Title: PACKAGING SYSTEM WITH LOCKABLE EASY LOAD INNER SLEEVE

FIGURE 4

Abstract: An inner sleeve having an interior chamber comprised of a bottom panel (12), a top panel (14), a pair of side panels (16, 18) and a sealed front end formed by a pair of front closure panels (28, 30) and a pair of front closure flaps (32, 34). A locking flap (36) extends from the opposite end of the bottom panel and can be folded back over the bottom panel such that it will catch when inserted into an outer sleeve. An internal glue flap forms a barrier preventing contents inserted into the inner sleeve from inadvertently slipping out the rear end. A retaining flap (26) extends from the opposite end of the top panel and can be folded inward to create a one way gate that allows a blister pack to be inserted into the interior chamber without allowing it to be withdrawn.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
Packaging System With Lockable Easy Load Inner Sleeve

BACKGROUND OF THE INVENTION

[0001] Unit dose packaging is an attractive packaging format for certain pharmaceutical applications because it is convenient, yet sturdy enough to be opened and closed numerous times until the course of medication is completed, and also enables the user to track the consumption of doses according to the prescribed schedule. Unit dose packaging is typically achieved using blister packs that individually seal a pill or equivalent within a chamber that is adhered to a card like structure. The blister pack is then typically inserted into a generic paperboard box. A consumer opens the box, removes the blister pack and pushes on an individual pill to break it free from the blister pack.

[0002] This system has some drawbacks, however. The entire packaging system is not very child resistant in that it is relatively easy for a child to remove the blister pack from the paperboard container box and push a pill through a blister seal. Previous inventions to the same assignee as herein have addressed many child resistant features. Thus, there now exists containers or outer sleeves that are capable of lockably retaining a blister pack within. However, these systems generally require that the blister pack itself be specially configured to engage such outer sleeves. Typically the blister pack is adhered within another paperboard covering referred to as an inner sleeve. The inner sleeve receives and wraps around a blister pack in a separate manufacturing / assembly process.

[0003] What is needed is a packaging system in which the blister pack can be loaded into a lockable inner sleeve without having to incur additional manufacturing steps such that a
generic blister pack can simply be inserted into the inner sleeve carton and the inner sleeve carton can be lockably inserted into an existing outer sleeve solution.

SUMMARY OF THE INVENTION

[0004] One embodiment describes an inner sleeve having an interior chamber comprised of a bottom panel, a top panel, and a pair of side panels that define the body of the inner sleeve. A pair of front closure panels extend from one end of the top and bottom panel. A pair of front closure flaps extend from each side panel such that a sealed front end is formed when the front closure panels and the front closure flaps are folded inward and adhered together. A locking flap extends from the opposite end of the bottom panel and can be folded back over the bottom panel such that it will catch when inserted into an outer sleeve. A retaining flap extends from the opposite end of the top panel and can be folded inward to create a one way gate that allows a blister pack to be inserted into the interior chamber without allowing it to be withdrawn. The top panel can further include a plurality of apertures while the bottom panel can further include a plurality of closed loop perforations designed to match and accommodate a blister pack.

[0005] Another embodiment describes an inner sleeve having an interior chamber comprised of a bottom panel including a bottom panel locking flap extending from one end of the bottom panel and a top panel including a plurality of crease lines that define a pair of side panels, a pair of side glue flaps, a rear panel, a front panel, a front panel glue flap, a top panel glue flap, and a top panel locking flap. The top panel is folded along the crease lines such that the side panels, front panel, and rear panel extend downward approximately ninety degrees with respect to the
top panel and the top glue flap, side glue flaps, and rear glue flap extend outward approximately ninety degrees with respect to the respective side panels, front panel, and rear panel such that the top glue flap, side glue flaps, and rear glue flap are parallel to the top panel. The folded top panel is adhered to the bottom panel such that the front end is sealed and the rear end and top and bottom locking flaps remain unsealed such that a blister pack can be inserted into the interior chamber of the inner sleeve before sealing the rear end and top and bottom locking flaps. The sealed locking flaps are capable of being folded back over the inner sleeve such that it will catch when inserted into an outer sleeve. The top panel can further include a plurality of apertures while the bottom panel can further include a plurality of closed loop perforations designed to match and accommodate a blister pack.

