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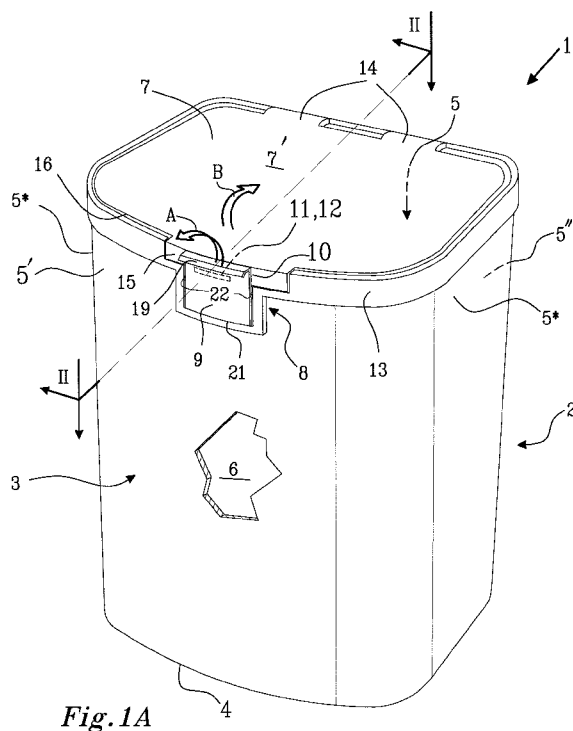
(54) **Title:** PACKAGING CONTAINER COMPRISING A LOCKING ARRANGEMENT

Fig. 1A

(57) **Abstract:** A packaging container (1, 101, 201) for bulk solids is provided. The container comprises a container body (2, 102, 202) comprising a container wall (3, 103, 203) extending from a container bottom (4, 104, 204) to a container opening (5, 105, 205) in a height direction of the container (1, 101, 201). The container wall (3, 103, 203) and the container bottom (4, 104, 204) delimit an inner compartment (6, 106, 206). The container opening (5, 105, 205) has a front edge portion (5', 105', 205'), a rear edge portion (5'', 105'', 205'') and two opposing side edge portions (5*, 105*, 205*). A container lid (7, 107, 207) is arranged to close the container opening (5, 105, 205) and comprises a peripheral portion (15, 115, 215) at a peripheral edge of the container lid (7, 107, 207). The container lid (7, 107, 207) is joined by a hinged connection (14, 114, 214) to the container body (2, 102, 202) at the rear edge portion (5'', 105'', 205'') of the container opening (5, 105, 205). The container lid (7, 107, 207) has an outer lid surface (7', 107', 207') facing away from the inner compartment (6, 106, 206) and an inner lid surface (7'', 107'', 207'') facing towards the inner compartment (6, 106, 206) when the container lid (7, 107, 207) is closed. The packaging container (1, 101, 201) further comprises a locking arrangement (8, 108, 208) for locking the container lid (7, 107, 207) in a closed position at the container opening (5, 105, 205), wherein the locking arrangement (8, 108, 208) comprises at least one locking tab (9, 109, 209) being permanently joined to the container body (2, 102, 202) at the front edge portion (5'', 105'', 205'') of the container opening (5, 105, 205) and/or at the opposing side edge portion (5*, 105*, 205*) of the container opening (5, 105, 205). The locking tab (9, 109, 209) comprises a free end portion (10, 110, 210)

210) extending in the height direction. The free end portion (10, 110, 210)

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PACKAGING CONTAINER COMPRISING A LOCKING ARRANGEMENT

5 TECHNICAL FIELD

The present invention relates to a packaging container for bulk solids, the container comprising a container body comprising a container wall extending from a container bottom to a container opening in a height direction of the container, the container wall and the container bottom delimiting an inner compartment, the container opening having a front edge portion, a rear edge portion and two opposing side edge portions, a container lid being arranged to close the container opening, the container lid comprising a peripheral flange extending at a peripheral edge of the container lid downward towards the container bottom in the height direction, the container lid being joined by a hinged connection to the container body at the rear edge portion of the container opening, the container lid having an outer lid surface facing away from the inner compartment and an inner lid surface facing towards the inner compartment when the container lid is closed, and a locking arrangement for locking the container lid in a closed position at the container opening.

20 BACKGROUND

Consumer goods, in particular bulk solids, are often packaged in relatively rigid 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 the packaging containers is safe and secure storage of the bulk solids inside the packaging container both at the retailer end prior to use and the consumer end between the dispensing occasions. Further, it is desirable to provide a packaging container which is perceived as hygienic and reliable by the consumer.

Hence, there remains a need for a packaging container for consumer goods in the form of bulk solids, which container provides an improved protection of the bulk solids during transport, storage and dispensing, and which is reliable and hygienic.

SUMMARY

The above objects may be achieved with a packaging container as disclosed herein.

As set out herein, there is offered a paperboard packaging container in accordance with
5 claim 1. Further embodiments are set out in the dependent claims.

A packaging container for pulverulent bulk solids according to the present invention comprises a paperboard container body having a container wall extending from a container bottom to a container opening in a height direction of the container. The
10 container wall and the container bottom delimit an inner compartment in the packaging container. The container opening has a front edge portion, a rear edge portion and two opposing side edge portions. A container lid is arranged to close the container opening, and comprises a peripheral portion at a peripheral edge of the container lid. The container lid is joined by a hinged connection to the container body at the rear edge portion of the
15 container opening. The container lid has an outer lid surface facing away from the inner compartment and an inner lid surface facing towards the inner compartment when the container lid is closed.

The packaging container further comprises a locking arrangement for locking the container lid in a closed position at the container opening. The locking arrangement
20 comprises a locking tab being permanently joined to the container body at the front edge portion and/or at a side edge portion of the container opening. The locking tab has a free end portion extending in the height direction of the packaging container. The free end portion of the locking tab comprises a first locking element being arranged to mate with a second locking element arranged on the peripheral portion of the container lid in a locked
25 position of the locking tab. When the locking tab is in the locked position, the locking tab extends parallel with the container wall..

The peripheral portion of the lid may be a peripheral flange or a side wall extending at the peripheral edge of the container lid downward towards the container bottom in the height direction. The peripheral flange or side wall may extend as a continuous structure around
30 the periphery of the container lid or may extend only along a portion of the periphery of the container lid.

The container body of the packaging container of the present invention may be formed from any suitable material, such as plastics, metal or paperboard sheet material.

A locking tab, as used herein and as shown in the appended drawings is a generally flat element, i.e. an element having its main extension in a plane and having a thickness perpendicular to the plane which is considerably smaller than the planar extension. A flat element may also be referred to as a "two-dimensional" or "sheet-shaped" element. As set out herein, a locking tab may have any suitable shape in the plane, including simple geometrical shapes such as rectangular, oval, circular, triangular, etc. as well as complex shapes such as a drop-shape, leaf-shape, flower-shape, etc. The locking tab may be made of a resiliently flexible material and may act as a leaf spring when opening and closing the locking tab and/or may be provided with a designated hinge portion to facilitate movement of the locking tab between an open position and a locked position, also referred to as a closed position. A designated hinge portion may e.g. be formed as a live hinge in the locking tab material, as set out herein.

The locking tabs disclosed herein offer the advantage of closely conforming to the outer shape of the packaging container when the locking tab is in the closed position with the first locking element on the locking tab mating with the second locking element on the peripheral portion of the container lid. When in the closed position, the generally two-dimensional plate-shaped locking tab extends parallel with the container wall and has no practical influence on the outer shape of the packaging container. As the thickness of the locking tab is small, and may be in the order of 0.5 – 2.5 mm the closed locking flap does not build outwardly on the container wall to any appreciable extent, whereby the disposable packaging containers disclosed herein can be packed and stacked for transport and storage in a space-saving and efficient manner. As set out herein, any negative influence of the locking tab on the outer contour of the packaging container may be further reduced by arranging the locking tab in a recess such that the locking tab is inset from the outer wall of the packaging container. The recess may be arranged to shield the locking tab and prevent the free end edge of the locking tab from being inadvertently brought to the open position. The recess may be formed in any or all of the container wall, an edge rim, and the lid.

The locking tabs as disclosed herein may be made from any suitable material, such as polymeric materials, with thermoplastic polymeric materials being generally preferred. The locking tabs may be provided as a separate pre-shaped element which is permanently

attached to the container body wall or to an edge rim by adhesive or by welding or may be provided as an integral part of an edge rim e.g. by injection molding. As set out herein, a locking tab may be provided with features facilitating handling such as friction enhancing elements, one or more grip facilitating aberrations such as knobs, ridges, recesses, etc.

- 5 As used herein, the term "paperboard packaging container" means a container wherein at least the container body is formed from paperboard sheet material. By a paperboard material as used herein is implied a sheet material which is predominantly made from paper fibers. The paperboard material may be a single ply or multi ply material and may be a laminate comprising one or more layers of other materials such as polymeric
- 10 materials, metal, etc. 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.

- A paperboard container may be formed in any manner known in the art, e.g. by bending
- 15 the paperboard sheet material into a tubular shape and longitudinally closing the tube by joining overlapping or abutting side edges of the sheet material. The joint between the side edges may be covered by a sealing strip. The container bottom may be formed from a separate bottom plate which is attached at one end of the container body cylinder or may be formed by folding an end portion of the container body tube.

- 20 The container body may have any shape suitable for the purpose, such as a cube, a cuboid, a pentagonal prism, a hexagonal prism, a cylinder, an elliptic cylinder or the like. Preferably, the packaging container is a cuboid container.

- As used herein, the term cuboid refers to a polyhedron having rectangular or generally rectangular faces. A cuboid packaging container may have rounded or bevelled edges.
- 25 Although details of a cuboid packaging such as a lid, a rim, corner portions, locking members, etc. may cause the shape of the packaging container to deviate from a perfect rectangular cuboid shape, the overall impression of the container shape is that of a rectangular cuboid.

