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(54) **INTEGRATED CLOSURE FEATURE FOR PACKAGING SYSTEM**

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(75) Inventor: **Laurel Thomas**, Richmond, VA (US)

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(73) Assignee: **MEADWESTVACO CORPORATION**, Richmond, VA (US)

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(57) **ABSTRACT**

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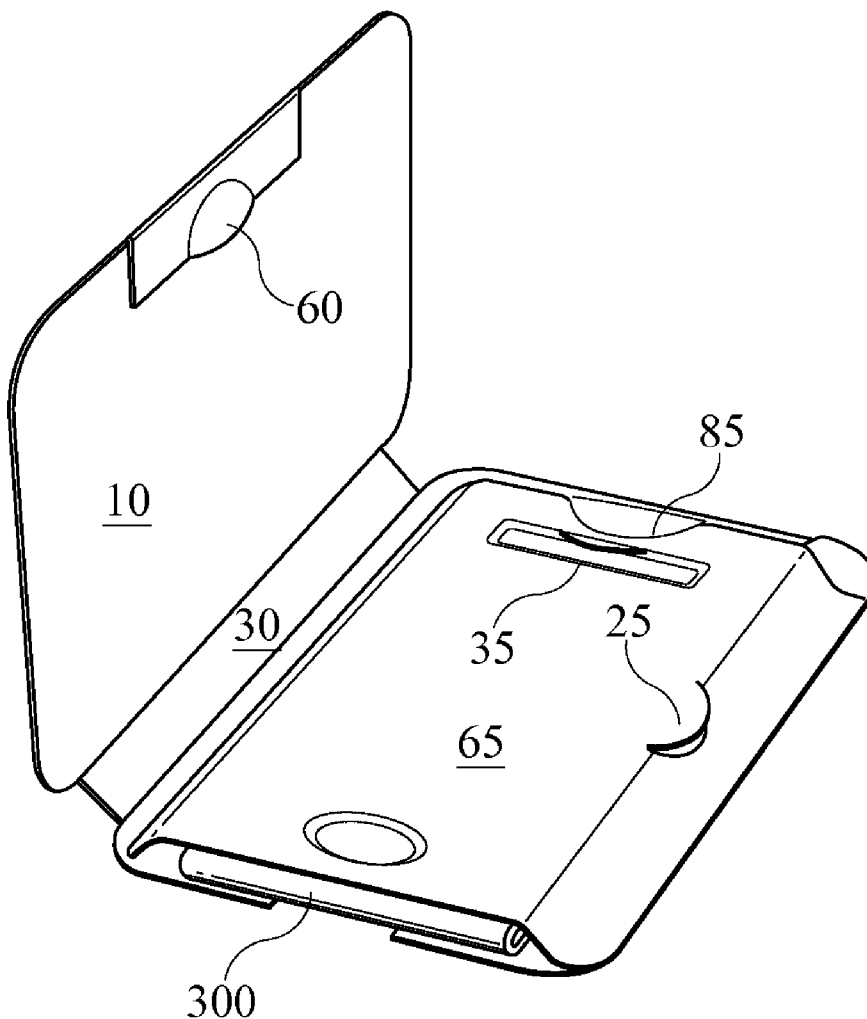
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An integrated closure feature for a package including a tab (25) integrated into the raised surface of a vaulted carton and an outer cover secured to the carton possessing a pocket into which the tab fits, providing a secure lock for the package. The package is capable of housing and dispensing a unit dose product such as a blister pack. The product to be dispensed is contained on an internal slide card (300) that is removably and lockably engaged within an inner chamber. The package possesses a secure lock which provides a child resistant and user-friendly dosing means that can be opened and closed numerous times while in use, then disposed of when all the unit doses are exhausted.

**Related U.S. Application Data**

(60) Provisional application No. 61/082,663, filed on Jul. 22, 2008.



