateral distance from a front edge of the pull-tab. The tear-strip cut line may thus include an outer pull-tab facing region cut-line and an inner pull-tab cutline with a front part of the pull-tab facing region being visible also when the pull-tab is in a flat non-raised position. The pull-tab facing region cut-line and the pull-tab cut line may coincide or may be provided with a distance from each other. This may also facilitate visual identification and grasping of the pull-tab.

[0022] Optionally, the plurality of distance elements have a surface coverage ranging from about 25 to 75 % of the total area of the pull-tab. The fact that the plurality of distance elements have a surface coverage ranging from about 25 to about 75% has been seen to provide a significant bulging of the pull-tab/pull-tab facing region

and thus a facilitated grasping of the pull-tab.

[0023] Optionally, the plurality of distance elements have a surface coverage up to 100 % of the total area of the pull-tab. The fact that the plurality of distance elements have a surface coverage ranging from about 25 to about 75% has been seen to provide a significant bulging of the pull-tab/pull-tab facing region and thus a facilitated grasping of the pull-tab.

[0024] Optionally, the plurality of distance elements each have a height of 0.3 mm or more, such as in the range of from 0.3 mm to 1.3 mm, as measured from the surface of the first surface of the bottom member or from the surface of the second surface of the pull-tab. The height of the distance elements influences the bulging of the pull-tab/pull-tab facing region and the extent to which the pull-tab is raised up from the bottom member. It has been found by the present inventors that a height of 0.3 mm or more makes the pull-tab to rise slightly from the tear membrane such that the user more easily may grasp the pull-tab. However, it has also been found that when the height of the distance elements is too high, this may cause issues at manufacturing and for the stackability of the tear membranes prior to insertion into packaging containers. If the pull-tab, such as the front edge of the pull-tab, protrudes too much from the otherwise even surface of the tear membrane it may get caught during manufacturing causing unwanted stops, it may also cause instability and difficulties in stacking of tear membranes.

[0025] Furthermore, it has also been found that when the tear membranes as described herein are arranged in a stack an embossed pattern of distance elements in the pull-tab facing region of the bottom member has been found to impact the material in the pull-tab causing the pull-tab material to deform in conformance with the distance elements in the bottom layer. Thereby, an impression of the distance element is formed in the pull-tab, which impression is visible when the tear membrane is applied in a container.

[0026] Optionally, four or more discrete distance elements and/or a plurality of elongated discrete elongated distance element are/is arranged in the pull-tab facing region of the bottom member or in the pull-tab.

[0027] According to the invention, a plurality of discrete distance elements are arranged in the pull-tab facing region of the bottom member, or in the pull-tab, and wherein optionally the discrete distance elements have a distance to adjacent distance elements in the range of from 1 mm to 8 mm, such as from 2 mm to 6 mm, such as from 3 mm to 5 mm, as measured between each of the distance elements. By spreading the plurality of discrete distance elements, such that the distance elements have a distance to adjacent distance elements in the range of from 1 mm to 8 mm, the pull-tab facing region becomes upwardly concave over a greater area with an improved lifting of the free pull-tab, such as the front edge of the pull-tab, into position for grasping. Alternatively and in a corresponding manner, when the plurality of discrete distance elements are provided in the top member, and on

a second surface of the part forming the pull-tab, and the distance elements have a distance to adjacent distance elements in the range of from 1 mm to 8 mm, the pull-tab becomes downwardly concave, against the first surface of the bottom member, over a greater area with an improved lifting of the free pull-tab, such as the front edge of the pull-tab, into position for grasping

[0028] Correspondingly, it has been found that it may be sufficient if the plurality of discrete distance elements have a total surface area of 5 mm² or more, such as 8 mm² or more.

[0029] The plurality of distance elements as disclosed herein comprising or consisting of the plurality of embossed elements may be provided in the bottom member, the embossed elements may be embossed dots.

[0030] The fully or partly removable tear membrane may be a tearable inner sealing member and the structural layer of the top laminate member sheet material may be a metallic foil or a paper layer and a thermoplastic welding layer.

[0031] The bottom member may comprise a laminate sheet material comprising a metallic foil or a paper layer and a thermoplastic welding layer, the bottom laminate sheet material being joined to the top member by welding in one or more discrete welding areas.

[0032] The top member may comprise a metallic foil layer, such as aluminium foil layer, and a polymeric welding layer and/or a polymeric protective. The top member may comprise a metallic foil layer having a thickness of from 5 to 20 µm.

[0033] The bottom member may comprise a metallic foil layer, such as aluminium foil layer, and a polymeric welding layer and/or a polymeric protective. The top member may comprise a metallic foil layer having a thickness of from 5 to 20 µm, such as from 5 to 18 µm.

[0034] It has been shown that when a member is provided with embossed elements, the layer may have a thickness of at least 5 µm for the embossing pattern to remain in the layer over time. Preferably, the member provided with the embossing comprises a metallic foil and a polymeric welding layer, optionally, and to render the embossing more distinct, the thickness of the metallic foil is preferably at least 30%, such as at least 40% of the thickness of the thermoplastic welding layer, such as at least 30% of the thickness of the polyethylene layer.

[0035] Disclosed herein is also a packaging container comprising the tear membrane as disclosed herein as an inner sealing member. The packaging container comprises a container body comprising a container wall extending from a container bottom to a container opening, and a closure arrangement comprising a lid, a peripheral edge portion of the tear membrane being attached to an inner surface of the container wall, the tear membrane forming a transport seal across the container opening.

[0036] The packaging container is preferably a paper-board packaging container, as defined herein.

[0037] Optionally, the packaging container has an inner compartment and the inner compartment has a pres-

sure above the ambient pressure. When the inner compartment of the packaging container is provided with slight overpressure, the compacted air will press against the tear membrane and provide the tear membrane and the pull-tab with a bulge which will slightly raise the pull-tab and cooperate with the distance elements to facilitate grasping of the pull-tab.

[0038] As used herein, a paperboard packaging container is a packaging container wherein the container body is formed from paperboard sheet material. The paperboard container may be formed in any manner known in the art, e.g. by forming a container body by bending a paperboard sheet material into a tubular shape and longitudinally closing the tube by joining overlapping or abutting side edges of the paperboard material. The join between the side edges may be covered by a sealing strip. In the paperboard packaging containers as disclosed herein, the container bottom is formed from a separate bottom disc which is attached at the bottom end of the container body tube. The bottom disc may be attached on the inside of the container body tube and may be inset from the container body bottom edge to accommodate a bottom reinforcing rim attached to the inner surface of the container body and/or to create a receiving space for stacking of the containers

[0039] As used herein, a paperboard material is a sheet material predominantly made from cellulose fibres or paper fibres. The sheet material may be provided in the form of a continuous web or may be provided as individual sheets of material. The paperboard material may be a single ply or multi ply material and may be a laminate comprising one or more layers of materials such as polymeric films and coatings, metal foil, etc. The polymeric films and coatings may include or consist of thermoplastic polymers. The paperboard material may be coated, printed, embossed, etc. and may comprise fillers, pigments, binders and other additives as known in the art. The paperboard materials as disclosed herein may also be referred to as cardboard or carton materials.

[0040] As used herein, the term "bulk solids" refers to a solid bulk material from which a desired amount of the product may be poured, scooped or taken by hand out of a packaging container. The bulk material may be dry or moist. The bulk solids which are suitable for packing in the paperboard packaging containers as disclosed herein include any material in the form of particles, granules, grinds, plant fragments, short fibres, flakes, seeds, pieces, etc.

[0041] The paperboard packaging container as disclosed herein may be a container for alimentary products such as infant formula, coffee, tea, rice, flour, sugar, cereals, soup powder, custard powder, pasta, snacks, or the like. Alternatively, the bulk solids may be non-alimentary, such as tobacco, detergent, fertilizer, chemicals or the like.