- The container wall of the packaging container may comprise a front wall portion, a rear
- 30 wall portion and two side wall portions, wherein the wall portions are connected at container body edge portions. The front wall portion may have an outwardly curved shape. Thus, the container body may have a generally D-shaped cross-section. The outwardly curved front wall portion has the advantage of providing a relatively large and

perceptible surface that may be used for a display function, e.g. for printing brand names, illustrations or instructions. Moreover, the container body having a generally D-shaped cross-section is space-saving, since it may be positioned close up to e.g. a kitchen wall or a cupboard wall.

- 5 The corner portions of the packaging container may be curved corner portions.

As used herein, an "edge portion" is a section of the edge of the container opening, which section may be a straight, broken or curved line, depending on the cross-sectional shape of the container opening. The cross-sectional shape of the container opening depends on the shape of the container body, as described above. Thus, the container opening may be
10 square, rectangular, D-shaped, pentagonal, hexagonal, circular, oval, etc.

As used in the context of the present application, two items being "joined" to each other are either attached to each other directly, or are connected to each other indirectly, i.e. via an intermediate item. By way of example, the locking tab may be directly attached to the container body or may be indirectly attached to the container body e.g. by means of being
15 directly attached to an edge rim which, in turn, is directly attached to the container body around the opening edge.

As used in the context of the present application, two items being "permanently attached" to each other cannot be separated without damaging or breaking one or both of the items.

One of the advantages of the packaging container according to the present invention is
20 the fact that for accessing the inner compartment of the packaging container, the first and the second locking elements of the locking arrangement are first disengaged allowing the locking tab to be opened in a direction away from the edge portion at which the locking tab is arranged, i.e. away from the front edge portion or the side edge portion. Thereafter, the container lid is opened in a direction towards the rear edge portion, at which the
25 container lid hinge is arranged. Thus, opening of the locking tab or locking tabs, and the subsequent opening of the container lid will be performed sequentially in two different steps, and in two different directions. If the locking tab is placed at the front edge portion of the container opening, opening of the lid will take place in the opposite direction from the locking tab opening direction and if the locking tab is placed at a side edge portion of
30 the container opening, opening of the lid will take place in a direction perpendicular to the opening direction of the locking tab. In this way, the risk that the packaging container is unintentionally opened is minimized, as opening of the packaging container requires two

distinct opening operations to be performed. First a user has to release the locking tab by moving it in a first opening direction, whereafter the container lid may be opened by moving it in a second opening direction which is different from the first opening direction. Such an opening pattern provides a packaging container which is perceived by users as being of high quality and which provides an extremely secure and tight closure of the packaging container.

The bulk solids as disclosed herein may be pulverulent consumer goods, including alimentary or consumable products such as infant formula, tea, coffee, cocoa, sugar, flour, tobacco, etc., as well as house-hold chemicals such as detergents and dishwasher powder. The pulverulent products which are suitable for packaging in the packaging containers as disclosed herein are flowable, which means that a desired amount of the product may be poured or scooped out of the packaging container.

By a pulverulent material as used herein is implied any material in the form of particles, granules, grinds, plant fragments, etc.

The locking arrangement of the present invention may comprise one or several locking tabs, such as 2-10 locking tabs, arranged at the front edge portion and/or opposing side edge portions of the container opening. When the locking arrangement comprises only one locking tab, the locking tab is preferably joined to the container body at the front edge portion, such that the opening of the locking tab and the subsequent opening of the container lid are performed in opposite directions. The locking arrangement may comprise two or more locking tabs arranged at the front edge portion of the container opening for providing additional security to the locking arrangement. Alternatively, or in addition to one or more locking tab placed at the front edge portion, the locking arrangement may comprise one or more locking tabs arranged at one or both of the side edge portions of the container opening. If a locking tab is arranged at a side edge portion of the container opening, the locking tabs will be opened in a direction perpendicular to the direction in which the container lid is opened.

The locking arrangement of the present invention provides a packaging container showing a superior security compared to the containers previously known in the art. As the locking tab and the lid are opened in two distinct opening steps carried out in different directions, the locking arrangement as disclosed herein considerably reduces the risk that the container lid is opened, even if the locking tab is released by mistake. By way of example, the risk that the container becomes opened when the container is accidentally dropped,

turned upside down, or when the user needs to transport the container between dispensing occasions is much less than for conventional locking arrangements relying on a locking tab which is opened in the same direction as the opening direction for the container lid. Accordingly, the locking arrangement as disclosed herein provides the
5 advantage of more securely keeping the container lid in the closed position, thus preventing unintentional opening of the lid and spilling of the contents of the container.

Further, the locking arrangement may contribute to providing a tight sealing between the lid and the container body, which keeps air and/or moisture sensitive bulk solids that may be contained in the inner compartment of the container from contact with the ambient air,
10 thus preserving the bulk solids for a longer period of time.

Moreover, the locking arrangement as disclosed herein provides a higher level of child safety than a conventional locking arrangement which is opened in the same direction as the container lid. The two-step locking arrangement as disclosed herein, requires more manipulation to open the container and generally requires that the person opening the
15 container shifts the grip of the hand which is used to open the container.

The locking arrangement may be a snap-fit locking arrangement such as a snap-in locking arrangement or a snap-on locking arrangement.

By "snap-fit" is meant a locking arrangement in the form of a mechanical joint system where part-to-part attachment is accomplished by means of a constraint member and a
20 flexible or resilient locking member. Joining requires the locking member to reversibly deform for engagement with the mating constraint member, followed by return of the locking member toward its original configuration to accomplish the interference required to latch the locking member and the constraint member together.

In the snap-in locking arrangement the locking member may be in the form of one or more
25 flexible male members such as flexible hooks or other protruding locking members such as knobs or ridges that are inserted into one or more corresponding female receiving members. A female receiving member may e.g. take the form of an opening, a cavity, a groove, an eye, etc. When the snap-in locking arrangement is closed, the male locking members are anchored in the female receiving members. The male locking member may
30 be the first locking element or the second locking element according to the above.

The locking arrangement may be a hook and eye locking arrangement, wherein the hook is inserted into the eye when the lid is in the closed position. Analogous to the above, the hook may be the first locking element or the second locking element.

A hook and eye locking arrangement may be on a macro scale with a single hook element
5 and a corresponding eye or loop or may be on a micro scale with one of the locking elements being in the form of a hook material carrying multiple male engagement elements and the other locking element being in the form of a loop material.

It should be noted that it is conceivable to use other kinds of locking arrangements together with the packaging container of the present invention. Thus, the locking
10 arrangement may comprise magnets, or may comprise ridges, or knobs which are arranged to mate with grooves or cavities.

As disclosed herein, the locking arrangement is placed at the periphery of the lid, which means that the locking arrangement is placed at a side of the lid and of the container body with no portion of the locking arrangement extending in over the upper lid surface. In this
15 manner, a packaging container as disclosed herein may have a large upper lid surface available for display purposes. An upper lid surface without irregularities is also beneficial for reasons of stackability. For this reason, it is also generally preferred that no portion of the locking tab protrudes in the height direction above an upper edge of the container.

The locking elements are preferably designed to allow repeated opening and closing of
20 the locking arrangement. Manipulation of the locking arrangement may be facilitated by means of gripping devices such as finger grips, friction enhancing elements, etc.

The locking tab may comprise a hinge portion in order to facilitate closing of the locking means. Such a hinge portion may be advantageous when the locking tab is manufactured from a rigid material, which may be difficult to bend when the locking arrangement is
25 about to be brought into the closed position. The hinge may be a live hinge, i.e. a bendable connection between two parts of the locking tab. A live hinge may be formed integrally with the parts of the locking tab, or may be a separately formed element which is attached to the parts of the locking tab. Alternatively, the hinge may be a two-part hinge, with a first hinge part arranged on the first part of the locking tab, and a second hinge part
30 arranged on the second part of the locking tab.

The packaging container may comprise an inner peelable or tearable sealing membrane forming a cross-sectional seal between the inner compartment in the container body and the container opening.

By a "peelable or tearable sealing membrane" is meant a membrane that may be removed by a user in order to provide access to the inner compartment of the packaging unit either by breaking the joint between the sealing membrane and the inner surface of the container wall, or by breaking the sealing membrane itself.

The peelable or tearable sealing membrane may be gastight or gas-permeable. A gastight membrane may be manufactured from any material suitable for providing a gastight sealing of a compartment delimited by the sealing membrane, such as aluminium foil, silicon-coated paper, plastic film, or laminates thereof. A gastight membrane may be particularly useful when the bulk solids stored in the packaging container are sensitive to air and/or moisture, and it is desirable to avoid contact between the bulk solids and the ambient air prior to opening of the packaging container.

A rim, such as a plastic rim, may be applied to the edge of the container opening. The rim may extend around the full periphery of the container opening and may be affixed to the container body along the opening edge e.g. by adhesive.

The container lid may be arranged to engage with the rim. The closure between the container lid and the rim is preferably liquid-tight and may also be gastight or at least substantially gas tight. A tight closure between the container lid and the rim may be accomplished by mating contours on the lid and on the rim and may include snap-fit features such as interengaging ridges and tracks, protrusions and holes/cavities, etc. Further, a sealing material, such as rubber or silicone, may be arranged at the periphery of the rim and/or the lid.

The container lid is attached to the container body or to the rim by means of a hinge at the rear edge portion of the container opening. The hinge may be a live hinge, i.e. a bendable connection between the lid and the container body or between the lid and the rim. A live hinge may be formed integrally with the lid and/or a rim or upper rear edge portion of a container body or may be a separately formed element which is attached to the container lid and to the container body or rim. Alternatively, the hinge may be a two-part hinge, with a first hinge part arranged on the container lid and a second hinge part arranged on the container body or on a rim.

The locking tab may be arranged on the rim instead of being directly attached to the container body. The locking tab may be permanently attached to the rim or may be integrally formed with the rim.

