



(11) **EP 3 275 794 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
04.09.2019 Bulletin 2019/36

(51) Int Cl.:
B65D 5/42 (2006.01) B65D 85/10 (2006.01)

(21) Application number: **16181558.4**

(22) Date of filing: **27.07.2016**

(54) **IMPROVED CONTAINER OF CONSUMER ARTICLES COMPRISING AN ELEMENT OF DISCERNIBLE THICKNESS**

VERBESSERTER BEHÄLTER VON VERBRAUCHERARTIKELN MIT EINEM ELEMENT VON ERKENNBARER DICKE

RÉCIPIENT AMÉLIORÉ D'ARTICLES DE CONSOMMATION COMPRENANT UN ÉLÉMENT D'ÉPAISSEUR DISCERNABLE

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(43) Date of publication of application:
31.01.2018 Bulletin 2018/05

(73) Proprietor: **Philip Morris Products S.A.
2000 Neuchâtel (CH)**

(72) Inventors:
• **CAILLEAUX, Timothee
01220 Divonne-les-Bains (FR)**

• **PITTON, David
2000 Neuchâtel (CH)**

(74) Representative: **Civera, Andrea
Reddie & Grose LLP
The White Chapel Building
10 Whitechapel High Street
London E1 8QS (GB)**

(56) References cited:
**EP-A1- 1 422 168 EP-A2- 0 615 285
CN-Y- 201 249 952 DE-A1-102013 112 279**

EP 3 275 794 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention relates to a container for consumer goods formed by folding a laminar blank comprising an additional element having a discernible thickness affixed to a surface of the container. The expression "element having a discernible thickness" is used herein to refer to any three-dimensional element having a thickness from about 50 micrometres to about 500 micrometres. An example of one such element is a radio frequency identification (RFID) element. The container of the present invention finds particular application as a container for elongate consumer good items, such as smoking articles.

[0002] Smoking articles are typically packaged in rigid hinge-lid containers comprising a box and a lid hinged to the box along a hinge line extending across a back wall of the container. The bundle of smoking articles housed in the box is commonly wrapped in an inner liner, or package, of metallised paper, metal foil or other flexible sheet material. Both hinge-lid container and inner package are formed from blanks. During transportation, as well as when they are supplied to packing machines, blanks are preferably stacked on top of each other and in a flat state.

[0003] Such containers often comprise a reinforcing member, which may be provided as an inner frame arranged outside the inner package or as a stiffener arranged inside the inner package. This is to improve the resistance to compression of the package with a view to better protecting the smoking articles within the container during transportation. In addition, one such hinge lid container may comprise an inner frame extending at least partly beyond an upper edge of the front wall of the box to provide a flat surface which the lid front wall may lie against, when in the closed position. This is generally desirable because, when the lid is in the closed position, a container provided with one such arrangement will present to the consumer a substantially flat front surface. The reinforcing member typically comprises at least a reinforcing front wall lying against a front wall of the inner package. Most commonly, one such reinforcing member is provided as a collar further comprising side walls depending from the reinforcing front wall and folded about respective fold lines to lie against the side walls of the inner package. Thus, in use, one such reinforcing member embraces the bundle of smoking articles on three sides.

[0004] Radio frequency elements are known for allowing large amounts of information to be accessed without the need for the information to be printed. CN 201249952 discloses a container for smoking articles, such as cigarettes, comprising a passive RFID tag intended to act as an anti-counterfeiting means. The RFID tag is positioned between the inner surface of the container box and a layer of aluminium foil, and can be affixed to the inner surface of the box in different positions depending on the design requirements of the container. Methods are known from EP 0615285 for attaching an electronic cir-

cuit - for example, a transponder - to a substrate, such as a container or package. In these methods, a cavity or indentation is formed in the substrate to receive the electronic circuit, the depth of the indentation or cavity being such that the electronic circuit projects from the surface of the substrate.

[0005] Accordingly, it would be desirable to provide a container for consumer articles comprising a radio frequency element, especially such that the radio frequency element is not visible on the external surface of the container, since this space may be better spent on branding or other printed information. However, the provision of an element with a discernible thickness on a blank for forming a container of the type described above may impact the pliability of the blank. In turn, this may undesirably increase the complexity of the manufacturing process.

[0006] Further, because the presence of an element with a discernible thickness will locally increase the thickness of the laminar blank from which the container is formed, stacking blanks on top of one another may become less easy if blanks comprise one such element. This may cause problems during the storage and transportation of the blanks, as well as when blanks are fed at high speed to a packing machine for forming the container.

[0007] Thus, it would be desirable to provide a novel and improved container for consumer goods comprising an element having a discernible thickness. In particular, it would be desirable for such container to ensure that the consumer articles held within the container are effectively protected from potentially damaging compressive loads. Further, it would be desirable to provide a blank for forming one such container, such that a plurality of said blanks can easily be stacked, palletised, transported and fed to a packing machine to form the container. In addition, it would be desirable to provide one such container for consumer goods that can easily be manufactured without requiring major modifications to existing equipment.

[0008] According to an aspect of the present invention, there is provided a container for consumer goods, the container being formed from a laminar blank having a blank thickness. The container further comprises a three dimensional element having a thickness from about 50 micrometres to about 500 micrometres. An inner surface of a first wall of the container comprises an affixing area for at least partly receiving the element, the affixing area comprising a debossed or ablated area having a residual thickness less than the blank thickness. The element is affixed to the container by means of adhesive provided on the debossed or ablated zone of the affixing area. A difference between the blank thickness and the residual thickness is less than the element thickness, such that the element projects beyond the inner surface of the container by an incremental thickness less than the element thickness. Further, the container comprises a thickness compensating means on a region of the inner surface of

the container.

[0009] According to another aspect of the present invention, there is provided a blank for forming a container for consumer goods, the blank comprising: a laminar substrate having a substrate thickness; and a three dimensional element having a thickness from about 50 micrometres to about 500 micrometres. A surface of the laminar substrate comprises an affixing area for at least partly receiving the element, the affixing area comprising a debossed or ablated area having a residual thickness less than the substrate thickness. The element is affixed to the laminar substrate by means of adhesive provided on the debossed or ablated zone of the affixing area. A difference between the substrate thickness and the residual thickness is less than the element thickness, such that the element projects beyond the inner surface of the laminar substrate by an incremental thickness less than the element thickness. Further, the blank comprises a thickness compensating means on a region of the first surface of the laminar substrate.

