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(54) Title: CONTAINER FOR CONSUMER ARTICLES WITH EASY-TO-OPEN HINGE LID

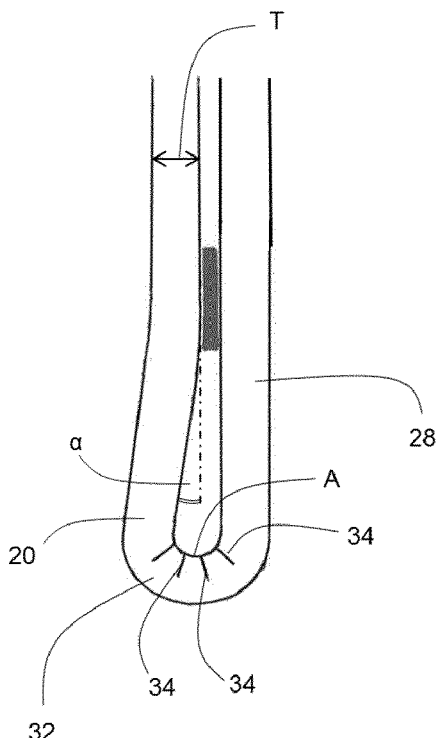


Fig. 2

(57) Abstract: In a hinge lid container (10) for consumer articles, the lid (14) comprises a lid front wall (20) and a lid flap (28) depending from the lid front wall along an edge fold line, the lid flap (28) being folded inwards and secured to the inner surface of the lid front wall (20). The container (10) is at least partially formed from a flexible laminar blank having a thickness (T), an edge fold portion (32) of the laminar blank connecting the lid front wall (20) and the lid flap (28). The inner surface of the edge fold portion (32) defines a weakening area (A). The weakening area (A) comprises two or more weakened zones (34) extending across the edge fold portion (32) of the container, the distance (X) between two adjacent weakened zones as measured along a width (W) of the weakening area being from about 2 times to about 15 times the thickness (T) of the blank.



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CONTAINER FOR CONSUMER ARTICLES WITH EASY-TO-OPEN HINGE LID

The present invention relates to a hinge lid container for consumer articles, which finds particular application as a container for elongate consumer good items, such as smoking articles (for example, cigarettes).

Smoking articles such as cigarettes and cigars are typically packaged in rigid hinge-lid containers. These typically have a box part having a box front wall, a box back wall, box side walls and a box base. They also usually have a lid part with a lid front wall, a lid back wall, lid side walls and a lid top side. The lid part is typically hinged to the box part along a hinge line extending across a back wall of the container. The hinge line is usually provided as a pre-folded line, a crease line or a score line. The bundle of smoking articles housed in the box part is commonly wrapped in an inner liner, or inner package, of metallised paper, metal foil or other flexible sheet material. To access the bundle of smoking articles within the inner liner, a consumer should remove an upper portion of the inner liner upon first opening of the hinge-lid container.

In hinge-lid containers, the lid often further comprises a lid front flap extending from the lower edge of the lid front wall along a fold line. When the container is assembled from the blank, the lid front flap is folded inwards and typically secured to the inner surface of the lid front wall. This increases the stiffness of the lid, while at the same time improving the finish and appearance of the front of the container. Containers comprising one such lid front flap are known, for example, from WO 2010/001335 and EP 2789547.

It would be desirable to provide a novel and improved container for consumer articles, which makes it easy for the consumer to open the lid and access the articles in the container. Further, it would be desirable to provide one such container for consumer articles that has a distinctive visual impact and that can easily be manufactured without requiring any major modification of existing packing apparatus. In addition, it would be desirable to provide a blank for manufacturing one such container that can be easily formed into an assembled container.

According to a first aspect of the present invention, there is provided a container for consumer articles, the container comprising a box and a hinge lid connected to the box along a hinge line extending across a back wall of the container, the hinge lid being pivotable about the hinge line between a closed position and an open position. The hinge lid comprises a lid front wall and a lid flap depending from the lid front wall along an edge fold line, the lid flap being folded inwards and secured to the inner surface of the lid front wall. The container is at least partially formed from a flexible laminar blank having a thickness (T), an edge fold portion of the laminar blank connecting the lid front wall and the lid flap. The inner surface of the edge fold portion defining a weakening area (A) having a length in the longitudinal direction of the edge fold portion and a width (W) extending transversely to said length. The weakening area (A) comprises two or

more weakened zones extending across the edge fold portion of the container, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area being from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank.

5 According to a further aspect of the present invention, there is provided a flexible laminar blank for forming a container for consumer articles, the blank having a thickness (T) and comprising: a box-defining blank portion for forming a box portion of the container, and a lid-defining blank portion for forming a lid portion of the container. The lid-defining blank portion comprises a lid front wall panel for forming a front wall of the lid portion, a lid flap panel and an
10 edge fold portion connecting the lid front wall panel and the lid flap panel. One surface of the edge fold portion defines a weakening area (A) having a length in the longitudinal direction of the edge fold portion and a width (W) extending transversely to said length. The weakening area (A) comprises two or more weakened zones extending in parallel along a substantially straight line across the edge fold portion of the container, the distance (X) between two adjacent weakened
15 zones as measured along the width (W) of the weakening area being from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank.

