Container and Lifting Means for an Article

The present invention relates to a lifting means for at least one article, in particular a smoking article, for a container comprising a box and a lid.

In containers for consumer goods, it is sometimes difficult to extract an article from the container. It would be desirable, if there is a mechanism that simplifies the removal of an article from the container.

Lifting means for articles in containers are known in the prior art.

DE 88 01 135 U1 discloses a folding box comprising supporting means with a leg depending hingedly from a panel which is connected to the bottom of the box by means of adhesive. A further leg depends via a hinge line from the first leg. The further leg is connected via a connecting panel to the lifting panel. However, due to the kinematics of the supporting means, the further leg extends outside the box essentially parallel to the product which is supported by the supporting means.

Furthermore, US 4,896,766 A discloses a display carton which comprises a holding member foldably joined with its connecting panel to the inner panel of the carton lid. Support panels depend from the connecting panel wherein one of the support panels is foldably joined to an anchor panel which is moveably arranged on the bottom wall of the carton box. A cutting line in the connecting panel is provided wherein an article is received within this cutting line. Furthermore, the support panels are provided with adjacent openings which form a common opening for receiving a portion of the article. The connecting panel depends directly from the lid.

Embodiments~~It is the object~~ of the invention ~~to~~ provide a container with a lifting means for at least one article that enables an efficient and economical manufacturing process, while providing a holding means for the article that safely maintains the position of the article in the container in a closed and open position of the container.

According to a first aspect, there is provided a container comprising a box, and a lid, wherein a lifting means for articles, in particular smoking articles, is provided in the container, the lifting means comprising: a lifting panel hingedly connected via a first hinge line to the inside of a bottom wall of the box, a back-folding panel depending from the lifting panel via a second hinge line, wherein the back-folding panel is adapted to transfer a movement of the lid to the lifting panel, such that the lifting panel is lifted, when the lid is moved in the open position, wherein the lifting panel comprises a holding means, wherein the holding means comprises a cut-out provided in the lifting panel, wherein the cut-out is adapted to at least partially receive the article, wherein the lifting means is adapted such that the back-

folding panel extends towards the bottom wall of the box, at least when the lifting means is arranged in the container with the lid in the open position.

According to a second aspect, there is provided lifting means for at least one article, in particular a smoking article, for a container comprising a box and a lid, the lifting means comprising a lifting panel adapted to be hingedly connected via a first hinge line to the inside of the bottom wall of the box, a plurality of panels adapted to connect the lifting panel to the lid via a plurality of hinge lines, wherein the plurality of panels is adapted to transfer a movement of the lid to the lifting panel, such that the lifting panel is lifted, when the lid is moved in an open position, wherein the plurality of panels comprises a back-folding panel depending from the lifting panel via a second hinge line, wherein the lifting panel comprises a holding means for at least one article, wherein the holding means comprises a cut-out provided in the lifting panel, wherein the cut-out is adapted to at least partially receive the article, wherein the lifting means is adapted such that the back-folding panel extends towards the bottom wall of the box, at least when the lifting means is arranged in the container with the lid in the open position.

According to a third aspect, there is provided the use of a lifting means in a container for lifting an article, in particular a smoking article, the container comprising a box and a lid hingedly connected to each other at a container hinge line at the back of the container, wherein at one end of the lifting means a lifting panel is depending from the inside of a bottom wall of the box via a first hinge line, and the opposite end of the lifting means is provided on the inside of the lid of the container, wherein the lifting means comprises a back-folding panel depending from the lifting panel via a second hinge line, and wherein the lifting means comprises several hinge lines, the lifting of the article is enabled by lifting the lid with respect to the box, such that the lifting means is lifted at least partially by rotating around the first hinge line with respect to the bottom wall of the box, the article is held by a holding means of the lifting means during the lifting process, wherein the holding means comprises a cut-out in the lifting means, wherein the cut-out is adapted to at least partially receive the article, wherein the lifting means is adapted such that the back-folding panel extends towards the bottom wall of the box, at least when the lifting means is arranged in the container with the lid in the open position.

According to embodiments of the invention, a container is provided, the container comprising a box, and a lid, wherein a lifting means for articles is provided in the container. The lifting means comprises: a lifting panel hingedly connected via a first hinge line to the inside of a bottom wall of the box and a back-folding panel depending from the lifting panel via a second hinge line. The back-folding panel is adapted to transfer a movement of the lid to the lifting panel, such that the lifting panel is lifted, when the lid is moved in an open position. The lifting panel comprises a holding means and the holding means comprises a cut-out provided in the lifting panel. The cut-out is adapted to at least partially receive the article. The lifting means is adapted such that the back-folding panel extends towards the box, at least when the lid is in the open position.

