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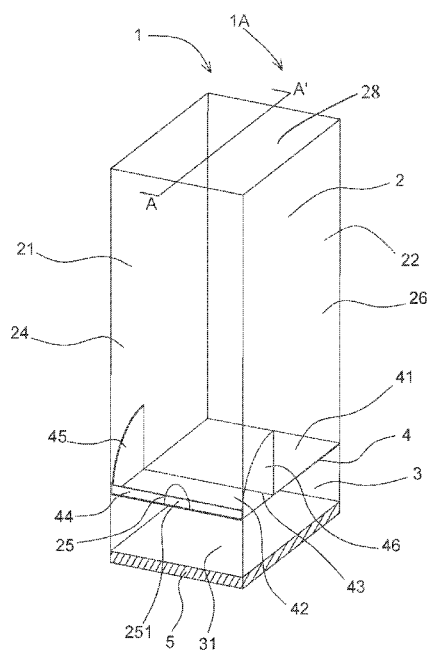


Fig.1

(57) Abstract: A dual-chamber package system (1) for absorbent articles, comprises: a retaining chamber (2) for vertically retaining a plurality of absorbent articles (10), a dispensing chamber (3) positioned underneath the retaining chamber (2), wherein the dispensing chamber (3) has a front side opening (31), and a divider (4) dividing the retaining chamber (2) and the dispensing chamber (3), wherein at least a portion of the divider (4) is moveable so that a bottommost absorbent article is dispensable from the front side opening (31) of the dispensing chamber (3).

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A DUAL-CHAMBER PACKAGE SYSTEM FOR ABSORBENT ARTICLES

FIELD OF THE INVENTION

5 The present invention relates to a dual-chamber package system for absorbent articles which is capable of self-standing.

BACKGROUND OF THE INVENTION

10 Currently, absorbent articles such as diapers and feminine pads are sold in packages. Each absorbent article is folded along its lateral axis and optionally individually wrapped, and multiple folded/wrapped absorbent particles are then stacked together and compressed into a block, which is in turn packaged and sold in stores.

15 In one configuration, the package containing the absorbent articles can also function as a dispenser, i.e., it contains a single chamber for housing the block of absorbent articles and at least one opening which is formed by removing a detachable piece off said package and from which the absorbent particles can be pulled out one by one by the user. The opening is typically provided on the top surface or at one of the side walls of the package/dispenser. However, the problem with this design is that as the number of absorbent articles decreases due to usage, the top-most absorbent article inside the single chamber of the package/dispenser may fall below the opening. In this event, the user will need to stick his/her fingers into the opening to reach for the topmost absorbent article.

20 In order to make the absorbent articles more readily accessible to the user, another configuration provides a single-chambered package/dispenser with an opening at its bottom side. In this manner, the user will always pull out the bottom-most absorbent article and will not need to reach for such article, even if there is only one absorbent article left in the package/dispenser. In this configuration, there is still a need to provide a large enough clearance area in the bottom opening to allow sufficient contact between the user's hand and the bottom-most absorbent article, because the absorbent particles are compressed together inside the chamber, and it will be difficult to pull an individual article out without sufficient contact. The requirement for such sufficiently large clearance area at the bottom side of the package/dispenser renders such package/dispenser unsuitable for direct placement on a table or a counter. Instead, it will have to be mounted onto a wall or otherwise fixated to a surface via one of its side walls or even via its top surface, so as to leave the bottom side open and clear for dispensing the

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absorbent articles. Such a design is therefore much less versatile in its placement and requires more time and consideration for assembling and mounting.

There is therefore a need for an improved package/dispenser which enables easy access of the absorbent articles by the user, but which also is more versatile in placement and does not
5 require mounting to a wall or fixation to a surface.

It is also advantageous to provide an improved package/dispenser with an opening characterized by an even larger clearance area, to allow better grip of the absorbent article by the user's hand or fingers.

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SUMMARY OF THE INVENTION

The inventors surprisingly and unexpectedly discover that introducing dual-chamber into a package system can meet the above-described need. I.e., the dual-chamber package system can provide easy access to the absorbent articles, while no additional assembling/mounting needed.

In one aspect, the present invention relates to a dual-chamber package system for
15 absorbent articles, comprising:

a retaining chamber for vertically retaining a plurality of absorbent articles,

a dispensing chamber positioned underneath the retaining chamber, wherein the dispensing chamber has a front side opening, and

a divider dividing the retaining chamber and the dispensing chamber, wherein at least
20 a portion of the divider is moveable so that a bottommost absorbent article, of the plurality of absorbent articles vertically retained in the retaining chamber, is dispensable from the front side opening of the dispensing chamber.

Preferably, the divider is comprised of a fixed portion, a movable portion and a hinge line positioned therebetween, wherein the movable portion is the at least portion of the divider that is
25 moveable.

In another aspect, the present invention relates to an absorbent article package, comprising one or more the dual-chamber package system set forth hereabove, and absorbent articles retained in the retaining chamber of the dual-chamber package system.

An advantage of the dual-chamber package system is that the dual-chamber package
30 system is free to stand by itself on any surface and no need to attached to a wall. Another advantage of the dual-chamber package system is that it can serve as either a primary packaging or preferably a retail packaging for storing absorbent articles for a shelf life.

Another advantage of the dual-chamber package system is capable to provide other functionalities, such as visual attraction for moms and/or babies by incorporating artworks on the package.