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.

In contrast to conventional hinge lid containers, in containers according to the present
20 invention a lid back edge portion connects the lid front wall and the lid flap, wherein the inner surface of the edge fold portion defines a weakening area comprising two or more weakened zones extending across the edge fold portion of the container. The distance between two adjacent weakened zones as measured along the width of the weakening area is from about 2 times to about 15 times the thickness of the blank.

25 In the assembled container, by virtue of the weakened zones in the edge portion, the lid front wall does not lie in its entirety against the lid flap, such that a thicker rim is formed at the lower edge of the lid front wall. Thus, the outer surface of the lid front wall protrudes from the front surface of the container and, in particular, with respect to the front wall of the box portion.

This makes it easier for the consumer to open the hinge lid by its lower edge. The
30 improvement is especially noticeable for a consumer holding and opening the container with a single hand.

It is easy to manufacture one such container having a distinctive visual impact from a single flexible laminar blank. In some preferred embodiments, the lines of weakness may advantageously be provided as ablated lines, which makes it easy for the edge portion to be
35 provided in combination with other non-planar surfaces of the container, such as rounded or chamfered edge surfaces, since a suitable blank may be manufactured in a single ablation step.

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 with the lid of the outer housing in the closed position and the hinge line at the back 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 housing is the wall comprising the hinge line.

The term “hinge line” refers to a line about which the lid may be pivoted in order to open the container. A hinge line may be, for example, a fold line or a score line in the panel forming the back wall of the container. In blanks according to the present invention, the hinge line is clearly distinct from the first line of weakness and the second line of weakness which, in the assembled container, define the upper edge of the lid back wall and the back edge of the lid top wall. The hinge line extends across the back wall of the container from one side wall to the other and is preferably a straight line.

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 articles, when the container is in the closed position. Likewise, 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. 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, areas that are on the same side of the container can either face towards the inside or the outside of the container.

The term “weakened zone” refers to a portion of the laminar blank wherein the laminar blank has been weakened, such as mechanically weakened (for example, deformed) or by removal of a part of the blank material. A weakened zone generally extends across the edge fold portion from one side of the container to the other. In some embodiments, the weakened zone is essentially rectangular and the edge fold portion defines a substantially straight lower edge of the lid. In other embodiments, the weakened zone may have a different, elongated shape and the edge fold portion defines a non-straight lower edge of the lid. For example, the weakened zones may be curved, such that the edge fold portion defines a curved lower edge of the lid.

The term “creased zone” is used herein to refer to a line along the laminar blank forming the container that has been mechanically deformed, for example by mechanical pressing or rolling, to form a line of weakness in the blank about which the blank can be folded. In particular, a creasing line is a line of weakness that is formed without removing material.

The term “ablated zone” is used herein to refer to a zone across which material has been ablated (for example, removed by means of a laser beam or a blade) from a surface of the laminar blank or container. Accordingly, the residual thickness of an ablated zone is less than the

thickness of the laminar blank. For example, an ablated zone may be provided as a groove within the blank. This may be formed with a linear ablation tool, such as a laser or a blade. Thus, an ablated zone may alternatively be provided as a scored line.

The term "residual thickness" is used herein to refer to the minimum distance measured between two opposite surfaces of the laminar blank or of a wall of the container formed from the blank. In practice, the distance at a given location is measured along a direction locally perpendicular to the opposite surfaces. The "residual thickness" of an ablated zone may be constant over the ablated zone if material is removed homogeneously substantially all over the ablated zone (flat profile). Alternatively, the residual thickness of the ablated zone may vary across a width of the ablated zone, if material is removed non-homogeneously over the ablated line (e.g. V-shaped, U-shaped grooves). An ablated zone may be provided as an ablated line.

The expression "distance between adjacent weakened zones" is used to describe the width of the portion of weakening area between two weakened zones. Such distance is construed as being measured on the laminar blank in a flat state, along the width of the weakened zone and between the respective symmetry axes of the weakened zones. For example, where the weakened zones extend longitudinally across the weakening area along a substantially straight line, the distance between adjacent weakened zones is measured substantially perpendicular to the symmetry axes of the weakened zones themselves.

The expression "maximum thickness of the edge fold portion" is used to describe the maximum distance between the outer surface of the lid front wall and the inner surface of the lid flap at the lower edge of the lid. Such distance is construed as being measured substantially perpendicular to the inner surface of the lid flap and essentially corresponds to sum of the thickness of the lid front wall, the thickness of the lid flap and the width of the gap that is created between the lid front wall and the lid flap upon folding the blank at the edge fold portion of the blank. Such distance may vary at different longitudinal positions across the edge fold portion, and it may, for example, reach its maximum value at a central position or closer to the side walls of the container.

A container in accordance with the present invention comprises, in its most general terms, a box and a lid that is pivotable about a hinge line extending across a back wall of the container between an open position and a closed position.