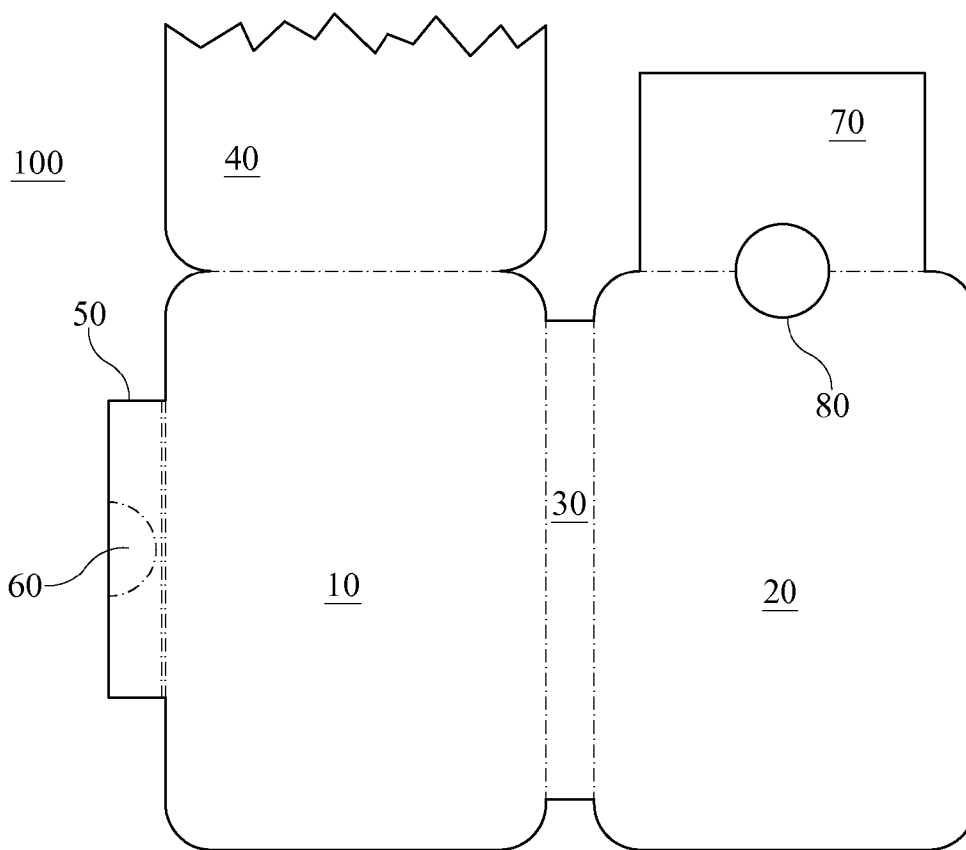
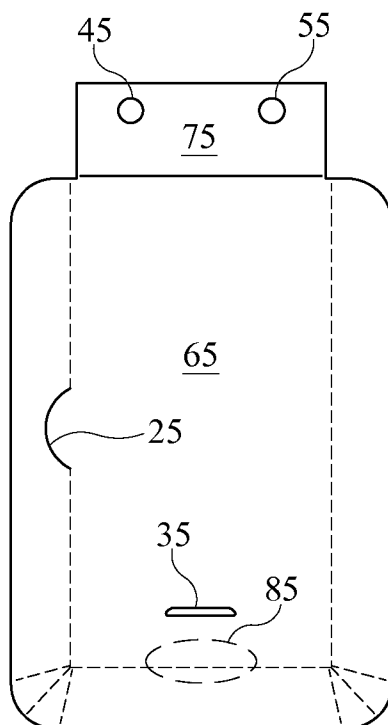