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BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which is regarded as forming the present invention, it is believed that the invention will be better understood from the following description which is taken in conjunction with the accompanying drawings and which like designations are used to designate substantially identical elements, and in which:

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Figure 1 is a schematic perspective view of one embodiment of a dual-chamber package system of the present invention in a closed configuration.

Figure 2 is a cross-sectional view along A-A' of the dual-chamber package system of Figure 1 in the closed configuration.

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Figure 3 is a schematic perspective view of the embodiment of the dual-chamber package system of the present invention in an opened configuration.

Figure 4 is a cross-sectional view along A-A' of the dual-chamber package system of Figure 3 in the opened configuration.

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Figure 5 is a schematic drawing illustrating the withdrawing procedure by a user.

DETAILED DESCRIPTION OF THE INVENTION

Features and benefits of the various embodiments of the present invention will become apparent from the following description, which includes examples of specific embodiments intended to give a broad representation of the invention. Various modifications will be apparent to those skilled in the art from this description and from practice of the invention. The scope of the present invention is not intended to be limited to the particular forms disclosed and the invention covers all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the claims.

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As used herein, the articles including "the", "a" and "an" when used in a claim or in the specification, are understood to mean one or more of what is claimed or described.

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As used herein, the terms "comprise", "comprising", "include", "including", "contain", and "containing" are meant to be non-limiting, i.e., other steps and other ingredients which do not affect the end of result can be added. The above terms encompass the terms "consisting of".

“Absorbent article” refers to articles of wear which may be in the form of pant-type diapers, taped diapers, swim diapers, feminine hygiene articles such as feminine pads and tampons, incontinent briefs, and the like which are so configured to also absorb and contain various exudates such as urine, feces, and menses discharged from the body.

5 “Longitudinal” refers to a direction running substantially perpendicular from a waist edge to an opposing waist edge of the article and generally parallel to the maximum linear dimension of the article.

“Transverse” refers to a direction perpendicular to the longitudinal direction.

10 “Proximal” and “distal” refer respectively to the position closer or farther relative to the longitudinal center of the article.

“Body-facing” and “garment-facing” refer respectively to the relative location of an element or a surface of an element or group of elements. “Body-facing” implies the element or surface is nearer to the wearer during wear than some other element or surface. “Garment-facing” implies the element or surface is more remote from the wearer during wear than some other element or surface (i.e., element or surface is proximate to the wearer’s garments that may be worn over the disposable absorbent article).

“Disposed” refers to an element being located in a particular place or position.

20 “Joined” refers to configurations whereby an element is directly secured to another element by affixing the element directly to the other element and to configurations whereby an element is indirectly secured to another element by affixing the element to intermediate member(s) which in turn are affixed to the other element.

“Film” refers to a sheet-like material wherein the length and width of the material far exceed the thickness of the material. Typically, films have a thickness of about 0.5 mm or less.

25 “Water-permeable” and “water-impermeable” refer to the penetrability of materials in the context of the intended usage of disposable absorbent articles. Specifically, the term “water-permeable” refers to a layer or a layered structure having pores, openings, and/or interconnected void spaces that permit liquid water, urine, or synthetic urine to pass through its thickness in the absence of a forcing pressure. Conversely, the term “water-impermeable” refers to a layer or a layered structure through the thickness of which liquid water, urine, or synthetic urine cannot pass in the absence of a forcing pressure (aside from natural forces such as gravity). A layer or a layered structure that is water-impermeable according to this definition may be permeable to water vapor, i.e., may be “vapor-permeable”.

“Extendibility” and “extensible” mean that the width or length of the component in a relaxed state can be extended or increased.

“Elasticated” and “elasticized” mean that a component comprises at least a portion made of elastic material.

5 “Elongatable material”, “extensible material”, or “stretchable material” are used interchangeably and refer to a material that, upon application of a biasing force, can stretch to an elongated length of at least about 110% of its relaxed, original length (i.e. can stretch to 10 percent more than its original length), without rupture or breakage, and upon release of the applied force, shows little recovery, less than about 20% of its elongation without complete
10 rupture or breakage as measured by EDANA method 20.2-89. In the event such an elongatable material recovers at least 40% of its elongation upon release of the applied force, the elongatable material will be considered to be “elastic” or “elastomeric.” For example, an elastic material that has an initial length of 100 mm can extend at least to 150 mm, and upon removal of the force retracts to a length of at least 130 mm (i.e., exhibiting a 40% recovery). In the event the material
15 recovers less than 40% of its elongation upon release of the applied force, the elongatable material will be considered to be “substantially non-elastic” or “substantially non-elastomeric”. For example, an elongatable material that has an initial length of 100 mm can extend at least to 150 mm, and upon removal of the force retracts to a length of at least 145 mm (i.e., exhibiting a 10% recovery).

20 “Artwork” refers to a visual presentation to the naked eye, which is provided by printing or otherwise, and having a color. Printing includes various methods and apparatus well known to those skilled in the art such as lithographic, screen printing, flexographic, and gravure ink jet printing techniques.

25 “Color” or “Colored” as referred to herein includes any primary color except color white, i.e., black, red, blue, violet, orange, yellow, green, and indigo as well as any declination thereof or mixture thereof. The color white is defined as those colors having an L* value of at least 94, an a* value equal to 0 ± 2 , and a b* value equal to 0 ± 2 according to the CIE L* a* b* color system.