The lid comprises a lid front wall and a lid flap depending from the lid front wall along an edge fold line, the lid flap being folded inwards and secured, for example by means of a layer of a permanent adhesive, to the inner surface of the lid front wall. The container is at least partially formed from a flexible laminar blank having a thickness (T), and an edge fold portion of the laminar blank connects the lid front wall and the lid flap. The inner surface of the edge fold portion defines a weakening area (A) having a length in the longitudinal direction of the edge fold portion and a

width (W) extending transversely to said length. The weakening area (A) comprises two or more weakened zones extending across the edge fold portion of the container, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area being from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank.

Preferably, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is at least about 3 times the thickness (T) of the blank. In addition, or as an alternative, wherein the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is less than about 6 times the thickness (T) of the blank.

Preferably, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is at least about 0.5 millimetres. More preferably, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is at least about 0.7 millimetres. In addition, or as an alternative, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is preferably less than about 2 millimetres. More preferably, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is less than about 1.1 millimetres. In preferred embodiments, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is from about 0.5 millimetres to about 2 millimetres, more preferably from about 0.7 millimetres to about 1.1 millimetres. In particularly preferred embodiments, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is about 0.9 millimetres.

Providing a weakening area wherein adjacent weakened zones are formed at a distance (X) falling within these ranges is particularly advantageous for the manufacture of containers of the type usually employed for smoking articles, that is, containers formed from a laminar blank having a thickness (T) from about 200 micrometres to about 350 micrometres. This is because, where the distance (X) between adjacent weakened zones is within the ranges identified above, it is easy to ensure that, if the assembled container is enveloped in an outer wrapper, such as a transparent outer wrapper of a polymeric film, the formation of wrinkles in the wrapper at the location of the edge fold portion is advantageously prevented. Further, it is easy to stack several containers according to the invention on one another whilst ensuring that the lid of each container is easy to open for the consumer, as explained above.

In some preferred embodiments, the weakening area (A) comprises three or more weakened zones, for example four weakened zones. Where the weakening area (A) comprises three or more weakened zones, two or more pairs of adjacent weakened zones can be identified. Preferably, the distance between any two adjacent weakened zones in the weakening area (A) is

from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank. Even more preferably, the distance between any two adjacent weakened zones in the weakening area (A) is the same. By way of example, the weakening area (A) may comprise 3 weakened zones, the distance between adjacent weakened zones being substantially equal to one third of the width (W) of the weakening area. As an alternative, the weakening area (A) may comprise 4 weakened zones, the distance between adjacent weakened zones being substantially equal to one fourth of the width (W) of the weakening area.

Each of the weakened zones may be formed independently in different suitable ways. By way of example, a weakened zone may be formed by creasing in the weakening area. As a preferred alternative, a weakened zone may be formed by ablation of material from a portion of the weakening area. Removing material from the inner surface of the blank for forming a container according with the invention by means of an ablation tool (for example, laser, blade) may be convenient. A laser is particularly preferred as the ablation tool as it can allow for a wide variety of ablation profiles and configurations, with minimal adjustment of the laser tool being needed. For example, the laser may be repeatedly passed over a given portion of the blank to iteratively remove different amounts of material, allowing for a very finely controlled ablation profile.

In some embodiments, at least one of the weakened zones is a creased zone. In other embodiments, at least one of the weakened zone is an ablated zone. As an alternative, the weakened zones in the weakening area may comprise at least one creased zone and one ablated zone.

In preferred embodiments, each one of the weakened zones is a creased zone. In other preferred embodiments, each one of the weakened zones is an ablated zone. Embodiments wherein each one of the weakened zone is an ablated zone are generally preferred because this makes it easier to impart the lid the desired shape by folding the blank in a conventional apparatus.

Preferably, each of the ablated zones has a residual thickness of less than about 50 percent of the thickness (T) of the blank. In addition, or as an alternative, each of the ablated zones preferably has a residual thickness of at least about 5 percent of the thickness (T) of the blank. In preferred embodiments, each of the ablated zones has a residual thickness from at least about 5 percent of the thickness (T) of the blank to about 50 percent of the thickness (T) of the blank.

Preferably, the residual thickness of each ablated zone varies across a width of the ablated zone. In preferred embodiments, each ablated zone is provided as substantially V-shaped or U-shaped groove. In particularly preferred embodiments, each ablated zone is provided as V-shaped groove, the surfaces of the groove defining an angle of about 60 degrees.

Preferably, the thickness (T) of the blank is at least about 200 micrometres. In addition, or as an alternative, the thickness (T) of the blank is less than about 350 micrometres. This is advantageous in that it ensures that the edge fold portion has a sufficient strength and that thicker rim formed at the lower edge of the hinge lid does not easily deform during use. Thus, the consumer can rely on this for opening the container during the whole useful life of the container.