FIGURE 1

FIGURE 2

200



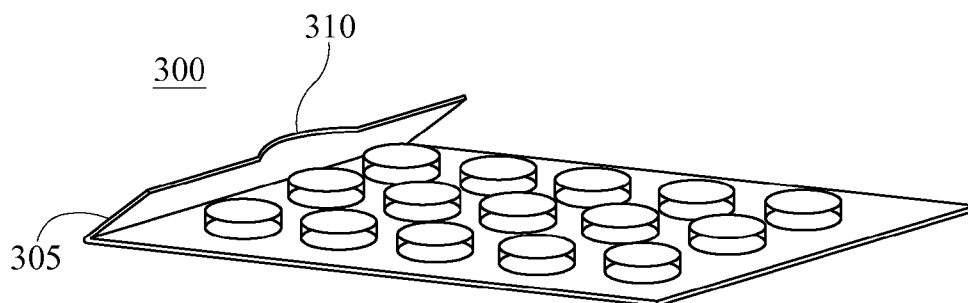


FIGURE 3

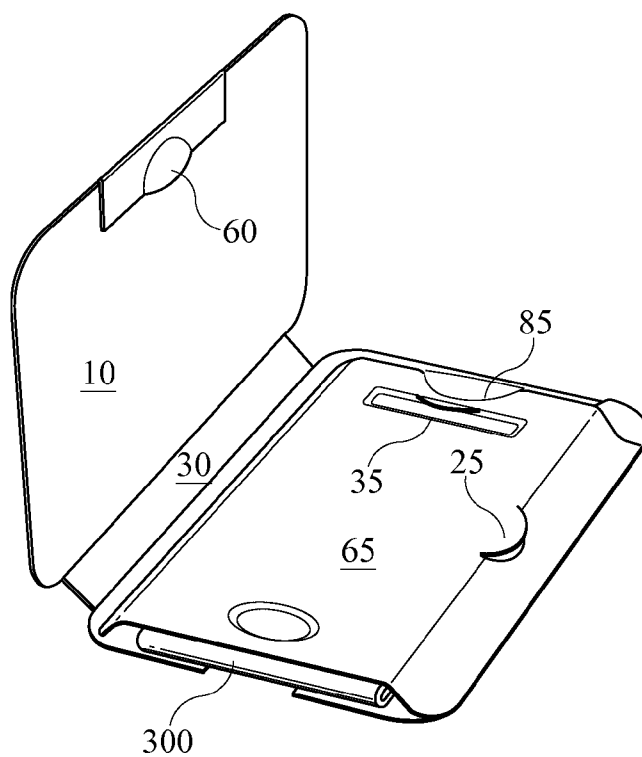


FIGURE 4

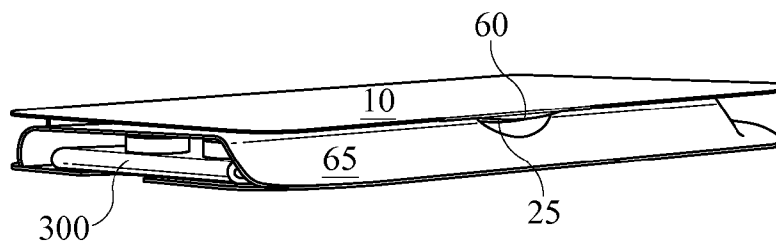


FIGURE 5

## INTEGRATED CLOSURE FEATURE FOR PACKAGING SYSTEM

### SUMMARY OF THE INVENTION

**[0001]** An integrated closure feature for a packaging system according to the embodiments of the invention is comprised of a tab integrated into the raised surface of a vaulted carton and an outer cover secured to the carton possessing a pocket into which the tab fits, providing a secure lock for the package. The outer cover and the internal carton may be cut from any suitable material, for example plastic, paperboard or, if desired, a laminate of paperboard and another foldable material, for example a foil or a polymeric film. The selection of this substrate may be made according to the packaging need, and accordingly, a substrate material generally recognized as safe (GRAS) by the FDA is also within the scope of the invention. In certain embodiments, the substrate may be selected from a sheet of bleached sulfate board, solid unbleached sulfate board (SUS), clay-coated newsback (CCNB), or any other suitable board substrate, such a substrate preferably ranging in thickness from about 0.008 inches up to about 0.050 inches. For example, the paperboard may be clay coated on one side (C1S) or on both sides (C2S), with a coating such as a fluidized blend of mineral pigments selected from coating clay, calcium carbonate and/or titanium dioxide with starch or adhesive, or various combinations of these materials. Successive densification and polishing (via calendaring) finishes each coated surface to a high degree of smoothness and renders it suitable for graphics printing of superior quality.

