

Container with inner slide and outer shell

The present invention relates to a container comprising an inner slide for consumer goods and an outer shell provided at least partially around the inner slide.

Such containers are commonly known as "slide and shell" containers, for example from the US patent US-A-3,881,599, wherein a package for cigarettes is disclosed, with an inner slide mounted in an outer shell for pivotal movement relative to the outer shell. This is enabled by a score line at the bottom of the package hingedly connecting the inner slide and the outer shell.

It would be desirable to provide a novel slide and shell container for consumer goods that provides the consumer with a novel way of opening the container.

According to the invention there is provided a container comprising an inner slide for housing consumer goods and an outer shell provided at least partially around the inner slide. The container according to the invention further comprises a first guide means and a second guide means with differing guide paths, wherein the first and second guide means are adapted to enable a relative motion of the inner slide with respect to the outer shell along a predetermined motion path.

The term "guide path" is used throughout the specification to denote the predetermined path that a guide means takes during opening or closing movement of the container. A guide path may be a straight line or a curve or a combination thereof.

The term "differing guide path" is used throughout the specification to denote that the two predetermined guide paths of the two guide means differ in direction or in length or differ both in direction and length.

The term "motion path" is used throughout the specification to denote the predetermined path that the inner slide takes relative to the outer shell during opening or closing movement of the container. The motion path of the inner slide is a convolution of the two individual guide paths of the two guide means. Thus, the differing guide paths of the two guide means enable a predetermined translational and rotational movement of the inner slide with respect to the outer shell. The use of differing guide paths of the guide means allow for a wide range of different motion paths. This may create a surprising effect for the consumer when opening the container. In addition, the motion path of the inner slide may be designed, such that in an open position of the container the consumer goods may be readily accessed. In a closed position of the container, the consumer goods are well protected. Further, the motion path of the inner slide with respect to the outer shell from the closed to the open position can be designed with more geometrical possibilities as in the state of the art, where the inner slide is connected to the outer shell by a hinge.

Preferably the guide paths of the two guide means are linear and differ in length and in direction with respect to each other. Thus, as one guide path is longer and in a different direction than the other, the motion path of the inner slide with respect to the outer shell results in the combination of a translational movement and a rotational movement.

Preferably the first guide means is arranged below the second guide means, and the guide path of the second guide means is longer than the guide path of the first guide means. Thus, for containers that are open at the top side of the inner slide, a combined rotational and translational movement is enabled, such that in the open position of the container the open top side of the inner slide is easily accessible. In the closed position of the container, the top side of the inner slide is covered by the top wall of the outer shell.

The terms "front", "back", "upper", "lower", "side", "top", "bottom", "left", "right", "above", "below" and other terms used to describe relative positions of the components of a container according to the invention refer to the container in an upright position with the opening through which the consumer goods are removed is preferably located at the top end and where the translational component of the motion path is preferably directed substantially towards the front of the container.

Preferably, the outer shell is open at two sides that would share a common edge. This allows for a motion path of the inner slide with a rotational component.

In one embodiment a first angle in between the guide path of the first guide means and a horizontal plane is greater than a second angle in between the guide path of the second guide means and a horizontal plane. The inner slide can be moved within the outer shell close to the top of same while being in transition between the open and closed position.

Preferably, the outer shell is open at the front side and the bottom side, and the inner slide is open at the top side. Thus, in this embodiment, the outer shell comprises a left side wall, a right side wall, a top wall and a back wall. Likewise, the inner slide comprises a front wall, a left side wall, a right side wall, a back wall and a bottom wall. The arrangement of the openings of the inner slide and the outer shell enables that the inner slide is moveable along the predetermined motion path in the outer shell and the consumer goods are easily accessible in the open position of the container and well protected inside the container in the closed position of the container.

In one embodiment of the invention, each of the first and second guide means comprises a guide recession extending along the guide path and guide protrusion engaged in the guide recession and moveable along the guide recession. According to this embodiment, one of the guide protrusion and guide recession is provided on the outer side of the inner slide and the other is provided on the inner side of the outer shell. Advantageously, as the guide means are provided in between the inner and outer shell, the guide means are not visible from the outside and are protected from damage.

In other embodiments of the invention, each of the first and second guide means comprises a countersunk guide slit in the outer shell extending along the guide path, and a guide element, for example a guide pin, connected to the inner slide and engaged in and moveable along the guide slit. Countersinking the guide slit has the advantage that the guide pin does not protrude on the outside of the outer shell. Furthermore, providing the guide pin connected to the inner slide advantageously facilitates the production process of the container.