The locking tab may be provided with a tamper evidence arrangement. The tamper
5 evidence arrangement may comprise a breakable connection between the locking tab and the container body. By a "breakable connection" as used herein is meant a connection which can be broken or ruptured by manual force. The breakable connection is destroyed when it is broken and cannot be restored. The breakable connection may be provided as one or more neck portions between the connected parts, as one or more welds, glue dots,
10 bridging strips, etc. Breakable connections may also be in the form of tear lines between the connected parts, such as a line of perforations, a thinned line, or a partial cut through a material from which the connected parts are formed.

The breakable connection between the locking tab and the container body is arranged to
15 break when the locking tab is opened for the first time. It may be preferred that the locking tab is provided with at least two breakable connections to the container body, such as with 2-10 breakable connections. By way of example breakable connections may be arranged along opposite side edges of the locking tab. It may be preferred that at least one pair of breakable connections are arranged opposite each other at opposite side edges of the
20 locking tab.

The at least one breakable connection between the locking tab and the container body may be a connection between the locking tab and a plastic edge rim, which has been permanently attached to an end edge of the container body. A breakable connection of
25 this kind may be formed simultaneously with forming the locking tab and the edge rim, e.g. in an injection molding process, or may be formed separately. In the latter case, the connection may be formed in any suitable manner such as by welding, by gluing, by a connection member, etc.

30 The packaging container may comprise print and/or a relief pattern in order to provide logos, brand names, informative illustrations or eye-catching pictures or text. The print and/or relief pattern may be arranged on the outer or the inner surface of the packaging container, on the lid, on the sealing membrane, or any combinations thereof.

The outer lid surface may comprise a slanted lid surface, such that the outer lid surface and the slanted lid surface each has a projected surface in the plane of the opening. The projected surface of the slanted lid surface may constitute 40% - 100% of the projected surface of the outer lid surface. The slanted lid surface is slanted such that when the
5 container lid is in a closed position at the container opening, a front end edge of the slanted lid surface is located lower than a rear end edge of the slanted lid surface in the height direction of the container.

Accordingly, the slanted portion of the outer lid surface is slanted in a downward direction from the rear of the packaging container towards the front of the packaging container,
10 implying that the lid has a greater thickness at the rear rim than at the front rim. The slanted lid surface on the packaging container provides the container with an increased display surface, especially when the packaging container is viewed from the front of the container. In addition, the slanted lid surface gives the packaging container a distinctive shape and appearance allowing a user to quickly and easily identify the packaging
15 container visually or by touching it and to distinguish it from other packaging containers, e.g. on a shop shelf or when placed in a cupboard.

The slanted lid surface on the packaging container as disclosed herein may be planar or generally planar. A planar or generally planar slanted surface may be preferred for displaying printed graphics such as printed information and/or decorative patterns,
20 logotypes, or the like, as mentioned above. Such printed graphics may be applied directly to the outer lid surface or may be printed on a label which is attached to the outer lid surface.

Furthermore, the outer lid surface may have a decorative and/or informative relief pattern formed in the lid itself and may be provided with any useful combination of printed
25 graphics and relief patterns.

The slanted lid surface of the packaging container as disclosed herein may be arranged at an angle of slant to the plane of the container opening of from 2° to 25°, such as from 3° to 20°, from 4° to 15° or from 5° to 10°.

The slant angle is preferably selected to be relatively small, so that the packaging
30 container is perceived as having a generally cuboid shape. A cuboid shape may be optimal for efficient transport and storage of the packaged goods, as mentioned above. A

small slant angle is also desirable for making the packaging containers as disclosed herein stackable.

The packaging container as disclosed herein may comprise mating stacking members for allowing two or more of the packaging containers to be arranged in a stacked configuration. The mating stacking members are arranged at the container bottom and at the container opening. A stacking member or stacking members at the container opening may be arranged on the container lid and/or on a rim surrounding the opening in the packaging container. The container lids may be provided with mating stacking members arranged on the outer lid surface and on the inner lid surface of each lid, making the lids separately stackable before being applied to a packaging container, e.g. in a process for producing the packaging containers as disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

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

- 15 Fig. 1A shows a packaging container of the present invention comprising a locking arrangement according to the invention;
- Fig. 1B shows a detail of the locking arrangement in Fig. 1A;
- Fig. 2A depicts a cross-section of the packaging container shown in Fig. 1 taken along the plane II-II;
- 20 Fig. 2B-2F show different embodiments of locking elements;
- Fig. 3 shows a packaging container of the present invention comprising two locking tabs;
- Fig. 4 shows the packaging container of Fig. 1A when the lid is open;
- Fig. 5 shows a rim and a container lid to be used with a packaging container according to the present invention;
- 25 Figs. 6A - 6B show different shapes of the container body; and
- Fig. 7 shows a packaging container comprising a slanted lid.

DETAILED DESCRIPTION

It is to be understood that the drawings are schematic and that individual components, such as layers of material are not necessarily drawn to scale. The packaging containers and locking arrangements shown in the figures are provided as examples only and should not be considered limiting the invention. Accordingly, the scope of the invention is determined solely by the appended claims. A height direction of a packaging container as disclosed herein is the vertical direction of the packaging container when standing with its bottom placed on a horizontal surface. Accordingly, the height direction is perpendicular to the horizontal direction which may also be referred to as the transverse direction of the packaging container.

Figs. 1A, and 4 illustrate a packaging container 1 for bulk solids. The locking arrangement of the packaging container in Fig. 1A differs somewhat from the locking arrangement of the packaging container in Fig. 4. The packaging container 1 shown in Figs. 1A and 4 comprises a container body 2 having a container wall 3 extending from a container bottom 4 to a container opening 5 in a height direction of the container 1. The container opening 5 comprises a front edge portion 5', a rear edge portion 5'', and two opposing side edge portions 5*. The container wall 3 and the container bottom 4 delimit an inner compartment 6 of the packaging container 1. A container lid 7 is arranged to close the container opening 5, and has a peripheral flange 15 extending centrally from a front peripheral edge portion 16 of the container lid 7 downward towards the container bottom 4 in the height direction of the packaging container 1. The container lid 7 is joined by a hinged connection 14 to the container body 2 at the rear edge portion 5'' of the container opening 5. The connection between the container lid 7 and the container body 2 is an indirect connection in that the lid 7 is hingedly joined to an edge rim 13 which is attached around the container opening 5.

The container lid 7 has an outer lid surface 7' facing away from the inner compartment 6 and an inner lid surface 7'' facing towards the inner compartment 6 when the container lid 7 is closed. The packaging container 1 further comprises a locking arrangement 8 for locking the container lid 7 in a closed position at the container opening 5. The locking arrangement 8 which is depicted in Fig. 1A and in Fig. 1 B comprises one locking tab 9 which is permanently joined to the container body 2 at the front edge portion 5' of the container opening 5.

The locking tab 9 has a free end portion 10 extending upwards in the height direction of the container 1. The free end portion 10 of the locking tab 9 is shown in Fig. 1 to terminate in the plane of the container lid 7 with an edge grip in the form of a small flange 19 along the free end portion 10 of the locking tab 9. As set out herein, for reasons of stackability, it is generally preferred that the edge portions of the upper surface of the container be without irregularities such as a protruding part of the locking tab. However, a small gripping tab or ridge on the locking tab which protrudes above the upper surface of the container lid 7 may be compensated for by arranging one or more stacking members which protrude past the locking tab in the height direction. By way of example only, and with reference to Fig. 1, the edge rim 13 may serve as a stacking member and may be arranged to protrude beyond the free end portion 10 of the locking tab 9.

In the shown example, the locking tab 9 is formed as an integral part of the edge rim 13 and is joined to the container body 2 together with the edge rim 13. The locking tab 9 is shown to be of generally rectangular shape and to be arranged in a frame 20 which is formed in the edge rim 13 and is placed at the front of the packaging container 1. The join between the edge rim 13 and the locking tab 9 is constituted by a live hinge 21 placed opposite the free end portion 10 of the locking tab 9. It is to be understood that the particular arrangement shown in Fig. 1 with the locking tab being arranged in a frame on an edge rim should not be considered limiting to the invention. Accordingly, the locking tab 9 may alternatively be separately formed and/or be arranged on the edge rim 13 in the manner shown in Fig. 4 or may be directly attached to the container body 2. Furthermore, the locking tab 9 need not have a well-defined hinge 21, as shown in Figs. 1A and Fig 1B. Instead, the locking tab may be made of a material which is sufficiently flexible to allow the locking tab to be bent by manual force. The shape of the locking tab may be different from the shapes shown in the figures. Accordingly, the locking tab may have any suitable shape including simple geometrical shapes such as oval, circular, triangular, etc. as well as complex shapes such as drop-shape, leaf-shape, flower-shape, etc.

The free end portion 10 of the locking tab 9 comprises a first locking element 11 which is configured to mate with a second locking element 12 which is arranged on the peripheral flange 15 of the container lid 7. For reasons of stackability the shown arrangement wherein the locking tab 9 does not extend past the upper edge of the container lid 7 may be preferred. However, as set out above, it is not excluded that a small portion of the locking tab 9 may protrude above the outer surface of the container lid 7.

As illustrated in Figs. 1A and 1B, the locking arrangement may be provided with a tamper evidence arrangement such as two breakable connections 22 which are arranged between the locking tab 9 and the frame 20 in the edge rim 13. The breakable connections 22 are shown to be arranged opposite each other at the side edges of the locking tab 9. Such symmetrical configuration of breakable connections may be preferred as it provides for a more even force distribution when pulling at the locking tab. However, a symmetrical configuration of two or more breakable connections may not always be desired or even possible to accomplish if the locking tab itself has a non-symmetrical configuration.

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As set out herein, two or more pairs of breakable connections may be arranged opposite each other at opposite side edges of the locking tab.