[0042] The tearable tear membrane as disclosed herein may be gastight or gas-permeable. A gastight tear membrane may comprise a structural layer such as a

metallic foil layer, for example aluminium foil layer, or a paper layer and a polymeric protective and/or bonding layer. A gastight tear membrane is advantageous when the bulk solids stored in the packaging container are sensitive to air and/or moisture and it is desirable to avoid contact of the packaged bulk solids with ambient air.

[0043] The barrier properties of the packaging containers disclosed herein may be designed to meet different requirements of tightness depending on the goods which is packaged in the packaging container. By way of example, in a packaging container for dried powder, such as sugar or flour, a lower barrier level may be sufficient than in a packaging container for e.g. infant formula which is highly sensitive to oxygen and moisture exposure.

[0044] A gastight packaging container is particularly advantageous when the material stored in the packaging container is sensitive to air and/or moisture. It may also be desirable to keep fragrances and aromas in the packaging container and prevent the packaged contents from taking up scents and flavours from the ambient air. In case the packaging container has been filled in a protective gas atmosphere, the gas-tight tear membrane keeps the protective gas trapped together with the packaged contents in the sealed inner compartment.

[0045] When opening a packaging container which is sealed by a tear membrane as disclosed herein, the tear-away area of the tear membrane is removed by pulling at the grip-end of the tear-strip and tearing along the contour cut-line delimiting the tear-away area. The tear-away area defines the size of the access opening created in the packaging container when removing the tear-away area. The tear-away area may be arranged in the tear membrane such that all or only part of the tear membrane inside of the sealing border is removed when creating the access opening in the packaging container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0046] The present invention will be further explained hereinafter by means of non-limiting examples and with reference to the appended drawings wherein:

- Fig. 1a shows an exploded view of a tear membrane according to the present disclosure;
- Fig. 1b shows a perspective view of the tear membrane in Fig. 1a;
- Fig. 2 shows the tear membrane according to Figs. 1a -1b with the pull-tab in a raised position;
- Fig. 3 shows a tear membrane according to the present disclosure;
- Fig. 4 shows the tear membrane in Fig. 3 with the pull-tab in an opened position; and
- Fig. 5 shows a packaging container.

DETAILED DESCRIPTION

[0047] It is to be understood that the drawings are schematic and that individual components are not necessarily

drawn to scale. The packaging container and the tear membrane shown in the figures are provided as examples only and should not be considered limiting to the invention as disclosed herein. In particular, it should be understood that the tear membrane as disclosed herein may be applied to any packaging container where a breakable transport seal is desired in addition to the provision of a reclosable lid. Furthermore, the size and shape of the packaging container and a corresponding tear membrane may be different from what is shown in the figures. The tear-strip may have a different size and shape, and may have a differently shaped pull-tab portion.

[0048] With reference to Figs. 1a and 1b there is shown a tear membrane 1. The tear membrane 1 has a top member 2 and a bottom member 3. The top member 2 has a top member peripheral edge portion 4 and a top member peripheral edge 4a. The bottom member 3 has a bottom member peripheral edge portion 5 and a bottom member peripheral edge 5a. The top and bottom members 2,3 are each laminated sheet materials, with a top member first surface 2a and a top member second surface 2b, and a bottom member first surface 3a and a bottom member second surface 3b, with the top member second surface 2b being laminated facing the bottom member first surface 3a.

[0049] In Figs. 1a and 1b, the top member 2 is shown to be larger than the bottom member 3 with the top member peripheral edge 4a arranged laterally outboard of the bottom member peripheral edge 5a. Alternatively, the top member 2 and the bottom member 3 may have the same size and shape, or the bottom member 3 as shown may be larger than the top member 3 with the bottom member peripheral edge 5a arranged laterally outboard of the top member peripheral edge 4a. The edge portion of the top member 2 which extends outward of the peripheral edge 5 of the bottom member 3 provides the tear membrane 1 with a thinner more flexible sealing border 13 for sealing the tear membrane 1 to a container wall.

[0050] As illustrated in Figs. 1a and 1b, the tear membrane 1 further comprises discrete attachments between the top member 2 and the bottom member 3 arranged in the area of the tear strip 8 and along the tear strip 8, here in the form of welded and embossed arrows which at the same time may serve as indicators of a proper tear direction.

[0051] As illustrated in Fig. 1b by a dashed area, the top member 2 is joined to the bottom member 3 in a border seal 14 arranged along the peripheral edge portions 4, 5 of the top and bottom members 2, 3. In Fig. 1a the interconnected area in the form of the border seal 14 is not illustrated. The border seal 14 is preferably a continuous seal such as a continuous weld seal which extends around the full periphery of the tear membrane 1. The thinner sealing border 13 constituted by only the top member 2 forms a peripheral portion of the tear membrane 1 which is arranged outward of the border seal 14 and the peripheral edge 5a of the bottom member 3 and

which surrounds the border seal 14.

[0052] The tear membrane 1 comprises a tear-away area 6 which is delimited by a contour line 7 arranged in the top member 2. A tear strip 8 is arranged in the top member 2 and forms part of the tear-away area 6. The tear-strip 8 comprises a pull-tab 9 which is arranged at a grip end of the tear strip 8. The pull-tab 9 has no attachments to the bottom member 3 and is separable from the bottom member 2 of the tear membrane 1. A pull-tab facing region 10 is arranged in the bottom member 3 in the area facing the pull-tab 9 provided in the top member 2. The sheet material constituting the bottom member 3 has been embossed in the pull-tab facing regions 10 to form a plurality of discrete distance elements 11. The distance elements 11 have a height (H) of 0.1 mm or more, as measured from the first surface 3a of the bottom member 3. The distance elements 11 bulge against the top member 2 thereby creating imprints in the pull-tab 9 making the pull-tab 9 easier to visualize. The distance elements 11 also provide a distance between the top member 2 and the bottom member 3 which facilitates grasping of the pull-tab 9. The plurality of distance element 11 may also be formed in the pull-tab 9 such that bulges from the second surface 2b of the top member 2, the plurality of distance element 11 may have a height (H) of 0.1 mm or more, as measured from the second surface 3a of the top member 2.

[0053] The pull-tab facing region 10 may have a greater area than a corresponding area of the pull-tab 9 overlying the pull-tab facing region 10. A front edge 9a of the pull-tab 9 may be provided at a lateral distance from a front edge 10a (shown in Fig. 1a and 1b) of the pull-tab facing region 10. This may also facilitate visual identification and grasping of the pull-tab.

[0054] In addition to the border seal 14, the top member 2 and the bottom member 3 of the tear membrane 1 are further joined to each other in an interconnected region in a tear strip attachment area 15 arranged at an inner portion of the pull-tab 9, the tear strip attachment area 15 is illustrated as a dashed area. The additional tear strip attachment area 15 is shown as a broadened portion of the border seal 14 and may aid in initiating proper tearing of the bottom member 3 along the cuts in the top member 2 when pulling away the tear-away area 10. The additional tear strip attachment area 15 is an optional feature of the tear membrane 1 as disclosed herein and may be omitted. Furthermore, the tear strip attachment area 15 may have any useful size or shape. By way of example only, the tear strip attachment area may extend across a larger portion of the width of the tear strip such as over the full width of the tear strip and/or may extend further along the tear strip, etc.

[0055] Fig. 2 illustrates the tear membrane 1 with the pull-tab 9 in a raised position. The pull-tab 9 has been separated from the surrounding top member 2, thereby exposing the underlying pull-tab facing region 10. The pull-tab facing region 10 is delimited by a base line 12 extending perpendicularly over a total width (w) of the

pull-tab 9, the base line 12 being arranged to extend over the width (w) of the pull-tab 9 at a point (P) of an interconnection between the top and the bottom member 2,3 in the tear away area 6 having the shortest distance to the front edge 9a of the pull-tab 9 and wherein the area A_p of the pull-tab facing region 10 is the area facing the pull-tab 9 and is delimited at an inner end by the base line 12. The base line is determined by the outer border of the interconnecting, welded, region in the tear strip attachment area 15. The tear strip 8 is further delimited by a tear strip cut-line 16 provided in the top member 2 and a total area A_p of the pull-tab facing region 10 is defined between the base line 12 and the tear strip cut-line 16.