[0010] It will be appreciated that any features described with reference to one aspect of the present invention are equally applicable to any other aspect of the invention.

[0011] As used herein, the terms "front", "back", "upper", "lower", "top", "bottom" and "side", refer to the relative positions of portions of containers according to the invention and components thereof when the container is in an upright position an access opening of the container at the top of the container. When describing containers according to the present invention, these terms are used irrespective of the orientation of the container being described. The back wall of the outer hinge-lid housing is the wall comprising the hinge line.

[0012] When describing a container in accordance with the present invention, the term "longitudinal" refers to a direction from bottom to top or vice versa, whereas the term "transverse" refers to a direction perpendicular to the longitudinal direction.

[0013] The term "width" is used to describe the dimension of an element, such as a radio frequency element or a panel of a blank or a wall of a container as measured in the transverse direction. The term "panel" is used throughout this specification to refer to a portion of the blank that is used to form a wall in the assembled container. A panel may depend along one or more fold lines from one or more other panels. The term "fold line" refers to a fold between two adjacent panels. When forming the container, adjacent panels are folded along their common fold line, which may come to define an edge of the container or of a portion thereof. In the assembled container a "wall" may be formed of one or of several overlying panels that are attached to each other, for example by means of an adhesive. Further, a wall may be formed from two or more abutting or overlapping panels. The term "height" is used to describe the dimension of one such element as measured in a direction perpendicular to the width of the element. When describing an element

of the container, reference is generally made to the element in a flat state.

[0014] The term "thickness" is used to describe the dimension of an element, such as a radio frequency element in a direction perpendicular to both the height and width of the element. With reference to a laminar blank from which a package or hinge-lid container may be formed, the term thickness identifies the distance between opposite inner and outer surfaces of the blank.

[0015] The expression "element having a discernible thickness" is used herein to refer to any three-dimensional element having a thickness from about 50 micrometres to about 500 micrometres. An example of one such element is a radio frequency identification (RFID) element.

[0016] It has been observed that affixing an element having a thickness less than about 50 micrometres to a blank for forming a container for consumer articles does not effectively cause issues relating to a reduced pliability of the blank, nor does it significantly impact the ease of stacking blanks or cause a compressive load to be applied on the consumer articles within the assembled container.

[0017] In some embodiments, the discernible thickness of the element is preferably at least about 50 micrometres, more preferably at least about 100 micrometres, even more preferably at least about 150 micrometres. In addition, or as an alternative, the discernible thickness is preferably less than about 500 micrometre, more preferably less than about 400 micrometres, even more preferably less than about 300 micrometres.

[0018] The term "inner surface" is used throughout the specification to refer to the surface of a component of the assembled container that is facing towards the interior of the container, for example towards the consumer goods, when the container is in the closed position. The term "outer surface" is used throughout the specification to refer to the surface of a component of the container that is facing towards the exterior of the container. For example, the front wall of the container has an inner surface that is facing the inside of the container and the consumer goods, and an outer surface facing away from the consumer goods. It should be noted that the inside or outside surface is not necessarily equivalent to a certain side of a blank used in assembly of the container. Depending on how the blank is folded around the consumer goods, areas that are on the same side of the blank can either face towards the inside or the towards the outside of the container.

[0019] In a blank for forming a container in accordance with the present invention, the term "longitudinal axis" is used to identify an axis of the blank extending across the blank in a flat state in a direction substantially parallel to the longitudinal direction in the assembled container. Thus, for example, the longitudinal axis of the blank extends across the blank front panel in a direction parallel to the longitudinal direction taken with reference to the corresponding container front wall. The term "transverse axis", on the other hand, is used to identify an axis of the

blank extending across the blank in a flat state in a direction perpendicular to the longitudinal axis.

[0020] One such blank has a "longitudinal dimension" corresponding to the maximum distance between opposite ends of the blank as measured along the longitudinal axis. Further, one such panel has a "transverse dimension" corresponding to the maximum distance between opposite ends of the blank as measured along a direction perpendicular to the longitudinal axis.

[0021] In a rectangle, the longitudinal dimension and the transverse direction will generally correspond to height and width of the rectangle. However, a blank for forming a substantially parallelepiped container for consumer articles will typically have a roughly quadrilateral shape, but may generally not display quite the exact symmetry of a regular rectangle. Accordingly, the terms "longitudinal dimension" and "transverse dimension" are used herein to identify the dimensions of a blank, particularly a substantially quadrilateral blank, which would correspond to height and width of the blank, if the blank were exactly rectangular. The term "midpoint of the longitudinal axis" is used herein to identify the middle point of the longitudinal axis of a blank for forming a container in accordance with the invention, that is, a point that is equidistant from both endpoints of the longitudinal axis. The endpoints of the longitudinal axis of one such blank are on opposite edges of the blank separated by a distance corresponding to the longitudinal dimension of the blank. The midpoint of the longitudinal axis bisects the longitudinal axis, and so the distance between the midpoint and either endpoint of the longitudinal axis is substantially half the longitudinal dimension of the blank. The term "affixing area" is used herein to refer to the minimum area of the blank that encloses the ablated or debossed zones.

[0022] The term "ablated zone" is used herein to refer to an area from which material has been ablated (e.g. removed by means of a laser beam or a blade) from a surface of the laminar blank or container. The term "debossed zone" is used here in to refer to an area wherein the material of the laminar blank or container has been compressed. Accordingly, the residual thickness of an ablated or debossed zone is less than the thickness of the laminar blank. For example, an ablated zone may be formed with a linear ablation tool, such as a laser or a blade.

[0023] The term "hinge line" refers to a line about which the lid may be pivoted in order to open the hinge-lid housing. A hinge line may be, for example, a fold line or a score line in the panel forming the back wall of the container.

[0024] A container in accordance with the present invention is formed from a laminar blank having a blank thickness. Further, the container comprises a three-dimensional element having a thickness in the range from about 50 micrometres to about 500 micrometres. This encompasses elements having a thickness substantially of the same order of magnitude of the thickness of blanks

typically used for manufacturing containers for consumer articles. In contrast to existing containers, according to the present invention an inner surface of a first wall of the container comprises an affixing area for at least partly receiving the element. In more detail, the affixing area comprises a debossed or ablated area with a residual thickness less than the blank thickness, and the element is affixed to the container by means of adhesive provided on the debossed or ablated zone of the affixing area.