[0006] One embodiment describes an inner sleeve having an interior chamber comprised of a bottom panel, a top panel, and a pair of side panels that define the body of the inner sleeve. A pair of front closure panels extend from one end of the top and bottom panel. A pair of front closure flaps extend from each side panel such that a sealed front end is formed when the front closure panels and the front closure flaps are folded inward and adhered together. A locking flap extends from the opposite end of the bottom panel and can be folded back over the bottom panel such that it will catch when inserted into an outer sleeve. A glued internal flap prevents any contents from falling out of the inner sleeve once loaded and sealed. The top and bottom panels can optionally include a plurality of apertures designed to match and accommodate a blister pack.
BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is an illustration of a paperboard blank according to an embodiment of the invention.

[0008] FIG. 2 is an isometric view of an assembled inner sleeve.

[0009] FIG. 3 is an isometric view of an assembled inner sleeve receiving a sealed blister pack.

[0010] FIG. 4 is an isometric view of an assembled inner sleeve getting ready to be inserted into an outer sleeve.

[0011] FIG. 5 is an illustration of a paperboard blank according to another embodiment of the invention.

[0012] FIG. 6 is an isometric view of another assembled inner sleeve receiving a sealed blister pack.

[0013] FIG. 7 is an isometric view of the assembled inner sleeve fully containing the sealed blister pack.

[0014] FIG. 8 is an isometric view of an assembled inner sleeve partially inserted into an outer sleeve.

[0015] FIG. 9 is an illustration of a paperboard blank according to an embodiment of the invention partially formed into an inner sleeve.

[0016] FIG. 10 is an illustration of the paperboard blank fully formed into an inner sleeve.

[0017] FIG. 11 is an illustration of a paperboard blank according to an embodiment of the invention.

[0018] FIG. 12 is an illustration of a paperboard blank according to another embodiment of the invention.
[0019] FIG. 13 is an isometric view of an assembled inner sleeve getting ready to be inserted into an outer sleeve.

[0020] FIG. 14 is an isometric view of an assembled inner sleeve partially inserted into an outer sleeve.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0021] FIG. 1 is an illustration of a paperboard blank 10 according to an embodiment of the invention. The blank can be assembled to form an inner sleeve that can receive a blister pack wherein the inner sleeve and blister pack can then be inserted into an outer sleeve that has lockable child resistant features.

[0022] The blank 10 is comprised of a bottom panel 12 and a top panel 14 coupled together by a side panel 16. The bottom panel 12 can include a plurality of perforations 22 that will correspond to individual doses of a blister pack. The bottom panel 12 further includes a front closure panel 30 and a locking flap 36. The top panel 14 can include a plurality of apertures 24 that also correspond to individual doses of a blister pack. The top panel 14 further includes a second front closure panel 28 and a retaining flap 26. Side panel 18 is coupled with top panel 12 along an edge. On an opposite edge of side panel 18 there is a glue flap 20. Each of the side panels 16, 18 also includes respective front closure flaps 32, 34.

[0023] FIG. 2 is an isometric view of an assembled inner sleeve 11. The top panel 14 has been folded over the bottom panel 12 separated by side panel 16. The other side panel 18 has been folded and glue flap 20 seals the inner sleeve 11 together. One front closure panel 28, 30 is folded atop the other front closure panel 28, 30 and together with front closure flaps 32, 34.
form a sealed end for the inner sleeve 11. At the rear end retaining flap 26 is folded over and angled inward to create a one way gate like feature that allows an insert (e.g., blister pack) to be easily inserted into the chamber defined by the inner sleeve 11 without it being able to slide back out. The locking flap 36 is also folded back over the bottom panel 12. The inner sleeve 11 is now ready to be used.

[0024] FIG. 3 is an isometric view of an assembled inner sleeve 11 receiving a sealed blister pack 38. It is important to note that the blister pack 38 need not be specially constructed for the lockable outer sleeve. Thus, a manufacturer need not adjust any machines or processes to make the blister pack 38. The standard blister pack 38 can be inserted into the inner sleeve 11 as shown in Fig. 3. The inner sleeve contains apertures 24 to allow each individual dose to be exposed. Moreover the bottom panel of the inner sleeve 11 contains corresponding perforations that allow the individual dose to be ejected when sufficient downward pressure is applied to the top of the individual dose. The inner sleeve 11 does not interfere with the functioning of the blister pack 38. Once blister pack 38 has been fully inserted into inner sleeve 11, the retaining flap 26 acts as a barrier that prevents the blister pack 38 from being withdrawn from the inner sleeve 11.