[0056] Figs. 3 and 4 illustrate a tear membrane 1 according to the present disclosure, the tear membrane 1 having a top member 2 and a bottom member 3. The top member 2 has a top member peripheral edge portion 4 and a top member peripheral edge 4a. The bottom member 3 has a bottom member peripheral edge portion 5 and a bottom member peripheral edge 5a. The top and bottom members 2,3 are laminated sheet materials, with a bottom member first surface 3a facing the top member 2.

[0057] The tear membrane 1 comprises a tear-away area 6 which is delimited by a contour line 7 arranged in the top member 2. A tear strip 8 is arranged in the top member 2 and forms part of the tear-away area 6. The tear-strip 8 comprises a pull-tab 9 which is arranged at a grip end of the tear strip 8. The tear strip is delimited by a tear-strip cut-line 16. The pull-tab 9 is separable from the bottom member 2 of the tear membrane 1. A pull-tab facing region 10 is arranged in the bottom member 3 in the area facing the pull-tab provided in the top member 2. The sheet material constituting the bottom member 3 has been embossed in the pull-tab facing regions 10 to form an arc-shaped distance element 11 extending along a front edge 10a of the pull-tab facing region 10. The distance element 11 has a height (H) of 0.1 mm or more, as measured from the first surface 3a of the bottom member 3. The distance elements 11 bulges against the top member 2 thereby creating a shadow which makes the pull-tab 9 easier to detect. The distance element 11 also provides a distance between the top member 2 and the bottom member 3 which facilitates grasping of the pull-tab 9.

[0058] Fig. 5 illustrates a packaging container 100 which is a packaging container for pourable or scoopable bulk solids as defined herein and comprises a container body 102 comprising a container wall 103 including a front wall portion 103a, a rear wall portion 103b and two side wall portions 103c, 103d. The container wall 103 extends from a container bottom 104 to a container opening 105. The container wall 103 has an inner surface 107 facing towards an inner compartment in the packaging container 100 and an outer surface 108 facing away from the inner compartment and being exposed to the exterior of the packaging container 100. A bottom disc is posi-

tioned at the bottom 104 of the container body 102. The container body 102 is made from paperboard material as defined herein. The container body 102 may be formed by bringing together the side edges of a web of paperboard causing the material to assume a tubular shape, where after the side edges are sealed together. Sealing of the side edges may be made by any suitable method as known in the art, such as by welding or gluing, with welding being preferred. Sealing of the side edges of the container body web may involve using a sealing strip, as known in the art. The bottom disc may be made from paperboard, metal, plastic, or from any suitable combination of such materials as known in the art. The body may be formed into any desired tubular shape including circular, oval, rectangular and modified rectangular shapes, such as the modified rectangular shape with rounded corners which is shown in Fig. 4.

[0059] The container bottom 104 may alternatively be formed without a bottom disc by folding of the container wall material, as known in the art.

[0060] The paperboard packaging container 100 is provided with a closure arrangement comprising a lid 112 and a reinforcing rim 115 extending along the upper edge of the container wall 103.

[0061] The reinforcing rim 115 may be a plastic rim, such as a thermoplastic rim. The reinforcing rim 115 is attached to the inner surface 107 of the container wall 103 at the container opening 105, preferably by welding.

[0062] A weld seal is formed by supplying energy to heat and locally soften or melt one or more thermoplastic components in a thermoplastic rim 115 and/or in a coating or film on the inner surface 107 of the container wall 103 and by pressing the reinforcing rim 115 and the container wall 103 together in a direction perpendicular to the container wall 103.

[0063] The lid 112 has an inner lid surface which faces towards the bottom disc when the lid 112 is closed on the container opening 105.

[0064] The lid 112 is connected by a hinge 113 to a frame structure 130, the lid 112 and the frame structure 130 together forming a lid component. The hinge 113 may be a live hinge, formed as a flexible connection between the lid 112 and the frame structure 130. The illustrated hinge 113 is only intended as a non-limiting example and it should be understood that any other type of functional hinge may be used for the connection between the frame structure 130 and the lid 112. Moreover, the lid may be of the removable kind, without any permanent connection to a frame structure, a reinforcing rim or to the container body. It is further to be understood that the closure arrangement as shown in Fig. 5 is non-limiting to the claimed invention and that the tear membrane as disclosed herein may be used as a transport seal in packaging containers having other types of closure arrangements such as closure arrangements wherein a lid cooperates with a single rim or with an upper edge of the container body to close and open the packaging container.

[0065] In the packaging container 100 shown in Fig. 5, the frame structure 130 is mechanically attached to the reinforcing rim 115 by a snap-on connection.

[0066] The interior compartment is sealed with a tear membrane 1 as disclosed herein, e.g. a tear membrane 1 as shown in Fig. 1. The tear membrane 1 forms a transport seal over packaged goods which are contained in the interior compartment. A sealing border 117 of the tear membrane 1 is attached to the container wall 103, e.g. by welding. The seal between the sealing border 117 and the container wall 103 is preferably a gas-tight seal or at least a sift-proof seal. The tear membrane 1 may be attached to the container wall either from the top end of the container body 102 or from the bottom end of the container body 102, in which case it is attached before attaching the bottom disc. In the example shown in Fig. 5, the tear membrane 1 has been applied from the top end of the container body 102, with the edge portion 117 of the tear membrane 1 which is attached to the container wall 103 being upwardly directed. The edge portion 117 preferably comprises only the top member of the tear membrane 1 but may comprise also the bottom member of the tear membrane 1 or only the bottom member of the tear membrane 1.

[0067] In order to gain a first access to the packaged goods, a user needs to open the lid 112 and then expose the packaged goods by gripping the pull-tab 9, tearing open the tear membrane 1 along the tear-strip 8 and finally completely removing the tear-away area 6 of the tear membrane 1.

[0068] After the tear-away area 6 of the tear membrane 1 has been removed, a narrow edge part of the tear membrane 1 may be left at the inner surface 107 of the container wall 103. Any such remaining part of the tear membrane 1 is preferably as small as possible, in order not to encroach on the opening area. It may be preferred that a remaining tear membrane edge part has a width of at most 7 millimetres such as from 1-6 millimetres, from 2-5 millimetres or from 3-4 millimetres. It may be preferred that the inward extension of a remaining tear membrane part is 4 millimetres or less.

[0069] Once the tear membrane 1 has been removed, it is sufficient to open the lid 112 in order to gain access to the packaged goods in the interior compartment through the container opening 105.

Claims

1. A laminate tear membrane (1) for sealing an inner compartment in a packaging container, said laminate tear membrane (1) comprising a top member (2) and a bottom member (3), said top and bottom members (2,3) being laminated sheet materials, said top member (2) having a top member peripheral edge portion (4) and a top member second surface (2b) facing said bottom member (3) and said bottom member (3) having a bottom member peripheral

edge portion (5) and a bottom member first surface (3a) facing said top member second surface (2b), said laminate tear membrane (1) comprising a tear-away area (6) being delimited by a contour line (7) arranged in said top member (2) and a tear strip (8) being arranged in said top laminate tear membrane (2) and being part of said tear-away area (6), said tear-strip (8) comprising a pull-tab (9) arranged at a grip end of said tear strip (8), said pull-tab (9) facing a pull-tab facing region (10) arranged in said bottom member (3), said top member (2) and said bottom member (3) being interconnected along said top member peripheral edge portion (4) and said bottom member peripheral edge portion (5) **characterized in that** a plurality of discrete distance elements (11) comprising or consisting of a plurality of embossed elements, are arranged i) in said pull-tab facing region (10) of said bottom member (3) or ii) in said pull-tab (9), said plurality of distance elements (11) having a height (H) of 0.1 mm or more, as measured from said bottom member first surface (3a) or from the surface of said top member second surface (2b) respectively.