Preferably, a cover panel is provided on the outer shell to cover the guide slit. As the guide slit is countersunk, the cover panel can be directly applied on the outer shell, without negatively interfering with the guide pin. Thus, the guide means are well protected and not visible from the outside. The cover panel may be a sheet of metal, for example, a sheet of tin.

Preferably, the first and second guide means are provided at the left side wall or at the right side wall of the inner slide and the outer shell. Alternatively, the first and second guide means are provided on the left side wall and the right side wall of the inner slide and the outer shell. Depending on the strength of the material used for the inner and the outer shell, the guide means may only be required at one side wall.

Preferably, a cut-out is provided in at least one of the side walls of the outer shell to allow the consumer to grab the inner slide while the container is in the closed position. This way, the consumer can directly grab the inner slide and apply force thereto to start the movement of the inner slide from the closed position of the container. Thereby, the movement of the inner slide is facilitated. Preferably, a cut-out is provided at the front end of both side walls of the outer shell. Preferably, the inner slide is provided with a section of increased friction in the area of the cut-out in the outer shell to facilitate the grip of the consumer. The section of increased friction may comprise a high friction cover layer or an array of protrusions and notches.

Preferably, a closure means is provided to secure the inner slide within the outer shell in the closed position of the container. Thus, an involuntary opening of the container can be prevented. In addition, the closure means may give the consumer a tactile or audible indication that the container is indeed closed.

Preferably, the closure means comprises a notch and a protrusion engaging with each other in the closed position of the container, wherein the notch is provided on the outer side of the inner slide, and the protrusion is provided on the inner side of the outer shell. Alternatively, the protrusion is provided on the outer side of the inner slide, and the notch is provided on the inner side of the outer shell. By engagement of the protrusion in the notch a secured closed position of the container is enabled.

In one embodiment the ends of the first and second guide means are configured as a stop portion which enables a dead stop position for the fully opened container. Thus, an open position of the container can be defined, where the motion path of the inner slide with respect to

the outer shell is terminated. Preferably, the open position of the container uncovers the entire opening in the inner slide. This way, the container according to the invention may be for example, easily refilled with a new bundle of consumer goods.

Preferably, at least one transparent section is provided in at least one of the walls of the outer shell to enable that information provided on the inner slide is visible. In addition, at least one transparent section may be provided on the inner slide. The transparent sections of the outer shell and the inner slide may be positioned such that they interact with each other, that is that the transparent sections of the inner slide and the outer shell are aligned in a closed position, open position or a position in between the open and closed position of the container. Depending on the open position of the container, different information is visible through the transparent section of the outer shell. This information can be printed on the consumer goods in the inner slide or on the outer side of the inner slide. The transparent section may be a section of transparent material or may be an opening. The transparent section may have any geometrical shape, for example the transparent section may have the form of rectangles, circles, logos or letters. The transparent sections in the inner slide and outer shell may be aligned such that they give an indication of the content of the container, for example by showing a section of the consumer goods that is indicative of the consumer goods like the colour of a bundle in which the consumer goods are wrapped. In addition the transparent sections in the inner slide and outer shell may be aligned such that they create a moving image during the movement of the inner slide along the motion path.

In one embodiment, the consumer goods are provided in a refill package, wherein the consumer goods are preferably wrapped in a liner with a perforation line to allow access to the consumer goods. Thus, the container itself can be reusable, while it is refilled with refill packages. The refill package comprises consumer goods wrapped in a liner, such that the consumer goods are protected from environmental influences. The perforation line allows opening the refill package even when it is inserted in the container, such that the consumer goods can be accessed.

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 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 at least one of the side walls, and/or
- One or two longitudinal rounded or bevelled edges on the back wall.
- One or two transverse rounded or bevelled edges on at least one of the side walls, and/or

- One or two transverse rounded or bevelled edges on the back wall.
- One longitudinal rounded edge and one longitudinal bevelled edge on at least one of the side walls, and/or
 - One transverse rounded edge and one transverse bevelled edge on the back wall.
 - One or two transverse rounded or bevelled edges on at least one of the side walls and one or two longitudinal rounded or bevelled edges on the front wall.
- Two longitudinal rounded or bevelled edges on the front wall or two transverse rounded or bevelled edges on the front wall.

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 one of the side walls.

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 two distinct bevels form on the edge of the container.

Alternatively to a container with a rectangular transverse cross section, the container may have a 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.

The container may be formed from any suitable materials including, but not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the body of the container is made from polystyrene, polyethylene, polypropylene or polyethylene terephthalate. Preferably, the outer shell further comprises a tin cover layer.