[0025] Thus, in containers in accordance with the present invention it is advantageously possible, by locally reducing the thickness of the blank, to at least partly offset or compensate the increase in thickness which would, otherwise, be caused by the provision of the element of discernible thickness on a surface of the blank. Accordingly, instead of having a local overall thickness essentially equal to the sum of the thicknesses of the element and the thickness of the blank, the local overall thickness will be given by the sum of the residual thickness of the debossed or ablated area and the thickness of the element.

[0026] Therefore, the thickness of the blank for forming a container comprising the element of discernible thickness is made - on the average - more even, compared to existing blanks. As a consequence, it is easier to stack a plurality of blanks on top of one another in a stable fashion, such that many blanks can be palletised and transported at once. In addition, because the stacks of blanks for forming containers in accordance with the invention are more orderly and stable, it is also easier to feed the blanks to the packing machine.

[0027] As will be explained in more detail below, in embodiments comprising a reinforcing member, it is also advantageously possible to ensure that the element of discernible thickness does not interfere with the reinforcing member and, at the same time, that reinforcing member and additional element of discernible thickness do not exert a combined, increased pressure over the consumer goods within the container.

[0028] Further, in containers according to the present invention it is advantageously possible to include an additional element having a discernible thickness such that the additional element is not visible from the outside during normal use of the container. Thus, at the same time, space on the external surface of the container may advantageously be used for branding or other printed information.

[0029] Finally, containers and blanks in accordance with the present invention are easy to manufacture and do not require any extensive modification of the existing apparatus.

[0030] The element affixed to the blank may be any three-dimensional element having a discernible thickness, that is a thickness of an order of magnitude comparable with the thickness of the blank to which the element is attached. In preferred embodiments, the element is a radio frequency (identification) element, also commonly referred to as RFID tag. An RFID tag or other radio

frequency element can store information relating to the product (for example, information relating to the identity and authenticity of the product). Typically, one such tag comprises an integrated circuit connected to an antenna or inductive coil. An RFID reader is used to interrogate the tag by transmitting a radio frequency signal which is received at the antenna or coil. In response to such signal, the RFID returns to the RFID reader a signal containing the information stored in the tag.

[0031] A difference between the blank thickness and the residual thickness is less than the element thickness, such that the element projects beyond the inner surface of the container by an incremental thickness less than the element thickness. Thus, the ablation or debossing only partly offsets the locally increased thickness caused by the presence of the additional element. This may be advantageous when the laminar blank from which the container is formed has a low base weight, in that it ensures a sufficient residual thickness for the blanks and container to have the necessary mechanical properties to protect the consumer goods.

[0032] Further, the container comprises a thickness compensating means on a region of the inner surface of the container.

[0033] In some embodiments, the thickness compensating means comprises a coating layer applied at least on a region of the inner surface of the first wall of the container extending about the affixing area, that is, around the element of discernible thickness. This advantageously provides a further compensation of the locally increased thickness. This further contributes to even out the thickness non-homogeneity of the blank of the container.

[0034] One such coating layer may comprise a varnish or an ultra-violet (UV) coating composition. One such composition may comprise one or more of several compounds known to the skilled reader for coating paper and cardboard, such as, for example, polyethylene, calcium carbonate and kaolinite. These compounds may be refined and mixed with viscosifiers to help them adhere to paper and cardboard. UV coatings can impart the paper or cardboard a gloss or matte finish.

[0035] In some embodiments, the coating layer may extend only to a finite portion of the inner surface of the first wall of the container extending about the affixing area. As an alternative, the coating layer may extend substantially to the whole inner surface of the first wall of the container extending about the affixing area.

[0036] In other embodiments, the coating layer may extend beyond the periphery of the first wall of the container, and even to the whole surface of the blank defining, in the assembled container, the inner surface of the container. This advantageously simplifies the manufacturing process, in that the coating layer may for example be applied substantially homogeneously over the whole blank surface prior to the debossing or ablating process.

[0037] Preferably, the coating layer has a thickness of at least about 70 percent of the incremental thickness.

Thus, the coating layer compensates only in part the incremental thickness. However, one such degree of compensation has been found to be sufficient to make it easy to form a stable stack of blanks. More preferably, the coating layer has a thickness of at least about 80 percent of the incremental thickness. Even more preferably, the coating layer has a thickness of at least about 90 percent of the incremental thickness.

[0038] Preferably, the coating layer is removable. This is advantageous in that the need to compensate for the uneven surface of a blank comprising an additional element having a discernible thickness is felt especially when a plurality of blanks need to be stacked on one another during storage and transportation. However, when feeding the blank comprising the additional element to a packing machine it may instead be preferable to restore the laminar substrate of the blank to its original thickness. This may be both for reasons to do with manufacturing requirements, for example set by the packing machine, as well as for ensuring that the assembled container has a certain visual impact, or to reduce the overall weight of the container. In addition, the further layer may advantageously protect the surface of the laminar substrate during storage and transportation of the blanks.

[0039] As an alternative to the coating layer, in those embodiments where a difference between the blank thickness and the residual thickness is less than the element thickness, the thickness compensating means may comprise a three-dimensional patch member.

[0040] One such patch member is arranged on the inner surface of the container at a location other than the affixing region. Preferably, the patch member is arranged on the inner surface of a wall of the container other than the first wall. Even more preferably, the patch member is arranged on the inner surface of the wall of the container opposite the first wall. For example, where the element is affixed on the back wall, the patch member is affixed on the front wall.

[0041] By providing one such patch member on the same surface of the blank defining, in the assembled container, the inner surface of a wall, at least a partial reduction of the thickness non-homogeneity of the blank or container is achieved. For example, where the element is affixed on the inner surface of the back wall of the container, the compensating patch member is affixed on the inner surface of the front wall of the container. Thus, an arrangement with a certain degree of symmetry is advantageously achieved, such that a centre of gravity of the unfolded blank is arranged substantially along a longitudinal axis of the blank, at a location between the element and the patch member.

[0042] Preferably, a width of the patch member is less than a width of the blank. In addition, or as an alternative, a height of the patch is preferably less than a height of the blank panel on which the patch member is arranged. In preferred embodiments, the patch member has a shape and size comparable to the shape and size of the element of discernible thickness.

