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PACKAGE SYSTEM FOR A TOBACCO RELATED PRODUCT, PACKAGE AND HUMIDIFIER

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Package system (100), comprising a package (50) for tobacco or a tobacco related product with a storage compartment (51) configured for storing the tobacco or tobacco related product, and a least one closure element (52) configured for closing the storage compartment (51). A retaining element (60) on an inner surface (70) of one of the storage compartment (51) and the closure element (52) is configured for receiving a humidifier (10). The humidifier (10) comprises a carrier plate (11)

with a first main surface (12) and a second main surface (13) opposite thereto, and a humidifying element (14) attached to the first main surface (12) of the carrier plate (11). The retaining element (60) mechanically interacts with a portion of the carrier plate (11) that is separate from the humidifying element (14). The present invention further relates to a package (50) and to a humidifier configured for the package system (100).

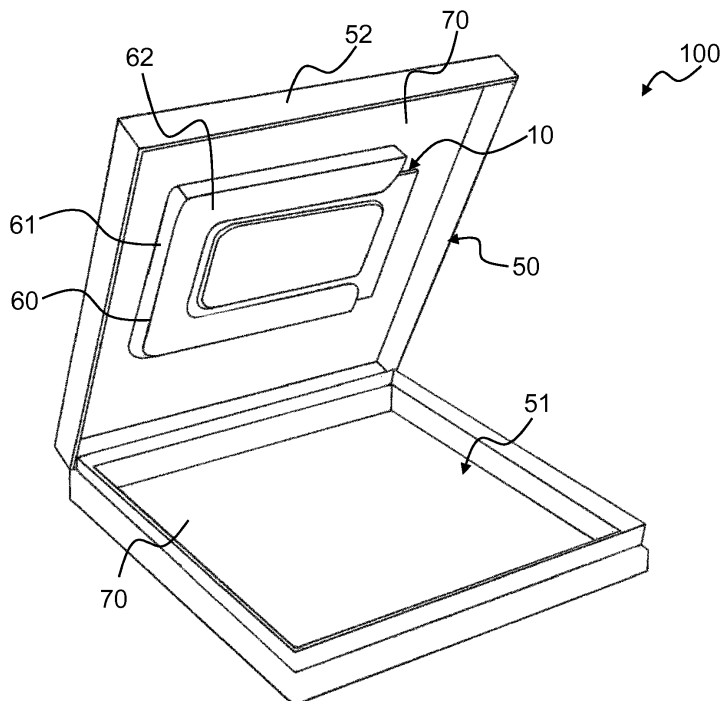


FIG. 1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a package system for a tobacco related product.

BACKGROUND

[0002] Various packages for tobacco, smoking articles, like cigarettes, cigarillos or cigars, and tobacco based products, like snus or snuff, are well known in the art.

[0003] Elongated smoking articles, such as cigarillos or cigars, may be packed in hinge-lid packs comprising a box with a hinged lid. Therein the elongated smoking articles are contained in the interior of the box. Usually an inner liner is provided within the box in order to protect the elongated smoking articles against loss of moisture, freshness and aroma. The lid comprises a hinged connection to the box and is transferable from an open position to a closed position, wherein a user can access the smoking articles merely in the open position.

[0004] Tobacco may be packed in pouches that are formed from an elastic sheet folded to form a pocket between two adjacent walls of the elastic sheet. One of the walls may continuously extend to form a flap for closing the pocket by overlapping the flap with an outer surface of one of the adjacent walls. While the adjacent walls may be partially hot embossed for enclosing the pocket, the flap may comprise an adhesive label for resealing the pouch.

[0005] Tobacco based products such as snus or snuff or again loose tobacco itself may be packed in a can comprising a base portion and a top portion that together define a re-sealable compartment for storing the tobacco based product. Various connection types may be used for attaching base portion and top portion or top portion and cover, e.g. screw connections, snap locks, pressure fits, hinged connections, sliding covers or non-permanent adhesives.

[0006] Most moist tobacco products are particularly sensitive to environmental impacts such as changes in temperature or humidity. In order to ensure freshness of such products they are usually delivered in substantially air tight packages. However, once a package is opened the humidity within the package may fluctuate strongly based on environmental conditions.

[0007] It is known from the prior art to use natural moisturizing means, such as slices of fruit, or artificial moisturizing means, such as moisturizing pads, for adjusting the humidity within a package. However, the known moisturizing means suffer from various disadvantages. For example, a moisturizing rate might be diminished by a supporting structure for the moisturizing means, such as a pocket, particularly at low humidity levels within the package. It is thus an object of the present invention to overcome or reduce at least some of the disadvantages

of the prior art and to provide a package with an integrated moisturizing means that allows for stabilized humidity in the package and is easily handled by a user.

SUMMARY OF INVENTION

[0008] One or more of the drawbacks of the prior art could be avoided or at least reduced by means of the present invention, particularly by a package system, by a package and a by humidifier according to the attached claims, respectively.

[0009] A package system according to the invention comprises a package for tobacco or a tobacco related product with a storage compartment for storing the tobacco or tobacco related product and a least one closure element for closing the storage compartment. The package further comprises a retaining element on an inner surface of one of the storage compartment and the closure element. The package system further comprises a humidifier that comprises a carrier plate with a first main surface and a second main surface opposite thereto and a humidifying element on the first main surface. Therein a frame portion of the first main surface, i.e. a surface element of the first main surface surrounding the humidifying element like a frame, is uncovered by the humidifying element.

[0010] According to the present invention, the retaining element is configured for receiving the humidifier by mechanically interacting with a portion of the carrier plate that is separate from the humidifying element. Preferably, the retaining element is configured for receiving the humidifier by mechanically interacting solely (exclusively) with a portion of the carrier plate that is separate from the humidifying element. In other words a physical contact between the retaining element and the humidifying element can be completely avoided. The humidifying element can thus freely interact with the storage compartment without obstacles.

[0011] Preferably, a frame portion of the first main surface is uncovered by the humidifying element and the retaining element is configured for receiving the humidifier by mechanically interacting with the frame portion. In other words, contact between the retaining element and the humidifier occurs predominantly, particularly preferred exclusively, within the frame portion of the first main surface and hence the humidifying element is unblocked by the retaining element. Thus, a user can easily handle the humidifier solely by the frame portion without being wetted himself or herself.

[0012] Alternatively, a pluggable element protrudes from the second main surface of the carrier plate and the retaining element is configured for receiving the humidifier by mechanically interacting with the pluggable element. The humidifying element can freely interact with the storage compartment without obstacles. Further, a user can easily handle the humidifier solely by its circumferential edges or the pluggable element without being wetted himself.

[0013] In the context of the present application, a package may be a hinge-lid pack for elongated smoking articles, a pouch for loose tobacco or a can for tobacco-related products or loose tobacco. The package itself may consist of one or more materials usual in the field, such as paper, cardboard, plastic foils or extruded plastic. However, also wooden materials or metal might be used for the package, e.g. for a cigars box or the like. Preferably, the at least one closure element closes the storage compartment in (at least essentially) air-tight fashion. Thus, humidity inside the storage compartment is mostly independent from the environment and mainly controlled by the humidifier.

[0014] The retaining element is preferably made of a plastic material. However, other materials such as wood, metal or cardboard might be used for the retaining element as well. Further preferred, the retaining element is monolithic with the package or at least part of the package, e.g. the closure element, and further the material of the retaining element may equal the material of the package. Preferably, the retaining element is coextruded with at least part of the package. In other words, the retaining element is a part of the package itself, preferably of the closure element. Alternatively, the retaining element is preferably attached, particularly preferred adhered, to an inner surface of the package. In other words, the retaining element is manufactured separately from the package and subsequently attached thereto. Exemplarily an adhesive, such as a hot-melt adhesive or a pressure sensitive adhesive, e.g. on silicon or epoxy basis, is used to adhere the retaining element. Alternatively, the retaining element is welded, e.g. ultrasonic welded, to the package's inner surface. However, dependent on the package's material and structure any suitable attachment means, such as screws, bolts or clips, are preferably used for attaching the retaining means to the package's inner surface.

[0015] In a preferred embodiment of the package system, the retaining element comprises a slot for receiving the carrier plate of the humidifier in a direction, at least essentially, parallel to the inner surface to which the retaining element is attached. In other words, the carrier plate is slideable into the retaining element and will be detained by the retaining element at least in a direction perpendicular to the sliding direction and in a normal direction of the inner surface.

[0016] Preferably less than half of the carrier plate's first surface, further preferred less than 40%, less than 30%, less than 20%, less than 15% or even less than 10% of the first surface of a carrier plate that is received in the retaining element is covered by the retaining element. Hence, most of the carrier plate's first surface is in free communication with the storage compartment. Thus, moisture transfer between the humidifying element and the storage compartment is unhindered. Particularly preferred, the humidifying element of a humidifier received in the retaining element is uncovered, preferably completely uncovered, by the retaining element while facing

the storage compartment.