**[0002]** In a first embodiment, the outer cover includes a pair of side panels which form the wider surfaces of the package, these side panels being operatively connected by a hinge panel. Additional panels on the outer cover fold over to form elements of the integrated closure feature and a cut-out opening which facilitates release of a slide card. An inner vaulted carton which possesses a tab integrated into its surface is secured to the inner surface of one of the side panels of the outer cover. When the package is closed, the tab fits into a raised pocket formed by a fold-over panel secured to the inner surface of the other side panel of the outer cover, thereby providing a secure lock for the package. The outer cover and the inner vaulted carton, when secured to one another, create an inner chamber that can accommodate a separate inner slide card. The inner vaulted carton includes a slide card locking mechanism as well as a releasing mechanism. The slide card releasing mechanism can be in the form of a release button located on the inner vaulted carton, while the slide card locking mechanism can be composed of a fold-over panel on the inner vaulted carton that includes a node for engaging an extension of the internal slide card.

**[0003]** Depending on the choice of substrate material, another means of improving the impenetrability of the outer cover and inner carton involves lamination of at least a part of one or both sides of the cover or inner carton with a polymer film. In this manner, the package is made more resistant to tearing. Optionally, this lamination may not extend over the entire surface of the outer cover. For example, only tear prone regions may require lamination. Suitable laminating materials may, for example, be selected from biaxially oriented or cross-laminated polymeric films such as high density polyethylene (HDPE), polyolefins, polyesters, e.g. Mylar™, or combinations thereof. In a related embodiment, tear resistance may be provided at stress points such as the package

corners and exposed edges by applying one or more strips of the polymeric film, e.g. as a tape, over these areas. In either aspect, the polymeric film may be applied by extrusion or adhesive lamination, or by any other suitable means known in the art. It has been found that this treatment significantly increases tear resistance and prevents tear propagation. Preferably, neither the complete laminate film nor the selectively applied film strips will detract from the package's aesthetic appearance or interfere with printability or any of the other desirable display features. Text or graphic information may be printed on the cover or on the internal vaulted carton according to any means conventionally known in the art.

**[0004]** The outer cover of the package and the inner vaulted carton provide additional protection for the internal slide card, which can house a unit dose product. The internal slide card includes a stop feature, typically a folded extension thereof, which engages with a catch feature, typically also a folded extension, on the inner vaulted carton, to prevent the user from pulling the internal slide card completely away from the package.

**[0005]** Optionally, other means for improving the structural integrity of the overall package may be incorporated. Such features include lamination of the inner vaulted carton with a polymeric film, as described above, which also improves tear resistance. Lamination of the slide card with a polymeric film, which also improves tear resistance, may also be added.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0006]** FIG. 1 is a plan drawing of an outer cover according to an embodiment of the invention.

**[0007]** FIG. 2 is a plan drawing of an inner vaulted carton according to an embodiment of the invention.

**[0008]** FIG. 3 is an example of a slide card adapted for use with the present invention.

**[0009]** FIG. 4 is an illustration of a package according to an embodiment of the invention.

**[0010]** FIG. 5 is another illustration of a package according to an embodiment of the invention.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

**[0011]** The embodiments shown and described herein offer the ability to provide an integrated closure feature for a package which houses an internal slide card containing unit doses. The embodiments provide a secure lock for a package without the use of folding tabs, exposed adhesive or complex structural folds. The closure mechanism requires no exposed adhesive, which can tear a package and which can lose its effectiveness over time. The closure mechanism also requires no complex folds, thereby reducing material and manufacturing requirements. Furthermore, the closure mechanism does not interrupt the smooth surface of the package, a feature which makes it ideal for stacking and shipping needs.

**[0012]** FIG. 1 is a plan drawing of an outer cover according to a first embodiment. An outer cover is formed from a blank 100 that is creased to form a pair of side panels 10, 20, a hinge panel 30, a first extension panel, 40, a pocket panel 50 with a raised pocket 60 and a second extension panel 70. A cutout 80, removed from panels 20 and 70, facilitates the removal of an internal slide card (FIG. 3). The cutout 80 is essentially circular wherein half of the circle resides on side panel 20 and the other half resides on extension panel 70. When the extension panel 70 is folded over and secured to side panel 20,

cutout **80** becomes a semi-circular cutout that exposes the slide card insert enough that a user can grasp and pull the slide card insert out from the outer cover.