Containers according to the invention may be used as packages for a variety of consumer goods. In particularly preferred embodiments, containers according to the invention are used to package smoking articles. Containers according to 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 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 thereof, containers according to the invention may be designed to hold a total of between ten and thirty smoking articles.

Containers according to the invention may hold one, two, three four or five separate bundles of consumer goods. The separate bundles may be arranged substantially parallel to the

front wall and to the back wall or substantially perpendicular to the front wall and to the back wall.

Within a bundle, the smoking articles may be arranged in different collations, depending on the total number of smoking articles, the dimensions of the smoking articles or the cross sectional shape of the container. For example, the smoking articles may be arranged in a bundle in a single row of five, six, seven, eight, nine or ten. Alternatively, the smoking articles may be arranged in two or more rows. The two or more rows may contain the same number of smoking articles. For example, the smoking articles may be arranged in: two rows of five, six, seven, eight, nine or ten; three rows of five, six, seven, eight, nine, or ten; or four rows of four, five, six or seven. Alternatively, the two or more rows may include at least two rows containing different numbers of smoking articles to each other. For example, the smoking articles may be arranged in: a row of five and a row of six (5-6); a row of six and a row of seven (6-7); a row of seven and a row of eight (7-8); a middle row of five and two outer rows of six (6-5-6); a middle row of five and two outer rows of seven (7-5-7); a middle row of six and two outer rows of five (5-6-5); a middle row of six and two outer rows of seven (7-6-7); a middle row of seven and two outer rows of six (6-7-6); a middle row of nine and two outer rows of eight (8-9-8); or a middle row of six with one outer row of five and one outer row of seven (5-6-7).

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 filterless 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 mm and about 9 mm). In addition, the smoking articles may differ in strength of taste, resistance to draw and total particulate matter delivery. Wherein the container comprises more than one bundle, each bundle within the same container may hold the same or different types of smoking articles as listed above.

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 7 mm larger than the dimensions of the bundle of smoking articles housed inside the container.

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 top wall to the bottom 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 20 mm and about 40 mm, wherein the width is measured from the first side wall to the second side wall of the container.

Preferably, containers according to the invention have a depth of between about 6 mm and about 100 mm, more preferably a depth of between about 50 mm and about 70 mm wherein the depth is measured from the front wall to the back wall of the container.

The exterior surfaces of containers according to the invention may be printed, embossed, debossed, die cut or otherwise embellished with manufacturer or brand logos, trade marks, slogans and other consumer information and indicia. Alternatively, or in addition, the exterior surfaces of containers 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 inner slide of a container according to 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 or metallised paper.

Where the container comprises smoking articles, the container may further comprise waste-compartments or other consumer goods, for example matches, lighters, extinguishing means, breath-fresheners or electronics. The other consumer goods 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 the invention may be shrink wrapped or otherwise over wrapped with a transparent polymeric film of, for example, high or low density polyethylene, polypropylene, oriented polypropylene, polyvinylidene chloride, cellulose film, or combinations thereof in a conventional manner. Where containers according to the invention are over wrapped, the over wrapper may include a tear tape.

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

Fig. 1 is a side view of an embodiment of a container according to the invention in a closed position;

Fig. 2 is a side view of the embodiment of a container according to the invention in an open position;

Fig. 3 is a cross sectional view of the guide and rail structure of the embodiment of the container according to the invention.

In Fig. 1 a container 1 according to the invention comprising an inner slide 2 and an outer shell 3 is depicted in a closed position. A first guide means 4 and a second guide means 5 are provided, which moveably connect the inner slide 2 with the outer shell 3.

The first guide means 4 and the second guide means 5 are comprised of a guide pin 6, 7, which is connected to the inner slide 2 and a guide slit 8, 9 in the outer shell 3. The guide slits 8, 9 define guide paths 10, 11, which are indicated by dashed lines in Fig. 1.

The guide slit 9 of the second guide means 5 is arranged above the guide slit 8 of the first guide means 4. The guide slit 9 has a longer extension than the guide slit 8. The guide slit 9 extends linearly with an angle to the horizontal plane, which is smaller than the angle of the guide slit 8 with respect to the horizontal plane. The guide slits 8, 9 ascend in the direction to a back wall 12 of the outer shell 3.

In the closed position of the container as depicted in Fig. 1 the guide pins 6, 7 are arranged at the end position of the guide slits 8, 9 closer to the back wall 12 of the outer shell 3.

The outer shell 3 comprises further a left side wall 13, a top wall 14, and a right side wall which is not visible in Fig. 1. The inner slide 2 comprises a front wall 15, a bottom wall 16, a left side wall 17, and a right side wall and a back side wall.