[0017] According to a further preferred embodiment of the package system, the retaining element comprises at least one first portion that is protruding from the inner surface of the package in a first direction, which is essentially perpendicular to that inner surface. The retaining element further comprises at least one second portion that is protruding from the first portion in a second direction, which is essentially parallel to the inner surface. Hence, a cross section of at least part of the retaining element comprises an L-shape.

[0018] Further preferred, the retaining element has a U-shape in a plan view on the inner surface. The U-shape may have sharp corners or rounded shapes. The U-shape of the retaining element might be formed continuously or discontinuously. Exemplarily, the small leg of a rectangular-based U-shaped retaining element might be, at least partially, omitted. In a U-shaped retaining element, the at least one second portion of the retaining element protrudes from the at least one first portion in a direction facing the inner part of the U-shape. Hence, a slot is formed between the inner surface and the second portions of the retaining element and a humidifier can be slid into this slot via the open leg of the U-shape.

[0019] In a further preferred embodiment of the package system, an extension of the at least one first portion in the first direction, i.e. normal to the inner surface, corresponds to the thickness of the carrier plate. Further preferred, the extension of the at least one first portion in the first direction is between 95% and 120% of the thickness of the carrier plate, preferably between 100% and 115% and particularly preferred between 105% and 115% of the thickness of the carrier plate. The extension of the first sections may also depend on an elasticity of the carrier plate. Preferably, a carrier plate slid in the slot of the retaining element is detained by a form- and or force closure, i.e. by a pressure exerted thereon by the second portions.

[0020] Further preferred, the extension of the second portion in the second direction corresponds to the width of the frame portion. Further preferred, the extension of the second portion in the second direction is between 30% and 100% of the width of the frame portion, preferably between 50% and 95% and particularly preferred between 60% and 85% of the width of the frame portion. Hence, the second portions of the retaining element can securely retain the humidifier but do not contact the humidifying element of a humidifier slid into the slot of the retaining element. Hence, a moisture transfer between the storage compartment and the humidifier is unblocked. Further, a user can remove the humidifier from the retaining element by touching solely the frame portion without being disposed to any moisture herself. According to another similar preferred embodiment of the package system, the retaining element comprises at least one first portion that is protruding from the inner surface of the package in a first direction, which is essentially perpendicular to that inner surface. The retaining element

further comprises at least one second portion that is protruding from the first portion and encloses an angle with the first portion that is less than 90 degrees. According to this embodiment, the retaining element is preferably configured as a single, linearly extending element that is configured to provide a force closure for fixing the frame portion between the second portion and the inner surface. In other words, the retaining element is configured as a clip closure for attaching thereto the planar shaped humidifier in a similar way as paper is fixed to a clipboard. Also in this embodiment, the extension of the first portion may be as described above and may also depend on the elasticity of the material of the retaining element. Further, the second portion may also be formed from an elastic material or may be elastically attached to the first portion.

[0021] According to another preferred embodiment, the retaining element comprises a slot that is configured for receiving the pluggable element, which protrudes from the second main surface of the carrier plate, in a direction essentially perpendicular to the inner surface of either the storage compartment or the closure element. In other words, the pluggable element can be plugged into the retaining element and will be detained by the retaining element at least in a normal direction of the container's inner surface. Preferably, the carrier plate's complete first surface is uncovered by the retaining element and hence in free communication with the storage compartment. Thus, moisture transfer between the humidifying element and the storage compartment is completely unhindered.

[0022] Further, the pluggable element is configured to be forced into a slot of the retaining element, wherein the retaining element is configured to be elastically enough to allow for inserting the pluggable element into the slot. The retaining element is further configured to engage with the pluggable element, particularly with a bulge on the tip of the pluggable element, once the pluggable element has been forced or plugged into the slot of the retaining element.

[0023] Basically, the retaining element can be considered as a female component of a zip-type or Ziploc-type closure and the pluggable element can be considered as a male component of a zip-type or Ziploc-type closure or vice versa. Therein, the female as well as the male component can take various forms. Preferably the pluggable element can be pressed into the retaining element in a plugging direction essentially perpendicular to the inner surface. Further preferred, the pluggable element is detained in the retaining element until it is pulled out in a direction essentially opposite to the plugging direction. Exemplary embodiments of zip-closures, such as particular exemplary shapes of the (female/male) retaining element and the (male/female) pluggable element, are, among others, disclosed in EP 0450741 A1, US 2666466 A, US 2746502 A, US 2780261 A, US 2978769 A and US 4268938 A, the whole content of each of which is incorporated herein by reference.

[0024] According to a preferred embodiment of the

package system according to the invention, the retaining element comprises at least one first portion that is protruding from the inner surface in a first direction and at least one second portion that is protruding from the first portion in a second direction. Therein, in a cross section normal to the inner surface, the first direction and the second direction enclose an angle of less than 90 degrees. Further preferred, the pluggable element extends in a direction essentially perpendicular to the second main surface of the carrier plate and preferably comprises a bulge on its tip.

[0025] In a particularly preferred embodiment, in a cross section normal to the inner surface, a distance between a tip of the first portion and a tip of the second portion in a direction essentially parallel to the inner surface lies in between the thickness of the pluggable element (except the bulge) and the thickness of the bulge measured in that same direction. Further preferred, the first portion and the second portion are elastic such that they can be moved with respect to each other for altering the distance between their tips. Preferably, the bulge comprises a shape that is rejuvenating in the extension direction of the pluggable element. Hence, if the bulge of the pluggable element is inserted in the slot between the elastic first and second portion of the retaining element, these portions are moved apart for inserting the bulge. Once the bulge is inserted the distance between the tips of the elastic first and second portion decreases and the bulge is retained between these portions.

[0026] Another aspect of the present invention relates to a package for a package system, preferably for a package system as described above. The package comprises a storage compartment for storing tobacco or a tobacco related product and at least one closure element that is configured for closing the storage compartment. A retaining element is disposed on an inner surface of one of the storage compartment and the closure element. According to the invention, the retaining element comprises a U-shape in a plan view on the inner surface. Then, the retaining element is configured for receiving a humidifier such that due to the U-shape of the retaining element a main portion of a surface of the humidifier facing the storage compartment is unblocked by the retaining element.

[0027] Alternatively, the retaining element comprises a cross section with a rejuvenating U-shape, particularly with a U-shaped cross section that rejuvenates in a normal direction of the inner surface away from the inner surface. In other words, the retaining element is a male or female component of a zip-type or Ziploc-type closure element. The retaining element of this embodiment is configured for receiving a humidifier with first main surface having a humidifying element disposed thereon and a second main surface opposite to the first main surface with a pluggable element protruding therefrom. Particularly, the retaining element is configured for receiving the pluggable element such that the whole surface of the humidifier facing the storage compartment is unblocked by the retaining element.

[0028] Alternatively, the retaining element is configured as a clip closure with a first portion that is protruding from the inner surface of the package in a first direction and a second portion that is extending from the first portion, preferably from an outermost tip of the first portion. Therein, the first portion extends in a direction that is essentially perpendicular to the inner surface and the second portion encloses and angle with the first portion that is less than 90 degrees. Further preferred, the retaining element extends longitudinally along the inner surface and is configured to provide a force closure for fixing the frame portion between the second portion and the inner surface. In other words, the retaining element is configured as a clip closure for attaching the planar shaped humidifier as paper is fixed to a clipboard.

[0029] In the context of the present application, a package may be a hinge-lid pack for elongated smoking articles, a pouch for loose tobacco or a can for tobacco-related products or loose tobacco. The package itself may consist of one or more materials usual in the field, such as paper, cardboard, plastic foils or extruded plastic. However, also wooden materials or metal might be used for the package, e.g. for a cigars box or the like. Preferably, the at least one closure element closes the storage compartment in, at least essentially, air-tight fashion. Thus, humidity inside the storage compartment is mostly independent from the environment and mainly controlled by the humidifier.

[0030] The retaining element is preferably made of a plastic material. However, other materials such as wood, metal or cardboard might be used for the retaining element as well. Further preferred, the retaining element is monolithic with the package or at least part of the package, such as the closure element, and further the material of the retaining element may equal the material of the package. Preferably, the retaining element is coextruded with at least part of the package. In other words, the retaining element is a part of the package, preferably of the closure element. Alternatively, the retaining element is attached, particularly preferred adhered, to an inner surface of the package. In other words, the retaining element is manufactured separately from the package and subsequently attached thereto. Exemplarily an adhesive, such as a hot-melt adhesive or a pressure sensitive adhesive, e.g. on silicon or epoxy basis, is used to adhere the retaining element. Alternatively, the retaining element is welded, e.g. ultrasonic welded, to the package's inner surface. However, dependent on the package's material and structure any suitable attachment means, such as screws, bolts or clips, are preferably used for attaching the retaining means to the package's inner surface.