[0013] To form the outer cover, extension panel **70** is folded down and secured (e.g. using an adhesive) to side panel **20**. Extension panel **40** is folded down and secured to side panel **10**. The crease in pocket panel **50** is pushed out to form a raised pocket **60**. Pocket panel **50** is folded over and adhered to side panel **10** such that the raised pocket **60** creates a slit large enough that a tab **25** (FIG. 2) can later be inserted into the slit. Side panel **10** is folded at a right angle to hinge panel **30**. Side panel **20** is then folded at a right angle to hinge panel **30** so that both side panels **10, 20** are parallel to each other and both extension panels **40, 70** and the pocket panel **50** are all on the inner side of the cover.

[0014] FIG. 2 is a plan drawing of an inner vaulted carton. An inner vaulted carton is formed from a blank **200** that is creased to form a carton panel **65** and an extension panel **75**. The carton panel **65** is creased so that a three-dimensional vaulted surface can be formed from the original two-dimensional blank **200**. A slit opening **35** which forms part of a retaining element for a slide card is cut in the vaulted surface. Two holes **45, 55** are cut in extension panel **75**. The carton panel **65** is further creased to form a release button **85**. A cut is made on the carton panel **65** in order to form a tab **25**. When the creased outside edges of the carton panel **65** are pushed down to form a three-dimensional carton, a cut-out tab **25** is formed that functions as part of the integrated closure feature.

[0015] To form the full package, the creased edges of the carton panel **65** are pushed down so as to form a three-dimensional vaulted structure having a cut-out tab **25**. Extension panel **75** is folded back over carton panel **65** and the release button **85** is pushed in. The inner vaulted carton is placed atop side panel **20** on the inner surface of the outer cover and secured such that the folded down extension panel **75** is directly above cutout **80** on side panel **20**. Once the inner vaulted carton is adhered to the cover, a chamber is formed in between the inner vaulted carton and side panel **20**. A slide card can be inserted into this chamber.

[0016] A slide card **300** (FIG. 3) can include a blister pack of individual unit doses. The slide card **300** can further include its own extension panel **305** that can be folded back over the slide card **300** itself. The extension panel **305** can further include a small tab **310** such that when the slide card extension panel **305** is folded over the slide card **300** and the entire unit is inserted into the chamber defined by the inner vaulted carton, the small tab **310** will engage slit opening **35** of the inner vaulted carton. To release a slide card **300** so that it can be withdrawn from its chamber within the outer sleeve, the user simultaneously grasps the slide card **300** with one hand via notch **80** and depresses the release button **85** with his other hand. The release button **85** pushes downward on the slide card **300** to unhook small tab **310** from slit opening **35**. When a slide card **300** is pulled outward, extension panel **75** will extend until a reciprocal element (slide card extension panel **305**) on the slide card **300** engages the extension panel **75**, preventing the slide card from being fully disengaged from the package.

[0017] The integrated closure feature providing a secure lock for the package is engaged by inserting tab **25** in the raised pocket **60**. The lock is disengaged and the package can be opened by removing the tab **25** from the raised pocket **60**. This is generally achieved using a later action in which the side panels **10, 20** can be gently forced in opposite directions

until tab **25** clears raised pocket **60**. Releasing the pressure on the side panels **10, 20** will then allow tab **25** to operatively engage raised pocket **60** to secure the package.

[0018] While not shown, the open end of the defined chamber can be temporarily sealed such that the seal must be removed before a slide card can be accessed. This would prevent access to the slide card contents prior to purchase for certain over-the-counter (OTC) products that utilize this packaging. The end can be sealed with, for instance, a tuck closure, a perforated tear-away panel, a security taped panel, etc.

[0019] FIG. 4 is an image of a package according to the first embodiment. This figure shows the package fully formed and open. The raised pocket **60** is visible on side panel **10**. The tab **25** which fits into raised pocket **60** is also visible on vaulted carton panel **65**. The release button **85** and slit opening **35** are further visible on carton panel **65**. An internal slide card **300** can be seen contained within the chamber defined by the vaulted carton and side panel **20**.