[0043] Preferably, the patch member has a thickness of at least about 70 percent of the incremental thickness. Thus, the patch member compensates only in part the incremental thickness. However, one such degree of compensation has been found to be sufficient to make it easy to form a stable stack of blanks. More preferably, the patch member has a thickness of at least about 80 percent of the incremental thickness. Even more preferably, the patch member has a thickness of at least about 90 percent of the incremental thickness. In some particularly preferred embodiments, the patch member has a thickness substantially equal to the incremental thickness. This is advantageous in that the element and the patch member, in combination, define a raised surface upon which another blank can advantageously lie in a substantially flat state.

[0044] Preferably, where the element is affixed on the first wall of the container, the patch member is arranged on the inner surface of another wall of the container, more preferably on a wall opposite the first wall. For example, where the element is affixed on the inner surface of the back wall of the container, the patch member is affixed on the inner surface of the front wall of the container. Thus, an arrangement with a certain degree of symmetry is advantageously achieved, wherein a centre of gravity of the blank is arranged substantially along a longitudinal axis of the blank, at a location between the element and the patch member. Thus, several blanks can still be quite easily stacked on top of each other, which is advantageous for storage, transportation, and for feeding the blanks to a packing machine.

[0045] Preferably, the patch member is removable. For example, the patch layer may be provided as a removable sticker. The term "removable" is used herein to describe a sticker attached to a surface by means of a generally low tack adhesive capable of forming a connection between two substrates - for example, between the patch member and the surface of the blank from which the container is formed - such that the two substrates can be separated from each other without causing any damage to either substrate.

[0046] In other embodiments, a difference between the blank thickness and the residual thickness is substantially equal to the element thickness. Thus, the debossing process or the ablation process is used to fully compensate for the thickness of the additional element of discernible thickness, such that this does not project over the surface of the laminate substrate of the blank. Accordingly, there is no need for any thickness compensating means at other locations on the first surface of the blank which defines, in the assembled container, the inner surface of the blanks and to facilitate the handling and transportation of the blank itself. In addition, in containers where the additional element is arranged at a central location on the inner surface of the back wall of the container, at least when the consumer opens the container for the first time the additional element will be effectively hidden from the

consumer's sight.

[0047] In preferred embodiments, the container further comprises a reinforcing member comprising at least a front wall lying against an inner surface of the front wall of the container. In such embodiments, the element is preferably arranged in the affixing area on the container at a distance from a bottom edge of the front wall of the reinforcing member.

[0048] More preferably, a distance from a top edge of the element and the bottom edge of the reinforcing member is at least about 1 millimetre, even more preferably at least about 5 millimetres.

[0049] A container in accordance with the present invention may be formed by folding a blank for forming a container for consumer goods, the blank comprising a laminar substrate having a substrate thickness and a three dimensional element having a thickness of substantially the same order of magnitude of the substrate thickness, the element being affixed to the laminar substrate. A first surface of the laminar substrate comprises an affixing area for at least partly receiving the element, the affixing area comprising a debossed or ablated area having a residual thickness less than the substrate thickness. In addition, the element is affixed to the laminar substrate by means of adhesive provided on the debossed or ablated zone of the affixing area.

[0050] When the container is assembled from the blank, the first surface of the blank to which the element is affixed faces the inside of the container. In other words, the additional element of discernible thickness is affixed on a side of a blank panel for forming a wall of the container, such that, in the assembled container, the additional element is affixed on the inner surface of said wall of the container.

[0051] A difference between the substrate thickness and the residual thickness is less than the element thickness, such that the element projects beyond the inner surface of the laminar substrate by an incremental thickness less than the element thickness. Preferably, the blank comprises a thickness compensating means on a region of the first surface of the laminar substrate. This may be in the form of a coating layer extending over at least a region of the first surface about the affixing area. In some embodiments, the coating layer may extend substantially over the whole of the first surface about the affixing area. As an alternative, the thickness compensating means may be in the form of a patch member affixed to the first surface of the laminar substrate at a location other than the affixing area.

[0052] More preferably, such thickness compensating means is removable. Thus, the thickness compensating means may be used to at least partly compensate the incremental thickness when blanks are stacked on top of one another for storage and transportation purposes, while the thickness compensating means can be removed when the blank is supplied to a packing machine for forming a container.

[0053] Preferably, the element is arranged at a location

along a longitudinal axis of the blank in its flat state, and a distance between the element and a midpoint of the longitudinal axis of the blank is less than about 20 percent of a longitudinal dimension of the blank. More preferably, the element is at a location along a longitudinal axis of the laminar blank, and a distance between the element and a midpoint of the longitudinal axis of the laminar blank is less than about 15 percent of the longitudinal dimension of the blank, even more preferably less than about 10 percent of the longitudinal dimension of the blank.

[0054] For example, in an embodiment the longitudinal dimension of the laminar blank is about 200 millimetres, the midpoint of the longitudinal axis is at about 100 millimetres from either end of the laminar blank, and the element of discernible thickness is located on the longitudinal axis at a distance of about 40 millimetres or less from the midpoint. More preferably, the element of discernible thickness is located on the longitudinal axis at a distance of about 30 millimetres or less from the midpoint. Even more preferably, the element of discernible thickness is located on the longitudinal axis at a distance of 20 millimetres or less from the midpoint.

[0055] In another embodiment, where the longitudinal dimension of the laminar substrate is about 250 millimetres, the midpoint of the longitudinal axis is at about 125 millimetres from either end of the laminar blank, and the element of discernible thickness is located on the longitudinal axis at a distance of about 50 millimetres or less from the midpoint. More preferably, the element of discernible thickness is located on the longitudinal axis at a distance of about 37.5 millimetres or less from the midpoint. Even more preferably, the element of discernible thickness is located on the longitudinal axis at a distance of 25 millimetres or less from the midpoint.

[0056] This is advantageous, in that the location of the centre of gravity of the blank will thus substantially correspond to the location of the centre of gravity of the laminar substrate. A stack of these blanks may, accordingly, be particularly stable and easy to store and transport.

[0057] A container for consumer goods in accordance with the present invention may be manufactured by a method comprising the steps of: providing a laminar substrate having a substrate thickness; forming a debossed or ablated area on a first surface of the laminar substrate to define an affixing area, the debossed or ablated area having a residual thickness less than the substrate thickness; affixing three dimensional element having a thickness of substantially the same order of magnitude of the substrate thickness on the first surface of the laminar substrate by means of adhesive provided on the debossed or ablated zone, so as to provide a blank for forming a container; and forming a container from the blank, such that the first surface of the laminar substrate defines an inner surface of the container.