Thus, the article can be positioned with a portion thereof in the cut-out. The edges of the cut-out engage the article to maintain the article in a defined position. The engagement between the cut-out and the article is preferably maintained throughout the lifting process from a lowered position of the article to a raised position of the article on the lifting means. Hence the holding means holds the article in both the lowered position as well as in the lifted position of the lifting means. These positions correspond to a closed and open position of the lid respectively. The cut-out can be provided in a blank for the lifting means before folding same in the shape as required in the container. Therefore, the manufacturing process is facilitated. In particular, the manufacturing process can be carried out with machines that allow the handling of blanks. Further machines that have to handle more complicated parts, such as inserts with protrusions, are not required.

The term "panel" is used throughout the specification to indicate a section of the blank that is used to assemble the container. A panel is delimited on all sides by cut lines, crease line, score lines, fold lines or combinations thereof.

The terms "flap" or "tab" are used to indicate sections of the blank that depend only from one panel of the blank. "Tabs" and "flaps" can be used to attach panels to each other when assembling the container or for other, special purposes like lid closing mechanisms.

The term "wall" is used throughout the specification to indicate an outer wall of the lid of the container, the box of the container or the container itself. A "wall" can comprise a number of panels, flaps and tabs.

The terms "front", "back", "upper", "lower", "side", "top", "bottom" and other terms used to describe relative positions of the components of containers according to embodiments of the invention refer to the containers in an upright position with the lid at the top end and the container hinge, where present, on the back. The terms "left" and "right" are used with reference to side walls of the container when the container is viewed from the front in its upright position. When the container in the upright position is open, articles contained in the box may be removed from the upper end of the container.

The term "longitudinal" refers to a direction from bottom to top or vice versa. The term "transverse" refers to a direction perpendicular to the longitudinal direction across the front wall, the back wall or across one of the side walls.

The term "inside" is used throughout the specification in connection with a wall, tab, panel or other portion of the container to refer to the side of that wall, tab, panel or other portion that faces towards the interior of the container when the container is in the closed position. Likewise, the term "outside" is used throughout the specification in connection with a wall, tab, panel or other portion of the container to refer to the side of that wall, tab, panel or other portion that faces towards the exterior of the container when the container is in the closed position.

The term "hinge line" refers to a line about which panels may be pivoted with respect to each other. A hinge line may be, for example, a fold line or a score line. Alternatively, a hinge line may be a fold line or a score line in a piece of material bridging adjacent panels, which are provided separately. Such a piece of material may be, for example, a label that is permanently or removably attached to the adjacent panels. Preferably, the container hinge line is positioned along the back wall of the container at a level below the upper edge of the back wall.

Preferably, the container is of the type wherein the lid is hingedly connected to the back of the box, and the open position refers to a position, wherein the lid is hinged open around the container hinge line, such that the inside of the container, in particular the article, is accessible. Accordingly, the closed position refers to a position, wherein the lid is hinged downwards, such that it closes the box and is preferably arranged on the box respectively.

Alternatively, the container may also be adapted to be provided as a slide and shell container, wherein a lid is provided in a slideable manner on a box. In this case, the open position refers to a position, wherein the lid is slid open with respect to the box, such that the inside of the box, in particular the article, is accessible. In the closed position, the lid is slid on the box such that it covers the opening of the box and closes same. For both the hinged lid container and the slide and shell container, the movement of the lid is transferred via a plurality of panels to the lifting panel, such that the lifting panel is lifted and lowered.

fixed by adhesive to the container.

Embodiments of the~~The~~ present invention are~~is~~ also directed to a lifting means for at least one article for a container comprising a box and a lid, the lifting means comprising a lifting panel adapted to be hingedly connected via a first hinge line to the inside of the bottom wall of the box and a plurality of panels adapted to connect the lifting panel to the lid via a plurality of hinge lines. The plurality of panels is adapted to transfer a movement of the lid to the lifting panel, such that the lifting panel is lifted, when the lid is moved in an open position. The plurality of panels comprises a back-folding panel depending from the lifting panel via a second hinge line. The lifting panel comprises a holding means for at least one article.

According to embodiments of the invention, the holding means comprises a cut-out provided in the lifting panel. The cut-out is adapted to at least partially receive the article. The lifting means is adapted such that the back-folding panel extends towards the box, at least when the lid is in the open position. This enables that the article is safely held in the container, as the cutting lines of the cut-out at least partially engage the article and, thus, hold the article in a defined position. In this context, "at least partially" means that some part of the article is within the boundaries of the cut-out. At the same time, this means that some part of the article may protrude beyond the cut-out.