Preferably, a maximum thickness of the hinge lid at the lower edge of the hinge lid is at least about 3 times the thickness (T) of the blank. In addition, or as an alternative, a maximum thickness of the hinge lid at the lower edge of the hinge lid is preferably less than about 10 times the thickness (T) of the blank. It is advantageously easy for a consumer to move from the closed position to the open position a lid having a lower edge rim having a thickness from about 3 times the thickness (T) of the blank to about 10 times the thickness (T) of the blank.

Without wishing to be bound to theory, it is understood that, due to the weakened zones in the lid edge portion, at its lower edge the lid front wall does not fold exactly by 180 degrees and against the lid flap, but rather assumes a curved shape, such that a lower portion of the lid front wall is at a distance from the lid flap and forms a non-null angle with the lid flap. This is illustrated in Figure 3.

Preferably, at the lower edge of the hinge lid the lid front wall forms with the lid flap an angle of at least about 3 degrees. More preferably, at the lower edge of the hinge lid the lid front wall forms with the lid flap an angle of at least about 5 degrees. In addition, or as an alternative, at the lower edge of the hinge lid the lid front wall forms with the lid flap an angle of less than about 10 degrees. In preferred embodiments, at the lower edge of the hinge lid the lid front wall forms with the lid flap an angle of from about 3 degrees to about 10 degrees.

This advantageously makes it easy for the consumer to detect the thick, lower rim of the lid when running a fingertip against the front surface of the container. At the same time, this helps to ensure that, if the assembled container is enveloped in an outer wrapper, outer wrapper is not likely to become wrinkled at the location of the lower edge of the lid front wall, and it is easy to stack several containers according to the invention on one another whilst ensuring that the thick, lower rim of the lid is easily detectable for the consumer.

Containers according to the present invention find application as containers for consumer goods, in particular elongate consumer goods such as smoking articles.

The blank may be formed from 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 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.

Further, the consumer articles may be provided within the container in the form of a bundle wrapped in an inner package formed of metal foil or metallised paper. The inner package material may be formed as a laminate of a metallised polyethylene film, and a liner material. The liner material may be a super-calendered glassine paper. In addition, the inner package material may be provided with a print-receptive top coating. The inner package has an access opening through which consumer goods can be removed when a lid of the container is in a respective open position.

The container is preferably a rectangular parallelepiped comprising two wider walls spaced apart by two narrower walls. Hinge lid containers according to the invention may be in the shape of a rectangular parallelepiped, with right-angled longitudinal and right-angled transverse edges. Alternatively, the hinge lid container may comprise one or more rounded longitudinal edges, rounded transverse edges, bevelled longitudinal edges or bevelled transverse edges, or combinations thereof. For example, the hinge lid container according to the invention may comprise, without limitation:

- One or two longitudinal rounded edges on the front wall, and/or one or two longitudinal rounded or bevelled edges on the back wall.
- One or two transverse rounded edges on the front wall, and/or one or two transverse rounded or bevelled edges on the back wall.
- One longitudinal rounded edge and one longitudinal bevelled edge on the front wall, and/or one transverse rounded edge and one transverse bevelled edge on the back wall.
- One or two transverse rounded or bevelled edges on the front wall and one or two longitudinal rounded or bevelled edges on the front wall.
- Two longitudinal rounded or bevelled edges on a first side wall or two transverse rounded or bevelled edges on the second side wall.

Where the container comprises one or more bevelled edge, preferably the bevelled edge has a width of between about 1 mm and about 10 mm, preferably between about 2 and about 6 mm. Alternatively, the container may comprise a multi-bevelled edge formed by parallel creasing or scoring lines that are spaced such that two or more distinct bevels are formed on at least one edge of the container.

Alternatively, the container may have a non-rectangular transversal cross section, for example polygonal such as triangular or hexagonal, semi-oval or semi-circular.

Containers according to the invention find particular application as packs 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.

Through an appropriate choice of the dimensions, containers according to the invention
5 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
10 of smoking articles.

Containers according to the present invention may hold smoking articles of the same type or brand, or of different types or brands. In addition, both filter-less smoking articles and smoking articles with various filter tips may be contained, as well as smoking articles of differing length (for example, between about 40 mm and about 180 mm), diameter (for example, between about 4
15 mm and about 9 mm). Preferably, the dimensions of the container are adapted to the length of the smoking articles, and the collation of the smoking articles. Typically, the outer dimensions of the container are between about 0.5 mm to about 5 mm larger than the dimensions of the bundle or bundles of smoking articles housed inside the container.

The length, width and depth of containers according to the invention may be such that the
20 resultant overall dimensions of the container are similar to the dimensions of a typical disposable pack of twenty cigarettes.

Preferably, containers according to the invention have a height of between about 60 mm and about 150 mm, more preferably a height of between about 70 mm and about 125 mm, wherein the height is measured from the bottom wall to the top wall of the container.

Preferably, containers according to the invention have a width of between about 12 mm and about 150 mm, more preferably a width of between about 70 mm and about 125 mm, wherein the width is measured from one side wall to the other side wall of the container.

Preferably, containers according to the invention have a depth of between about 6 mm and about 150 mm, more preferably a depth of between about 12 mm and about 25 mm wherein the
30 depth is measured from the front wall to the back wall of the container.