[0058] Preferably, the bundle of consumer goods is wrapped in a package of metal foil or metallised paper. The package material may be formed as a laminate of a

metallised polyethylene film, and a liner material. The package material may also be a supercalendered glassine paper. In addition, the package material may be provided with a print-receptive top coating.

[0059] One such package may be received within a hinge lid container comprising a box and a lid hinged to the box along a hinge line extending across a back wall of the hinge lid container. The hinge lid container may be formed from a blank of any suitable material or combination of materials, including, but not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the blank is a laminar cardboard blank having a weight of between about 100 grams per square metre and about 350 grams per square metre. The hinge lid container may optionally comprise an outer wrapper, which is preferably a transparent polymeric film of, for example, high or low density polyethylene, polypropylene, oriented polypropylene, polyvinylidene chloride, cellulose film, or combinations thereof and the outer wrapper is applied in a conventional manner. The outer wrapper may include a tear tape. In addition, the outer wrapper may be printed with images, consumer information or other data.

[0060] The package, as well as the outer hinge lid container, is preferably a rectangular parallelepiped comprising two wider walls spaced apart by two narrower walls.

[0061] Containers according to the invention find particular application as containers for elongate smoking articles such as, for example, cigarettes, cigars or cigarillos. It will be appreciated that through appropriate choices of the dimensions thereof, containers according to the invention may be designed for different numbers of conventional size, king size, super-king size, slim or super-slim cigarettes. Alternatively, other consumer goods may be housed inside the container.

[0062] Through an appropriate choice of the dimensions, containers according to the invention may be designed to hold different total numbers of smoking articles, or different arrangements of smoking articles. For example, through an appropriate choice of the dimensions, containers according to the invention may be designed to hold a total of between ten and thirty smoking articles. The smoking articles may be arranged in different collations, depending on the total number of smoking articles.

[0063] The invention will now be further described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a schematic top view of a blank for forming a container in accordance with the present invention; Figure 2 is a schematic side sectional view of a detail of the blank of Figure 1; and

Figure 3 is a schematic top view of a variant of a blank for forming a container in accordance with the present invention.

[0064] A container according to the present invention may be formed from the laminar blank 100 shown in Fig-

ure 1. The laminar blank 100 may be assembled and filled using standard apparatus.

[0065] Figure 2 shows a detail of the blank 100 of Figure 1. The blank 100 comprises a laminar substrate 102 having a thickness T1 of about 320 micrometres and a parallelepiped element 104 having a thickness T2 of about 200 micrometres. The element 104 is affixed to the laminar substrate 102. A first surface 106 of the laminar substrate comprises an affixing area 108 for at least partly receiving the element 104. When a container is formed from the laminar blank 100, the first surface 106 faces the inside of the container.

[0066] The affixing area 108 comprises a debossed area having a residual thickness T3 of about 250 micrometres. The depth of the debossing is of about 70 micrometres. The element 104 is affixed to the laminar substrate 102 by means of a layer of adhesive 110 provided on the debossed area and projects above the first surface 106 by an incremental thickness T4 of about 130 micrometres.

[0067] In more detail, the element 104 is at a location along the longitudinal axis 200 of the laminar substrate 102, and a distance between the element 104 and a midpoint 206 of the longitudinal axis 200 of the laminar substrate is less than about 10 percent of the longitudinal end-to-end dimension 202 of the laminar substrate 102. In more detail, the element 104 comprises a radio frequency element and is shaped symmetrical with respect to the longitudinal axis 200.

[0068] The longitudinal dimension 202 of the laminar substrate is about 250 millimetres. The midpoint 206 of the longitudinal axis is at about 125 millimetres from either end of the laminar substrate. The distance between the element 104 and the midpoint 206 is about 12 millimetres (10 percent of the longitudinal dimension of the laminar substrate amounting to about 25 millimetres).

[0069] The blank 100 comprises (see Figure 2) a further layer comprising a varnish 112 on a region of the first surface 106 of the laminar substrate 102 extending about the affixing area 108. In the embodiment illustrated in Figure 2, a thickness of the further layer 112 is substantially as great as the incremental thickness T4. Thus, the further layer advantageously compensates for the entirety of the incremental thickness. The further layer 112 is removed from the laminar substrate 102 immediately prior to feeding the blank 100 to a packing machine for forming a container.

[0070] Figure 3 shows a variant of a blank 300 for forming a container for consumer articles in accordance with the present invention. The blank 300 comprises a laminar substrate 302 and a parallelepiped element of discernible thickness 304, the element 304 being affixed to and received into an affixing area of a first surface of the blank 300.

[0071] The blank 300 differs from the blank 100 of Figures 1 and 2 in that, instead of a further layer extending about the affixing area, it comprises a thickness compensating member in the form of a three-dimensional patch

member 312 arranged on the inner surface of the laminar substrate at a location other than the affixing region.

5 Claims

1. A container for consumer goods, the container being formed from a laminar blank (100; 300) having a blank thickness (T1); and
a three dimensional element (104; 304) having a thickness (T2) from about 50 micrometres to about 500 micrometres;
characterized in that an inner surface of a first wall of the container comprises an affixing area (108) for at least partly receiving the element (104), the affixing area (108) comprising a debossed or ablated area having a residual thickness (T3) less than the blank thickness (T1);
wherein the element (104) is affixed to the container by means of adhesive provided on the debossed or ablated zone of the affixing area (108);
wherein a difference between the blank thickness (T1) and the residual thickness (T3) is less than the element thickness (T2), such that the element projects beyond the inner surface of the container by an incremental thickness (T4) less than the element thickness (T2); and wherein the container comprises a thickness compensating means (112; 312) on a region of the inner surface of the container.
2. A container according to claim 1, wherein the thickness compensating means comprises a coating layer (112) applied at least on a region of the inner surface of the first wall of the container extending about the affixing area (108).
3. A container according to claim 1, wherein the thickness compensating means comprises a three-dimensional patch member (312) arranged on the inner surface of the container at a location other than the affixing region.
4. A container according to any one of claims 1 to 3, wherein the thickness compensating means (112; 312) has a thickness of at least about 70 percent of the incremental thickness.
5. A container according to any one of claims 1 to 3, wherein the thickness compensating means (112; 312) has a thickness substantially equal to the incremental thickness.
6. A container according to any one of claims 3 to 5, wherein the three-dimensional patch (312) member is arranged on the inner surface of a wall of the container opposite the first wall.
7. A container according to any one of the preceding

claims, wherein the thickness compensating means (112; 312) is removable.