2. The tear membrane (1) according to claim 1, wherein said plurality of distance elements (11) each have a height (H) of 0.3 mm or more, such as in the range of from 0.3 mm to 1,3 mm, as measured from said bottom member first surface (3a).
3. The tear membrane (1) according to claim 1 or 2, wherein four or more discrete distance elements (11) and/or a plurality of elongated discrete elongated distance element (11a) are/is arranged in said pull-tab facing region (10) of said bottom member (3) or in said pull-tab (9).
4. The tear membrane (1) according to any one of claims 1-3, wherein said discrete distance elements (11) have a distance to adjacent distance elements (11) in the range of from 1 mm to 8 mm, such as from 2 mm to 6 mm, such as from 3 mm to 5 mm, as measured between each of the distance elements (11).
5. The tear membrane (1) according to any one of the preceding claims, wherein said plurality of discrete distance elements (11) have a total surface area of 5 mm² or more, such as 8 mm² or more.
6. The tear membrane (1) according to any one of the preceding claims, wherein said plurality of distance elements (11) are provided in said bottom member (4).
7. The tear membrane (1) according to any one of the preceding claims, wherein said top member (2) and said bottom member (3) are interconnected in said

tear away area (6).

8. The tear membrane (1) according to claim 7, wherein said pull-tab facing region (10) is delimited a base line (12) extending perpendicularly over a total width (w) of the pull-tab (9), said base line (12) being arranged to extend over said width (w) of said pull-tab (9) at a point (P) of an interconnection between said top and said bottom member (2,3) in said tear away area (6) having the shortest distance to a front edge (9a) of said pull-tab (9), and where said tear strip (8) is further delimited by a tear strip cut-line (16) and a total area (A_p) of said pull-tab facing region (10) is defined between said base line (12) and said tear strip cut-line (16). 5
9. The tear membrane (1) according to claim 8, wherein said plurality of distance elements (11) have a surface coverage ranging from about 25 to 75 % of the total surface of the total area of the pull-tab (A_p). 10
10. The tear membrane (1) according to any one of the preceding claims, wherein said top member (2) comprises a laminate sheet material comprising a metallic foil or a paper layer and a thermoplastic welding layer, said laminate sheet material being joined to said top member (3) by welding. 15
11. The tear membrane (1) according to any one of the preceding claims, wherein said bottom member (3) comprises a laminate sheet material comprising a metallic foil or a paper layer and a thermoplastic welding layer, said laminate sheet material being joined to said top member (3) by welding. 20
12. The tear membrane (1) according to any one of the preceding claims, wherein said top member (2) and/or said bottom member (3) has a thickness from $9\mu\text{m}$ to $16\mu\text{m}$, such as from $11\mu\text{m}$ to $15\mu\text{m}$. 25
13. A packaging container (100) comprising the tear membrane (1) according to any one of claims 1-12, wherein said packaging container (100) comprises a container body (102) comprising a container wall (103) extending from a container bottom (104) to a container opening (105), and a closure arrangement comprising a lid (112), a peripheral edge portion (117) of said tear membrane (1) being attached to an inner surface (107) of said container wall, said tear membrane (1) forming a transport seal across said container opening (105). 30
14. A packaging container (100) according to claim 13, wherein said packaging container (100) comprises an inner compartment and wherein said inner compartment has a pressure above the ambient pressure. 35

Patentansprüche

1. Laminatreißmembran (1) zum Abdichten eines Innenfachs in einem Verpackungsbehälter, die Laminatreißmembran (1) umfassend ein oberes Element (2) und ein unteres Element (3), wobei das obere und das untere Element (2, 3) laminierte Dünnschichtmaterialien sind, wobei das obere Element (2) einen Umfangsrandabschnitt (4) des oberen Elements und eine zweite Oberfläche (2b) des oberen Elements aufweist, die dem unteren Element (3) zugewandt sind, und das untere Element (3) einen Umfangsrandabschnitt (5) des unteren Elements und eine erste Oberfläche (3a) des unteren Elements aufweist, die der zweiten Oberfläche (2b) des oberen Elements zugewandt sind, die Laminatreißmembran (1) umfassend einen Abreißbereich (6), der durch eine Konturlinie (7) begrenzt ist, die in dem oberen Element (2) angeordnet ist, und einen Reißstreifen (8), der in der oberen Laminatreißmembran (2) angeordnet ist und Teil des Abreißbereichs (6) ist, der Reißstreifen (8) umfassend eine Zuglasche (9), die an einem Griffende des Reißstreifens (8) angeordnet ist, wobei die Zuglasche (9) einer zuglaschenzugewandten Region (10) zugewandt ist, die in dem unteren Element (3) angeordnet ist, wobei das obere Element (2) und das untere Element (3) entlang des Umfangsrandabschnitts (4) des oberen Elements und des Umfangsrandabschnitts (5) des unteren Elements miteinander verbunden sind, **dadurch gekennzeichnet, dass** eine Vielzahl von diskreten Abstandselementen (11), umfassend oder bestehend aus einer Vielzahl von geprägten Elementen, angeordnet sind: i) in der zuglaschenzugewandten Region (10) des unteren Elements (3) oder ii) in der Zuglasche (9), wobei die Vielzahl von Abstandselementen (11) eine Höhe (H) von 0,1 mm oder mehr, wie von der ersten Oberfläche (3a) des unteren Elements beziehungsweise von der Oberfläche der zweiten Oberfläche (2b) des oberen Elements gemessen, aufweisen. 40
2. Reißmembran (1) nach Anspruch 1, wobei die Vielzahl von Abstandselementen (11) jeweils eine Höhe (H) von 0,3 mm oder mehr, wie etwa in der Größenordnung von 0,3 mm bis 1,3 mm, wie gemessen von der ersten Oberfläche (3a) des unteren Elements, aufweisen. 45
3. Reißmembran (1) nach Anspruch 1 oder 2, wobei vier oder mehr diskrete Abstandselemente (11) und/oder eine Vielzahl von länglichen diskret länglichen Abstandselementen (11a) in der zuglaschenzugewandten Region (10) des unteren Elements (3) oder in der Zuglasche (9) angeordnet sind/ist. 50
4. Reißmembran (1) nach einem der Ansprüche 1 bis 3, wobei die diskreten Abstandselemente (11) einen 55

- Abstand zu angrenzenden Abstandselementen (11) in der Größenordnung von 1 mm bis 8 mm, wie etwa von 2 mm bis 6 mm, wie etwa von 3 mm bis 5 mm, wie gemessen zwischen jedem der Abstandselemente (11), aufweisen. 5
5. Reißmembran (1) nach einem der vorstehenden Ansprüche, wobei die Vielzahl von diskreten Abstandselementen (11) einen Oberflächenbereich von 5 mm² oder mehr, wie etwa 8 mm² oder mehr, aufweisen. 10
6. Reißmembran (1) nach einem der vorstehenden Ansprüche, wobei die Vielzahl von Abstandselementen (11) in dem unteren Element (4) bereitgestellt sind. 15
7. Reißmembran (1) nach einem der vorstehenden Ansprüche, wobei das obere Element (2) und das untere Element (3) in dem Abreißbereich (6) miteinander verbunden sind. 20
8. Reißmembran (1) nach Anspruch 7, wobei die zuglaschenzugewandte Region (10) durch eine Basislinie (12) begrenzt ist, die sich senkrecht über eine Gesamtbreite (w) der Zuglasche (9) erstreckt, wobei die Basislinie (12) angeordnet ist, um sich über die Breite (w) der Zuglasche (9) an einem Punkt (P) einer Verbindung zwischen dem oberen und dem unteren Element (2, 3) in dem Abreißbereich (6), der den kürzesten Abstand zu einer Vorderkante (9a) der Zuglasche (9) aufweist, zu erstrecken, und wobei der Reißstreifen (8) ferner durch eine Reißstreifenschnittlinie (16) begrenzt ist, und ein Gesamtbereich (A_p) von der zuglaschenzugewandten Region (10) zwischen der Basislinie (12) und der Reißstreifenschnittlinie (16) definiert ist. 25 30 35
9. Reißmembran (1) nach Anspruch 8, wobei die Vielzahl von Abstandselementen (11) eine Oberflächendeckung aufweisen, die in der Größenordnung von etwa 25 bis 75 % der Gesamtoberfläche des Gesamtbereichs der Zuglasche (A_p) liegt. 40
10. Reißmembran (1) nach einem der vorstehenden Ansprüche, wobei das obere Element (2) ein Laminatdünnschichtmaterial umfasst, umfassend eine Metallfolie oder eine Papierschicht und eine thermoplastische Schweißschicht, wobei das Laminatdünnschichtmaterial mit dem oberen Element (3) durch Schweißen zusammengefügt wird. 45 50
11. Reißmembran (1) nach einem der vorstehenden Ansprüche, wobei das untere Element (3) ein Laminatdünnschichtmaterial umfasst, das eine Metallfolie oder eine Papierschicht und eine thermoplastische Schweißschicht umfasst, wobei das Laminatdünnschichtmaterial mit dem oberen Element (3) durch Schweißen zusammengefügt wird. 55