Preferably, the ratio of the height of the container to the depth of the container is in between about 0.3 to 1 and about 10 to 1, more preferably between about 2 to 1 and about 8 to 1, most preferably between about 3 to 1 and 5 to 1.

Preferably, the ratio of the width of the container to the depth of the container is in between
35 about 0.3 to 1 and about 10 to 1, more preferably between about 2 to 1 and about 8 to 1, most preferably between about 2 to 1 and 3 to 1.

Preferably, the ratio of the height of the lid back wall to the height of the box back wall of the outer sleeve is between about 0 to 1 (lid located at the top edge of the container) to about 1 to 1, more preferably, between about 1 to 5 and about 1 to 10, most preferably, between about 1 to 6 to about 1 to 8.

5 Preferably, the ratio of the height of the lid front wall of the outer sleeve to the height of the box front wall of the outer sleeve is between about 1 to 0 (lid covering the entire front wall) to about 1 to 10, more preferably, between about 1 to 1 and about 1 to 5, most preferably, between about 1 to 2 and about 1 to 3.

10 The exterior surfaces of containers according to the invention may be printed, embossed, debossed or otherwise embellished with manufacturer or brand logos, trade marks, slogans and other consumer information and indicia.

A container according to the present invention may be formed by folding a flexible laminar blank having a thickness (T) and comprising a box-defining blank portion for forming a box portion of the container and a lid-defining blank portion for forming a lid portion of the container, wherein
15 the lid-defining blank portion comprises a lid front wall panel for forming a front wall of the lid portion and a lid flap panel depending from the lid front wall panel along an edge fold line. One surface of the edge fold portion defines a weakening area (A) having a length in the longitudinal direction of the edge fold portion and a width (W) extending transversely to said length. The weakening area (A) comprises two or more weakened zones extending in parallel along a
20 substantially straight line across the edge fold portion of the container, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area being from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank.

The invention will be further described, by way of example only, with reference to the drawings of the accompanying Figures, wherein:

25 Figure 1 shows a schematic perspective view of a container for consumer articles in accordance with the present invention;

Figure 2 shows a schematic side view of a detail of a container in accordance with the present invention;

30 Figure 3 shows a schematic side view of a detail of a container in accordance with the prior art (comparative example); and

Figure 4 shows a schematic top view of a blank for forming a container in accordance with the present invention.

35 The container 10 shown in Figure 1 is formed from a flexible laminar blank having a thickness T of about 250 micrometres, and is essentially rectangular parallelepiped in shape. In more detail, the container 10 comprises a box portion 12 and a lid portion 14 connected to the box portion 12 along a hinge line extending across the back wall of the container 10. The overall

size and construction of the box 12 and lid 14 of the container 10 are substantially the same as that of a standard hinge lid cigarette pack. The box portion 12 comprises a box front wall 16, a box back wall, a box bottom wall, a box left side wall and a box right side wall 18. The lid portion 14 comprises a lid front wall 20, a lid back wall, a lid top wall 22, a lid left side wall and a lid right side wall 24. The lid portion 14 is pivotable about the hinge line between a closed position and an open position. In the closed position, as illustrated in Figure 1, the lid portion 14 covers an access opening of the container 10 and the side walls of the lid portion 14 form extensions of the corresponding side walls of the box portion, whereas the lid front wall 20 partially overlaps the box front wall 16. In the open position (not shown), the lid portion 14 is pivoted to project backwardly from the box portion 12 and the access opening at the top end of the box portion 12 is fully uncovered.

Further, the lid portion (see Figure 2) comprises a lid flap 28 depending from the lid front wall 20 along an edge fold line, the lid flap 28 being folded inwards and secured to the inner surface of the lid front wall 20. An edge fold portion 32 of the flexible laminar blank connects the lid front wall 20 and the lid flap 28.

The inner surface of the edge fold portion 32 defines a weakening area A having a length L in the longitudinal direction of the edge fold portion 32 and a width W extending transversely to said length. This is also illustrated in Figure 4. The weakening area A comprises four or more weakened zones 34 extending across the edge fold portion 32 of the container. Each one of the weakened zones 34 is provided as an ablated zone. In more detail, each one of the weakened zones 34 is provided as an ablated straight line, that is, as a groove extending substantially along the length of the weakening area A.

The distance (X) between two adjacent weakened zones 34 as measured along the width (W) of the weakening area is about 0.9 millimetres, which corresponds to about 3.6 times the thickness T of the blank. Each one of the ablated zones 34 has a residual thickness of about 45 percent of the thickness T of the blank.

A maximum thickness of the edge fold portion is about 5 times the thickness T of the blank. At the lower edge of the hinge lid the lid front wall 20 forms with the lid flap 28 an angle α of about 10 degrees (see Figure 2). This is in contrast with what occurs in a conventional hinge-lid container wherein the lid comprises a lid flap 281 folded inwards and secured by means of permanent adhesive to the inner surface of the lid front wall 201. In one such container, as illustrated in Figure 3, the lid flap 281 depends from the lid front wall 201 along a single creasing line 291, and is in alignment with the lid front wall in its entirety (in particular at its lower edge), such that a substantially null angle is formed between the lid flap 281 and the lid front wall 201. Further, in a conventional container, the maximum thickness of the edge fold portion is only slightly over 2 times the thickness T of the blank.