[0031] In a preferred embodiment of the package the retaining element comprises at least one first portion protruding from the inner surface in a first direction essentially perpendicular to the inner surface and at least one second portion protruding from the first portion in a second direction essentially parallel to the inner surface. Hence, a cross section of at least part of the retaining

element comprises an L-shape.

[0032] According to the invention, the retaining element has a U-shape in a plan view on the inner surface. The U-shape may have corners or rounded shapes. The U-shape of the retaining element might be formed continuously or discontinuously. Exemplarily, the small leg of a rectangular-based U-shaped retaining element might be, at least partially, omitted. In the U-shaped retaining element, the at least one second portion of the retaining element protrudes from the at least one first portion in a direction facing the inner part of the U-shape. Hence, a slot is formed between the inner surface and the second portions of the retaining element and a humidifier can be slid into the retaining element via the open leg of the U-shape.

[0033] Further preferred, the retaining element hence comprises a slot configured for receiving a carrier plate of a humidifier in a direction essentially parallel to the inner surface. In other words, a carrier plate that has been slid in the slot is detained in the retaining element due to a form closure and/or force closure. In a retaining element comprising at least one first portion and at least one second portion, the slot is preferably formed between the inner surface and the at least one second portion. Further preferred, the width of the slot, i.e. the height of the at least one portion above the inner surface corresponds to the height of a carrier plate of a humidifier that is to be used together with the retaining element.

[0034] In a further preferred embodiment, the retaining element comprises a retention element configured for engaging with a carrier plate and for detaining a humidifier in the retaining element. Exemplarily, in a U-shaped retaining element the retention element is formed as an additional first portion protruding from the inner surface and extending from the tips of the long legs of the U-shape towards an inner area of the U-shape. While sliding in a humidifier into the slot between the inner surface and the at least one second portion, the humidifier might be tilted so as to pass the retaining element. However, once the humidifier is aligned in the slot essentially parallel to the inner surface it cannot exit the slot without being forced over the retention element. The elasticity of the retention element might be configured for allowing humidifier to be forced out of the slot with reasonable force.

[0035] In another preferred embodiment the U-shape of the retaining element is formed as an ellipsoidal or circular shape comprising an opening, respectively, wherein the opening is configured for receiving a humidifier. Therein, the legs of the U-shape next to the opening are flexible enough for allowing a humidifier, comprising a carrier plate of essentially similar shape as the retaining element, to be slid into the retaining element with little force. Once the carrier plate is slid in, the legs of the U-shape next to the opening act as retention element for detaining the carrier plate. Similar constructions are known from holders for trolley tokens.

[0036] According to another preferred embodiment, the retaining element comprises a slot that is configured

for receiving the pluggable element, which protrudes from the second main surface of the carrier plate, in a direction essentially perpendicular to the inner surface of either the storage compartment or the closure element. In other words, the pluggable element can be plugged into the retaining element and will be detained by the retaining element at least in a normal direction of the container's inner surface. Preferably, the carrier plate's complete first surface is uncovered by the retaining element and hence in free communication with the storage compartment. Thus, moisture transfer between the humidifying element and the storage compartment is unhindered.

[0037] Further, the pluggable element is configured to be forced into a slot of the retaining element, wherein the retaining element is configured to be elastically enough to allow for inserting the pluggable element into the slot. The retaining element is further configured to engage with the pluggable element, particularly with a bulge on the tip of the pluggable element, once the pluggable element has been forced or plugged into the slot of the retaining element.

[0038] Basically, the retaining element can be considered as a female component of a zip-type or Ziploc-type closure and the pluggable element can be considered as a male component of a zip-type or Ziploc-type closure or vice versa. Therein, the female as well as the male component can take various forms. Preferably the pluggable element can be pressed into the retaining element in a plugging direction essentially perpendicular to the inner surface. Further preferred, the pluggable element is detained in the retaining element until it is pulled out in a direction essentially opposite to the plugging direction. Exemplary embodiments of zip-closures, such as particular exemplary shapes of the (female/male) retaining element and the (male/female) pluggable element, are, among others, disclosed in EP 0450741 A1, US 2666466 A, US 2746502 A, US 2780261 A, US 2978769 A and US 4268938 A, the whole content of each of which is incorporated herein by reference.

[0039] According to a preferred embodiment of the package system according to the invention, the retaining element comprises at least one first portion that is protruding from the inner surface in a first direction and at least one second portion that is protruding from the first portion in a second direction. Therein, in a cross section normal to the inner surface, the first direction and the second direction enclose an angle of less than 90 degrees. Further preferred, the pluggable element extends in a direction essentially perpendicular to the second main surface of the carrier plate and preferably comprises a bulge on its tip.

[0040] In a particularly preferred embodiment, in a cross section normal to the inner surface, a distance between a tip of the first portion and a tip of the second portion in a direction essentially parallel to the inner surface is between the thickness of the pluggable element (except the bulge) and the thickness of the bulge meas-

ured in that same direction. Further preferred, the first portion and the second portion are elastic such that they can be moved with respect to each other for altering the distance between their tips. Preferably, the bulge comprises a shape that is rejuvenating in the extension direction of the pluggable element. Hence, if the bulge of the pluggable element is inserted in the slot between the elastic first and second portion of the retaining element, these portions are moved apart for inserting the bulge. Once the bulge is inserted the distance between the tips of the elastic first and second portion decreases and the bulge is retained between these portions.

[0041] Another aspect of the present invention relates to a humidifier for a package system, preferably for a package system as described above. The humidifier comprises a carrier plate with a first main surface and a second main surface opposite thereto. A humidifying element is attached to the first main surface of the carrier plate, wherein a frame portion of the first main surface is uncovered by the humidifying element or wherein a pluggable element protrudes from the second main surface of the carrier plate. The humidifying element is configured for absorbing and dispensing water and is further capable of controlling the humidity of an atmosphere within the package of a package system.

[0042] The humidifier of the invention comprises a frame portion or a pluggable element allowing a user to easily and safely handle the humidifier, e.g. while wetting the humidifying element in order to maintain its function. Preferably, the frame portion or the pluggable element is configured to interact, particularly preferred exclusively, with a retaining element of a package. Therein an interaction between retaining element and humidifying element is avoided. Hence, a danger of damaging the humidifying element by the retaining element is minimized, which provides the advantage that contamination of a tobacco with material of the humidifying element is safely avoided. The connection between the retaining element and the frame portion or the pluggable element is preferably configured as described above.

[0043] The carrier plate of the humidifier preferably is a rigid carrier plate. Preferably, the carrier plate is made of a plastic material, such as e.g. mono-oriented polypropylene, polyethylene terephthalate (PET), polyethylene (PE) or polyvinyl chloride (PVC). Further preferred, the carrier plate comprises a thickness of less than 5mm, less than 3mm and more than 1mm. Further preferred, the carrier plate has a rectangular shape, an elliptical or a circular shape. The humidifying element is preferably adhered to the carrier plate, e.g. with a pressure sensitive adhesive. Alternatively, the humidifying element is laminated or coated directly onto a center region of the carrier plate and adheres thereto by itself.

[0044] The humidifying element preferably comprises a hydrophilic material. Exemplarily, the hydrophilic material is a fibrous material and/or the humidifying element comprises a fibrous pad or layer containing woven or non-woven fibers. Preferably polymer materials, e.g. as

polymer fibers, are used for the humidifying element. Particularly preferred, the humidifying element comprises polyolefin fibers and/or polyethylene terephthalate (PET) fibers and/or polyethylene (PE) fibers and/or nylon fibers and/or polyvinyl chloride (PVC) fibers and/or polylactic acid (PLA) fibers. Alternatively, the humidifying element may comprise cellulose and/or paper and/or cotton and/or a sponge material and/or wool as a hydrophilic material.

[0045] Further preferred, the humidifying element comprises polyacrylamide gel or polyacrylamide crystals. Alternatively, the humidifying element comprises a hydrogel or any other gel suitable for holding water for the purposes of humidifying tobacco related products. Exemplarily, a gel body of the humidifying element comprises an alginate supporting a volume of liquid and/or a pectin supporting a volume of liquid and/or another gel material.

[0046] Preferably, the humidifying element further comprises a water-permeable layer enclosing the hydrophilic material. The water-permeable layer allows water gas to pass and may further allow small water droplets to pass. The layer water-permeable layer may comprise a plastic material and/or a fabric and/or a cellulose-based material. The water permeability of the layer may arise from the inherent structure of such material and/or from perforations provided in the layer and/or at least one coating applied to the layer.