30 “Primary packaging” refers to packaging that is in direct contact with the absorbent article herein and distinguished from “retail packaging”. “Retail packaging” refers to packaging that encases or encompasses the primary packaging. Retail packaging may encase one or more of the primary packaging. Any packaging that contains the primary packaging is referred to as

“retail packaging”, namely, a tertiary packaging that encase a secondary packaging are also collectively referred to as “retail packaging”.

Relative positional terms (e.g., “bottom,” “top,” “side,” “upper,” “lower,” “horizontal,” “vertical,” etc.) are used herein with respect to the orientation of the packaging as intended for display in retail sales or in-use environments according to artwork provided to the packaging or otherwise.

“Self-standing” refers to a state in which the packaging can maintain the intended display configuration for the length of the intended life cycle of the merchandize, typically 3 years.

As used herein, all concentrations and ratios are on a weight basis unless otherwise specified. All temperatures herein are in degrees Celsius (°C) unless otherwise indicated. All conditions herein are at 20°C and under the atmospheric pressure, unless otherwise specifically stated. All polymer molecular weights are by average number molecular weight unless otherwise specifically noted.

Figure 1 shows a schematic perspective view of one embodiment of a dual-chamber package system (1) of the present invention in a closed configuration (1A). The dual-chamber package system (1) comprising a retaining chamber (2) and a dispensing chamber (3). The retaining chamber (2) has a front wall (21), a back wall (22), a left wall (24), a right wall (26), and a top wall (28). The retaining chamber (2) may retain a plurality of absorbent articles which are vertically packed. The dispensing chamber (3) is positioned underneath the retaining chamber (2), where the dispensing chamber (3) has a front side opening (31). The dual-chamber package system further comprises a divider (4) which divides the retaining chamber (2) and the dispensing chamber (3).

The dual-chamber package system (1) may be made by non-metal materials. The dual-chamber package system (1) may be made by reinforced pulp material typically referred to as carton or cardboard, hardened plastic such as high density polyethylene or polyethylenephthalate, or combinations thereof, which provide enough rigidity to self-stand.

Figure 2 shows a cross-sectional view along A-A' direction of the dual-chamber package system (1) of Figure 1 in the closed configuration (1A).

Referring to both Figure 1 and Figure 2, the divider (4) comprises a fixed portion (41), a movable portion (42) and a hinge line (43) positioned therebetween, where the movable portion (42) is the at least portion of the divider that is operationally moveable. The fixed portion (41) has a fixed portion plane, and this fixed portion plane may be a horizontal plane. The movable

portion (42) has a movable portion plane. The movable portion plane of the movable portion (42) is on the same plane as the fixed portion plane of the fixed portion (41) in a closed configuration.

Still referring to Figure 1 and figure 2, the movable portion (42) of the divider (4) may further comprise a front flap (44), and the front flap (44) may oppose the hinge line (43). Such front flap (44) extends along a plane (not shown) essentially orthogonal to the movable portion plane of the movable portion (42). The front flap (44) is engageable to the retaining chamber (2). In one example, the front flap (44) may be frictionally engaged with the front wall (21) of the retaining chamber (2) by inserting into the retaining chamber (2) when the movable portion (42) is in the closed position. Alternatively, the front flap (44) may also be engaged with the front wall (21) by any other suitable means. The front flap (44) of the divider (4) may be at least partially bonded with the front wall (21) of the retaining chamber (2) by e.g. glue, or pressure, or double side adhesive tape etc.

The movable portion (42) of the divider (4) may further comprise at least a first side flap (45) on one side of the movable portion (42) that extends along a plane (not shown) essentially orthogonal to the movable portion plane of the movable portion (42). The movable portion (42) of the divider (4) may further comprise a second side flap (46) on another side of the movable portion (42) opposing to the first side flap (45) that extends along a plane essentially orthogonal to the movable portion plane of the movable portion (42). Herein the term "essentially" is a recognition that the flap may not be completely vertically, i.e., 90 degrees relative to the movable portion plane but rather there could be some tolerances or design modifications so that the "flap" is +/- 15 degrees from being vertical. Referring to Figure 1, when the movable portion (42) is in the closed position, the first side flap (45) is adjacent to the left wall (24) of the retaining chamber (2), while the second side flap (46) is adjacent to the right wall (26) of the retaining chamber (2). The first side flap (45) may be frictionally engaged with the left wall (24) of the retaining chamber (2), and the second side flap (46) is frictionally engaged with the right wall (26) of the retaining chamber (2). Herein the left wall (24) and the right wall (26) is referred by viewing from facing the front opening of the dispensing chamber. The intersection of the first side flap (45) and the movable portion (42) may extend through either a part of or the whole of side length of the movable portion (42). The shape of the first or second side flap may be of any suitable shape, e.g. a half-circle, quarter-circle, etc.

The front wall (21) of the retaining chamber (2) may comprise a line of weakness (25) at the bottom portion of the front wall (21). The line of weakness (25) may be positioned in the central part of the bottom portion of the front wall (21). The line of weakness (25) may be

configured to form a thumb-shape opening (252) at the lower edge of the front wall (21). The thumb-shaped opening (252) may have a height equal to or exceeding the thickness of one piece of the absorbent article but smaller than twice the thickness thereof.

Figure 3 shows a schematic perspective view of the embodiment of the dual-chamber package system (1) of the present invention in an opened configuration (1B).