As mentioned above, in the embodiment illustrated in Figure 2, the lid flap 28 lies in its entirety in a vertical plane and at least a lower portion of the lid front wall 20 lies in a plane forming, with the vertical plane, the angle α . However, it will be appreciated that, due to the inherent elastic properties of a blank material such as cardboard, as is commonly the case with containers for smoking article, at least a lower portion of the lid flap may deflect from the vertical plane. Thus, both the lid flap and the lid front wall may effectively lie in respective planes, each of which forms a non-null angle with the vertical plane. In alternative embodiments, the lid of the container may be so configured that the lid front wall lies in its entirety in a vertical plane, the lid flap forming a non-null angle with the vertical plane.

The box portion 12 and lid portion 14 of a container according to the present invention may be formed together from the single flexible laminar blank 300 shown in Figure 4. The laminar blank 300 has a thickness T of about 250 micrometres and may be assembled and filled using standard apparatus. As can be seen from Figure 4, the laminar blank 300 comprises a box blank portion 302 for forming a box portion of the container, and a lid blank portion 304 for forming a lid portion of the container. The box blank portion 302 depends from the lid blank portion 304 along the hinge line 303.

The box blank portion 302 comprises a front wall panel 308, a back wall panel 312 and a bottom wall panel 309. Two side wall panels 310 extend from front wall panel 308, two side wall panels 311 extend from back wall panel 312, and two box dust flaps 313 extend from side wall panels 311. When the box portion of the container is assembled from the box blank portion 302, the front wall panel 308 forms the container front wall, the back wall panel 312 forms the container back wall, the side wall panels 310, 311 overlap to form left and right side container walls, and the box dust flaps 313 overlap the bottom wall panel 309 to form the container bottom wall. The side wall panels 310, 311 are substantially the same size and shape as each other. When the container is formed, the side wall panels 310, 311 directly overlies each other with their free edges substantially aligned, such that the inner side wall panel is barely visible. The box dust flaps 313 are smaller than the bottom wall panel 309. When the container is formed, the box dust flaps 313 lie inside the bottom wall panel 309. They provide additional structural support for the container bottom wall of the container but are not visible from the outside of the container.

The lid blank portion 304 comprises a front wall panel 314, a back wall panel 318 and a top wall panel 320. Two side wall panels 316 extend from the front wall panel 314, two side wall panels 317 extend from the back wall panel 318, and lid dust flaps 319 extend from the side wall panels 317. When the lid portion of the container is assembled from the lid blank portion 304, the front wall panel 314 forms the container front wall, the back wall panel 318 forms the container back wall, the side wall panels 316, 317 overlap to form right and left container side walls, and the lid dust flaps 319 overlap top wall panel 320 to form the lid top wall. The side wall panels 316,

317 are substantially the same size and shape as each other. When the container is formed, the panels 316, 317 directly overlie each other with their free edges substantially aligned, such that the inner side wall panel is barely visible. The lid dust flaps 319 are smaller than the top wall panel 320. When the container is formed, the lid dust flaps 319 lie inside the top wall panel 320.

- 5 They provide additional structural support for the container (lid) top wall, but are not visible from the outside of the container.

Further, the lid blank portion 304 comprises a lid flap panel 325 depending from the lid front wall panel along an edge fold portion 326. The surface of the edge fold portion shown in Figure 4 defines a weakening area A having a length in the longitudinal direction of the edge fold portion 326 and a width extending transversely to said length. In the embodiment of Figure 4, the
10 weakening area is substantially rectangular and extends from side to side across the edge fold portion 326.

The weakening area A comprises four ablated lines 328 extending in parallel along a substantially straight line across the edge fold portion 326. The distance between two adjacent
15 ablated lines 328 as measured along the width of the weakening area A is about 0.9 millimetres, which corresponds to about 3.6 times the thickness T of the blank.

CLAIMS

1. A container for smoking articles, the container comprising:

a box;

a group of smoking articles housed in the box; and

a hinge lid connected to the box along a hinge line extending across a back wall of the container, the hinge lid being pivotable about the hinge line between a closed position and an open position, wherein the hinge lid comprises a lid front wall and a lid flap depending from the lid front wall along an edge fold line, the lid flap being folded inwards and secured to the inner surface of the lid front wall; wherein the container is at least partially formed from a flexible laminar blank having a thickness (T), an edge fold portion of the laminar blank connecting the lid front wall and the lid flap;

the inner surface of the edge fold portion defining a weakening area (A) having a length in the longitudinal direction of the edge fold portion and a width (W) extending transversely to said length;

wherein the weakening area (A) comprises two or more weakened zones extending across the edge fold portion of the container, the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area being from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank.