[0047] Particularly preferred, the water-permeable layer may comprise a membrane that transmits evaporated liquid from the humidifying element but blocks the passage of water into the humidifying element. Alternatively, the permeable layer may comprise a material comprising a thermo-mechanically expanded polymer membrane with micro-pores, such as e.g. a polytetrafluoroethylene, polybutylene terephthalate or polyethylene oxide membrane. Further preferred, the humidifying element comprises an outer layer covering the water-permeable layer and being substantially impermeable to the passage of water. The outer layer is configured to be removed before an initial use of the humidifier, e.g. in a package.

[0048] Further preferred, the humidifying element is configured for either absorbing or dispensing water depending on the relative humidity of its environment. In other words, water, e.g. tap water, can be stored in the humidifying element and can be evaporated from the humidifying element so as to provide moisture to the atmosphere within the packaging. The humidifying element may therefore be used to prevent a product from drying out. In another arrangement, the humidifying element is provided to dry, or dehumidify the atmosphere within the packaging, i.e. absorb water from the atmosphere. The humidifying element may therefore be used to prevent a product from absorbing too much water.

BRIEF DESCRIPTION OF DRAWINGS

[0049] Further features of the invention will become

apparent to those of ordinary skill in the art by describing in detail exemplary embodiments with reference to the attached drawings in which:

- 5 Fig. 1 illustrates a schematic perspective view of a package system according to a first embodiment;
- Fig. 2 illustrates a schematic perspective view of a humidifier according to the first embodiment;
- 10 Fig. 3 illustrates a schematic perspective view of a package according to the first embodiment;
- Fig. 4 illustrates a cross sectional view of a retaining element according to the first embodiment along line A-A shown in Figure 3;
- 15 Fig. 5 illustrates a schematic perspective view of a package system according to a second embodiment;
- 20 Fig. 6 illustrates a cross sectional view of a retaining element and a humidifier according to the second embodiment along line A-A shown in Figure 5;
- 25 Fig. 7 illustrates a schematic perspective view of a package according to the second embodiment;
- 30 Fig. 8 illustrates a schematic perspective view of a package according to a third embodiment;
- 35 Fig. 9 illustrates a schematic perspective view of a package system according to the third embodiment; and
- 40 Fig. 10 illustrates a cross sectional view of a retaining element and a humidifier according to the third embodiment along line A-A shown in Figure 9.

DETAILED DESCRIPTION OF AN EXAMPLE EMBODIMENT

[0050] With reference to Figure 1, a package system 100 according to a first embodiment of the invention is illustrated in a schematic perspective view. The package system 100 comprises a package 50 according to a first embodiment, as also illustrated in Figure 1, and a humidifier according to a first embodiment, as also illustrated in Figure 2.

[0051] In the illustrated first embodiment, the package 50 is a hinge-lid type package for a tobacco-related product, e.g. for elongated smoking articles. Therefore, the package 50 comprises a storage compartment 51 for a tobacco-related product, e.g. the elongated smoking articles.

[0052] In the illustrated embodiment, the package 50 is mainly made of cardboard.

[0053] A lid 52 is hingedly connected to the package 50 as closure element and configured for closing the storage compartment 51, preferably in an essentially air-tight fashion. Each of the storage compartment 51 and the lid 52 comprises an inner surface 70. In the illustrated first embodiment, the inner surface 70 is either an upper surface of a bottom surface of the storage compartment 51 or a lower surface of a top surface of the closure element 52. However, in the context of the present application also other inner surfaces of either the storage compartment or the lid 52 might be an inner surface 70 as in the context of the claims. Exemplarily, the lid 52 could comprise a larger height such that an inner surface of a side surface of the lid 52 would extend and a retaining element 60 could be placed thereon.

[0054] As shown in Figures 1 and 3 a retaining element 60 according to a first embodiment is attached to or integral (i.e. monolithic, e.g. co-extruded) with the inner surface of the lid closure element 52. The retaining element 60 comprises a U-shape in a plan view on the inner surface of the lid closure element 52. The retaining element 60 is extruded from a plastic material and as a monolithic part. The retaining element 60 is configured for receiving a humidifier 10 according to a first embodiment as illustrated in Figure 2 and as explained in more detail below.

[0055] The humidifier 10 of the first embodiment as illustrated in Figure 2 comprises a plate-shaped carrier plate 11. The carrier plate 11 consists of an extruded plastic material and is formed as a monolithic part. The carrier plate 11 comprises a first main surface 12 facing upward and a second main surface 13 facing downward. The first main surface 12 and the second main surface 13 are connected to each other via an edge portion 17 of the carrier plate 11 having a height h . According to the first embodiment preferably no structures protrude from or are attached to the second main surface 13 of the carrier plate 11.

[0056] A humidifying element 14 is attached to the first main surface 12 of the carrier plate 11. The humidifying element 14 might be a humidifying pad adhered to the first main surface 12 and being filled with a hydrophilic material and enclosed by a water-permeable layer as described above. Alternatively, the humidifying element may be a gel layer disposed directly onto the first main surface 12 or also being enclosed by a water-permeable layer and adhered to the first main surface 12. Humidifying elements 14 are known to the skilled person and a more detailed description of the structure of humidifying element 14 is hence omitted.

[0057] According to the first embodiment, the size of the humidifying element 14, i.e. a planar extension thereof, is less than the size of the first main surface 12, i.e. a planar extension thereof. Hence, a frame portion 15 is formed on the first main surface 12. The frame portion 15 surrounds the humidifying element 14 like a frame in

a plan view on the first main surface 12. In other words, the frame portion 15 extends between an outer edge of the humidifying element 14 and the edge portion 17 of the carrier plate 11 in all direction essentially parallel to the first main surface 12. In the humidifier 10 illustrated in Figure 2 the carrier plate 11 has an essentially rectangular shape and also the humidifying element 14 has an essentially rectangular shape. However, other shapes are also possible. The size of the humidifying element 14 is less than a size of the carrier plate 11 and hence a frame portion 15 of the first main surface 12 with a lateral width w extends around the humidifying element 14. Further, a handle portion 16 is arranged in the frame portion 15, wherein the bar-shaped handle portion 16 protrudes upward from the first main surface 12.

[0058] Figure 4 further illustrates a cross sectional view of the retaining element 60 according to the first embodiment taken along the line A-A shown in Figure 3. As can be seen in Figure 1, the retaining element 60 of the first embodiment has a U shape in a plan view on surface 70 of lid closure element 52 and comprises two essentially parallel long legs that are connected by one short leg. Further, the U shape comprises an opening opposite the short leg that may be called open leg. As can be seen in Figures 1 and 4, the retaining element 60 of the first embodiment comprises a first portion 61, protruding from the inner surface 70 in a direction essentially normal to the inner surface 70, and further comprises a second portion 62 protruding from the first portion 61 in a direction essentially parallel to the inner surface 70 and towards an inner area of the U shape of the retaining element 60.

[0059] As illustrated in Figure 4, the retaining element 60 of the first embodiment has an L shape in the illustrated cross section. Further, a slot 63 is formed between the second portion 62 and the inner surface 70. The slot 63 is configured for receiving the carrier plate 11 of the humidifier that can be slid into the retaining element 60 through the open leg thereof. Particularly, a distance between the inner surface 70 and a lower surface of the second portion 62 is about the same as the height h of the carrier plate 11. Hence, the carrier plate 11 can be slid into the retaining element 60 of the first embodiment with little force and is then detained therein by a force closure provided by second portions 62 by elastically exerting a pressure force on the frame portion 15.

[0060] An extension of the second portion 62 in a direction essentially parallel to the inner surface 70 is smaller than the width w of the frame portion 15. Hence, as it is also illustrated in Figure 1, an interaction between the retaining element 60 of the first embodiment, particularly the second portion 62 thereof, and the humidifier 10 of the first embodiment occurs solely within the frame portion 15 of carrier plate 10. Hence, the risk of damaging the humidifying element 14 with the retaining element 60 and hence the risk of contamination of a content of storage compartment 51 is minimized. Further, the humidifying element 14 is not obstructed by retaining element 60 and hence moisture transfer between the storage

compartment 51 and the humidifying element 14 occurs freely. A user may moisturize the humidifying element 14 by watering it before inserting the humidifier 10 in retaining element 60. Therein, the user can hold the humidifier by the frame portion 15 and hence a user experience is improved. Once, a moisture content of humidifying element 14 is below certain moisture content, a user may remove the humidifier 10 from the retaining element 60 by pulling it out thereof via the handle portion 16.

[0061] With reference to Figure 5, a package system 100 according to a second embodiment of the invention is illustrated in a schematic perspective view. The package system 100 of the second embodiment comprises a humidifier according to a second embodiment, as illustrated in Figure 6, and a package 50 according to a second embodiment, as illustrated in Figures 6 and 7.