The movable portion plane of the movable portion (42) may move downward along the hinge line (43) to reach an opened position from the closed position, at which the fixed portion plane and the movable portion plane forms an angle (θ) of less than 180 degree, or from about 90 degree to about 165 degree, or from about 120 degree to about 150 degree.

Upon the opening action, the front flap (44) may be disengaged from the front wall (21) of the retaining chamber (2) and move downward together with the movable portion (42) while maintaining essentially orthogonal to the movable portion plane of the movable portion (42). The first and second side flap (45, 46) may move downward along the hinge line (43) together with the movable portion (42) while maintaining essentially orthogonal to the movable portion plane of the movable portion (42). The side flap(s) may help protect the absorbent articles from being exposed to outside environment to avoid any potential contamination.

One approach for opening the dual-chamber package system (1) is to press and open the line of weakness (25) on the front wall (21). Upon pressing and open the line of weakness (25), a tab (251) is formed which is attached to the movable portion (42) by structurally engaging with the front flap (44) of the divider (4) after being disconnected from the front wall (21).

The dual-chamber package system (1) may further comprise a footer (5) forming a bottom inside surface (32) of the dispensing chamber (3), which opposes the bottom surface of the fixed portion (41) of the divider (4)). The footer (5) may have a height of about 0.5 cm to about 2 cm, or from about 0.8 cm to about 1.5 cm. The height is measured between the bottom inside surface (32) of the dispensing chamber (3) and the outer bottom surface of the dual-chamber package system. The footer (5) is provided to prevent the bottommost absorbent article (100) pulled out of the retaining chamber (2) through the dispensing chamber (3) from touching the surface on which the dual-chamber package system (1) stands.

Figure 4 shows a cross-sectional view along A-A' of the dual-chamber package system (1) of Figure 3 in the opened configuration (1B).

The fixed portion (41) of the divider (4) has a length (L1) which is along a direction on the movable portion plane orthogonal to the hinge line (43), and preferably is the distance between the hinge line (43) and the back wall (22) of the retaining chamber (2). The movable

portion (42) of the divider (4) has a length (L2) which is along a direction on the movable portion plane orthogonal to the hinge line (43), preferably is the distance between the hinge line (43) and the front wall of the retaining chamber (2). The ratio of the length (L2) of the movable portion (42) to the length (L1) of the fixed portion (41) is from about 5:1 to about 1:8, or from about 2:1 to about 1:5, or from about 1:1 to about 1:4. For example, ratio of L2:L1 could be about 1:3. If the length L2 is too short, the user has difficulty to put fingers to seize the bottommost absorbent article. If the length L2 is too long, the bottommost absorbent article may fall out of the retaining chamber (2) into the dispensing chamber (3).

The front side opening (31) of the dispensing chamber (3) has a height (H) which is the distance between the upper inside surface (32) to the bottom inside surface (33) of the dispensing chamber (3), i.e. from the bottom surface of the fixed portion (41) of the divider (4) to the top surface of the footer (5). In such case, upon opening, the movable portion (42) of the divider (4) abuts the bottom inside surface (33) of the dispensing chamber (3) where the angle (θ) between the movable portion plane of the movable portion (42) with the fixed portion plane of the fixed portion (41) may be from more than about 90 degree to about 150 degree.

In some embodiments, the absorbent articles are contained in a primary packaging which is further retained in the retaining chamber (2) of the dual-chamber package system (1). That is, the retaining chamber (2) contains a primary packaging housing a plurality of absorbent articles. Herein "primary packaging" refers to packaging that is in direct contact with the absorbent article. For articles such as feminine pads and tampons which may be housed in, or covered by an individual applicator/release paper/film, such applicator/release paper/film is considered part of the absorbent article.

The primary packaging may be formed of a single layer or multilayer polyolefin film having a desirable combination of relatively low material cost, strength and weldability at relatively low temperatures. When a multilayer film is used, the outer and inner layers may be co-formed (such as by co-extrusion), or in another example, may be separately formed and then laminated together following their formation, by use of a suitable laminating adhesive. In this latter example, an advantage provided is that one of the layers may be printed on one side before lamination. Following that, the printed side may be faced inward (facing the other layer(s)) during lamination, such that it is protected by the other layer(s) from abrasion and wear in the finished film product, thereby preserving the integrity of the printed images, graphics, verbal content, etc. A suitable multilayer film may be formed of one or more polyolefins, such as polypropylene and polyethylene. In one example, the stock film may have at least two layers,

including a first layer of polyethylene and second layer of polypropylene. In one example, a layer formed of polypropylene having a first relatively higher melting temperature, and a layer of polyethylene having a second relatively lower melting temperature, may be used to form the outer and inner layers, respectively. The absorbent articles could be diapers, or feminine hygiene articles. When the absorbent article is a diaper, a pre-determined number of diapers are folded, stacked, and compressed, prior to being enclosed in primary packaging formed of polymer film. For example, the diapers are each folded at a transverse centerline and stacked in the retaining chamber (2) with the fold line towards the front wall. For purposes of efficiency in shipment, storage, and display, a certain amount of compression is applied to the stack of diapers. The amount of compression to be applied may be determined according to the number of diaper pads to be included per package, and in consideration of the influence of the compression force applied to the diaper. The in-bag compression of the package of the present invention is typically in the range of from about 1000 Pa to about 10000 Pa. The primary packaging may accommodate from about 5 to about 50 articles. For sake of manufacturing efficiency, the primary packaging may be the same as those regularly supplied to the market for daily usage.