[0025] FIG. 4 is an isometric view of an assembled inner sleeve 11 getting ready to be inserted into an outer sleeve 40. The outer sleeve possesses child resistance lockable features that work in conjunction with the locking flap 36 on the inner sleeve to serve two primary functions. The locking flap 36 will engage a retention mechanism within the outer sleeve 40 when the inner sleeve 11 is fully inserted into the outer sleeve 40. The retention mechanism prevents the inner sleeve from being withdrawn without first engaging a release mechanism. This is a child
safety feature since most children will not be aware of the need to engage the release
mechanism. The release mechanism is typically a strategically located tab that is formed by
perforations in a surface of the outer sleeve 40. When the tab is depressed, it will push the
locking flap 36 of the inner sleeve 11 away from the retention mechanism thereby allowing the
inner sleeve 11 to be withdrawn from the outer sleeve 40. A second retention mechanism
within the outer sleeve 40 that is similar to the retaining flap 26 of the inner sleeve 11 prevents
the inner sleeve 11 from being completely withdrawn from the outer sleeve 40.

[0026] This embodiment of an inner sleeve accepts a standard blister pack. The blister pack
can be loaded without having to re-tool of perform a significant amount of additional work.
Then the entire inner sleeve can be inserted into an outer sleeve wherein the inner sleeve and
outer sleeve possess one or more child resistant features. The entire packaging system can
now receive the benefits of enhance child safety features without the blister pack having to be
specially formed.

[0027] FIG. 5 is an illustration of a paperboard blank 50 according to another embodiment of
the invention. In this embodiment, the blank 50 is formed into an inner sleeve that is adapted
to receive a standard blister pack. Once received, the inner sleeve can be permanently sealed
with a minimum of effort. The blank 50 is comprised of bottom panel 54 and a bottom panel
locking flap 78. The bottom panel can also include a plurality of perforations. The top panel 52
can include a plurality of apertures 58 that can encase a standard blister pack. The top panel 52
includes semi-perforated score lines that define other features such as a rear panel 62, a pair of
side panels 64, 72, a front panel 68 and a plurality of corresponding glue flaps such as side glue
flap 66, front glue flap 70, side glue flap 74 and top panel glue flap 60. A top panel locking flap
76 is attached to the top panel glue flap 60.

[0028] The blank 50 is assembled into an inner sleeve 51 by folding along the various crease
lines such that the side panels 64, 72, rear panel 62, and front panel 68 are raised. The folded
top panel 52 is then placed atop the bottom panel 54 where it can be glued in place except for
the top panel glue flap 60.

[0029] FIG. 6 is an isometric view of another assembled inner sleeve 51 receiving a sealed
blister pack 75. Once the blister pack 75 is fully inserted into the inner sleeve 51, the top panel
glue flap 60 and top panel locking flap 76 can be pressed against the bottom panel 54 and
bottom panel locking flap 78 to seal them together and permanently seal the blister pack 75
within the inner sleeve 51 as shown in FIG. 7.

[0030] FIG. 8 is an isometric view of an assembled inner sleeve 51 partially inserted into an
outer sleeve 80. The outer sleeve 80 possesses child resistance lockable features that work in
conjunction with the locking flap 76 on the inner sleeve 51 to serve two primary functions. The
locking flap 76 will engage a retention mechanism within the outer sleeve 80 when the inner
sleeve 51 is fully inserted into the outer sleeve 80. The retention mechanism prevents the
inner sleeve from being withdrawn without first engaging a release mechanism. This is a child
safety feature since most children will not be aware of the need to engage the release
mechanism. The release mechanism is typically a strategically located tab that is formed by
perforations in a surface of the outer sleeve 80. When the tab is depressed, it will push the
locking flap 76 of the inner sleeve 51 away from the retention mechanism thereby allowing the
inner sleeve 51 to be withdrawn from the outer sleeve 80. A second retention mechanism
within the outer sleeve 80 prevents the inner sleeve 51 from being completely withdrawn from the outer sleeve 80.

[0031] FIG. 9 is an illustration of a paperboard blank 100 according to an embodiment of the invention partially formed into an inner sleeve. The blank 100 can be assembled to form an inner sleeve that can receive other contents wherein the inner sleeve and the other contents can then be inserted into an outer sleeve that has lockable child resistant features.

[0032] The blank 100 includes a top panel 140 has been folded over a bottom panel 120 separated by side panel 180. Another other side panel 220 (not visible in Fig. 9) has been folded up and a side panel glue flap 190 can be used to seal the inner sleeve together. One front closure panel 110 is folded atop another front closure panel 130 and together with front closure flaps 160, 170 form a sealed end for the inner sleeve. At the rear end, the bottom panel 120 extends to form a locking flap 150. The locking flap 150 can be folded back over the bottom panel 120 to form a catch mechanism that can be coupled with a retention mechanism in an outer sleeve. An internal glue flap 210 is also included and provides a barrier that prevents the contents that are inserted into the inner sleeve from falling out.