[0062] The package 50 shown in Figures 5 and 7 is a hinge-lid type package for a tobacco-related product, e.g. for elongated smoking articles, as already described above with respect to the first embodiment and with respect to Figure 1.

[0063] A retaining element 60 according to a second embodiment is attached to or integral (i.e. monolithic, e.g. co-extruded) with the inner surface of the lid closure element 52. The retaining element 60 comprises a cross section with a U-shape that is rejuvenating in a direction normal to and away from the inner surface 70. The retaining element 60 is monolithically extruded from a plastic material. The retaining element 60 is configured for receiving a humidifier 10 according to a second embodiment as illustrated in Figure 6 and as explained in more detail below. Once, the humidifier 10 of the second embodiment is received by the retaining element 60 it completely covers the retaining element 60 according to the second embodiment.

[0064] The retaining element 60 comprises a first portion 61 and a second portion 62 that both protrude from the inner surface 70 and that, in a cross section, enclose an angle less than 90 degrees with each other. A slot 63 is formed between the first portion 61 and the second portion 62. As illustrated in Figure 6, the retaining element 60 of the second embodiment may further comprise a third portion 64 that connects the first portion 61 and the second portion 62 along the inner surface 70, particularly if the retaining element 60 is a monolithic part. However, if the retaining element 60 is also monolithic with the closure element 52 of the container 50, the third portion 64 may be omitted. Further, as illustrated in Figure 7 the retaining element 60 may extend linearly along the inner surface 70 of the container 50.

[0065] The humidifier 10 of the second embodiment comprises a plate-shaped carrier plate 11 and is identical to the humidifier 10 of the first embodiment as already described above if not indicated otherwise below. Different to the humidifier 10 of the first embodiment, the humidifier 10 of the second embodiment comprises a pluggable element 80 as illustrated in Figure 6 that protrudes from the second main surface 13 of the carrier plate 11.

In a cross section, the pluggable element 80 comprises a bulge 81 at its outermost tip, wherein an extension of the bulge 81 in a direction essentially parallel to the second main surface 13 exceeds an extension of the remaining pluggable element 80 measured in the same direction. The retaining element may also extend linearly along the second main surface 13 of the carrier plate 11 and may have essentially the same length as the retaining element 60.

[0066] As illustrated in Figure 6, an outermost tip of the first portion 61 and an outermost tip of the second portion 62 have a distance towards each other in a direction essentially parallel to the inner surface 70 that is less than the extension of the bulge 81 in a direction essentially parallel to the second main surface 13. Thus, while forcing the pluggable element 80 into the retaining element 60 the elastic first and second portions 61, 62 move apart for allowing the bulge 81 to be inserted in the slot 63, wherein inserting the bulge 81 is facilitated by the cross section of the bulge 81 that is rejuvenating in a direction away from the second main surface 13. After inserting the bulge 81, the elastic first and second portion 61, 62 spring back to their initial positions and thus retain the bulge 81 within the slot 63. Hence, the humidifier 10 is secured to the container 50 by the pluggable element 80 interacting with the retaining element 60.

[0067] With reference to Figures 8 to 10, a package system 100 according to a third embodiment of the invention is illustrated. Therein, the package system 100 comprises a package 50 according to the third embodiment, as illustrated in Figure 8, and a humidifier according to the third embodiment as illustrated in Figure 2. In other words, the humidifier is the same as in the first embodiment and hence it is referred to the description given with respect to Fig. 2.

[0068] According to the third embodiment, the retaining element 60 extends longitudinally and in a linear manner along the inner surface 70, e.g. along the inner surface 70, of the closure element 52 as illustrated in Figure 8. As further illustrated in Figure 10, the retaining element 60 comprises a first portion 61 that is formed monolithically with or is attached to the inner surface 70 of the package 50 and that protrudes in a direction substantially perpendicular to the inner surface 70. From the first portion 61 protrudes a second portion 62 from an outermost tip of the first portion 61 such that the first portion 61 and the second portion 62 enclose an angle of less than 90 degrees. The second portion 61 is monolithically with the first portion 61 or is attached thereto.

[0069] A slot 63 is formed between the tip of the second portion 62 and the inner surface 70, wherein the distance between the tip of the second portion 62 and the inner surfaces 70 varies because of the elasticity of the second portion 62. As illustrated in Figures 9 and 10, a humidifier 10 can be attached to the retaining element 60 by inserting a frame portion 15 of the carrier plate 11 into the slot 63 between the second portion 62 and the inner surface 70. By inserting the carrier plate 11 into the slot 63 the

tip of the second portion 62 is moved away from the inner surface 70 and hence, due to the elasticity of the second portion 62, a restoring force is asserted on the frame portion 15. This restoring force is then retaining the carrier plate 11 within the slot 63 and hence secures humidifier 10 to inner surface 70. However, by pulling the humidifier 10 out of the slot 63 away from the first portion 61, the restoring force can be overcome and the humidifier 10 can be loosened from the package.

REFERENCE SIGNS

[0070]

10	humidifier
11	carrier plate
12	first main surface
13	second main surface
14	humidifying element
15	frame portion
16	handle portion
17	edge portion
50	package
51	storage compartment
52	closure element
60	retaining element
61	first portion
62	second portion
63	slot
70	inner surface
80	pluggable element
81	bulge

Claims

1. Package system (100), comprising:

a package (50) for tobacco or a tobacco related product with a storage compartment (51) configured for storing the tobacco or tobacco related product; a least one closure element (52) configured for closing the storage compartment (51); and a retaining element (60) on an inner surface (70) of one of the storage compartment (51) and the closure element (52); and a humidifier (10) with a carrier plate (11) with a first main surface (12) and a second main surface (13) opposite thereto, and a humidifying element (14) attached to the first main surface (12) of the carrier plate (11), wherein the retaining element (60) is configured for receiving the humidifier (10) by mechanically interacting with a portion of the carrier plate (11)

that is separate from the humidifying element (14).

2. Package system (100) according to claim 1, wherein a frame portion (15) of the first main surface (12) is uncovered by the humidifying element (14) or a pluggable element (81) protrudes from the second main surface (13) of the carrier plate (11), and wherein the retaining element (60) is configured for receiving the humidifier (10) by mechanically interacting with the frame portion (15) or with the pluggable element (80).
3. Package system (100) according to claim 1 or 2, wherein the retaining element (60) comprises a slot (63) that is configured for receiving the carrier plate (11) in a direction essentially parallel to the inner surface (70) or in a direction essentially perpendicular to the inner surface (70), wherein the humidifying element (14) of a humidifier (10) received in the retaining element (60) is facing the storage compartment (51) and is uncovered by the retaining element (60).
4. Package system (100) according to any one of the preceding claims, wherein the retaining element comprises at least one first portion (61) protruding from the inner surface (70) in a first direction essentially perpendicular to the inner surface (70) and at least one second portion (62) protruding from the first portion (61) in a second direction, wherein an extension of the at least one first portion (61) in the first direction corresponds to the thickness of the carrier plate (11), and wherein an extension of the at least one second portion (62) in the second direction corresponds to the width of the frame portion (15).
5. Package system (100) according claim 4, wherein the second direction is essentially parallel to the inner surface (70) and the retaining element (60) comprises a U-shape in a plan view on the inner surface (70).
6. Package system (100) according claim 4, wherein an extension of the at least one first portion (61) in the first direction is less than the thickness of the carrier plate (11) or wherein the first portion (61) and the second portion (62) enclose an angle less than 90 degrees, and wherein the frame portion (15) is fixed between the second portion (62) and the inner surface (70) by a force closure.
7. Package system (100) according to any one of the preceding claims, wherein the retaining element comprises at least one first portion (61) protruding from the inner surface

- (70) in a first direction and at least one second portion (62) protruding from the inner surface (70) in a second direction enclosing an angle of less than 90 degrees with the first direction, wherein the pluggable element (80) extends in a direction essentially perpendicular to the second main surface (13) of the carrier plate (11) and comprises a bulge (81) on its tip, and wherein the pluggable element (80) is configured to be forced between the first portion (61) and the second portion (62) and, once it has been forced there between, to be retained by the first portion (61) and by second portion (61) that are both retaining the bulge (81).
8. Package (50) for a package system, comprising a storage compartment (51) configured for storing tobacco or a tobacco related product; a least one closure element (52) configured for closing the storage compartment (51); and a retaining element (60) on an inner surface (70) of one of the storage compartment (51) and the closure element (52), wherein the retaining element (60) comprises a U-shape in a plan view on the inner surface (70), or is configured as a zip-type closure or as a clip closure.
9. Package (50) according to claim 8, wherein the retaining element (60) comprises at least one first portion (61) protruding from the inner surface (62) in a first direction essentially perpendicular to the inner surface (70) and at least one second portion (62), wherein the second portion (62) protrudes from the first portion (61) in a second direction essentially (70), and/or wherein the first portion (61) and the second portion (62) enclose an angle less than 90 degrees.
10. Package (50) according to claim 9, wherein the retaining element (60) comprises a slot (63) configured for receiving a carrier plate (11) of a humidifier (10) in a direction essentially parallel to the inner surface (70), wherein the slot (63) is formed between the inner surface (70) and the at least one second portion (62).
11. Package (50) according to claim 7, wherein the retaining element (60) comprises at least one first portion (61) protruding from the inner surface (70) in a first direction and at least one second portion (62) protruding from the inner surface (70) in a second direction that is enclosing an angle of less than 90 degrees with the first direction.
12. Humidifier (10) for a package system (100), comprising:
- a carrier plate (11) with a first main surface (12)

and a second main surface (13) opposite thereto;

a humidifying element (14) attached to the first main surface (12) of the carrier plate (11), wherein a frame portion (15) of the first main surface (12) is uncovered by the humidifying element (14) or wherein a pluggable element (80) protrudes from the second main surface (13) of the carrier plate (11).