The guide pins 6, 7 are inserted in a fixed position in the left side wall 17 and right side wall of the inner slide 2. The guide slits 8, 9 are provided in the left side wall 13 and right side wall of the outer shell 3.

The outer shell 3 further comprises a cut-out 18 in the left side wall 13 and an according cut-out in the right side wall. The cut-out 18 allows that a consumer can directly grasp the inner slide 2 at the left side wall 17 and right side wall and move the inner slide 2 towards the open position of the container.

In the open position, as depicted in Fig. 2, the guide pins 6, 7 are in a front position in the guide slits 8, 9. The guide slits 8, 9 also provide a dead stop, such that the inner slide 2 cannot be moved further to the front with respect to the outer shell 3 in the open position as depicted in Fig. 2.

The inner slide 2 has a cut-out 19 in the top portion of its right side wall and left side wall 17 facilitating the access to consumer goods contained in the outer shell 2.

The consumer goods are preferably smoking articles, in particular cigarettes, which are comprised in an inner liner and a wrapping film. The inner liner has a perforation line which defines a removable portion at the top end of the inner liner in the region of the cut-out 19 of the inner slide 2. The removable portion can be pulled by the consumer such that it is torn from the remaining inner liner rendering the smoking articles readily accessible. Preferably, the wrapping film comprises a tear tape to facilitate the opening of the wrapping film along the perforation.

The outer shell 3 comprises at the inner side of the side wall 13 a protrusion 20, which in the closed position of the container engages into a notch 21 that is provided at the outer side of the side wall 17 of the inner slide. The engagement of the notch 21 and protrusion 20 enables a closure means, which secures the container in the closed position of Fig. 1. In Fig. 2, the notch 21 and protrusion 20 are in a distance with respect to each other. However, a further according closure means can be provided at the inner slide 2 and outer shell 3 to secure the container 1 in the open position of Fig. 2.

Furthermore, transparent sections 22, 23 and 24 are provided in the outer shell 3 and a further transparent section 25 is provided in the inner slide 2. The transparent sections 22, 23 and 25 are aligned with each other in the closed configuration of the container, such that the bundle of smoking articles in the inner slide 2 is visible from the outside. Thus, depending on the colour of the bundle of smoking articles, the type of smoking articles in the container 1 may be determined from the outside of the container.

Further, during the relative movement of the inner slide 2 with respect to the outer shell 3, the transparent sections 24 and 25 are enabled to have a certain cross-section indicating the relative position of the inner slide 2 with respect to the outer shell 3. During the opening of the container, a moving image is created once the transparent sections 24 and 25 overlap. In the embodiment shown, the lower section of the vertical transparent section 25 is seen first, and then a section of the bundle inside the inner slide 2 that lies further up. Depending on the design of the bundle within the inner slide, this may create a visible colour change in the exposed section or a text message may become readable during the movement.

In Fig. 3 a magnification of the second guide means 5 in the cross-section A-A of Fig. 1 is shown. The first guide means 4 is designed accordingly.

The guide means 5 couples the inner slide 2 with the outer shell 3 by the guide pin 7, which is inserted movably in the guide slit 9 and connected to the inner slide 2. The guide slit 9 is countersunk, and comprises protrusions 26 which interact with a protrusion 27 and a side wall 28 of the guide pin 7 to enable a defined sliding motion.

The guide pin 7 further comprises a recess 29, which enables an abutment surface for the inner slide 2, such that the guide pin 7 can be fixed in a defined position in the inner slide 2. This is particularly important, as in case the position of the guide pin 7 could vary within the inner slide 2, the guide means 5 may involuntarily lock.

Furthermore, the container comprises a cover panel 30, which is depicted in Fig. 3, but which is omitted in Figs. 1 and 2. The cover panel 30 covers the guide means 4 and 5 such that they are not visible from the outside and protected. The cover panel 30 comprises openings in the regions of the transparent sections 22, 23, 24 of the outer shell 3. The cover panel 30 preferably covers the left side wall 13, back wall 12 and right side wall of the outer shell 3 of the container 1.

The cover panel 30 may be received in a recessed portion of the outer shell 3 to enable a smooth outer surface. The cover panel 30 may be one integral part or may be comprised of three parts, which are provided at the respective walls of the outer shell 3. In particular, the cover panel 30 may be made of a metal sheet, which is provided in a bended form and fixed by fixation means 31 on the outer shell 3. The outer shell has a rounded portion 32 at the edges of the outer shell 3 over which the cover panel 30 extends.