The primary packaging may be provided with a line of weakness, by perforation or otherwise, for enabling the user to tear open the film for retrieving the absorbent articles from the primary packaging. In a situation where the retaining chamber (2) contains a primary packaging which accommodates a plurality of absorbent articles, the line of weakness provided on the primary packaging is at least partially overlapping with and preferably further structurally attached to the line of weakness (25) at the lower edge of the front wall (21) of the retaining chamber (2), so that these overlapped and structurally attached two layers of line of weaknesses can be torn open together by a user.

Figure 5 is a schematic drawing illustrating the withdrawing procedure by a user. Folded diapers are drawn as exemplary absorbent articles (10) and the number of diapers in the figure is only for purpose of illustration. By pressing the line of weakness, a tab (251) configured by the line of weakness together with the movable portion (42) of the divider is disconnected from the front edge of the retaining chamber, and move downwards. The thumb is introduced through the opening configured by the line of weakness and separates the bottommost diaper (100) from the second bottommost diaper. The bottommost diaper (100) is seized between thumb and the fingers, slightly tilted downwards in the seized region, and then withdrawn at an angle in forward/downward directions through the dispensing chamber. The second bottommost diaper falls due to gravity.

The dual-chamber package system (1) may further comprise an artwork, the information selected from the group consisting of: visual presentation, information for using the absorbent article, developmental information associated with the absorbent article, developmental information unassociated with the absorbent article, and combinations thereof. The information
5 provided in each artwork is selected according to the purpose of the package system and the types of absorbent articles to be housed in each package system. The unique artwork may be one associated with the brand of the merchandize, a character, or any other attractive visual presentation. For example, the unique artwork could be a drawing or figure of an animal, such as panda, elephant, cat, dolphin, or Chinese Zodiacs.

10 The artwork may be provided at least on the front wall (21) of the retaining chamber (2). In a preferred embodiment, the line of weakness (25) on the front wall (21) of the retaining chamber (2) constitutes part of an artwork on the front wall. For example, the line of weakness (25) may constitute a mouth of a panda artwork, upon tearing of the tab (251) off the front wall, the thumb-shape opening is showed as an open mouth of a smiling panda.

15 The dual-chamber package system (1) could be cuboids or block shapes, wherein the retaining chamber (2) is preferably a cuboid or block shape. In some embodiments, the dual-chamber package system (1) has a horizontal cross section of rectangular shape, having a width of from about 5 cm to about 40 cm, or from about 15 cm to about 30 cm, or from about 18 cm to about 26 cm; and a length of from about 5 cm to about 40 cm, or from about 15 cm to about 35
20 cm, or from about 25 cm to about 33 cm. Such dimensions are suitable for receiving e.g. once-folded diapers and ensuring the absorbent articles stacking reliably. The total height of the dual-chamber package system (1) is from about 20 cm to about 60 cm, or from about 35 cm to about 55 cm, or from about 38 cm to about 52 cm. The retaining chamber (2) may have a height from about 20 cm to about 50 cm, or from about 35 cm to about 50 cm, to receiving a certain number
25 of vertically stacked diapers, e.g. about 5 to about 50 diapers.

The dual-chamber package system (1) may further comprise a handle, preferably positioned at either the top wall (28) or the back wall (22) of the retaining chamber (2). Preferably, the handle may be made of any suitable materials and may be made to any forms so long as it may be handled. For example, the handle may be made by the same material as the
30 dual-chamber package system. Alternatively, the handle may be made by ribbons, elastic material, and otherwise. Handle having ornamental features such as ribbons and elastic material may be attractive for certain purposes.

The dual-chamber package system (1) may further accommodate in the dispensing chamber (3) articles other than absorbent articles and associated with child bearing, such as wipes, clothing, bibs, toys, and otherwise.

5 The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as “40 mm” is intended to mean “about 40 mm”. Further, every numerical range given throughout this specification includes every narrower numerical range that falls within such broader numerical range.

10 Every document cited herein, including any cross referenced or related patent or application and any patent application or patent to which this application claims priority or benefit thereof, is hereby incorporated herein by reference in its entirety unless expressly excluded or otherwise limited. The citation of any document is not an admission that it is prior art with respect to any invention disclosed or claimed herein or that it alone, or in any
15 combination with any other reference or references, teaches, suggests or discloses any such invention. Further, to the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

20 While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

What is claimed is:

1. A dual-chamber package system (1) for absorbent articles, comprising:
 - a retaining chamber (2) for vertically retaining a plurality of absorbent articles (10),
 - a dispensing chamber (3) positioned underneath the retaining chamber (2), wherein the dispensing chamber (3) has a front side opening (31), and
 - a divider (4) dividing the retaining chamber (2) and the dispensing chamber (3),wherein at least a portion of the divider (4) is moveable so that a bottommost absorbent article (100), of the plurality of absorbent articles (10) vertically retained in the retaining chamber (2), is dispensable from the front side opening (31) of the dispensing chamber (3).
2. The dual-chamber package system (1) for absorbent articles according to claim 1,
 - wherein the divider (4) is comprised of a fixed portion (41), a movable portion (42) and a hinge line (43) positioned therebetween,
 - wherein the movable portion (42) is the at least portion of the divider that is moveable.
3. The dual-chamber package system (1) for absorbent articles according to claim 2,
 - wherein the fixed portion (41) has a fixed portion plane,
 - wherein the movable portion (42) has a movable portion plane,
 - wherein the movable portion plane of the movable portion (42) is on the same plane as the fixed portion plane of the fixed portion (41) in a closed position, and moves downward along the hinge line (43) to reach an opened position, at which the fixed portion plane and the movable portion plane forms an angle less than 180 degree, preferably from 90 degree to 165 degree, more preferably from 120 degree to 150 degree.
4. The dual-chamber package system (1) for absorbent articles according to claims 2 or 3,
 - wherein the movable portion (42) of the divider (4) further comprises a front flap (44) that extends along a plane essentially orthogonal to the movable portion plane of the movable portion (42),
 - wherein the front flap (44) is engageable to the retaining chamber (2).
5. The dual-chamber package system (1) for absorbent articles according to any of claims 2 to 4,