[0020] FIG. 5 is a second image of a package according to the first embodiment. This view shows a closed package with an internal slide card **300** visible. In this view, the integrated closure feature is engaged because tab **25** is inserted into the raised pocket **60**.

[0021] The description above has made reference to slide cards that can be inserted and withdrawn from the packaging. The slide cards generally hold a plurality of unit doses contained within what is commonly referred to as blister packs. Thus, the slide cards may take the form of solely a blister pack, a blister pack heat sealed to a substrate, a blister pack glued (e.g., hot melted) to a substrate, or a blister pack encased by a slotted substrate.

[0022] The package of the present invention offers advantages in that its integrated closure feature allows for a secure lock without folding tabs, exposed adhesive, or complex structural folds. The package itself is lightweight, tamper resistant, senior friendly, durable, easy to assemble, offers protection of each unit dose until it is consumed, and is economical. Moreover, the invention provides a child resistant yet user-friendly unit dose packaging container, which may be used to contain and dispense a variety of contents. The improved tamper resistant features of the package may be attributed, at least in part, to the presence of the integrated closure feature and the use of partially or fully laminated structural materials in construction of the package cover and inner carton. Suitably, the package may, for example, be used to store pharmaceutical preparations requiring periodic dosage regimens. As used herein, the term "pharmaceutical preparation" is intended to include prescribed or over the counter drugs or supplements, vitamins or other medications, or any other materials suitable for containment in a package of foil/paperboard or plastic construction.

[0023] It is believed that the present invention includes many other embodiments that may not be herein described in detail, but would nonetheless be appreciated by those skilled in the art from the disclosures made. Accordingly, this disclosure should not be read as being limited only to the foregoing examples or only to the designated preferred embodiments.

1. A packaging system comprising:

an outer cover comprised of a pair of side panels, a hinge panel and at least one extension panel, and an inner vaulted carton, said outer cover and inner vaulted carton

being operatively coupled with one another such that an inner chamber is formed; and  
an integrated closure feature comprised of a tab positioned on the vaulted carton and a raised pocket integrated into the outer cover, wherein the tab can be manipulated to fit within the raised pocket to secure the outer cover in a closed position.

2. The packaging system of claim 1 wherein the inner chamber defined by the vaulted carton is capable of receiving and housing an internal slide card.

3. The packaging system of claim 2 wherein the inner vaulted carton further comprises:  
a foldable extension at one end capable of engaging a reciprocal element on a slide card and retaining the slide card within the inner chamber;  
a slit opening capable of engaging a reciprocal element on a slide card to lock the slide card in place within the inner chamber; and  
a release button for disengaging the slide card from the slit opening.

4. The packaging system of claim 1 wherein the vaulted carton is at least partially laminated with a polymeric film material.

5. The packaging system of claim 1 wherein the outer cover is at least partially laminated with a polymeric film material.

6. The packaging system of claim 1 wherein the polymeric film material is laminated over an entire surface of the vaulted carton.

7. The packaging system of claim 1 wherein the polymeric film material is laminated over an entire surface of the outer cover.

8. The packaging system of claim 1 wherein the outer cover is constructed from a paperboard substrate.

9. The packaging system of claim 3 wherein an open end includes a temporary seal comprised of one of a tuck closure, a perforated tear-away panel, and a security taped panel that can be removed to provide access to the internal slide card housed within.

10. A blank for forming an outer cover for a packaging system comprising:

a pair of side panels, a hinge panel and at least one extension panel, wherein one of said at least one extension panel is a panel that creates a raised pocket integrated into the outer cover.

11. The blank of claim 10 further including a polymeric film material laminated over at least a portion of one or both surfaces of the blank.

12. A blank for forming a vaulted carton comprising a creased panel including a cutout feature that forms a tab integrated into the vaulted carton.

13. The blank of claim 12 further including a polymeric film material laminated over at least a portion of one or both surfaces of the blank.

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