In the following, the manufacturing process of the container will be described. First, both the inner slide 2 and the outer shell 3 are moulded of plastic material, in particular polystyrene, polyethylene, polypropylene or polyethylene terephthalate. Then the inner slide 2 is arranged in the outer shell 3 in the closed position as depicted in Fig. 1. The guide pins 6, 7 are inserted through the guide slits 8, 9 and fixed to inner slide 2. The fixation of the guide pins 6, 7 in the inner slide 2 can be either obtained by gluing or only by frictional contact in a bore of the inner slide 2. The guide pins 6, 7 may be additionally secured in the guide slit 8, 9 by the cover panel 30.

This invention provides a refillable container which is an environmental solution due the material saving, as only the inner liner and the wrapping film around the consumer goods of the refill cartridge has to be disposed.

The inner slide offers additional area for consumer communication.

The manufacturing of the refill cartridge comprising the consumer goods is cheaper than the manufacturing of disposal containers according to the prior art.

The refilling operation of the container is facilitated as the upper side of the inner slide can be exposed, due to the movement capabilities of the inner slide with respect to the outer shell enabled by the first and second guide means.

The cover panel is preferably manufactured of a sheet metal, for example tin, which provides additional structural strength and optical effects. The openings in the cover panel may be stamped, etched or laser cut into the sheet material. The cover panel may be fastened with metal flaps that pass through slots in the back wall of the outer shell. The openings in the cover panel may be smaller and more delicate than the transparent sections in the side walls of the outer shell to which they are aligned.

The guide pins are formed from material that has a low friction coefficient, for example polytetrafluorethylen.

The inner and outer shells are preferably injection moulded.

Claims

1. A container (1) comprising:
an inner slide (2) for housing consumer goods; and
an outer shell (3) provided at least partially around the inner slide (2),
characterized by
a first guide means (4) and a second guide means (5) with differing guide paths (10, 11),
wherein the first and second guide means (4, 5) are adapted to enable a relative motion of the inner slide (2) with respect to the outer shell (3) along a predetermined motion path.
2. Container according to claim 1, wherein the guide paths (10, 11) of the first and second guide means (4, 5) differ in length and in angle with respect to each other.
3. Container according to claims 1 or 2, wherein the first guide means (4) is arranged below the second guide means (5), and the guide path (11) of the second guide means (5) is longer than the guide path (10) of the first guide means (4).
4. Container according to one of the previous claims, wherein a first angle in between the guide path (10) of the first guide means (4) and a horizontal plane is greater than a second angle in between the guide path (11) of the second guide means (5) and a horizontal plane.
5. Container according to one of the previous claims, wherein the outer shell (3) is open at the front side and the bottom side thereof, and the inner slide (2) is open at the top.
6. Container according to one of the previous claims, wherein each of the first and second guide means (4, 5) comprises a guide recession extending along the guide path and a guide protrusion engaged in the guide recession and movable along the guide recession, wherein one of the guide protrusion and guide recession is provided on the outer side of the inner slide (2) and the other is provided on the inner side of the outer shell (3).

7. Container according to one of claims 1 to 5, wherein each of the first and second guide means (4, 5) comprises a countersunk guide slit (8, 9) in the outer shell (3) extending along the guide path (10, 11) and a guide element (6, 7) connected to the inner slide (2), wherein the guide element 6, 7 is engaged in and movable along the guide slit (8, 9).
8. Container according to claim 7, wherein a cover panel (30) is provided on the outer shell (3) to cover the guide slit (8, 9).
9. Container according to one of the previous claims, wherein the first and second guide means (4, 5) are provided at the left side wall (13, 17) or the right side wall, or the left side wall (13, 17) and the right side wall of the inner slide (2) and outer shell (3).
10. Container according to one of the previous claims, wherein a cut-out (18) is provided in the outer shell (3) to enable access to the inner slide (2) in the closed container.
11. Container according to one of the previous claims, wherein a closure means is provided to secure the inner slide (2) in the closed position in the outer shell (3).
12. Container according to claim 11, wherein the closure means comprises a notch (21) and a protrusion (20) engaging with each other in the closed position of the container, wherein one of the notch (21) and protrusion (20) is provided on the outer side of the inner slide (2) and the other of notch (21) and protrusion (20) is provided on the inner side of the outer shell (3).
13. Container according to one of the previous claims, wherein the ends of the first and second guide means (4, 5) are configured as a stop portion, which enables a dead stop position for the fully opened container.
14. Container according to one of the previous claims, wherein at least one transparent section (22, 23, 24, 25) is provided in at least one of the walls of the outer shell (3) and the inner slide (2) to enable that information provided on the inner slide (2) or on the consumer goods is visible.

15. Container according to one of the previous claims, wherein the consumer goods are provided as a refill package.