Preferably, the first hinge line extends parallel and in a distance to a front wall of the box. As the article usually extends over the first hinge line, different inclination angles of the article and the lifting panel can be obtained when the lifting panel is in an inclination with respect to the bottom wall of the box. In particular, the lifting panel is inclined steeper than the article. This facilitates that the article is received by the cut-out provided in the lifting panel.

Preferably, the lifting panel covers only part of the bottom box wall, such that only a section of the content of the container is lifted by the lifting means. Preferably, only a section is lifted that corresponds to about 25 percent to about 75 percent of the box bottom wall, more preferably, only a section is lifted that corresponds to about 40 percent to about 60 percent of the box bottom wall. Alternatively, or in addition, two, three or more lifting means are provided within the container such that several articles are lifted individually when the container is opened. The two, three or more lifting means may lift the individual articles simultaneously or sequenced. The two, three or more lifting means may be arranged adjacent to each other or may be separated by gaps. The two, three or more lifting means may lift each individual article to the same height or may differ in the distance or angle that the respective articles are lifted.

When the cut-out is only provided in the lifting panel, the article is preferably arranged such that it does not extend over the second hinge line, but terminates within the cut-out provided in the lifting

also covered by the tab cover panel. Preferably, the tab cover panel is also attached to the other wall panel of the container.

Preferably, the inner cover panel is about 5 to about 15 percent shorter than the lid top wall that it lies adjacent to, more preferably, about 5 to about 10 percent shorter. This takes the thickness of the blank base material into account where the container is closed such that the lifting back wall panel comes to lie snugly on the box back wall. In addition, when the container is opened, the lifting back wall panel is pulled upwards to accommodate the missing length between the inner cover panel and the lid top wall. This missing length pulls the lifting bottom panel, and the lifting bottom panel pulls on the back-folding panel such that back-folding panel is rotated. The rotation of the back-folding panel increases the distance between the bottom wall of the box and the lifting panel such that the articles that are arranged in the holding means of the lifting panel are at least partially lifted. This is a very efficient mechanism to raise the articles. At the same time, the lifting means does not significantly complicate the blank of the container. Indeed, the lifting means may still be integral with all other elements of the blank. In addition to the way that the lifting means folds according to embodiments of the invention, the lifting means also has the same side of the blank exposed to a consumer such that the container can still be made from a single sided printed blank. Preferably, the container and the lifting means are formed of only one blank of sheet material.

Preferably, the attachment tab depends from a wall via a folding line. The folding line may already be provided in the blank for the container by, for example, a crease line or score line. The walls connected by the attachment tabs may be the top, bottom, side, front or back wall of the box or lid of the container, wherein the connected walls are walls which are adjacent to each other along at least one of their edges in the container.

Preferably, the tab cover panel has generally the same size as the corresponding wall, such that it fully covers the inside portion of the wall. In certain embodiments, the tab cover panel may be folded over more than one attachment tab, for example over two attachment tabs. Furthermore, the attachment tabs may be attached to both the wall and the tab cover panel. This adds to the structural strength of the container.

Preferably, the container comprises further at least one inner cover panel which depends from the tab cover panel, wherein the at least one inner cover panel overlies an inside portion of a wall of the container. Alternatively or in addition, an inner cover panel may also depend from another cover panel, which is covering an inner side, front or back wall of the container. This allows that a container wall adjacent to the second wall is fully or partially covered by the inner cover panel. Thus, the remaining inside wall portions of the container which may comprise the unprinted side of a blank towards the inside may be covered by at least one inner cover panel which provides the printed side of the blank towards the inside of the container. Furthermore, additional information for the consumer or marketing information may be provided on the inner

the engagement cut-out in the lid front wall. Furthermore, the engagement cut-out enables the consumer to apply pressure to the front wall of the box to elastically deform the front wall panel to the back. This facilitates the separation of the click portion from the closure cut-out. This advantageously allows for an easy opening of the container.

Furthermore, embodimentsthe object of the invention areis attained by the use of a lifting means in a container for lifting an article, in particular a smoking article. The container comprises a box and a lid hingedly connected to each other at a container hinge line at the back of the container. At one end of the lifting means a lifting panel is depending from the inside of a bottom wall of the box via a first hinge line, and the opposite end of the lifting means is provided on the inside of the lid of the container. The lifting means comprises a back-folding panel depending from the lifting panel via a second hinge line. The lifting means further comprises several hinge lines. The lifting of the article is enabled by moving the lid from a closed to an open position, such that the lifting means is lifted at least partially by rotating around the first hinge line with respect to the bottom wall of the box. During the lifting process, the article is held by a holding means. The holding means comprises a cut-out in the lifting means, wherein the cut-out is adapted to at least partially receive the article. The lifting means is adapted such that the back-folding panel extends towards the box, at least when the lid is in the open position. This provides a way of enabling to lift an article in a container to make it more easily accessible and to improve the aesthetic appearance of the container.