wherein the movable portion (42) of the divider (4) further comprises at least a first side flap (45) on one side of the movable portion (42) that extends along a plane essentially orthogonal to the movable portion plane of the movable portion (42);

preferably wherein the movable portion (42) of the divider (4) further comprises a second side flap (46) on another side of the movable portion (42) opposing to the first side flap (45) that extends along a plane essentially orthogonal to the movable portion plane of the movable portion (42).

6. The dual-chamber package system (1) for absorbent articles according to any of claims 2 to 5, wherein the dispensing chamber (3) further comprises a footer (5) forming the bottom inside surface (32) of the dispensing chamber (3), wherein the footer has a height of 0.5 cm to 2 cm, preferably from 0.8 cm to 1.5 cm.
7. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, wherein the retaining chamber (2) comprises a front wall (21), at the bottom of which provides a line of weakness (25), said line of weakness (25) is configured to form a tab (251) which is attached to the movable portion (42) by structurally engaging with the front flap (44) of the divider (4) after be disconnected from the front wall (21); preferably the line of weakness (25) is positioned in the central part of the bottom of the front wall (21).
8. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, wherein the ratio of the length (L2) of the movable portion (42) to the length (L1) of the fixed portion (41) is from 5:1 to 1:8, preferably from 2:1 to 1:5, preferably from 1:1 to 1:4.
9. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, wherein the length (L2) of the movable portion (42) is smaller or equal to the height (H) of the front side opening (31) of the dispensing chamber (3).
10. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, wherein the dual-chamber package system (1) has a horizontal cross section of rectangular shape, having a width of 5 cm to 40 cm, preferably from 15 cm to 30

cm, and more preferably from 18 cm to 26 cm; and a length of 5 cm to 40 cm, preferably from 15 cm to 35 cm, more preferably from 25 cm to 33 cm.

11. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, wherein the retaining chamber (2) further comprises an artwork at least on the front wall (21), preferably the line of weakness (25) constitutes part of the artwork.
12. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, further comprising a handle, preferably positioned at either the top wall (28) or the back wall (22) of the retaining chamber (2).
13. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, further comprising a primary packaging which accommodate the absorbent articles, wherein preferably the absorbent articles are diapers.
14. The dual-chamber package system (1) for absorbent articles according to any of the preceding claims, where the dual-chamber package system (1) is made of non-metal material, preferably is made of materials selected from the group consisting of carton or cardboard, hardened plastic such as high density polyethylene or polyethylenephthalate, or combinations thereof.
15. An absorbent article package, comprising one or more the dual-chamber package system (1) according to any of the preceding claims, and absorbent articles retained in the retaining chamber (2).