The breakable connections shown in Figs. 1A and 1B may be formed simultaneously with forming the locking tab 9 and the edge rim 13, e.g. in an injection molding process, or may be formed separately. In the latter case, the connection may be formed in any suitable manner such as by welding, by gluing, by a connection member, etc.

When the locking tab is formed as a separate component which is attached to an edge rim or directly to the container body, one or more breakable connections between the locking tab may be formed in any suitable manner such as by welding, by gluing, by a connection member, etc.

The breakable connections 22 between the locking tab 9 and the container body 2 are optional features of the invention and may be omitted.

As mentioned above, when the user wishes to access the inner compartment 6 of the packaging container 1, the first and the second locking elements 11, 12 of the locking arrangement 8 are disengaged and the locking tab 9 is opened by moving the free end portion 10 in a direction A as indicated in Fig. 1A, i.e. away from the front edge portion 5' at which the locking tab 9 is arranged. At the same time as the locking elements 11, 12 are disengaged for the first time, the breakable connections 22 between the locking tab 9 and the edge rim 13 on the container body 2 are broken, as is illustrated in Fig. 1B. Then, the container lid 7 is opened in a direction B indicated in Fig. 1A towards the rear edge portion 5'', at which the container lid 7 is arranged. Thus, the opening of the locking tab 9

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and the subsequent opening of the container lid 7 constitute two different and distinct opening steps which are performed sequentially by moving the locking tab 9 and the lid 7 in opposite directions. The risk of unintentional opening of the container lid is thus minimized, as set out herein.

- 5 As the locking arrangements disclosed herein require two separate manipulations to be carried out in different directions, the likelihood is considerably increased that the container lid remains in the closed position even if the locking tab has mistakenly been disengaged from the container lid. Accordingly, the risk of unintentional opening of the lid and spilling of the contents of the container in case the container is accidentally dropped,
10 turned upside down or when the user needs to transport the container 1 between dispensing occasions is reduced in a container provided with a locking arrangement as disclosed herein. Further, the locking arrangement contributes to providing a tight sealing between the lid and the container body, which keeps the air and/or moisture sensitive bulk solids that may be contained in the inner compartment of the container away from contact
15 with the ambient air, thus preserving the bulk solids for a longer period of time. The locking arrangements 8 depicted in Figs. 1A, 1B and Fig. 4 are snap-in locking arrangements, allowing repeated opening and closing of the locking arrangements 8.

- Alternative locking arrangements for the packaging container shown in Fig. 1A are shown in greater detail in Figs. 2A-2F, which are cross-sectional views of the packaging
20 container shown in Fig. 1A taken along the plane II-II. As may be seen in Figs. 2C and 2D, the first locking element 11 which is arranged at the free end portion 10 of the locking tab 9 may be in the form of a flexible protrusion, and the second locking element 12 which is arranged on the peripheral flange 15 of the container lid 7 is in the form of an indentation. The indentation or second locking element 12 is shaped and configured such
25 that it can retain the flexible protrusion on the locking tab 9 in the indentation and such that the flexible protrusion can be repeatedly received in the indentation and released therefrom in order to close and open the locking tab 9. Accordingly, when the lid 7 is locked in its closed position by means of the locking arrangement 8, the first locking element 11 is anchored in the second locking element 12. Further, as seen in Fig. 2B, the
30 first locking element 11 may be in the form of an aperture, while the second locking element 12 may be in the form of a protrusion. Also, other embodiments of the locking elements 11, 12 are conceivable. Thus, Fig. 2E depicts locking elements 11, 12 in the form of hook-and-loop, while Fig. 2F shows locking elements 11, 12 in the form of magnets.

The packaging container 101 shown in Fig. 3 comprises two locking tabs 109, which are permanently attached to the container body 102 at the opposing side edge portions 105* of the container opening 105. The locking tabs 109 are provided with first locking elements 111 which are configured to mate with corresponding second locking elements 112 arranged on a peripheral flange 115. The Fig. 3 packaging container 201 is provided with a peripheral flange 115 extending downwardly in the height direction of the packaging container around the full periphery of the container lid 107. Analogous to the above, when the user wishes to access the inner compartment 106 of the packaging container 101, the first and the second locking elements 111, 112 of the locking arrangement 108 are disengaged and the locking tabs 109 are opened in a first direction A as indicated in Fig. 3, i.e. away from the opposing side edge portions 105* at which the locking tabs 109 are arranged. Then, the container lid 107 is opened in a second direction B, perpendicular to the first direction A, towards the rear edge portion 105'', at which the container lid 107 is arranged. Hence, the opening of the locking tabs 109 and the subsequent opening of the container lid 107 is performed in two different steps and in perpendicular directions, thus minimizing the risk of unintentional opening of the container lid 107. The first and second locking elements 111, 112 shown in Fig. 3 are attracting magnets. However, it is to be understood that any other type of locking elements may be used instead, as set out above.

A lid component comprising a rim 13 and a container lid 7 connected by a hinge 14 is depicted in Figs. 4 and 5. The rim 13 is applied to the edge of the container opening 5. The rim 13 extends around the full periphery of the container opening 5 and is affixed to the container body 2 along the opening edge.

The container lid 7 has a circumferentially extending peripheral flange 15 and is arranged to engage with the rim 13. The closure between the container lid 7 and the rim 13 is preferably liquid-tight and may also be gastight or at least substantially gas tight. A tight closure between the container lid 7 and the rim 13 is accomplished by mating contours on the lid 7 and on the rim 13, as shown in Figs. 4 and 5.

The container lid 7 is attached to the rim 13 by means of an integral live hinge 14. The locking tab 9 is shown in Figs. 4 and 5 to be indirectly attached to the container body 2 by being arranged on the rim 13 instead of being directly attached to the container body 2. The locking tab 9 may be integrally formed with the rim 13, but may alternatively be

separately formed and permanently attached to the rim 13 such as by welding or by adhesive.

Figs. 6A-6B illustrate different shapes of the container body 2. In Fig. 6A, the front wall portion and the rear wall portion of the container body have an outwardly curved shape with a radius of curvature of 150 mm, while the side wall portions are substantially planar. The corner portions of the container body shown in Fig. 6A have a radius of curvature of 20 mm.

In Fig. 6B a container body having a generally D-shaped cross-section is depicted. The front wall portion has an outwardly curved shape, while the side wall portions and the rear wall portion are substantially planar. The corner portions adjacent to the front wall portion have a radius of curvature of 25 mm, while the other two corner portions have a radius of curvature of 20 mm. The advantages of a packaging container having a container body with a D-shaped cross-section have been mentioned above.

Fig. 7 illustrates a packaging container 201 comprising a slanted lid 207. The container lid 207 has a front lid edge 217' which is adapted to be positioned at a front edge of the container opening 205 and a rear lid edge 217'' which is adapted to be positioned at a rear edge of the container opening 205. Further, the container lid 207 comprises two side lid edges 217* which are adapted to be positioned at corresponding side edges of the container opening 205 such that the outer lid surface 207' is delimited by the lid edges 217', 217'', 217*. A peripheral flange 215 extending downwardly in the height direction of the packaging container 201 is arranged at the front lid edge 217' and is provided with a second locking element 212 cooperating with a first locking element 211 provided on a locking tab 209 which is attached to the container body 202. A recess 218 is arranged in the peripheral flange 215 to facilitate gripping of the free end portion 210 of the locking tab 209 when disengaging the locking tab 209 from the peripheral flange 215.

The outer lid surface 207' comprise a slanted lid surface 207*, such that the outer lid surface 207' and the slanted lid surface 207* each has a projected surface in the plane of the container opening. The projected surface of the slanted lid surface 207* constitutes 95% of the projected surface of the outer lid surface 207'. The slanted lid surface 207* is slanted such that when the container lid 207 is in a closed position at the container opening 205, a front end edge 217' of the slanted lid surface 207* is located lower than a rear end edge 217'' of the slanted lid surface 207* in the height direction of the container 201. Accordingly, the slanted portion of the outer lid surface 207' is slanted in a downward

direction from the rear of the packaging container 201 towards the front of the packaging container 201, thus providing the container 201 with an increased display surface, especially when the packaging container 201 is viewed from the front of the container 201. The slant angle of the lid 207 shown in Fig. 7 is relatively small, so that the
5 packaging container 201 is perceived as having a generally cuboid shape. A cuboid shape may be optimal for efficient transport and storage of the packaged goods, as mentioned above. A small slant angle is also desirable for making the packaging containers as disclosed herein stackable.

Although the present invention has been described with reference to various
10 embodiments, those skilled in the art will recognise that changes may be made without departing from the scope of the invention. It is intended that the detailed description be regarded as illustrative and that the appended claims including all the equivalents are intended to define the scope of the invention. In particular, it is to be understood that the locking arrangements shown in the figures may be freely combined with features of the
15 disclosed packaging containers such as an upper rim attached to the body of the packaging container, a slanted lid, a lid flange extending along only a part of the peripheral edge of the lid as shown in Figs. 1A and 7 or a lid flange extending all the way along the peripheral edge of the lid as shown in Figs. 3 and 4. The shown packaging containers may be provided with more than one locking arrangement arranged along the
20 same portion of the container opening edge. Furthermore, any combination of locking arrangements as disclosed herein may be used, such as one or more locking arrangements placed at a front edge portion of the container opening in combination with one or more locking arrangements placed at one or two side edge portions of the container opening. The free end portion of the locking tab as disclosed herein may be
25 provided with a gripping member such as the curve shaped end portion shown in Fig. 7 or the gripping ridge shown in Fig. 1A.