12. Reißmembran (1) nach einem der vorstehenden Ansprüche, wobei das obere Element (2) und/oder das untere Element (3) eine Dicke von 9 µm bis 16 µm aufweisen, wie etwa von 11 µm bis 15 µm.

13. Verpackungsbehälter (100), umfassend die Reißmembran (1) nach einem der Ansprüche 1 bis 12, wobei der Verpackungsbehälter (100) einen Behälterkörper (102) umfasst, umfassend eine Behälterwand (103), die sich von einem Behälterboden (104) zu einer Behälteröffnung (105) erstreckt, und eine Verschlussanordnung, umfassend einen Deckel (112), wobei ein Umfangsrandabschnitt (117) der Reißmembran (1) an einer Innenoberfläche (107) der Behälterwand angebracht ist, wobei die Reißmembran (1), die eine Transportdichtung über die Behälteröffnung (105) hinweg ausbildet.

14. Verpackungsbehälter (100) nach Anspruch 13, wobei der Verpackungsbehälter (100) ein Innenfach umfasst und wobei das Innenfach einen Druck über dem Umgebungsdruck aufweist.

Revendications

1. Membrane déchirable stratifiée (1) destinée à sceller un compartiment interne dans un récipient d'emballage, ladite membrane déchirable stratifiée (1) comprenant un élément supérieur (2) et un élément inférieur (3), lesdits éléments supérieur et inférieur (2, 3) étant des matériaux en feuille stratifiés, ledit élément supérieur (2) ayant une partie de bord périphérique d'élément supérieur (4) et une seconde surface d'élément supérieur (2b) faisant face audit élément inférieur (3) et ledit élément inférieur (3) ayant une partie de bord périphérique d'élément inférieur (5) et une première surface d'élément inférieur (3a) faisant face à ladite seconde surface d'élément supérieur (2b), ladite membrane déchirable stratifiée (1) comprenant une zone déchirable (6) délimitée par une ligne de contour (7) disposée dans ledit élément supérieur (2) et une bande déchirable (8) disposée dans ladite membrane déchirable stratifiée supérieure (2) et faisant partie de ladite zone déchirable (6), ladite bande déchirable (8) comprenant une languette à tirer (9) disposée à une extrémité de préhension de ladite bande déchirable (8), ladite languette à tirer (9) faisant face à une région faisant face à une languette à tirer (10) disposée dans ledit élément inférieur (3), ledit élément supérieur (2) et ledit élément inférieur (3) étant interconnectés le long de ladite partie de bord périphérique d'élément supérieur (4) et de ladite partie de bord périphérique d'élément inférieur (5), **caractérisée en ce qu'**une pluralité d'éléments d'écartement séparés (11) comprenant ou consistant en une pluralité d'éléments en relief sont disposés i) dans ladite région faisant face

- à la languette à tirer (10) dudit élément inférieur (3) ou ii) dans ladite languette à tirer (9), ladite pluralité d'éléments d'écartement (11) ayant une hauteur (H) de 0,1 mm ou plus, telle que mesurée à partir de ladite première surface d'élément inférieur (3a) ou à partir de la surface de ladite seconde surface d'élément supérieur (2b) respectivement.
2. Membrane déchirable (1) selon la revendication 1, dans laquelle ladite pluralité d'éléments d'écartement (11) ont chacun une hauteur (H) de 0,3 mm ou plus, telle que dans la plage de 0,3 mm à 1,3 mm, telle que mesurée à partir de ladite première surface d'élément inférieur (3a).
 3. Membrane déchirable (1) selon la revendication 1 ou 2, dans laquelle quatre éléments d'écartement séparés ou plus (11) et/ou une pluralité d'éléments d'écartement allongés séparés (11a) sont disposés dans ladite région faisant face à la languette à tirer (10) dudit élément inférieur (3) ou dans ladite languette à tirer (9).
 4. Membrane déchirable (1) selon l'une quelconque des revendications 1 à 3, dans laquelle lesdits éléments d'écartement séparés (11) ont une distance par rapport aux éléments d'écartement adjacents (11) dans la plage de 1 mm à 8 mm, telle que de 2 mm à 6 mm, telle que de 3 mm à 5 mm, telle que mesurée entre chacun des éléments d'écartement (11).
 5. Membrane déchirable (1) selon l'une quelconque des revendications précédentes, dans laquelle ladite pluralité d'éléments d'écartement séparés (11) ont une surface totale de 5 mm² ou plus, telle que 8 mm² ou plus.
 6. Membrane déchirable (1) selon l'une quelconque des revendications précédentes, dans laquelle ladite pluralité d'éléments d'écartement (11) sont prévus dans ledit élément inférieur (4).
 7. Membrane déchirable (1) selon l'une quelconque des revendications précédentes, dans laquelle ledit élément supérieur (2) et ledit élément inférieur (3) sont interconnectés dans ladite zone déchirable (6).
 8. Membrane déchirable (1) selon la revendication 7, dans laquelle ladite région faisant face à la languette à tirer (10) est délimitée par une ligne de base (12) s'étendant perpendiculairement sur une largeur totale (w) de la languette à tirer (9), ladite ligne de base (12) étant disposée pour s'étendre sur ladite largeur (w) de ladite languette à tirer (9) en un point (P) d'une interconnexion entre lesdits éléments supérieur et inférieur (2, 3) dans ladite zone déchirable (6) ayant la distance la plus courte à un bord avant (9a) de ladite languette à tirer (9), et où ladite bande déchirable (8) est en outre délimitée par une ligne de découpe de bande déchirable (16) et une zone totale (A_p) de ladite région faisant face à la languette à tirer (10) est définie entre ladite ligne de base (12) et ladite ligne de découpe de bande déchirable (16).
 9. Membrane déchirable (1) selon la revendication 8, dans laquelle ladite pluralité d'éléments d'écartement (11) ont une couverture de surface allant d'environ 25 à 75 % de la surface totale de la zone totale de la languette à tirer (A_p).
 10. Membrane déchirable (1) selon l'une quelconque des revendications précédentes, dans laquelle ledit élément supérieur (2) comprend un matériau en feuille stratifié comprenant une feuille métallique ou une couche de papier et une couche de soudure thermoplastique, ledit matériau en feuille stratifié étant relié audit élément supérieur (3) par soudure.
 11. Membrane déchirable (1) selon l'une quelconque des revendications précédentes, dans laquelle ledit élément inférieur (3) comprend un matériau en feuille stratifié comprenant une feuille métallique ou une couche de papier et une couche de soudure thermoplastique, ledit matériau en feuille stratifié étant relié audit élément supérieur (3) par soudure.
 12. Membrane déchirable (1) selon l'une quelconque des revendications précédentes, dans laquelle ledit élément supérieur (2) et/ou ledit élément inférieur (3) ont une épaisseur de 9 µm à 16 µm, telle que de 11 µm à 15 µm.
 13. Récipient d'emballage (100) comprenant la membrane déchirable (1) selon l'une quelconque des revendications 1 à 12, dans lequel ledit récipient d'emballage (100) comprend un corps de récipient (102) comprenant une paroi de récipient (103) s'étendant depuis le fond du récipient (104) à une ouverture de récipient (105), et un dispositif de fermeture comprenant un couvercle (112), une partie de bord périphérique (117) de ladite membrane déchirable (1) étant fixée à une surface interne (107) de ladite paroi de récipient, ladite membrane déchirable (1) formant une fermeture étanche de transport pardessus ladite ouverture de récipient (105).
 14. Récipient d'emballage (100) selon la revendication 13, dans lequel ledit récipient d'emballage (100) comprend un compartiment interne et dans lequel ledit compartiment interne a une pression supérieure à la pression ambiante.