2. A container according to claim 1, wherein the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is at least about 3 times the thickness (T) of the blank.

3. A container according to claim 1 or 2, wherein the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is less than about 6 times the thickness (T) of the blank.

4. A container according to any one of the preceding claims, wherein the distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area is from about 0.5 millimetres to about 2 millimetres.

5. A container according to any one of the claims 1 to 4, wherein at least one of the weakened zones is a creased zone.

6. A container according to any one of the claims 1 to 4, wherein at least one of the weakened zones is an ablated zone.
7. A container according to claim 6, wherein the at least one ablated zone is a zone across which material has been removed by means of a laser beam.
8. A container according to claim 6, wherein each of the ablated zones has a residual thickness from about 5 percent of the thickness (T) of the blank to about 50 percent of the thickness (T) of the blank.
9. A container according to any one of the preceding claims, wherein the thickness (T) of the blank is at least about 200 micrometres.
10. A container according to any one of the preceding claims, wherein the thickness (T) of the blank is less than about 350 micrometres.
11. A container according to any one of the preceding claims, wherein a maximum thickness of the edge fold portion is at least about 3 times the thickness (T) of the blank.
12. A container according to any one of the preceding claims, wherein a maximum thickness of the edge fold portion is less than about 10 times the thickness (T) of the blank.
13. A container according to any one of the preceding claims, wherein at the lower edge of the hinge lid the lid front wall forms with the lid flap an angle of from about 3 degrees to about 10 degrees.
14. A flexible laminar blank for forming a container for smoking articles, the blank having a thickness (T) and comprising:
a box-defining blank portion for forming a box portion of the container, and
a lid-defining blank portion for forming a lid portion of the container;
the lid-defining blank portion comprising a lid front wall panel for forming a front wall of the lid portion and a lid flap panel depending from the lid front wall panel by an edge fold portion;
one surface of the edge fold portion defining a weakening area (A) having a length in the longitudinal direction of the edge fold portion and a width extending transversely to said length;
wherein the weakening area (A) comprises two or more weakened zones extending in parallel along a substantially straight line across the edge fold portion of the container, the

distance (X) between two adjacent weakened zones as measured along the width (W) of the weakening area being from about 2 times the thickness (T) of the blank to about 15 times the thickness (T) of the blank.

- 5 15. A blank according to claim 14, wherein at least one of the weakened zones is an ablated zone.