CLAIMS

1. A paperboard packaging container (1, 101, 201) for bulk solids, said container comprising a container body (2, 102, 202) comprising a container wall (3, 103, 203) extending from a container bottom (4, 104, 204) to a container opening (5, 105, 205) in a height direction of said container (1, 101, 201), said container wall (3, 103, 203) and said container bottom (4, 104, 204) delimiting an inner compartment (6, 106, 206), said container opening (5, 105, 205) having a front edge portion (5', 105', 205'), a rear edge portion (5'', 105'', 205'') and two opposing side edge portions (5*, 105*, 205*), a container lid (7, 107, 207) being arranged to close said container opening (5, 105, 205), said container lid comprising a peripheral portion (15, 115, 215) at a peripheral edge of said container lid (7, 107, 207), said container lid (7, 107, 207) being joined by a hinged connection (14, 114, 214) to said container body (2, 102, 202) at said rear edge portion (5'', 105'', 205'') of said container opening (5, 105, 205), and a locking arrangement (8, 108, 208) for locking said container lid (7, 107, 207) in a closed position at said container opening (5, 105, 205), **characterized in that** said locking arrangement (8, 108, 208) comprises a locking tab (9, 109, 209), said locking tab (9, 109, 209) being permanently joined to said container body (2, 102, 202) at said front edge portion (5', 105', 205') of said container opening (5, 105, 205) and/or at said side edge portion (5*, 105*, 205*) of said container opening (5, 105, 205) and having a free end portion (10, 110, 210) extending upward in said height direction, said free end portion (10, 110, 210) of said locking tab (9, 109, 209) comprising a first locking element (11, 111, 211), said first locking element (11, 111, 211) being arranged to mate with a second locking element (12, 112, 212) on said peripheral portion (15, 115, 215) of said container lid (7, 107, 207) in a locked position of said locking tab, said locking tab extending parallel with said container wall in said locked position of said locking tab.
2. A packaging container (1, 101, 201) according to claim 1, wherein said peripheral portion (15, 115, 215) of said container lid (7, 107, 207) is a peripheral flange (15, 115, 215) extending at a peripheral edge of said container lid (7, 107, 207) downward towards said container bottom (4, 104, 204) in said height direction.
3. A packaging container (1, 101, 201) according to claim 1 or 2, wherein said locking arrangement (1, 108, 208) comprises at least two locking tabs (9, 109, 209) being permanently joined to said container body (2, 102, 202).

4. A packaging container (1, 101, 201) according to claim 3, wherein said locking arrangement (1, 108, 208) comprises two locking tabs (9, 109, 209) being permanently joined to said container body (2, 102, 202) at said front edge portion (5', 105', 205') of said container opening (5, 105, 205) and/or at said opposing side edge portions (5*, 105*, 205*) of said container opening (5, 105, 205).
5
5. A packaging container (1, 101, 201) according to any one of the preceding claims, wherein said locking arrangement (8, 108, 208) is a snap-fit locking arrangement such as a snap-in locking arrangement or a snap-on locking arrangement.
6. A packaging container (1, 101, 201) according to any one of the preceding claims,
10 wherein said locking tab (9, 109, 209) comprises a hinge portion.
7. A packaging container (1, 101, 201) according to any one of the preceding claims, wherein said container (1, 101, 201) comprises an inner peelable or tearable sealing gastight membrane forming a cross-sectional seal between an inner compartment (6, 106, 206) in said container body (2, 102, 202) and said container opening (5, 105, 15 205).
8. A packaging container (1, 101, 201) according to any one of the preceding claims, wherein an edge rim (13, 113, 213), such as a plastic rim, is applied to an end edge of said container body (2, 102, 202) being located at said container opening (5, 105, 205).
9. A packaging container (1, 101, 201) according to claim 8, wherein said container lid (7, 107, 207) is arranged to engage with said rim (13, 113, 213) to form a closure on said container (1, 101, 201).
20
10. A packaging container (1, 101, 201) according to claim 8 or 9, wherein said container lid (7, 107, 207) is attached by a hinged connection (14, 114, 214) to said edge rim (13, 113, 213).
25
11. A packaging container (1, 101, 201) according to any one of claims 8 to 10, wherein said locking tab (9, 109, 209) is arranged on said rim (13, 113, 213) and is permanently attached to said rim (13, 113, 213) or is integrally formed with said rim (13, 113, 213).

12. A packaging container (1, 101, 201) according to any one of the preceding claims, wherein said locking tab (9, 109, 209) is provided with a tamper evidence arrangement.

5 13. A packaging container (1, 101, 201) according to claim 12, wherein said tamper evidence arrangement comprises a breakable connection between said locking tab (9, 109, 209) and said container body (2, 102, 202).

10 14. A packaging container (1, 101, 201) according to claim 13, wherein said breakable connection between said locking tab (9, 109, 209) and said container body (2, 102, 202) is a connection between said locking tab (9, 109, 209) and a plastic edge rim (13, 113, 213), which is permanently attached to an end edge of said container body (2, 102, 202).

15 15. A packaging container (1, 101, 201) according to any one of the preceding claims, wherein said packaging container (1, 101, 201) is a cuboid or near-cuboid container, said container wall (3, 103, 203) comprising a front wall portion, a rear wall portion and two side wall portions, said wall portions being connected at container body edge portions.