[0033] FIG. 10 is an illustration of the paperboard blank 100 fully formed into an inner sleeve 200. In this illustration the top panel 140 has been fully folded over such that the other side panel 220 and the attached side panel glue flap 190 form and seal the inner sleeve 200. The front end has yet to be sealed as both front panel closure flaps 160, 170 are visible in an open position as is front panel 110. The internal glue flap 210 has been folded and glued so as to provide a barrier that prevents contents inserted via the front end from falling out the rear end of the inner sleeve 200. The locking flap 150 is also shown not yet folded upward and inward.
FIG. 11 is an illustration of a paperboard blank according to an embodiment of the invention. This illustration shows the blank 100 prior to any folds. All of the same elements described in Figs. 9 and 10 above are similarly present in Fig. 11. FIG. 12 is an illustration of a paperboard blank shown in Fig. 11 with the addition of cut-out holes 230, 250 in the top 140 and bottom 120 panels respectively. This embodiment of an inner sleeve 200 accepts a standard blister pack. The cut-out areas 230, 250 allow a user access to the individual doses of a blister pack without having to remove it from the inner sleeve 200. A blister pack can be loaded without having to re-tool or perform a significant amount of additional work. Then the entire inner sleeve 200 can be inserted into an outer sleeve wherein the inner sleeve and outer sleeve possess one or more child resistant features. The entire packaging system can now receive the benefits of enhance child safety features without the blister pack having to be specially formed.

FIG. 13 is an isometric view of an assembled inner sleeve 200 getting ready to be inserted into an outer sleeve 400. The outer sleeve 400 possesses child resistance lockable features that work in conjunction with the locking flap 150 on the inner sleeve to serve two primary functions. The locking flap 150 (shown folded over and back inward with respect to the inner sleeve 200) will engage a retention mechanism within the outer sleeve 400 when the inner sleeve 200 is fully inserted into the outer sleeve 400. The retention mechanism prevents the inner sleeve 200 from being withdrawn without first engaging a release mechanism. This is a child safety feature since most children will not be aware of the need to engage the release mechanism. The release mechanism is typically a strategically located tab that is formed by perforations in a surface of the outer sleeve 400. When the tab is depressed, it will push the
locking flap 150 of the inner sleeve 200 away from the retention mechanism thereby allowing the inner sleeve 200 to be withdrawn from the outer sleeve 400. A second retention mechanism within the outer sleeve 400 prevents the inner sleeve 200 from being completely withdrawn from the outer sleeve 400.

[0036] FIG. 14 is an isometric view of an assembled inner sleeve 200 partially inserted into an outer sleeve 400. The locking flap 150 is now within the outer sleeve 400 and will engage a retention mechanism when fully inserted. A release mechanism 420 can be depressed to release the locking flap 150 from the retention mechanism thereby allowing the inner sleeve 200 to be withdrawn from the outer sleeve 400.

[0037] The materials or other contents that can be inserted into an inner sleeve can be anything that will fit within the space constraints of the inner sleeve. An advantage of the present packaging system is its ability to retain the child resistant features present in the inner/outer sleeve relationship while allowing the inner sleeve to be filled with other contents. Thus, the other contents receive the benefit of the locking features without having to alter or change the way they are packaged. One need only fill the inner sleeve and seal the front closure panels and flaps to create a packaging system with enhanced child resistant features and locking functions.

[0038] The invention has been described with respect to using paperboard as the material that comprises the blank and inner sleeve. Other materials, however, such as cardboard, plastics, polymers, and metal may be used as a blank and the resulting inner sleeve described herein.

[0039] 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.
CLAIMS:

1. A paperboard blank for forming a lockable inner sleeve for housing a blister pack comprising:
   a bottom panel including a first front closure panel extending from one end of the bottom panel and a locking flap extending from the opposite end of the bottom panel;
   a top panel including a second front closure panel extending from one end of the top panel and a retaining flap extending from the opposite end of the top panel;
   a pair of side panels each including a front closure flap extending from one end, one of the side panels connected to and situated between the top and bottom panels; and
   a glue flap attached to the side panel that is not situated between the top and bottom panels.

2. The paperboard blank of claim 1 wherein the top panel further includes a plurality of apertures.

3. The paperboard blank of claim 1 wherein the bottom panel further includes a plurality of closed loop perforations.

4. An inner sleeve having an interior chamber comprised of:
   a bottom panel, a top panel, and a pair of side panels that define the body of the inner sleeve;
a first front closure panel extending from one end of the bottom panel and a second front closure panel extending from one end of the top panel;

first and second front closure flaps extending from the side panels such that a sealed front end is formed when the first and second front closure panels and the first and second front closure flaps are folded inward and adhered together;

a locking flap extending from the opposite end of the bottom panel, the locking flap folded back over the bottom panel such that it will catch when inserted into an outer sleeve;

and

a retaining flap extending from the opposite end of the top panel, the retaining flap folded inward to create a one way gate that allows a blister pack to be inserted into the interior chamber without allowing it to be withdrawn.