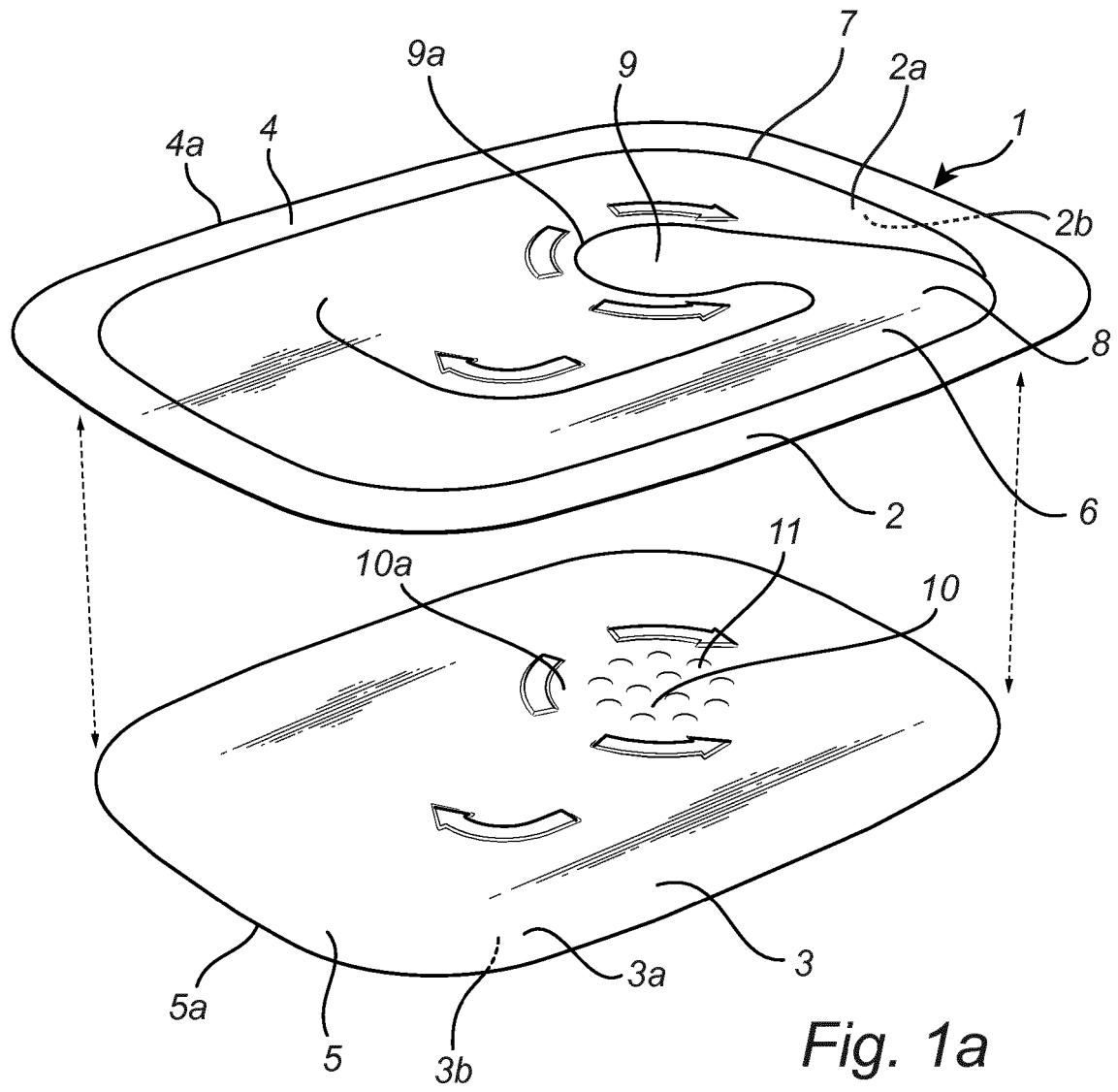


Fig. 1a

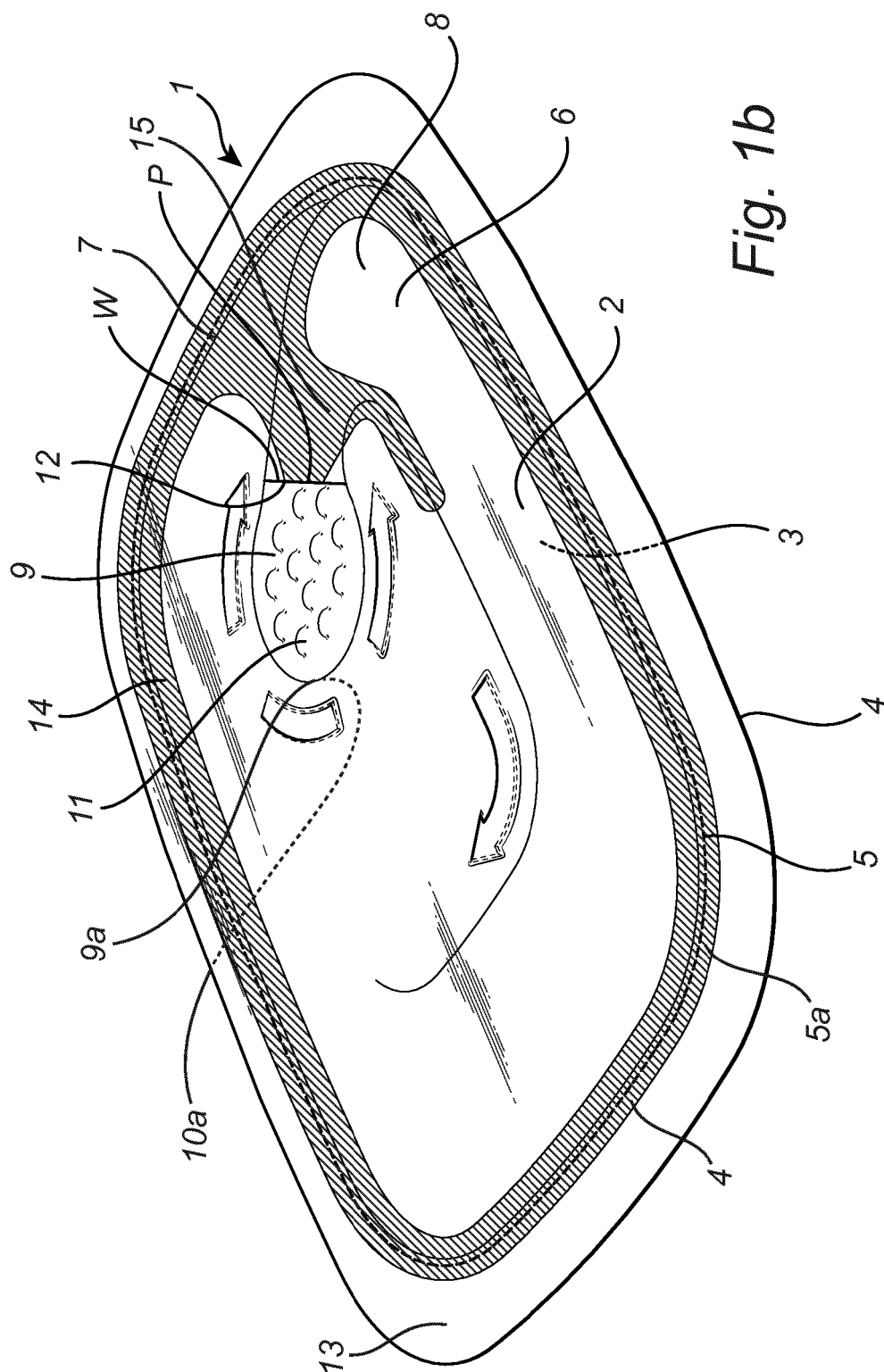


Fig. 1b

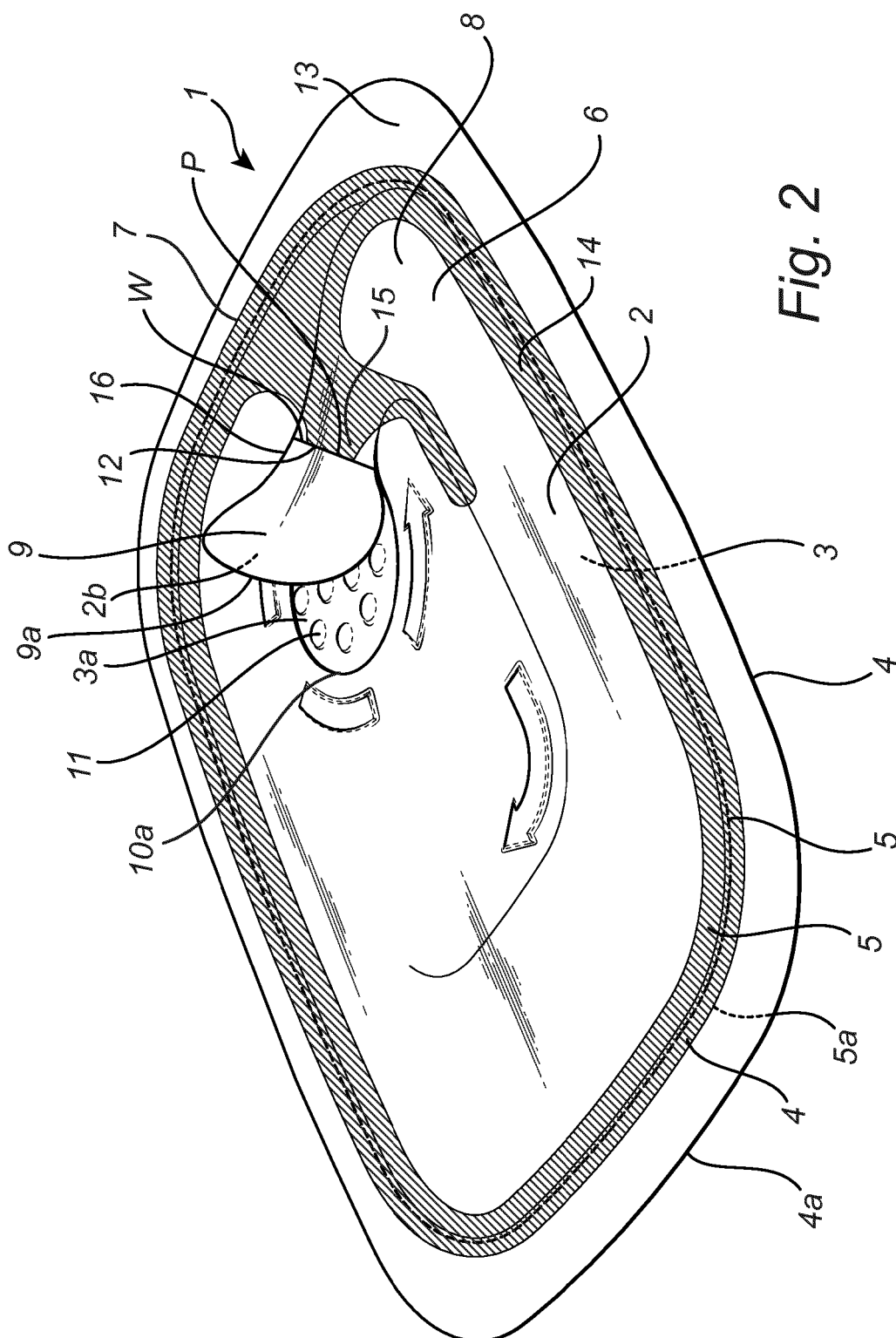


Fig. 2