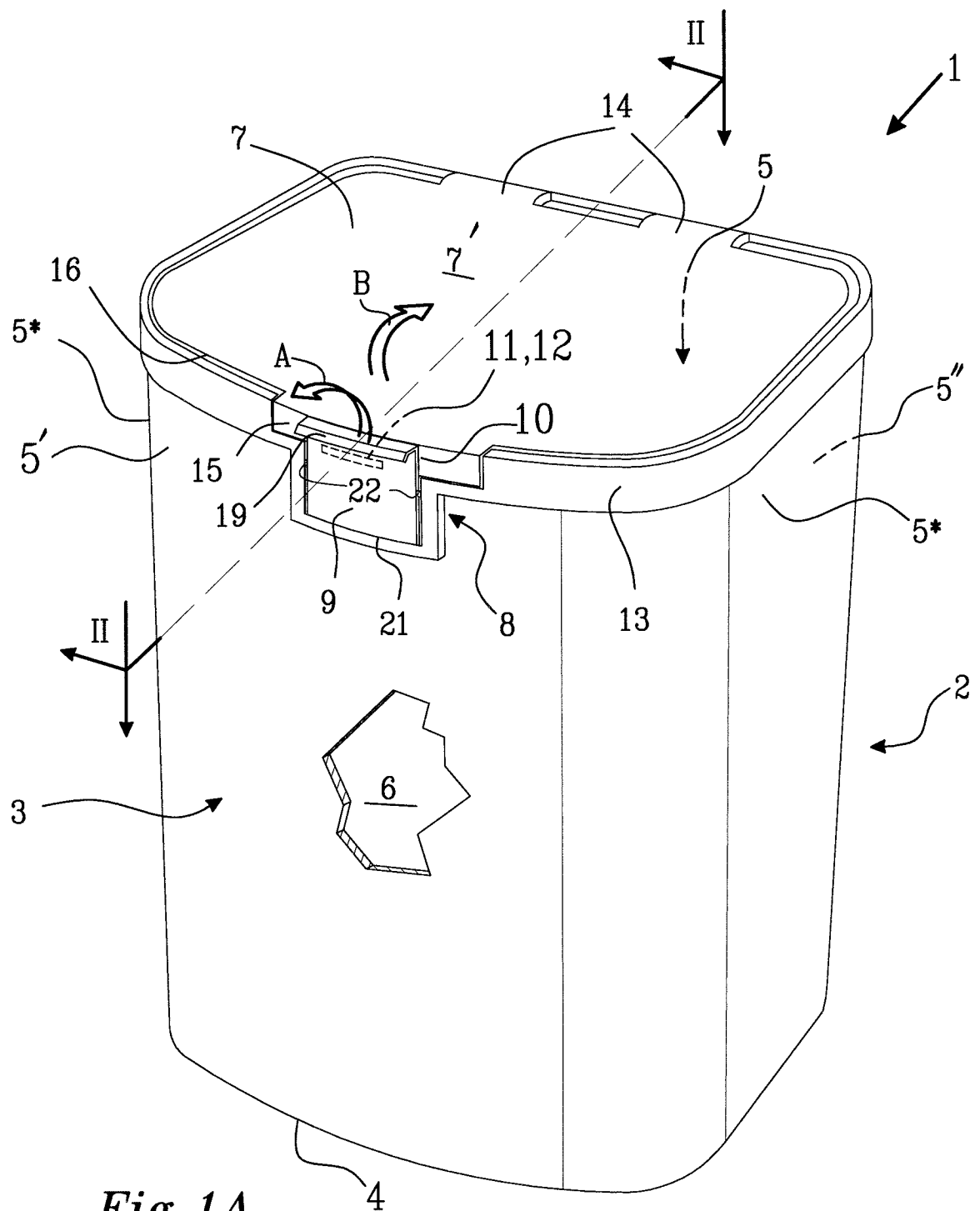
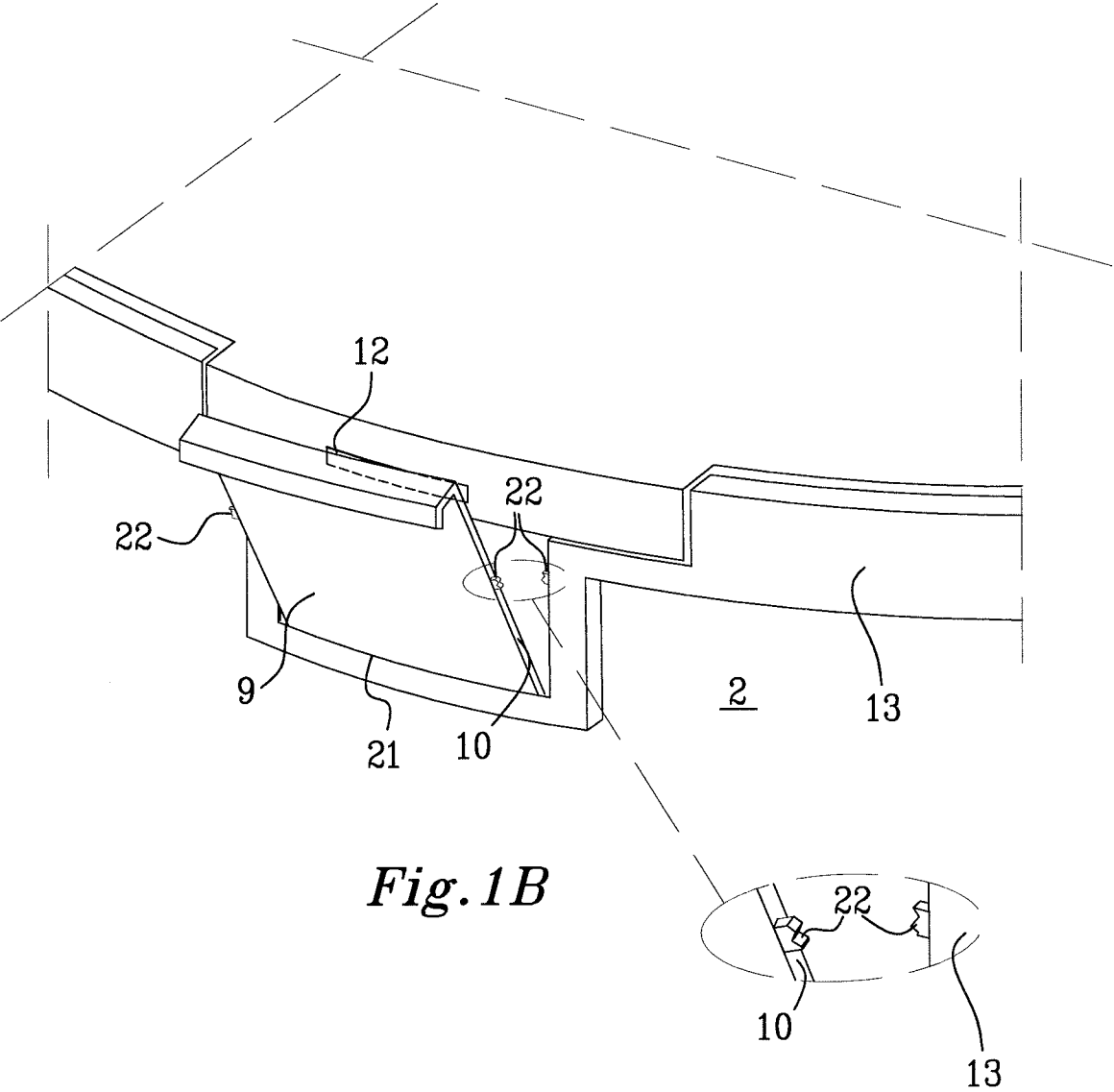
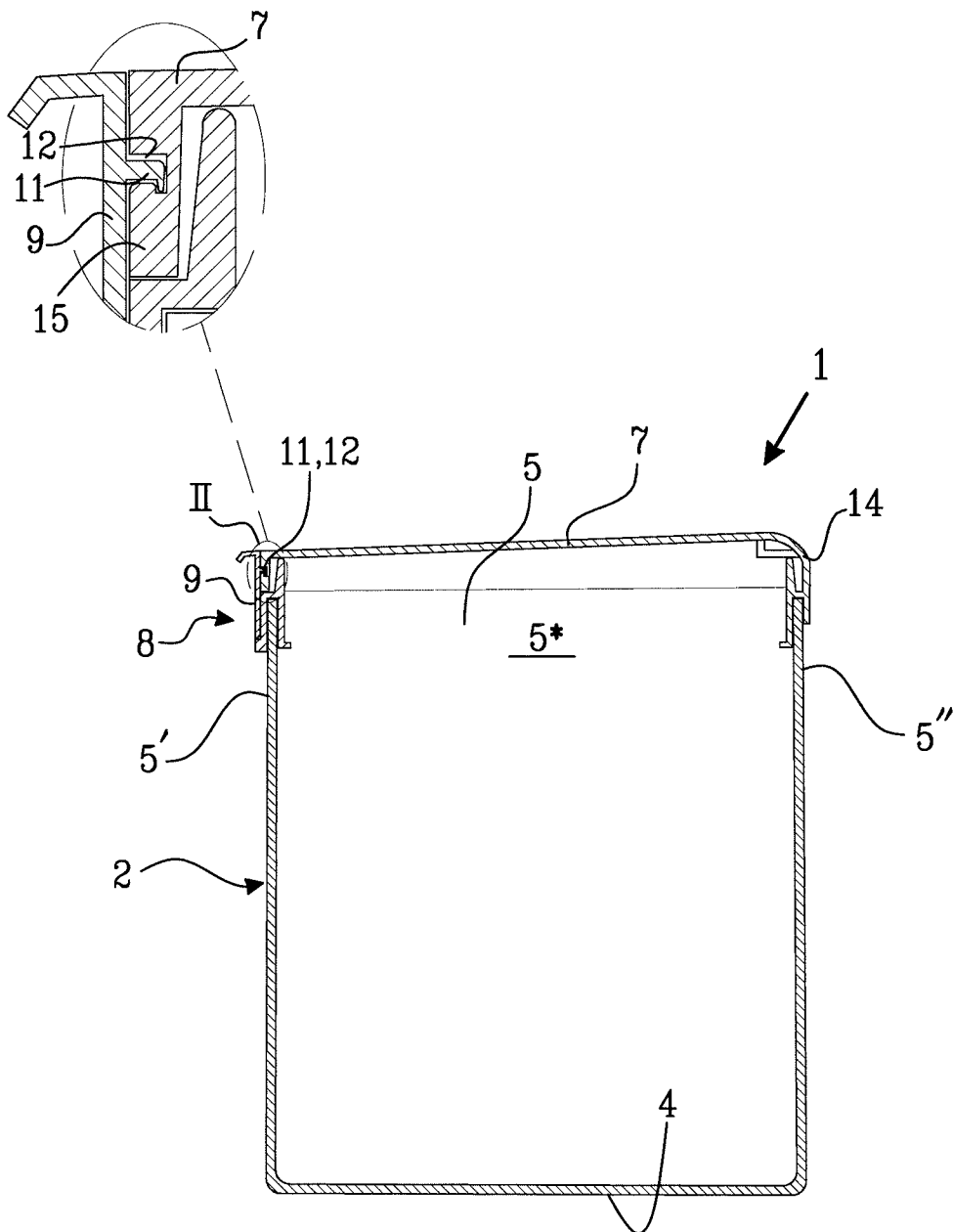


Fig. 1A



*Fig. 2A*

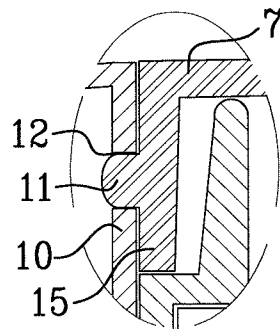
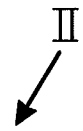