The articles within the container may be wrapped with an inner liner, which is visible in the opening of the box when the container is open.

Containers according to embodiments of the invention may be in the shape of a rectangular parallelepiped, with right-angled longitudinal and right-angled transverse edges. Alternatively, the 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 container according to the invention may comprise, without limitation:

- One or two longitudinal rounded or bevelled edges on the front wall, and/or

- One or two longitudinal rounded or bevelled edges on the back wall.

- One or two transverse rounded or bevelled 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

lines to form the rounded edge in the container. The scoring lines or creasing lines may be either on the inside of the container or on the outside of the container. Preferably, the scoring lines or creasing lines are spaced apart from each other by between about 0.3 mm and about 4 mm.

Preferably, the spacing of the creasing lines or scoring lines is in function of the thickness of the laminar blank. Preferably, the spacing between the creasing lines or scoring lines is between about 0.5 and about 4 times larger than the thickness of the laminar blank.

Where the container comprises one or more bevelled edges, preferably the bevelled one or more edges have 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 double bevel formed by three parallel creasing lines or scoring lines that are spaced apart such that two distinct bevels form on the edge of the container.

Alternatively to a container with a rectangular transverse cross section, the container may have for example a polygonal cross section such as triangular, quadrangular or hexagonal, or a cross section which is oval, semi-oval, circular or semi-circular.

Where the container comprises a bevelled edge and is made from a laminar blank, the bevel may be formed by two parallel creasing lines or scoring lines in the laminar blank. The creasing lines or scoring lines may be arranged symmetrically to the edge between a first wall and a second wall. Alternatively, the creasing lines or scoring lines may be arranged asymmetrically to the edge between the first wall and a second wall, such that the bevel extends further into the first wall of the container than into the second wall of the container.

The container may be formed from any suitable materials including, but not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the cardboard has a weight of between about 100 grams per square meter and about 350 grams per square meter.

Containers according to embodiments of the invention may be used as packages for a variety of articles. In particularly preferred embodiments, containers according to the invention are used to package at least one smoking article. Containers according to embodiments of the invention may be advantageously used to package smoking articles including, but not limited to, known lit-end cigarettes, cigars or cigarillos, heated smoking articles comprising a combustible fuel element or heat source and an aerosol-generating substrate (for example cigarettes of the type disclosed in US-A-4,714,082) and smoking articles for use with electrical smoking systems (for example cigarettes of the type disclosed in US-A-5,692,525).

Through an appropriate choice of the dimensions thereof, containers according to embodiments of the invention may be designed to hold different total numbers of smoking articles, or different arrangements of smoking articles. Preferably, the container holds only one smoking article in the holding means. Alternatively, through an appropriate choice of the dimensions thereof, containers according to the invention may be designed to hold a total of between one and thirty smoking articles. An according number of holding means is provided. Preferably, each smoking

article is arranged in the container such that it extends in the direction from the front to the back wall of the box.

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 smoking article housed inside the container.

Preferably, containers according to embodiments of the invention have a height of between about 5 mm and about 180 mm, more preferably a height of between about 10 mm and about 20 mm, wherein the height is measured from the top wall to the bottom wall of the container.

Preferably, containers according to embodiments of the invention have a width of between about 12 mm and about 180 mm, more preferably a width of between about 40 mm and about 60 mm, wherein the width is measured from the left side wall to the right side wall of the container.

Preferably, containers according to embodiments of the invention have a depth of between about 6 mm and about 180 mm, more preferably a depth of between about 80 mm and about 100 mm wherein the depth is measured from the front wall to the back wall of the container (comprising the hinge between box and lid).

Preferably, the ratio of the depth of the container to the height 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 height of the container is in between about 1 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.

The blank for the containers according to embodiments of the invention may be printed, embossed, debossed or otherwise embellished on one side or both sides with manufacturer or brand logos, trade marks, slogans and other consumer information and indicia. Alternatively, or in addition, the blank for the container according to the invention may be at least partially covered with lacquer, metallisation, holograms, luminescent material, or any other materials that alter the feel, odour or appearance of the container.

Where the inside of the box of a container according to embodiments of the present invention contains one or more bundles of smoking articles, the smoking articles are preferably wrapped in an inner liner of, for example, metal foil, metallized paper or transparent paper.

Where the container comprises smoking articles, the container may further comprise waste-compartments (for example for ash or butts) or compartments for other articles, for example matches, lighters, extinguishing means, breath-fresheners or electronics. The other articles may be attached to the outside of the container, contained within the container along with the smoking articles, in a separate compartment of the container or combinations thereof.

Once filled, containers according to embodiments of the invention may be shrink wrapped or otherwise over