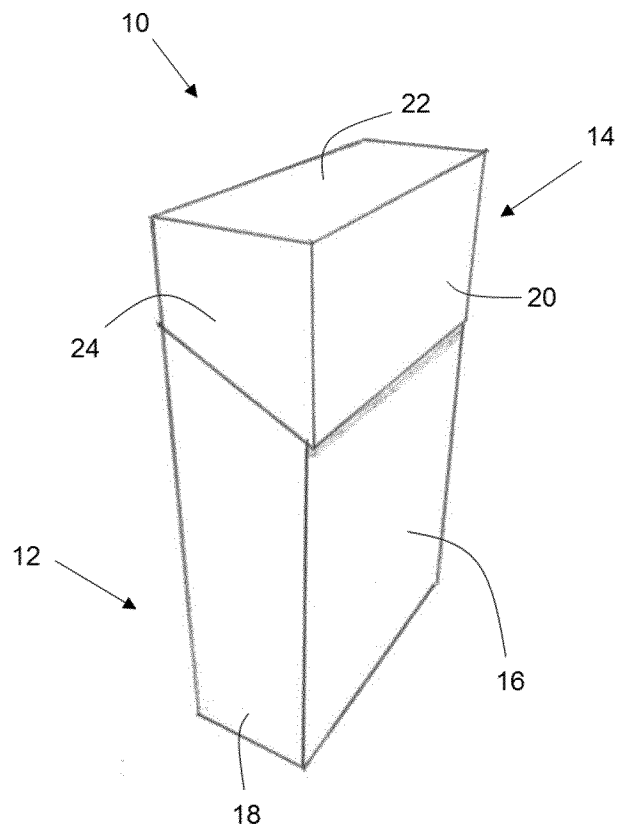


Fig. 1

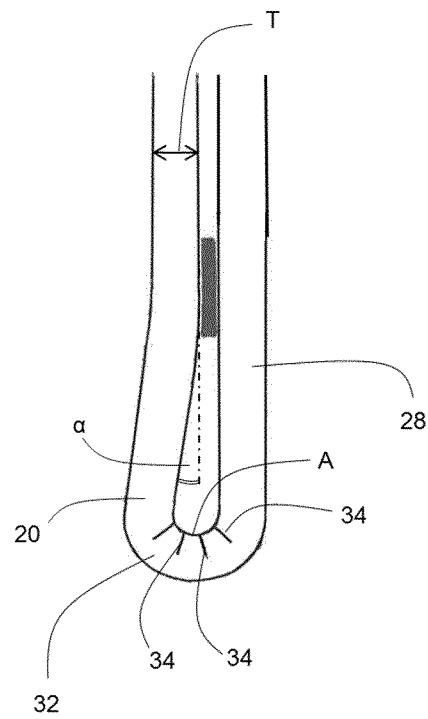


Fig. 2

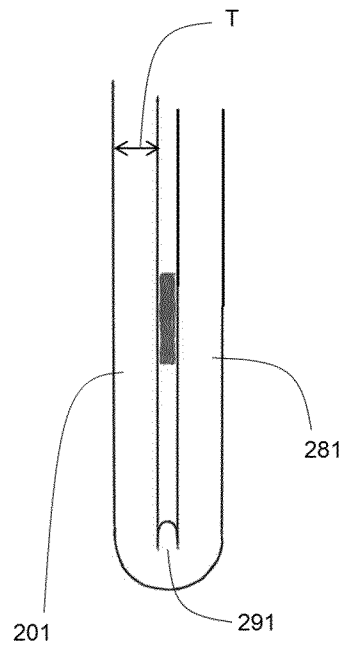


Fig. 3 (PRIOR ART)

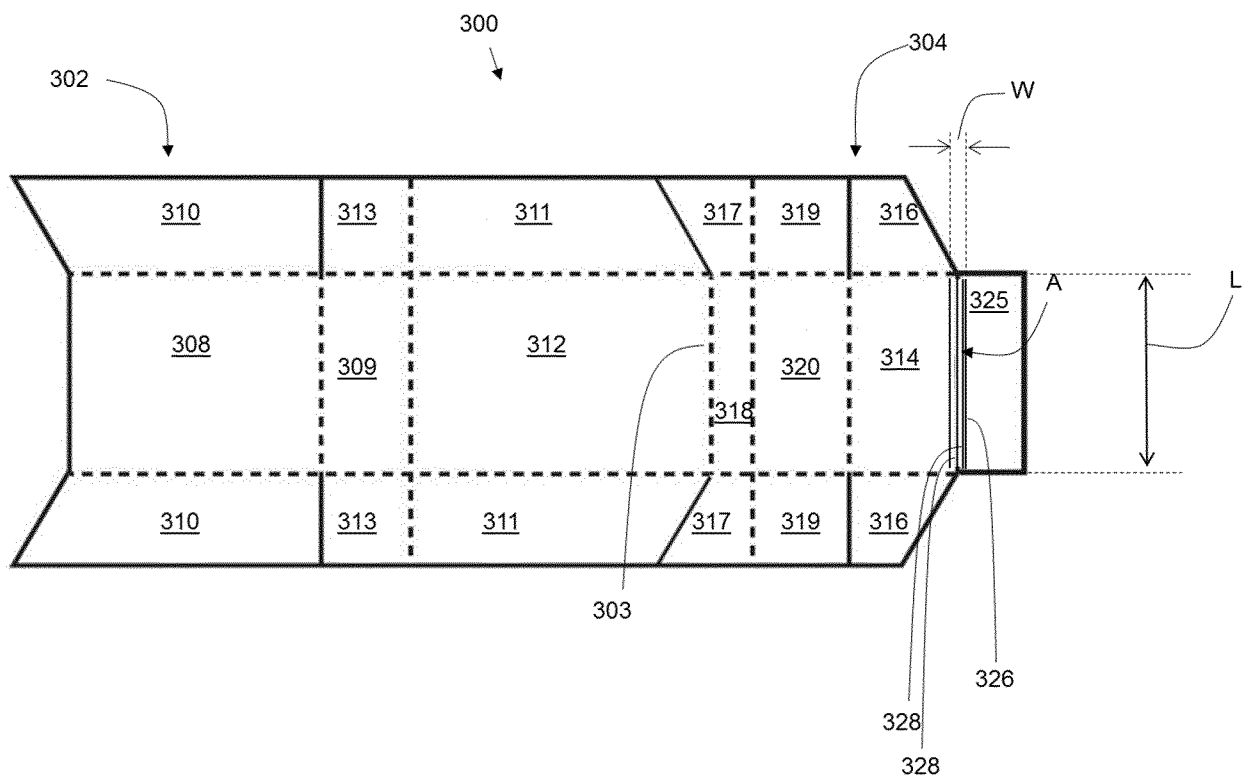


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2017/054205

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D5/42 B65D85/10
ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D B31B B31F

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	DE 10 2012 019557 A1 (FOCKE & CO [DE]) 10 April 2014 (2014-04-10) Bezugszeichenliste; paragraph [0001]; figures 1, 4-6 -----	1-12,14, 15 13
Y A	US 3 526 566 A (MCILVAIN JOHN GIBSON JR ET AL) 1 September 1970 (1970-09-01) column 2, line 30 - line 35; figures 7-12 column 4, line 5 - line 34 -----	1-12,14, 15 13
A	WO 2008/044190 A1 (AMCOR RENTSCH RICKENBACH AG [CH]; WEBER HANS [CH]) 17 April 2008 (2008-04-17) page 2, line 1 - line 7 -----	6,7,15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"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

6 April 2017

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2017/054205

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102012019557 A1	10-04-2014	NONE	
US 3526566 A	01-09-1970	NONE	
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