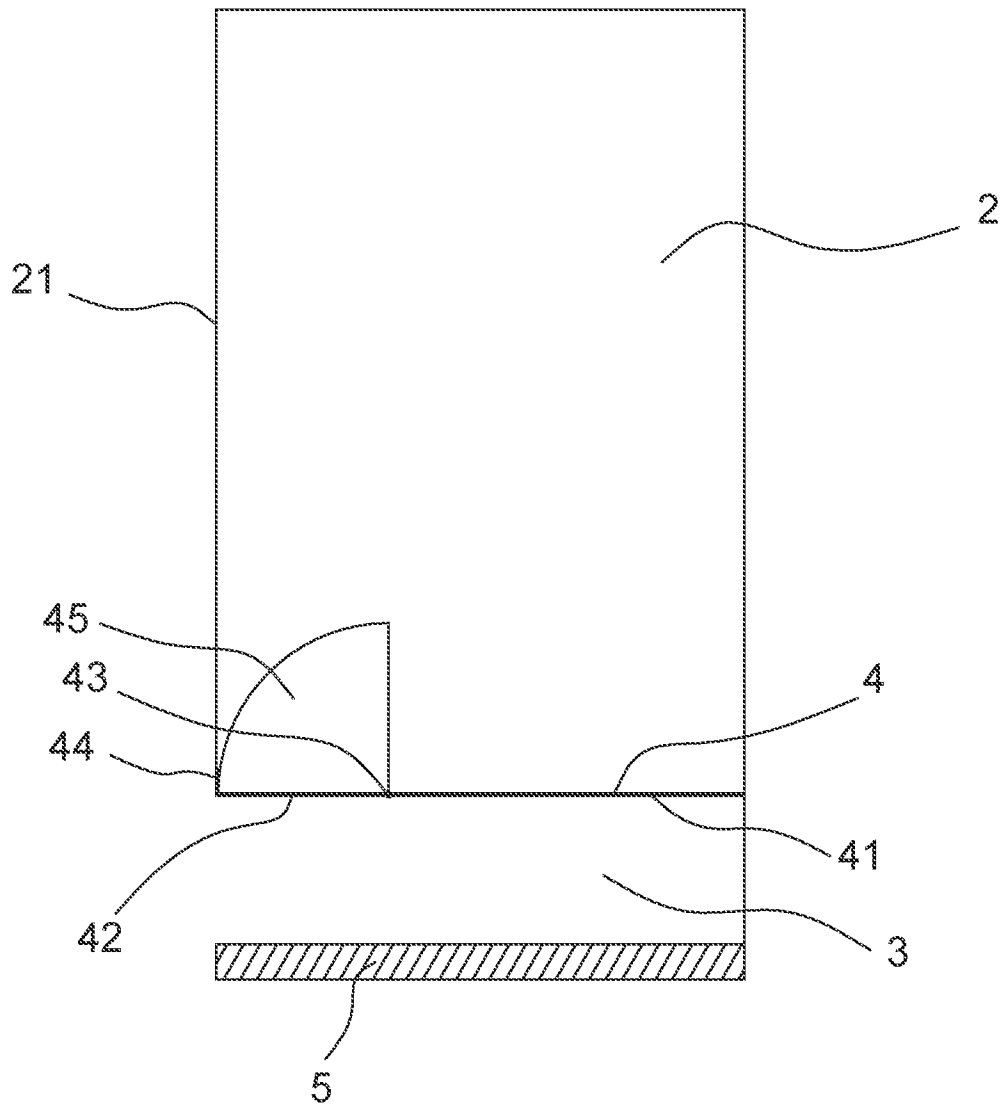


Fig.2

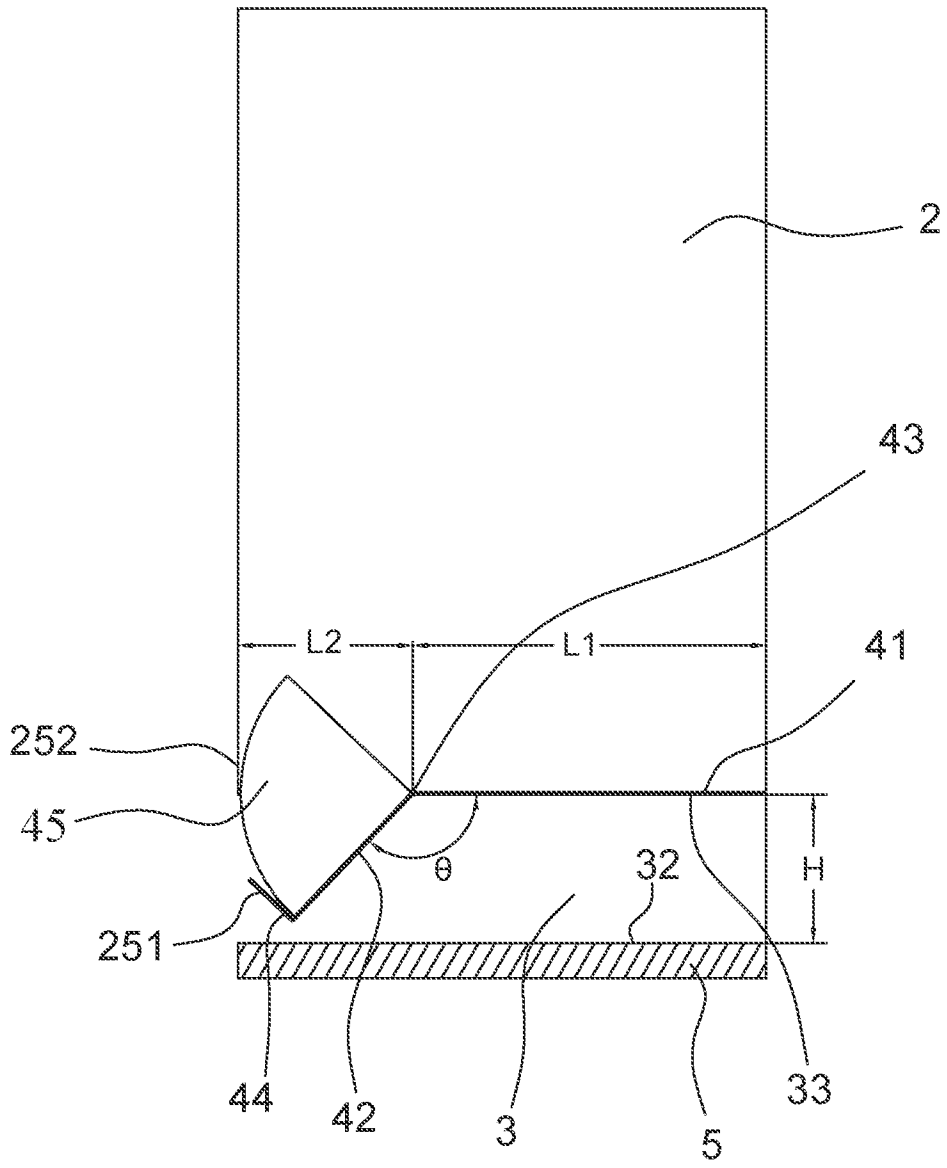


Fig.4

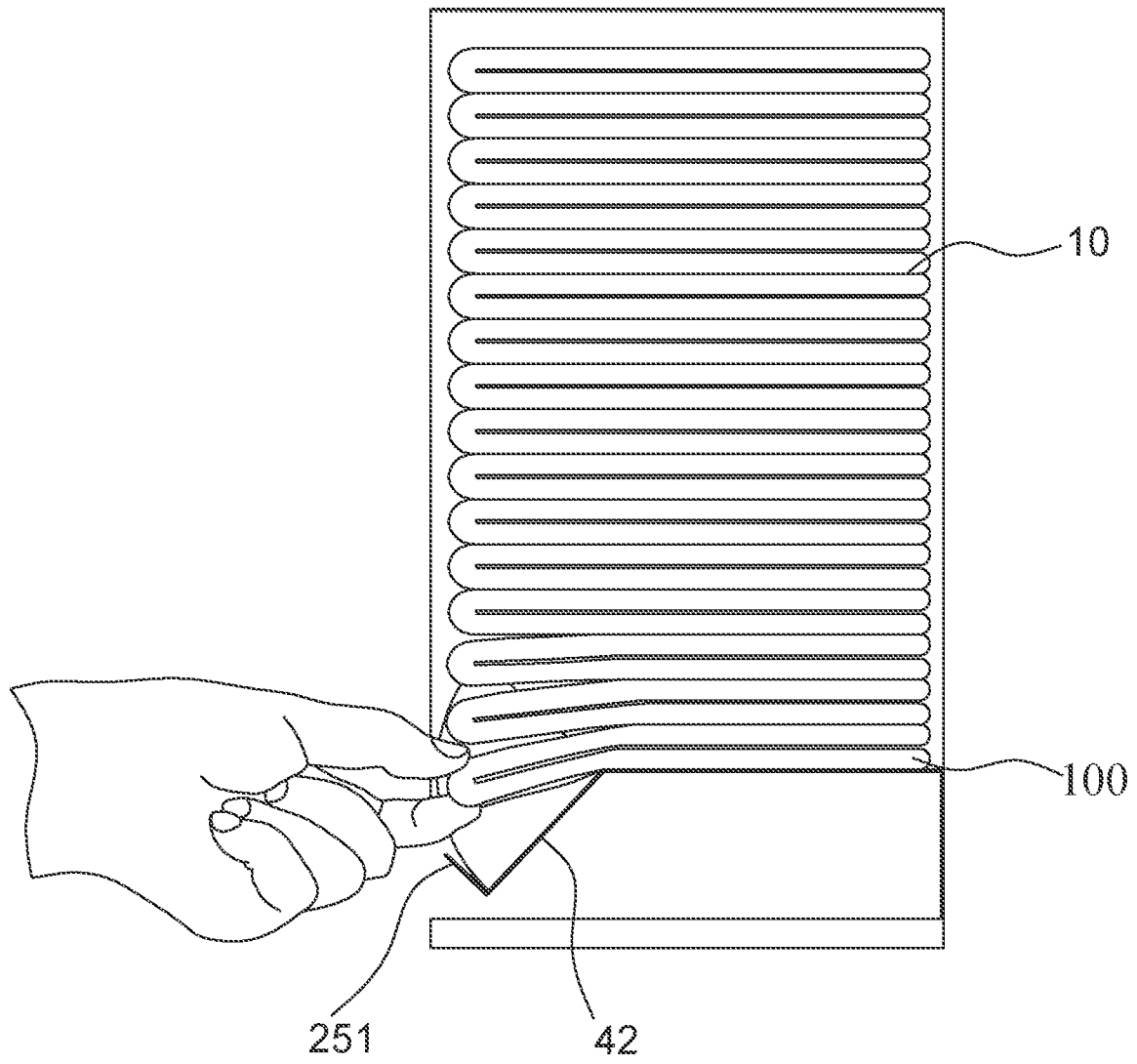


Fig.5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2017/094429

A. CLASSIFICATION OF SUBJECT MATTER		
B65D 71/22(2006.01)i; B65D 71/24(2006.01)i; A61F 13/47(2006.01)i		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) B65D;A61F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNABS,SIPOABS,DWPI,CNKI,GOOGLE,PATENTICS: package,absorbent,chamber,open+,bottom,divider,dispens+,mov+,hinge,pad,feminine,vertically,downward		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 103096859 A (EAZY PAC DANMARK AS.) 08 May 2013 (2013-05-08) claim 2, figures 1-5	1-15
A	CN 101854900 A (SCA HYGIENE PRODUCTS ABSCA HYGIENE PROD. AB.) 06 October 2010 (2010-10-06) claims 1-8, figures 1	1-15
A	CN 201354191 Y (WANG, MEI) 02 December 2009 (2009-12-02) figures 1-2	1-15
A	CN 202807340 U (HUANG, HUAYI) 20 March 2013 (2013-03-20) paragraph[0013], figure 1	1-15
A	CN 203419338 U (LIU, XIJUN) 05 February 2014 (2014-02-05) paragraphs[0027]-[0032]	1-15
A	EP 0938437 A1 (SCA HYGIENE PROD. AB.) 01 September 1999 (1999-09-01) paragaphs[0011]-[0029]	1-15
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 22 March 2018		Date of mailing of the international search report 08 April 2018
Name and mailing address of the ISA/CN STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 China		Authorized officer LIU,Haoying
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2017/094429

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