13. Humidifier (10) according to claim 12, further comprising a handle portion (16) protruding from the frame portion (15) of the first surface (12) of the carrier plate (11).
14. Humidifier according to claim 12, wherein the pluggable element (80) extends in a direction essentially perpendicular to the second main surface (13) of the carrier plate (11) and comprises a bulge (81) on its outermost tip.
15. Humidifier (10) according to one of claim 12 or 13, wherein the humidifying element (14) is configured for either absorbing or dispensing water depending on the relative humidity of its environment and/or wherein the humidifying element (14) comprises a hydrophilic material and a permeable layer enclosing the hydrophilic material.

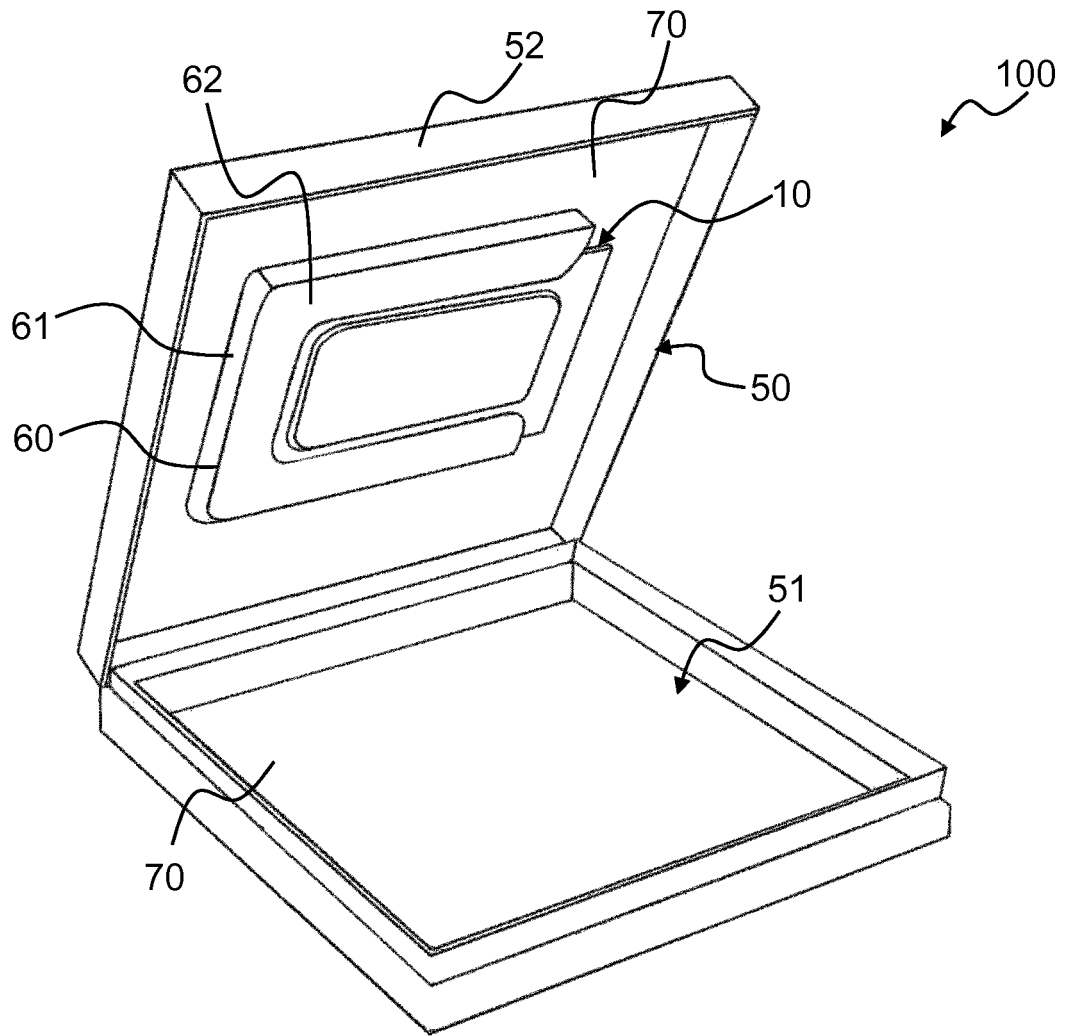


FIG. 1

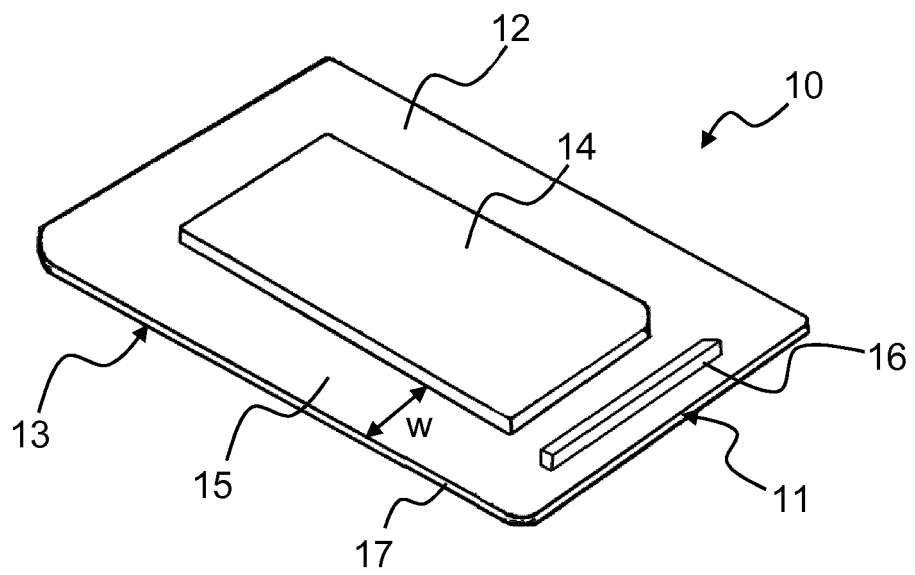


FIG. 2

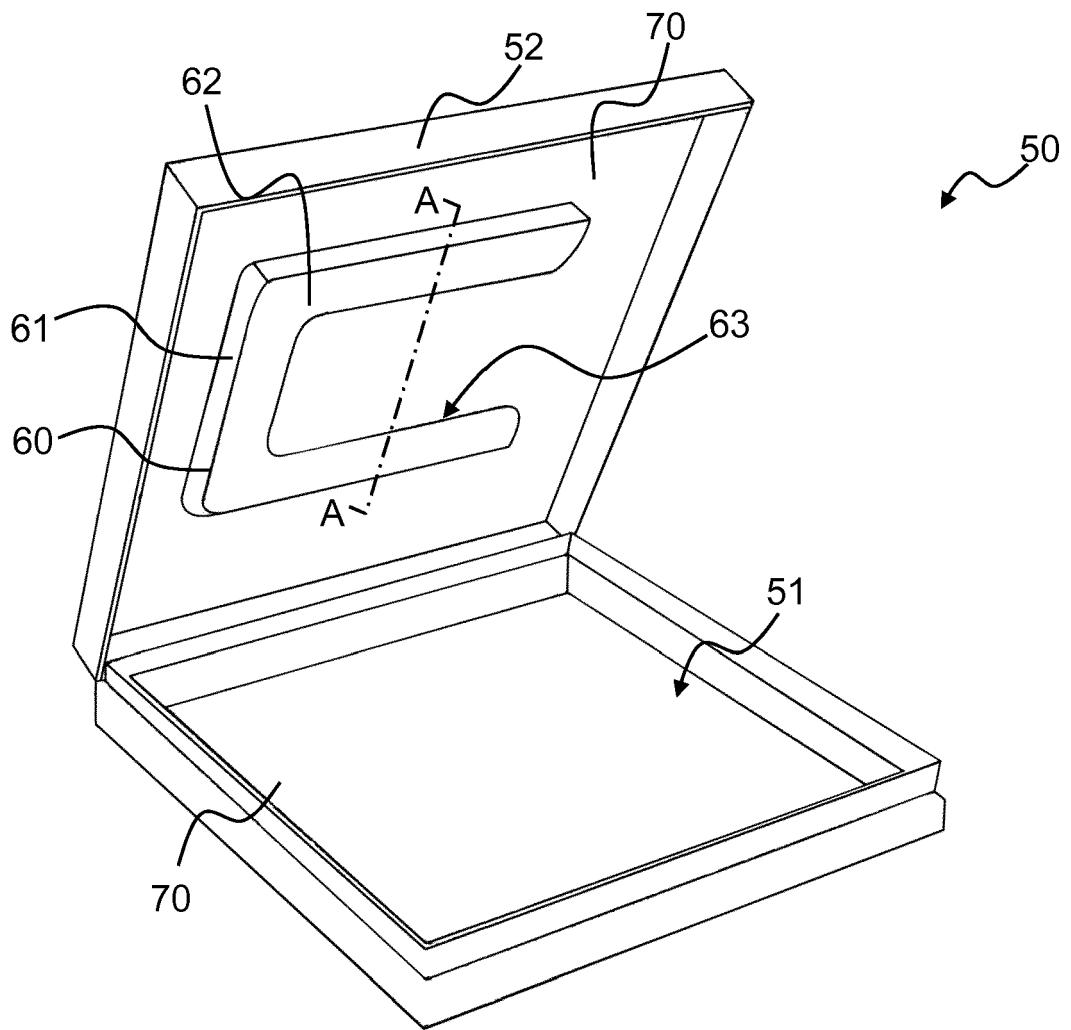