8. A container according to any one of the preceding claims, further comprising a reinforcing member comprising at least a front wall lying against an inner surface of the front wall of the container, wherein the element is arranged in the affixing area (108) on the container at a distance from a bottom edge of the front wall of the reinforcing member.
9. A blank (100; 300) for forming a container for consumer goods, the blank comprising a laminar substrate (102; 302) having a substrate thickness (T1) and a three dimensional element (104; 304) having a thickness (T2) from about 50 micrometres to about 500 micrometres, the element (104; 304) being affixed to the laminar substrate (102; 302); **characterized in that** a first surface of the laminar substrate (102; 302) comprises an affixing area (108) for at least partly receiving the element (104), the affixing area (108) comprising a debossed or ablated area having a residual thickness (T3) less than the substrate thickness (T1); wherein the element (104) is affixed to the laminar substrate (102; 302) by means of adhesive provided on the debossed or ablated zone of the affixing area (108); wherein a difference between the substrate thickness (T1) and the residual thickness (T3) is less than the element thickness (T2), such that the element (104) projects beyond the inner surface of the laminar substrate (102; 302) by an incremental thickness (T4) less than the element thickness (T2); and wherein the blank further comprises a thickness compensating means (112; 312) on a region of the first surface of the laminar substrate (102; 302).
10. A blank according to claim 9, wherein the element (104; 304) is arranged at a location along a longitudinal axis of the blank in its flat state, and a distance between the element and a midpoint of the longitudinal axis of the blank is less than about 20 percent of a longitudinal dimension of the blank.

Patentansprüche

1. Behälter für Konsumgüter, wobei der Behälter aus einem flächigen Rohling (100; 300) gebildet ist, der eine Rohlingdicke (T1) aufweist; und ein dreidimensionales Element (104; 304) mit einer Dicke (T2) von ungefähr 50 Mikrometer bis zu ungefähr 500 Mikrometer; **dadurch gekennzeichnet, dass** eine Innenfläche einer ersten Wand des Behälters einen Befestigungsbereich (108) zum mindestens teilweisen Aufnehmen des Elements (104) aufweist und der Befestigungsbereich (108) einen eingepprägten oder abgetragenen Bereich mit einer

Restdicke (T3) von kleiner als der Rohlingdicke (T1) aufweist;

wobei das Element (104) an dem Behälter mittels Klebstoff angebracht ist, der auf der eingepprägten oder abgetragenen Zone des Befestigungsbereichs (108) vorgesehen ist;

wobei eine Differenz zwischen der Rohlingdicke (T1) und der Restdicke (T3) kleiner als die Elementdicke (T2) ist, sodass das Element über die Innenfläche des Behälters um eine inkrementelle Dicke (T4) von kleiner als die Elementdicke (T2) vorsteht; und wobei der Behälter ein Dickenkompensiermittel (112; 312) auf einer Region der Innenfläche des Behälters aufweist.

2. Behälter nach Anspruch 1, wobei das Dickenkompensiermittel eine Überzugsschicht (112) aufweist, die mindestens auf eine Region der Innenfläche der ersten Wand des Behälters aufgebracht ist, die sich um den Befestigungsbereich (108) erstreckt.
3. Behälter nach Anspruch 1, wobei das Dickenkompensiermittel ein dreidimensionales Patchelement (312) aufweist, das an der Innenfläche des Behälters an einem anderen Ort als die Befestigungsregion angeordnet ist.
4. Behälter nach einem der Ansprüche 1 bis 3, wobei das Dickenkompensiermittel (112; 312) eine Dicke von mindestens ungefähr 70 Prozent der inkrementellen Dicke aufweist.
5. Behälter nach einem der Ansprüche 1 bis 3, wobei das Dickenkompensiermittel (112; 312) eine Dicke von im Wesentlichen gleich der inkrementellen Dicke aufweist.
6. Behälter nach einem der Ansprüche 3 bis 5, wobei das dreidimensionale Patchelement (312) an der Innenfläche einer Wand des Behälters gegenüber der ersten Wand angeordnet ist.
7. Behälter nach einem der vorstehenden Ansprüche, wobei das Dickenkompensiermittel (112; 312) entferntbar ist.
8. Behälter nach einem der vorstehenden Ansprüche, weiter aufweisend ein Verstärkungselement, das mindestens eine Vorderwand aufweist, die an einer Innenfläche der Vorderwand des Behälters anliegt, wobei das Element in dem Befestigungsbereich (108) an dem Behälter in einem Abstand von einer Unterkante der Vorderwand des Verstärkungselements angeordnet ist.
9. Rohling (100; 300) zum Bilden eines Behälters für Konsumgüter, wobei der Rohling ein laminares Substrat (102; 302) mit einer Substratdicke (T1) und ein

dreidimensionales Element (104; 304) mit einer Dicke (T2) von ungefähr 50 Mikrometer bis zu ungefähr 500 Mikrometer aufweist und das Element (104; 304) an dem laminaren Substrat (102; 302) befestigt ist; **dadurch gekennzeichnet, dass** eine erste Fläche des laminaren Substrats (102; 302) einen Befestigungsbereich (108) zum mindestens teilweisen Aufnehmen des Elements (104) aufweist und der Befestigungsbereich (108) einen eingepprägten oder abgetragenen Bereich mit einer Restdicke (T3) von kleiner als der Substratdicke (T1) aufweist; wobei das Element (104) an dem laminaren Substrat (102; 302) mittels Klebstoff, der auf der eingepprägten oder abgetragenen Zone des Befestigungsbereichs (108) vorgesehen ist, angebracht ist; wobei eine Differenz zwischen der Substratdicke (T1) und der (T3) Restdicke kleiner als die Elementdicke (T2) ist, sodass das Element (104) über die Innenfläche des laminaren Substrats (102; 302) um eine inkrementelle Dicke (T4) von kleiner als der Elementdicke (T2) vorsteht; und wobei der Rohling weiter ein Dickenkompensiermittel (112; 312) auf einer Region der ersten Fläche des laminaren Substrats (102; 302) aufweist.