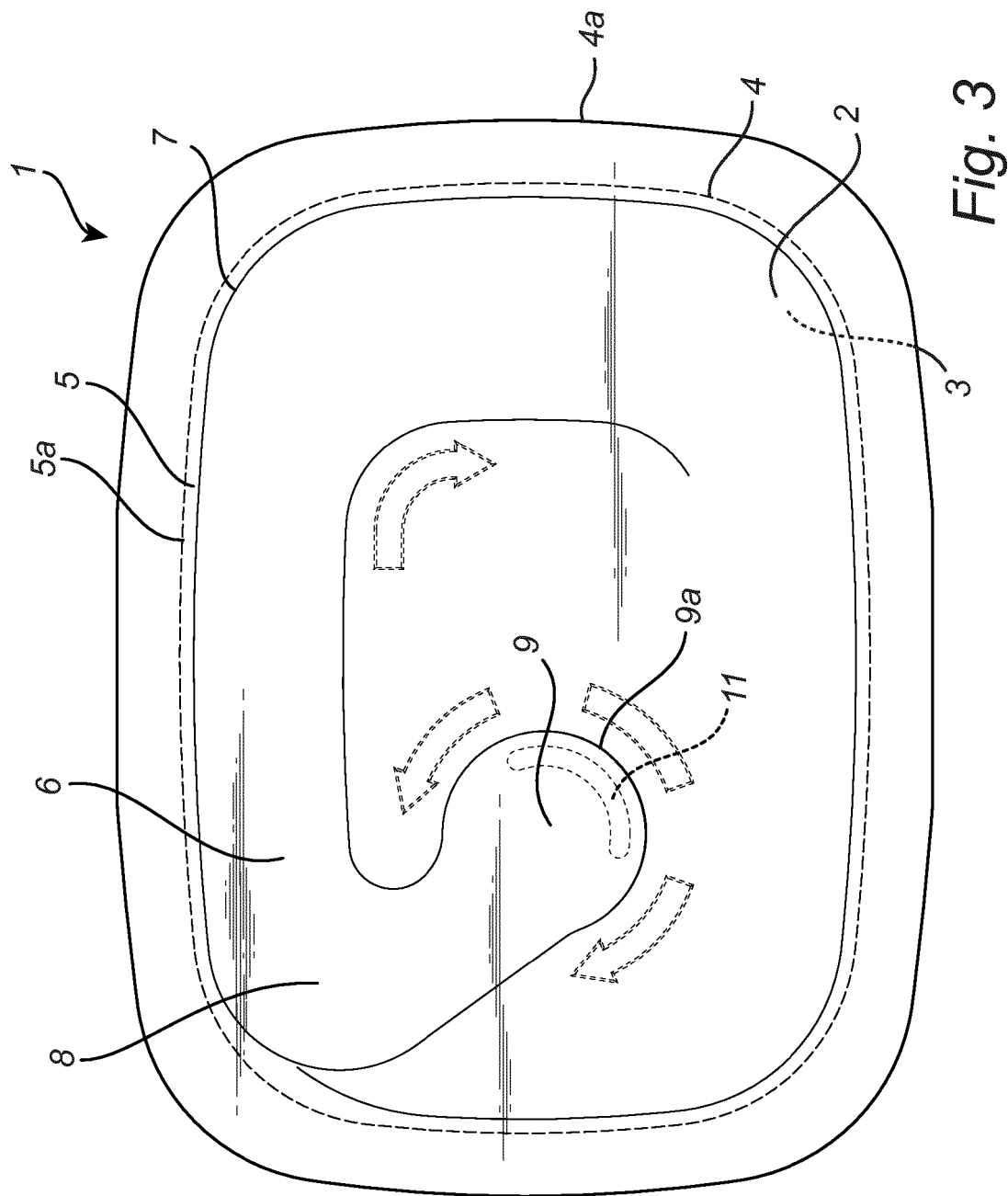


Fig. 3

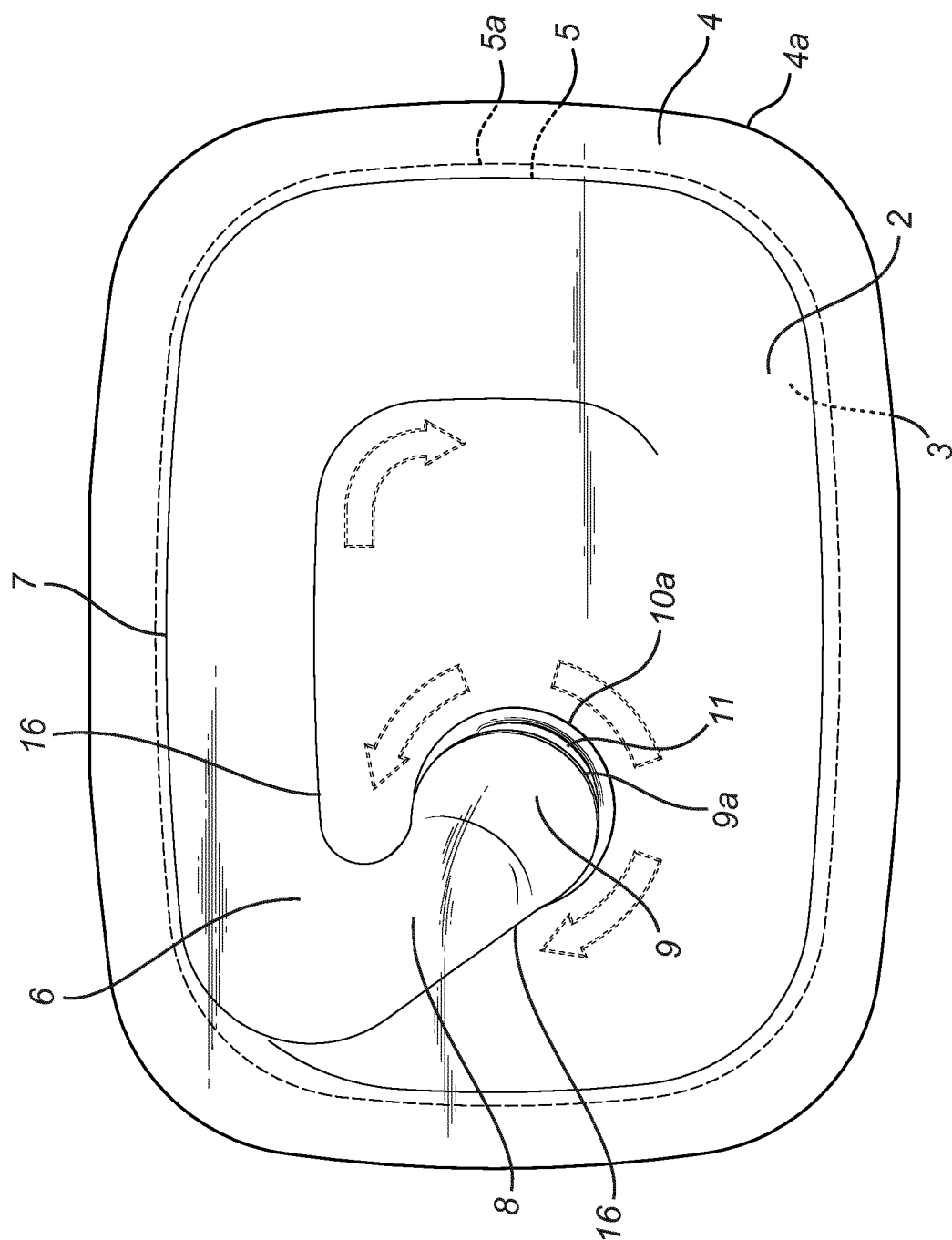


Fig. 4

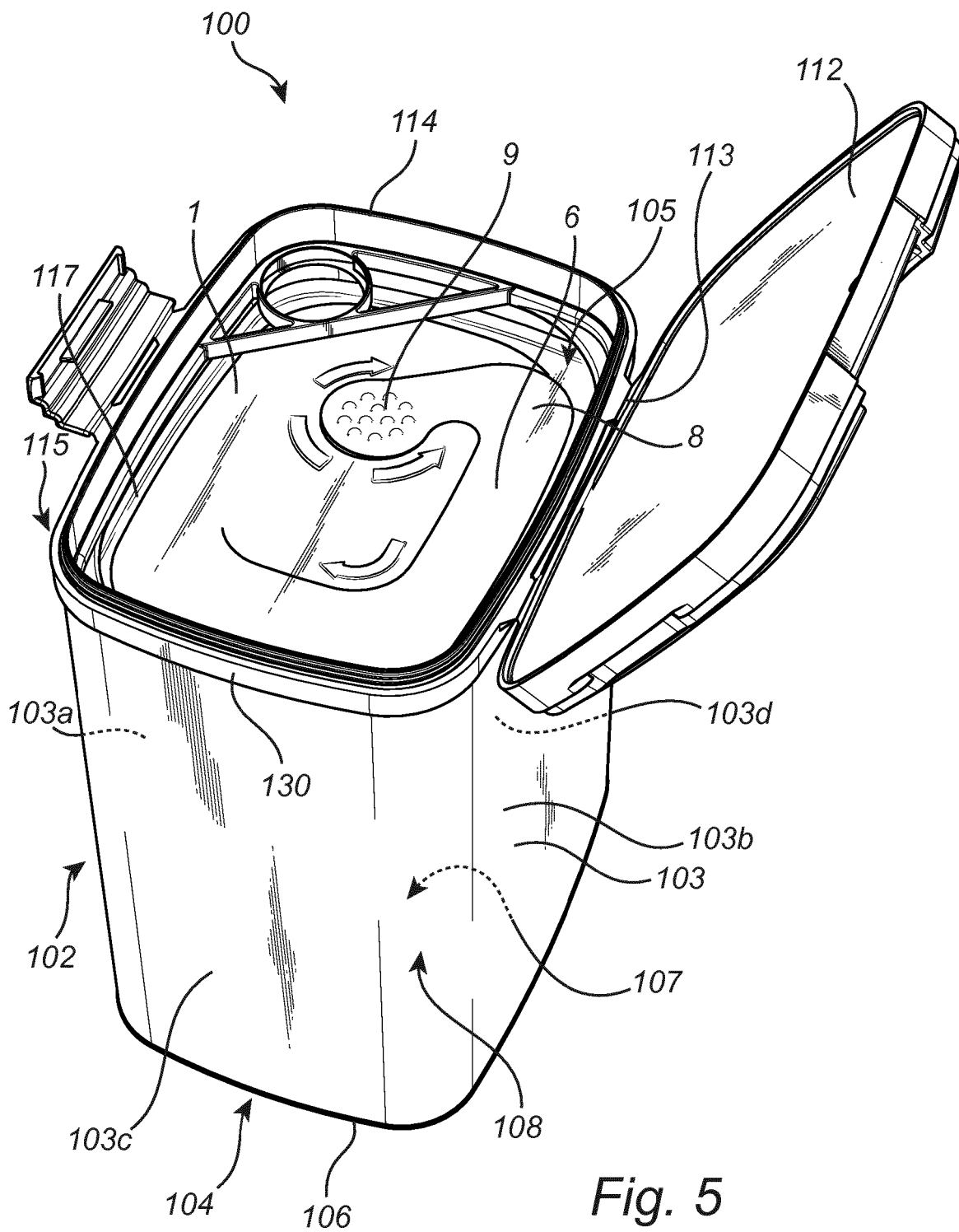


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2018009134 A1 **[0004]**
- EP 3085636 A1 **[0004]**
- DE 2209393 A1 **[0004]**
- EP 0299571 A1 **[0004]**