FIG. 3

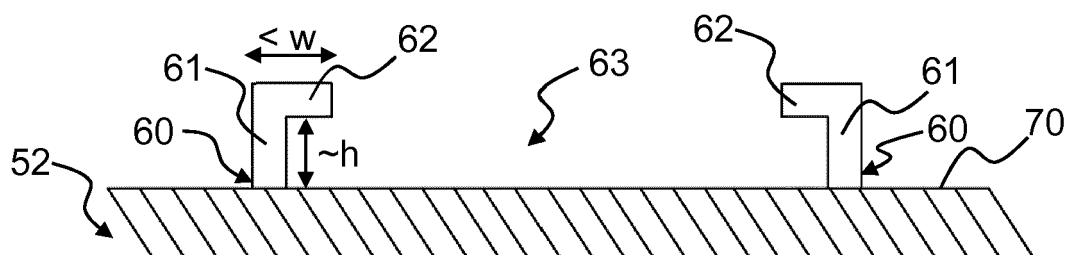


FIG. 4

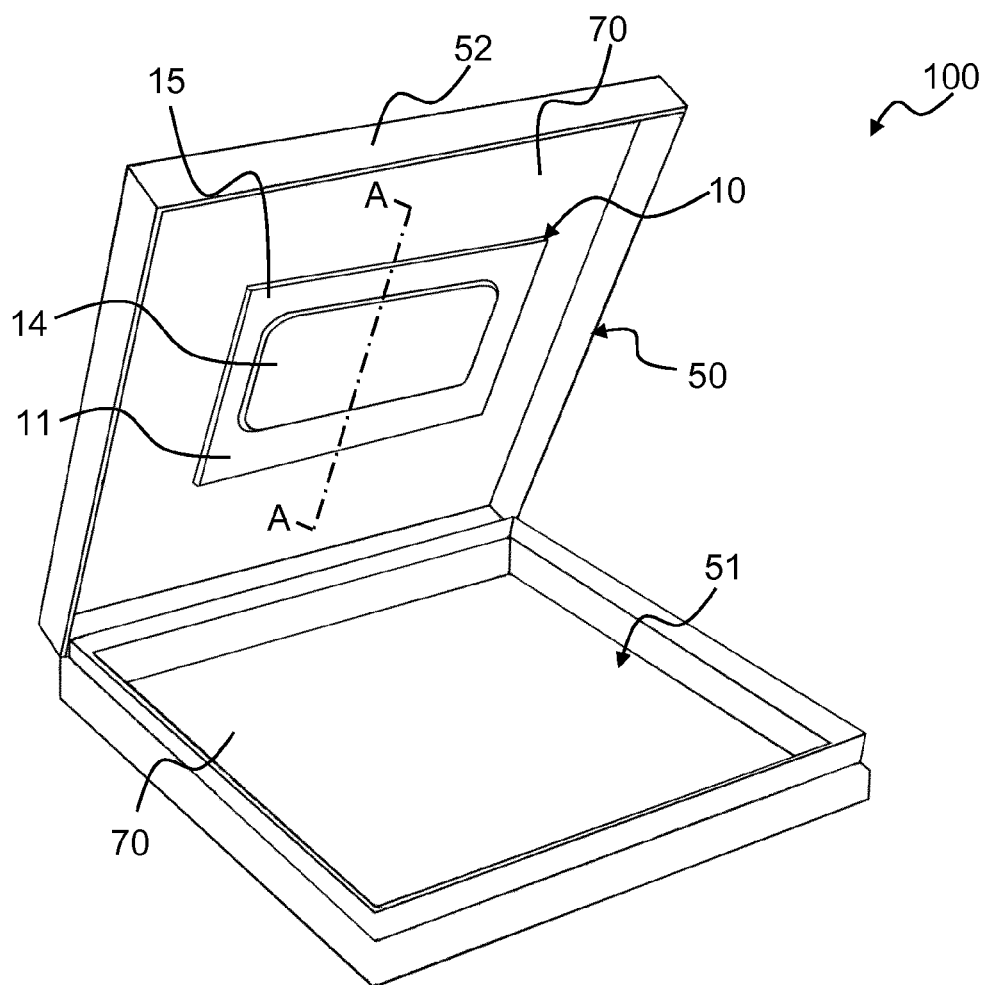


FIG. 5

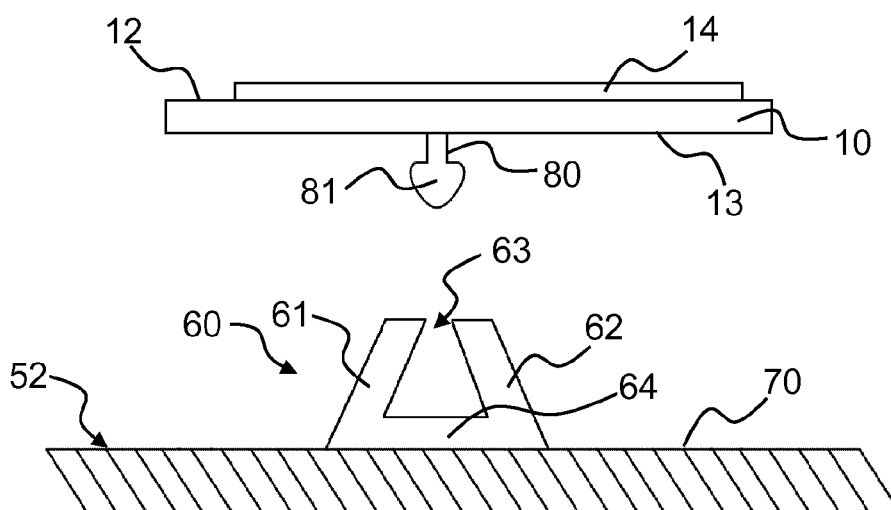


FIG. 6

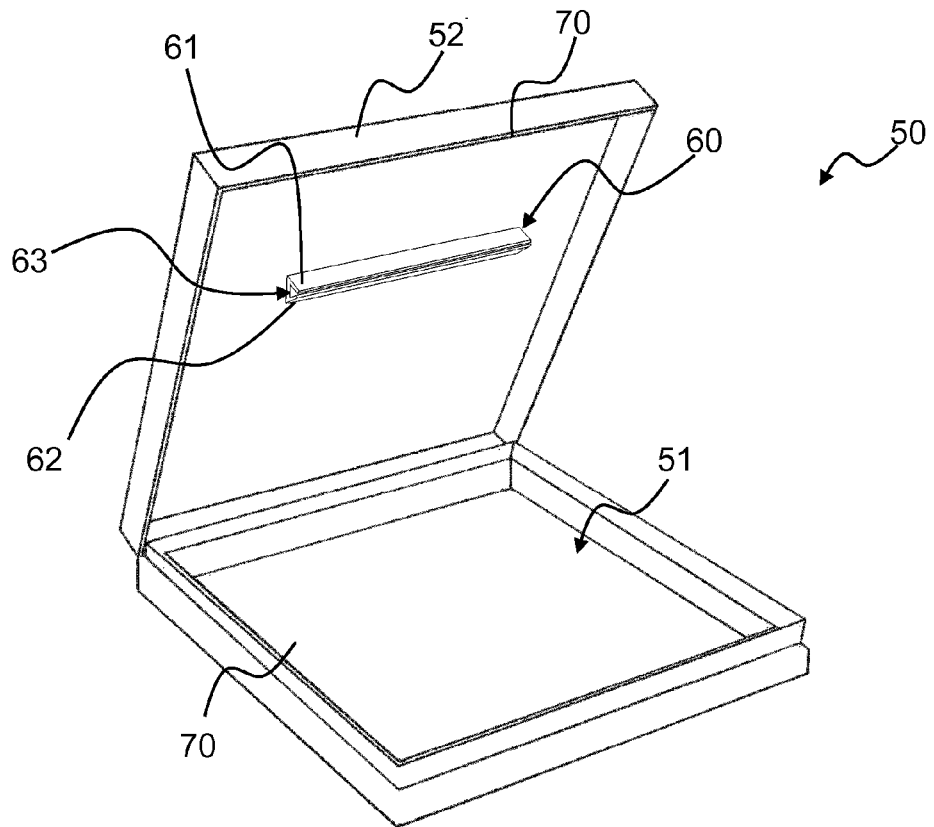


FIG. 7

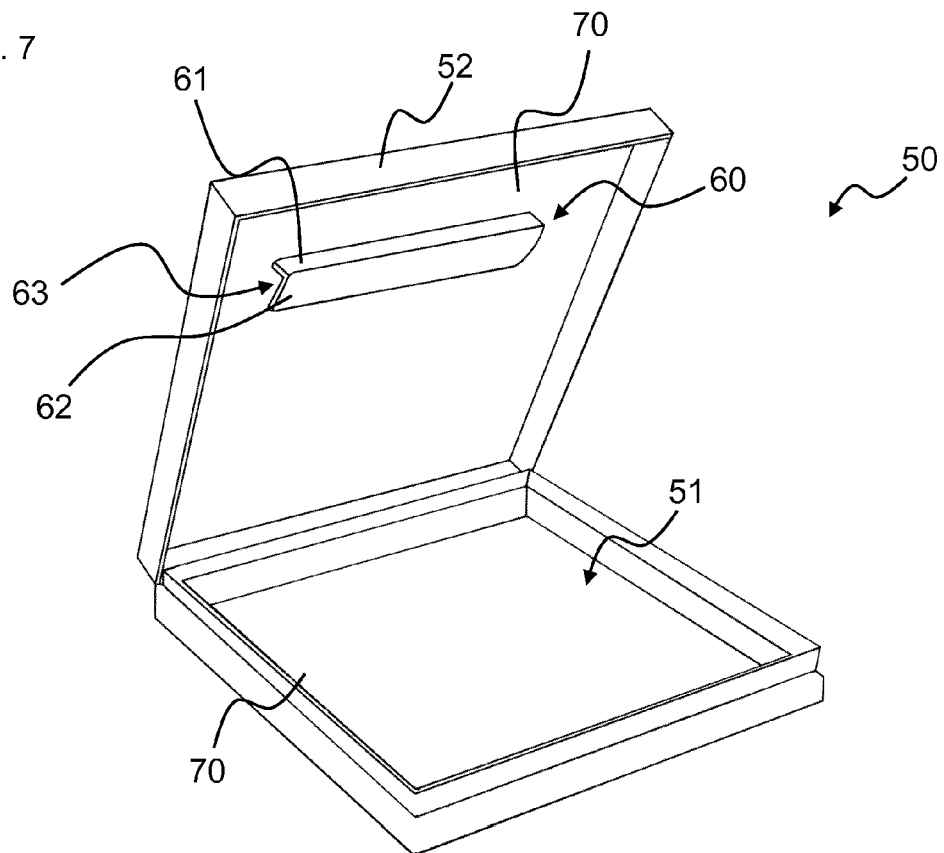


FIG. 8

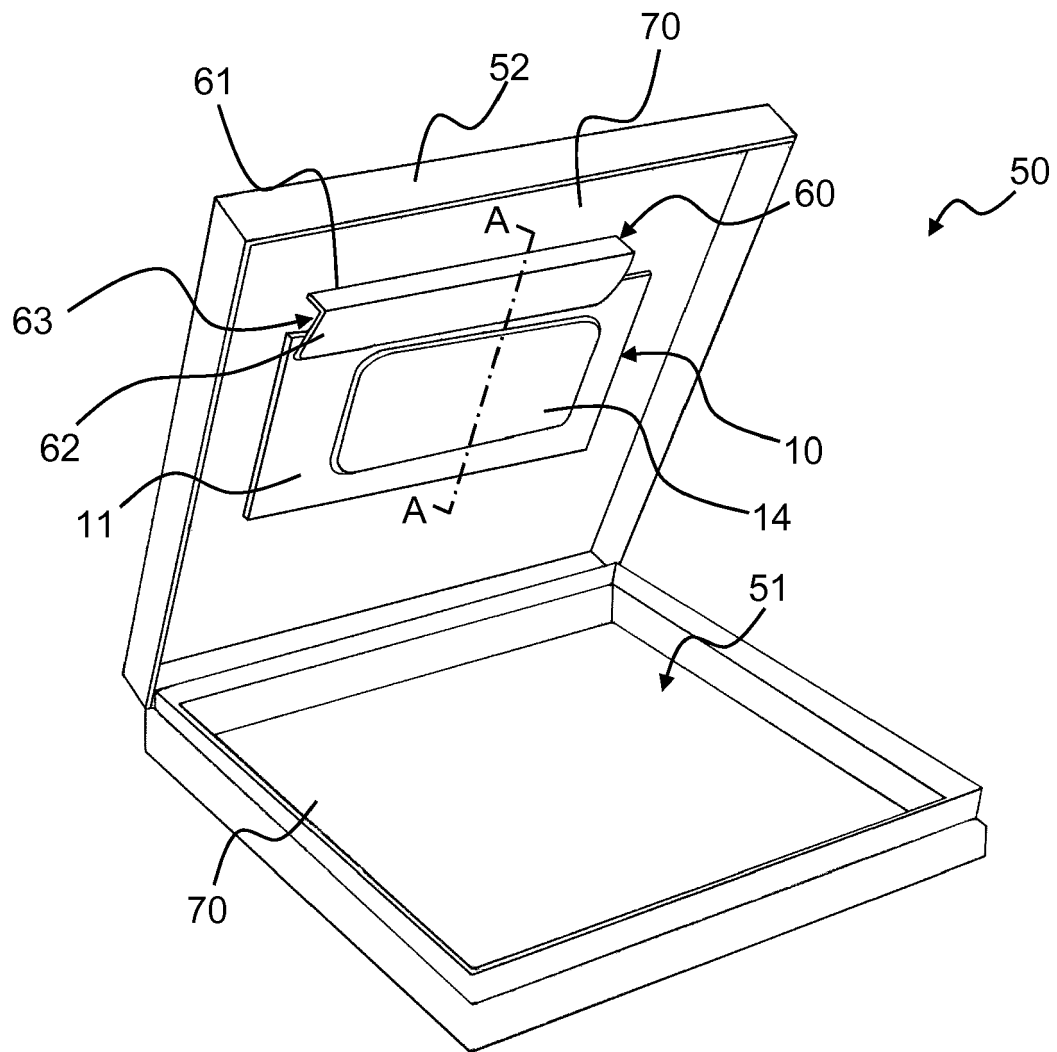


FIG. 9

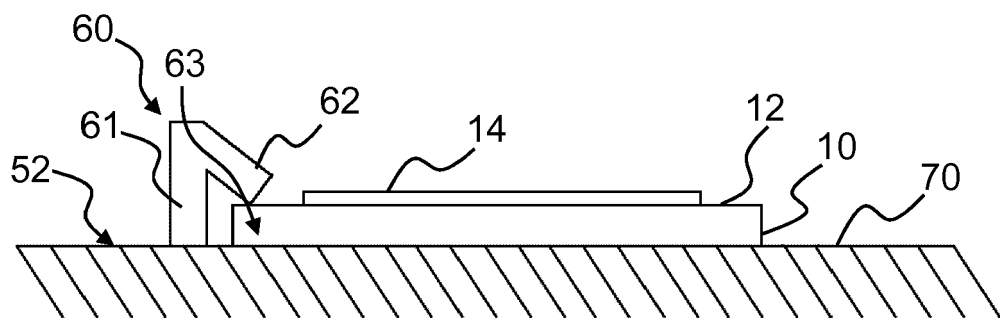


FIG. 10



EUROPEAN SEARCH REPORT

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