10. Rohling nach Anspruch 9, wobei das Element (104; 304) an einem Ort entlang einer Längsachse des Rohlings in seinem flachen Zustand angeordnet ist und ein Abstand zwischen dem Element und einem Mittelpunkt der Längsachse des Rohlings kleiner als ungefähr 20 Prozent einer Längsabmessung des Rohlings ist.

Revendications

1. Un récipient pour des biens de consommation, le récipient étant formé à partir d'un flan stratifié (100 ; 300) ayant une épaisseur du flan (T1) ; et un élément tridimensionnel (104 ; 304) ayant une épaisseur (T2) d'environ 50 micromètres à environ 500 micromètres ; **caractérisé en ce qu'**une surface intérieure d'une première paroi du récipient comprend une partie de fixation (108) pour recevoir au moins partiellement l'élément (104), la partie de fixation (108) comprenant une partie gravée ou ablatée ayant une épaisseur résiduelle (T3) inférieure à l'épaisseur du flan (T1) ; dans lequel l'élément (104) est sur le récipient à l'aide d'un adhésif fourni sur la zone gravée ou ablatée de la partie de fixation (108) ; dans lequel une différence entre l'épaisseur du flan (T1) et l'épaisseur résiduelle (T3) est inférieure à l'épaisseur de l'élément (T2), de sorte que l'élément dépasse de la surface intérieure du récipient par une épaisseur incrémentielle (T4) inférieure à l'épaisseur de l'élément (T2) ; et dans lequel le récipient comprend un moyen compensateur d'épaisseur (112 ; 312) sur une région de la surface intérieure du réci-

pient.

2. Récipient selon la revendication 1, dans lequel le moyen de compensation d'épaisseur comprend une couche de revêtement (112) appliquée au moins sur une région de la surface intérieure de la première paroi du récipient s'étendant autour de la partie de fixation (108).
3. Récipient selon la revendication 1, dans lequel le moyen de compensation d'épaisseur comprend un membre de pièce tridimensionnelle (312) disposé sur la surface intérieure du récipient à un emplacement autre que la région de fixation.
4. Récipient selon l'une quelconque des revendications 1 à 3, dans lequel le moyen de compensation d'épaisseur (112 ; 312) a une épaisseur d'au moins 70 pour cent de l'épaisseur incrémentielle.
5. Récipient selon l'une quelconque des revendications 1 à 3, dans lequel le moyen de compensation d'épaisseur (112 ; 312) a une épaisseur sensiblement égale à l'épaisseur incrémentielle.
6. Récipient selon l'une quelconque des revendications 3 à 5, dans lequel la pièce tridimensionnelle (312) est disposée sur la surface intérieure d'une paroi du récipient en face de la première paroi.
7. Récipient selon l'une quelconque des revendications précédentes, dans lequel le moyen de compensation d'épaisseur (112 ; 312) est amovible.
8. Récipient selon l'une quelconque des revendications précédentes, comprenant en outre un membre de renforcement comprenant au moins une paroi avant couchée contre une surface intérieure de la paroi avant du récipient, dans lequel l'élément est disposé dans la partie de fixation (108) sur le récipient à une distance d'un bord inférieur de la paroi avant du membre de renforcement.
9. Un flan (100 ; 300) pour la formation d'un récipient pour les biens de consommation, le flan comprenant un substrat stratifié (102 ; 302) ayant une épaisseur de substrat (T1) et un élément tridimensionnel (104 ; 304) ayant une épaisseur (T2) d'environ 50 micromètres à environ 500 micromètres, l'élément (104 ; 304) étant fixé au substrat stratifié (102 ; 302) ; **caractérisé en ce qu'**une première surface du substrat stratifié (102 ; 302) comprend une partie de fixation (108) pour recevoir au moins partiellement l'élément (104), la partie de fixation (108) comprenant une partie gravée ou ablatée ayant une épaisseur résiduelle (T3) inférieure à l'épaisseur du substrat (T1) ; dans lequel l'élément (104) est fixé au substrat stra-

tifié (102; 302) à l'aide d'un adhésif fourni sur la zone gravée ou ablatée de la partie de fixation (108) ; dans lequel une différence entre l'épaisseur du substrat (T1) et l'épaisseur résiduelle (T3) est inférieure à l'épaisseur de l'élément (T2), de sorte que l'élément (104) dépasse de la surface intérieure du substrat stratifié (102; 302) par une épaisseur incrémentielle (T4) inférieure à l'épaisseur de l'élément (T2) ; et dans lequel le flan comprend en outre un moyen compensateur d'épaisseur (112; 312) sur une région de la première surface du substrat laminaire (102; 302).

10. Flan selon la revendication 9, dans lequel l'élément (104 ; 304) est disposé à un emplacement le long d'un axe longitudinal du flan dans son état plat, et une distance entre l'élément et un point médian de l'axe longitudinal du blanc est inférieure à environ 20 pour cent d'une dimension longitudinale du flan.