Fig. 2B

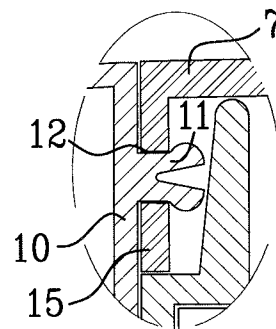


Fig. 2C

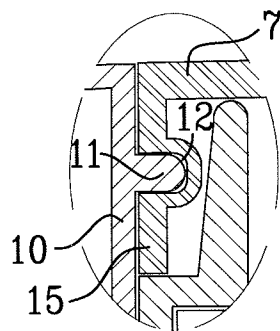


Fig. 2D

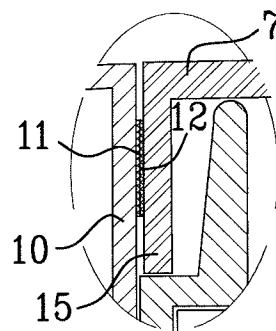


Fig. 2E

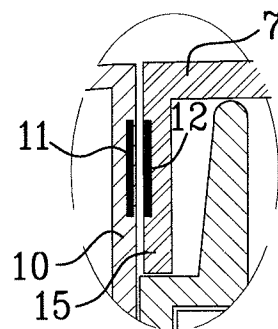
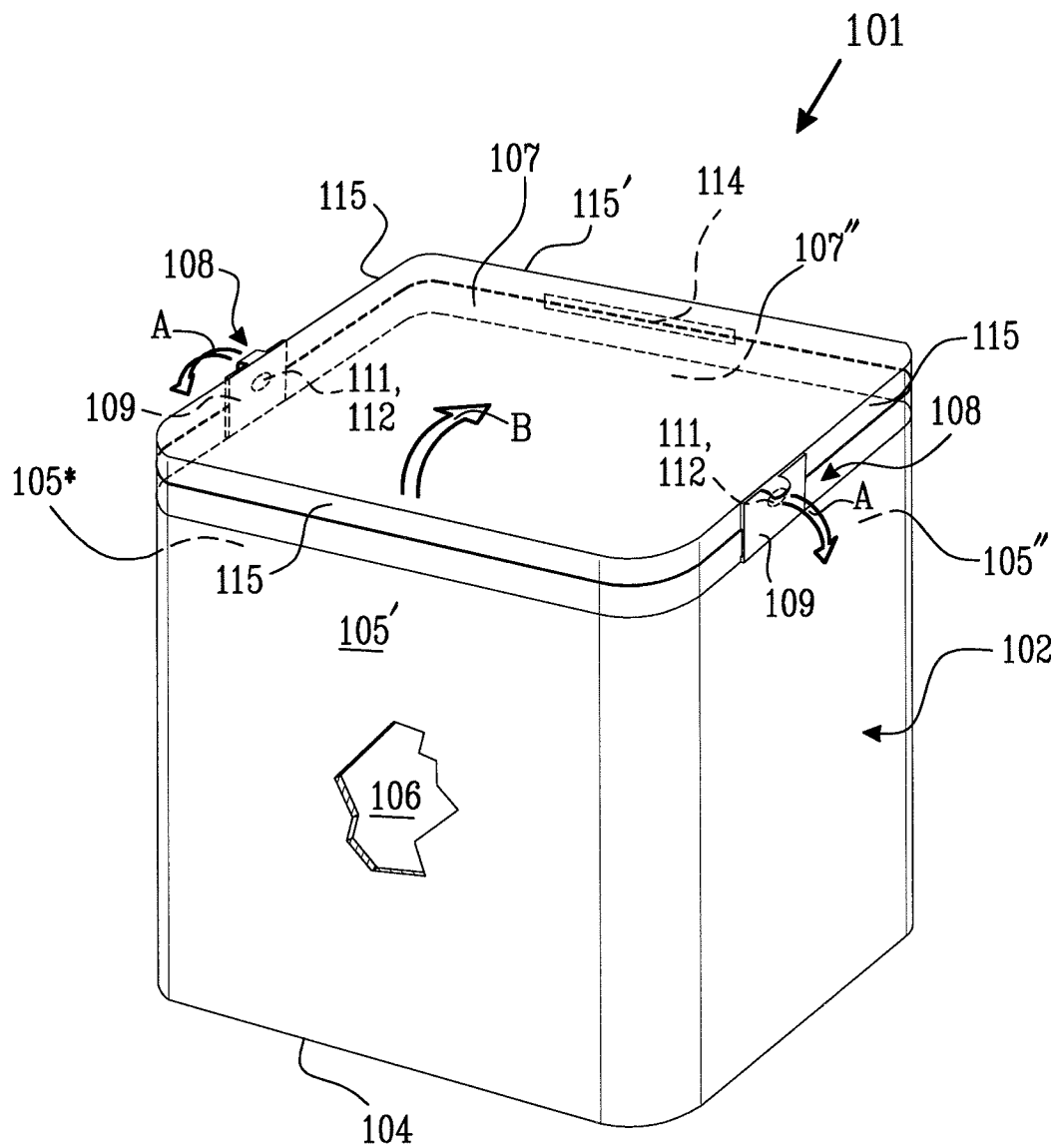


Fig. 2F

*Fig. 3*

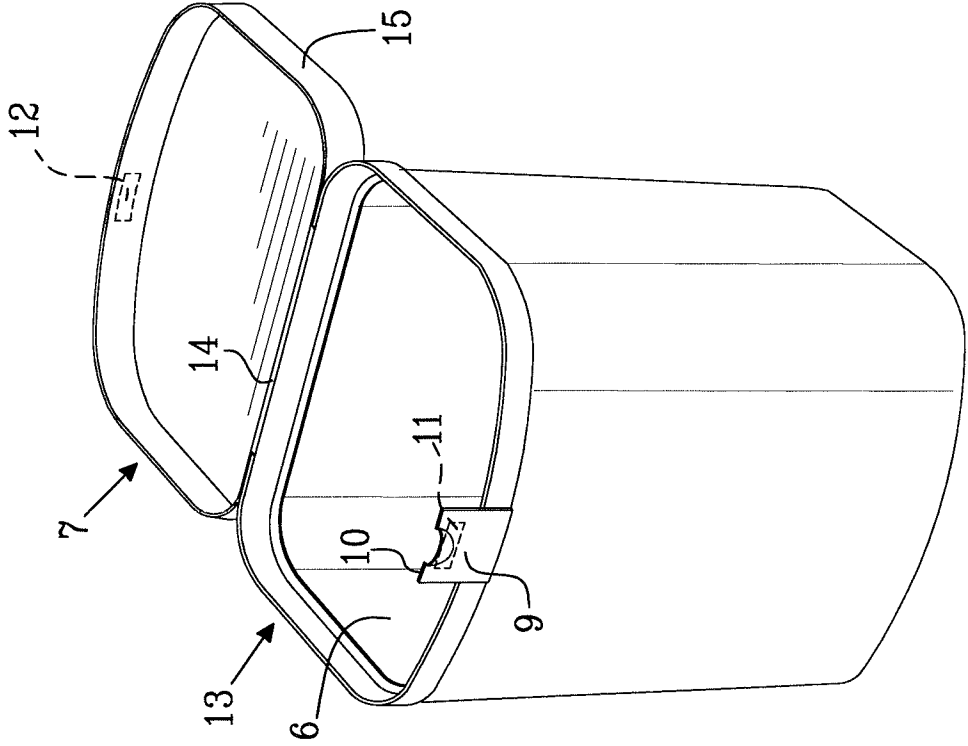


Fig. 4

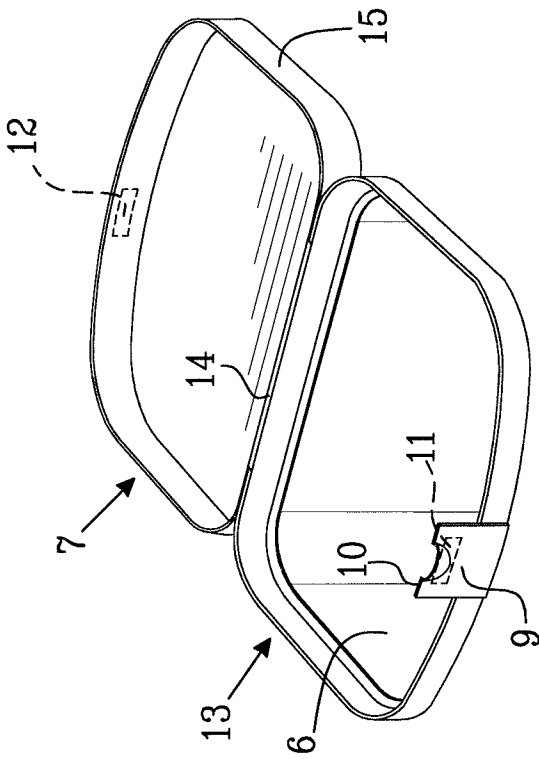


Fig. 5

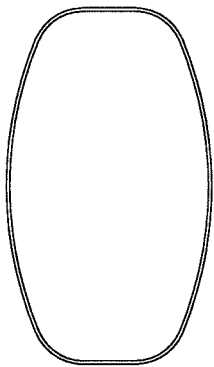
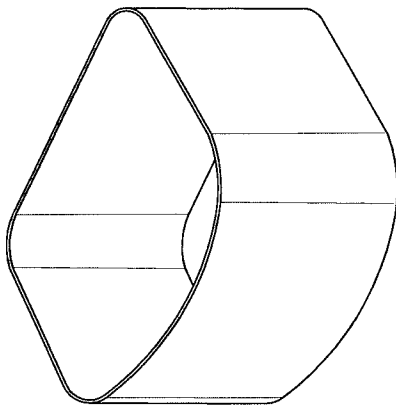
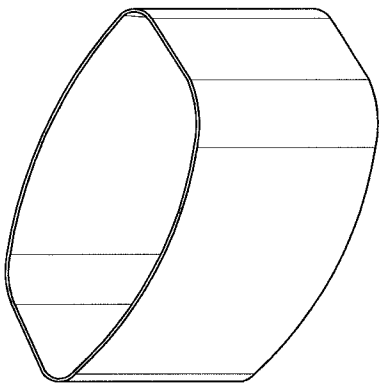
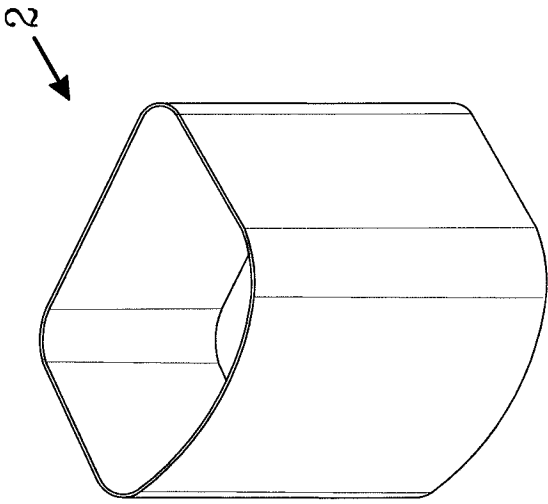
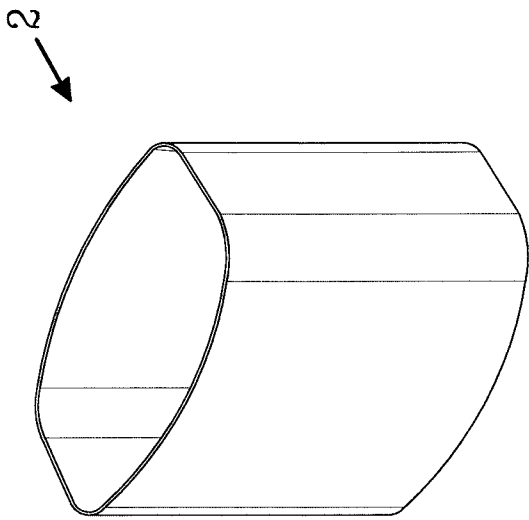