5. The inner sleeve of claim 4 wherein the top panel further includes a plurality of apertures.

6. The inner sleeve of claim 4 wherein the bottom panel further includes a plurality of closed loop perforations.

7. A paperboard blank for forming a lockable inner sleeve for housing a blister pack comprising:

   a bottom panel including a bottom panel locking flap extending from one end of the bottom panel;
a top panel including a plurality of crease lines that define a pair of side panels, a pair of side glue flaps, a rear panel, a front panel, a front panel glue flap, a top panel glue flap, and a top panel locking flap.

8. The paperboard blank of claim 1 wherein the top panel further includes a plurality of apertures.

9. The paperboard blank of claim 1 wherein the bottom panel further includes a plurality of closed loop perforations.

10. An inner sleeve having an interior chamber comprised of:
  
a bottom panel including a bottom panel locking flap extending from one end of the bottom panel;

  a top panel including a plurality of crease lines that define a pair of side panels, a pair of side glue flaps, a rear panel, a front panel, a front panel glue flap, a top panel glue flap, and a top panel locking flap, wherein

  the top panel is folded along the crease lines such that the side panels, front panel, and rear panel extend downward approximately ninety degrees with respect to the top panel and the top glue flap, side glue flaps, and rear glue flap extend outward approximately ninety degrees with respect to the respective side panels, front panel, and rear panel such that the top glue flap, side glue flaps, and rear glue flap are parallel to the top panel, and
wherein the folded top panel is adhered to the bottom panel such that the front end is sealed and the rear end and top and bottom locking flaps remain unsealed such that a blister pack can be inserted into the interior chamber of the inner sleeve before sealing the rear end and top and bottom locking flaps,

the sealed locking flaps are capable of being folded back over the inner sleeve such that it will catch when inserted into an outer sleeve.

11. The inner sleeve of claim 10 wherein the top panel further includes a plurality of apertures.

12. The inner sleeve of claim 10 wherein the bottom panel further includes a plurality of closed loop perforations.

13. A paperboard blank for forming a lockable inner sleeve for housing other contents, the paperboard blank comprising:

a bottom panel including a first front closure panel extending from one end of the bottom panel and a locking flap extending from the opposite end of the bottom panel;

a top panel including a second front closure panel extending from one end of the top panel;

a pair of side panels each including a front closure flap extending from one end, one of the side panels connected to and situated between the top and bottom panels;

a side panel glue flap attached to the side panel that is not situated between the top and bottom panels; and
an internal glue flap can forms a barrier preventing contents inserted into the inner sleeve from inadvertently slipping out.

14. The paperboard blank of claim 13 wherein the top panel further includes a plurality of apertures.

15. The paperboard blank of claim 13 wherein the bottom panel further includes a plurality of apertures.

16. An inner sleeve having an interior chamber comprised of:
   a bottom panel, a top panel, a pair of side panels, and a side panel glue flap that define the body of the inner sleeve;
   a first front closure panel extending from one end of the bottom panel and a second front closure panel extending from one end of the top panel;
   first and second front closure flaps extending from the side panels such that a sealed front end is formed when the first and second front closure panels and the first and second front closure flaps are folded inward and adhered together;
   a locking flap extending from the opposite end of the bottom panel, the locking flap folded back over the bottom panel such that it will catch when inserted into an outer sleeve; and
   an internal glue flap that forms a barrier preventing contents inserted into the inner sleeve from inadvertently slipping out the rear end.
17. The inner sleeve of claim 16 wherein the top panel further includes a plurality of apertures.

18. The inner sleeve of claim 16 wherein the bottom panel further includes a plurality of apertures.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D5/02 B65D5/42 B65D73/00 B65D75/08 B65D83/04

According to International Patent Classification (IPC) or to both national classification and IPC.

B. REILOS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>X</td>
<td>DE 100 15 053 A1 (BEIERSDORF AG [DE]) 27 September 2001 (2001-09-27) column 7, line 41 - column 9, line 53; figures 1-3</td>
<td>1-18</td>
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<tr>
<td>X</td>
<td>US 3 835 988 A (BUTTERY K) 17 September 1974 (1974-09-17) column 1, line 66 - column 2, line 48; figures 1-4</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

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Name and mailing address of the ISA/

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