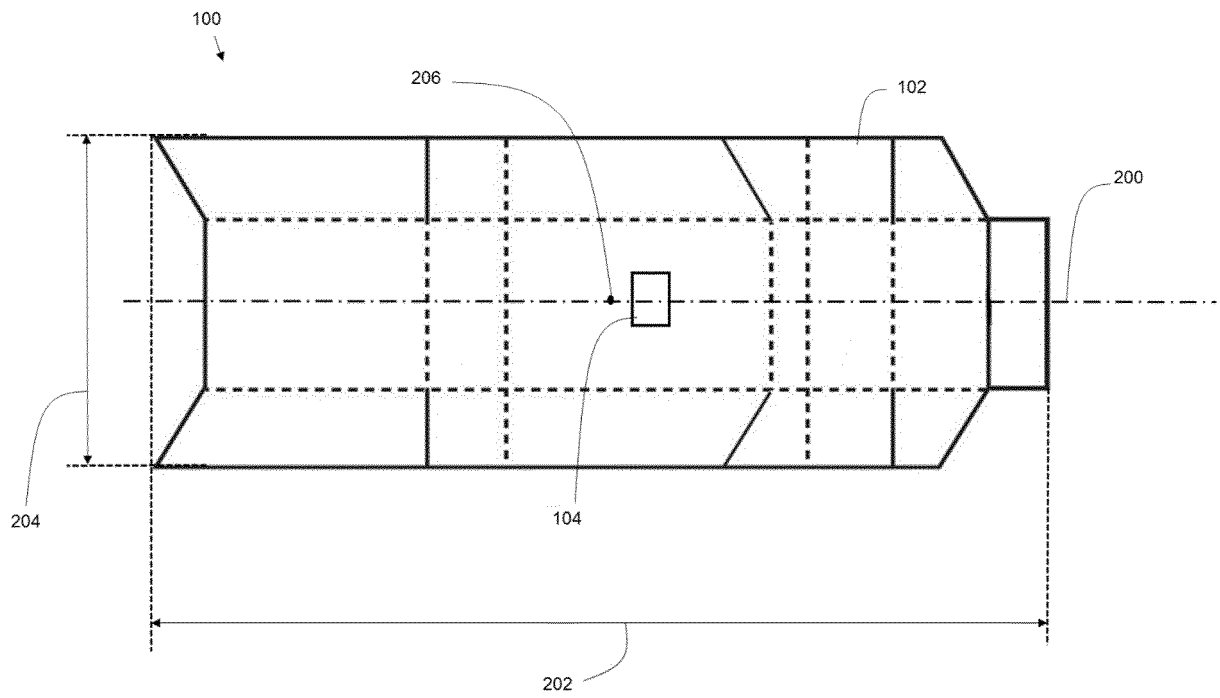


Fig. 1

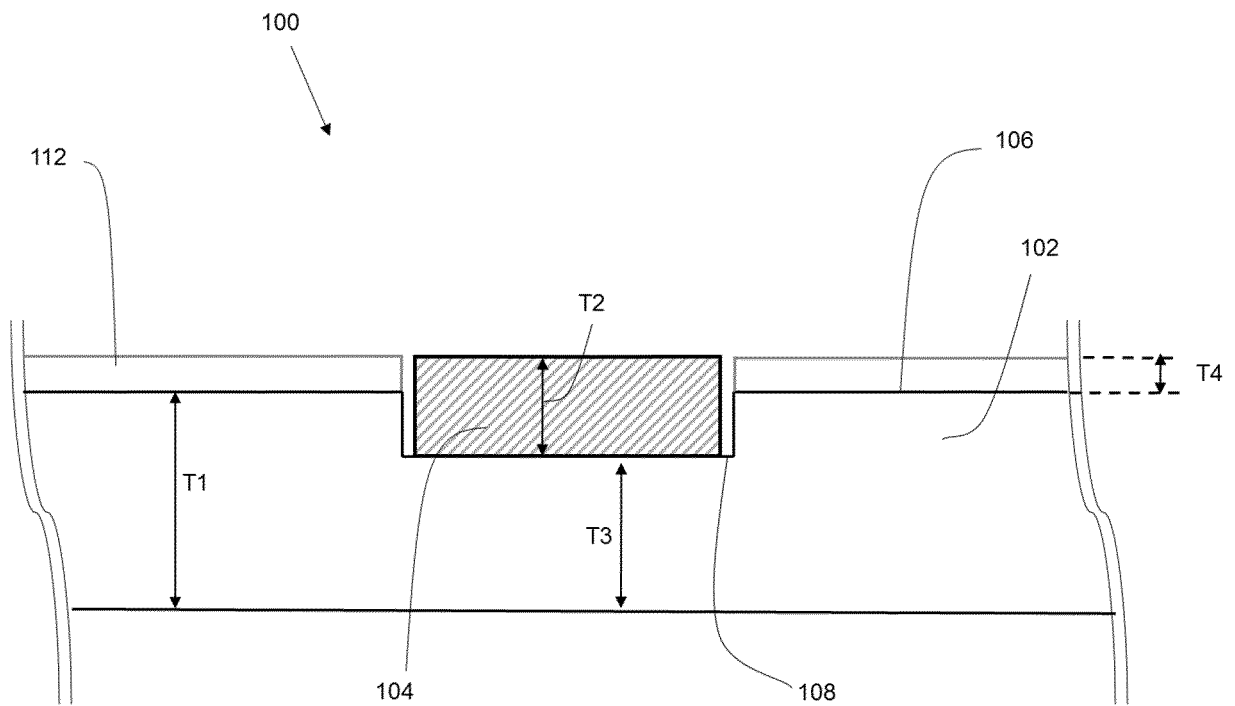


Fig. 2

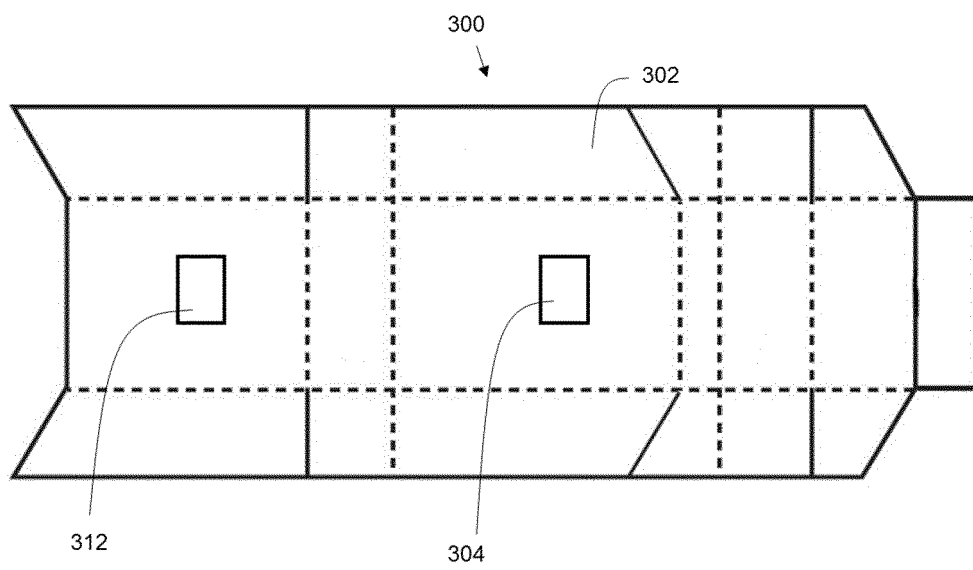


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 201249952 [0004]
- EP 0615285 A [0004]