Fig. 6A

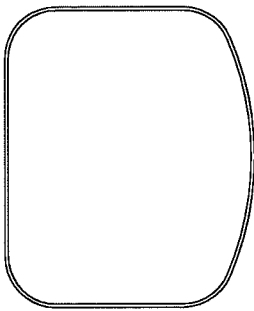
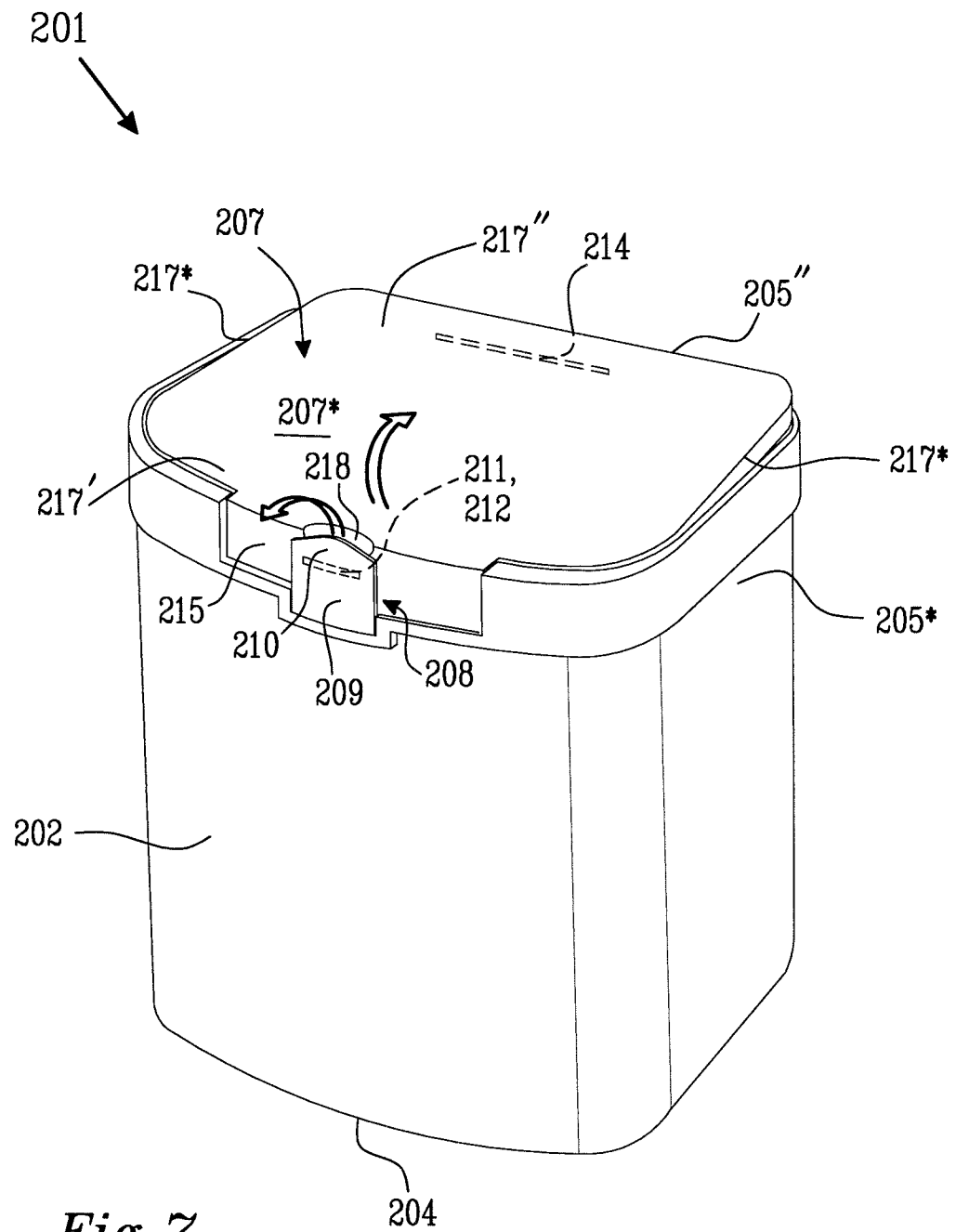


Fig. 6B

*Fig. 7*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2015/051151

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

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)

IPC: B65D

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

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4314651 A (GAISER WILLIAM R ET AL), 9 February 1982 (1982-02-09); column 3, line 16 - column 4, line 6; figures 1-4 --	1-7, 15
Y	EP 2716551 A1 (AA & R CARTON LUND AB), 9 April 2014 (2014-04-09); paragraphs [0026]-[0027], [0026]-[0027]; figure 1 --	1-7, 15
Y	EP 1505004 A1 (YOSHINO KOGYOSHO CO LTD), 9 February 2005 (2005-02-09); abstract; figures 1-20 --	3, 4
A	EP 1092647 A2 (SONOCO DEV INC), 18 April 2001 (2001-04-18); paragraphs [0017]-[0019]; figures 1,2 --	1



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"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

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

31-03-2016

Date of mailing of the international search report

01-04-2016

Name and mailing address of the ISA/SE

Patent- och registreringsverket

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INTERNATIONAL SEARCH REPORT

 International application No.
 PCT/SE2015/051151

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3934723 A (WALKER STEPHEN F), 27 January 1976 (1976-01-27); abstract; figures 1,2 --	1
A	WO 9733803 A1 (TASKER PETER JOHN), 18 September 1997 (1997-09-18); page 7, line 31 - page 8, line 8; figures 5,6,8-10 --	1
A	US 5353946 A (BEHREND GRACE A), 11 October 1994 (1994-10-11); abstract; figures 1,2 --	1, 8-11
A	EP 0773172 A1 (NESTLE SA), 14 May 1997 (1997-05-14); abstract; figures 1-7 --	1, 8-11
A	US 4293079 A (LYTLE THOMAS G), 6 October 1981 (1981-10-06); column 4, line 27 - line 33; figure 1 --	1, 8-11
A	US 20070145001 A1 (TILTON ANDREW T - (B2) TILTON ANDREW THOMAS [US]), 28 June 2007 (2007-06-28); paragraph [0058]; figures 3,7,8 --	1, 8-11
A	US 20100108670 A1 (PERRY JAMES P ET AL), 6 May 2010 (2010-05-06); paragraph [0016]; figure 4 --	1, 8-10
A	EP 0370982 A1 (AKERLUND & RAUSING LICENS AB), 30 May 1990 (1990-05-30); abstract; figures 1,2 --	1, 8-11
P, A	US 20150210450 A1 (MERCADO GRACE ET AL), 30 July 2015 (2015-07-30); abstract; figures 6-10 -- -----	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2015/051151

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The following separate inventions were identified:

1. Claims 1-7 and 15 directed to a packaging container packaging container comprising a lid. The problem to be solved is to lock the lid in a closed position to the container. The problem is solved by providing the container with a locking tab.

.../...

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: **1-11, 15**
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

Continuation of: Box No. III

1. Claims 8-11 directed to a packaging container comprising a lid. The problem to be solved is to reinforce the container. The problem is solved by providing the container with an edge rim at the opening edge.
2. Claims 12-14 directed to a packaging container comprising a lid. The problem to be solved is to be able to see if the container has been opened. The problem is solved by providing the tab with a tamper evidence arrangement.

The present application has been considered to contain three inventions which are not linked such that they form a single general inventive concept, as required by Rule 13 PCT for the following reasons:

The single general concept of the present application is to provide improved protection of bulk solids during transport, storage and dispensing. This has been solved by providing the container with a locking tab that locks the lid in a closed position at the container opening.

Document D1, US 4314651 A, is considered to represent the closest prior art. Document D1 describes a lockable plastic closure mechanism and a plastic container 10 having such a closure mechanism. One purpose of the invention is to provide a reliable closure mechanism, see column 1, lines 38-39. The plastic container 10 is illustrated having a base 12, a cover or lid 14 having a protruding tab 16, and an integral moulded closure mechanism generally indicated as 20 shown in a closed position, see figures 1-4. The lid is connected by a hinged connection to the container body. The closure mechanism 20 has a first leaf 22 having a longitudinally extending slot 24 along the top edge thereof. The leaf 22 is illustrated as having a generally rectangular shape but may be modified to assume other shapes if desired. The slot 24 is adapted to engage protruding tab 16 on the cover 14 of container 10 to lock cover 14 into a closed position. The lower edge of leaf 22 has an outwardly flared portion 26 which forms a convenient means for the hand of a user to grip and manipulate the closure mechanism. To open the container the leaf 22 pivots away from the container, see figure 4. The container is intended for documents, but it is stated that the closure mechanism can be adapted to be used on a variety of differently shaped containers. See column 3, line 16 – column 4, line 6. The closure mechanism and container can be fabricated of polypropylene or other thermoplastic materials having good flexibility and tensile strength, see column 1, line 49 –51.

The invention according to claim 1 differs from the device disclosed by D1 in that it is intended for bulk solids and in that it is made of paperboard. The paperboard materials as disclosed in the present application may also be referred to as cardboard or carton materials, see page 4, lines 5-13 in the description. Due to the first feature another use of the container is achieved. Due to the second feature a container made from another material is achieved. To state that the invention is intended for bulk solids does not add any features concerning the construction of the claimed invention; it only discloses that the invention is suitable for such use. The container disclosed by D1 is considered to be suitable for bulk solids. Consequently, with the background of D1, the skilled person is posed with the problem to find another use of the container, and to make the container from another material.

.../...

Continuation of: Box No. III

However, it is already well known that containers can be made of paperboard, see for example D2 (EP 2716551 A1). D2 discloses a container made of paperboard intended for a food product in powder form, see paragraphs 0026-0027. D1 also discloses that the closure mechanism can be adapted to be used on a variety of differently shaped containers. Furthermore, it is stated in the description of the present application that the locking tab may be made from polymeric materials. Therefore, the skilled person faced with the problem of finding another use of the container, and to make the container from another material, would modify the container according to D1 and manufacture it from paperboard and use it for bulk solids. A modification of the closest prior art found in D1, by manufacturing the container in paperboard and to use it for bulk solids would result in a container as defined in claim 1. Therefore, the subject matter defined in claim 1 does not involve an inventive step (Article 33(3) PCT).

No other features can be distinguished which can be considered as the same or corresponding special technical features in the sense of Rule 13.2 PCT. Thus, the application lacks unity of invention.

The applicant paid one additional fee for claims 8-11.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2015/051151

Continuation of: second sheet

International Patent Classification (IPC)

B65D 43/22 (2006.01)

B65D 43/16 (2006.01)

B65D 55/02 (2006.01)

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PCT/SE2015/051151

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