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|----------------------------------------------------------|---------------------------------------------------|
| <b>RAD:</b> 12-165832- -4                                | <b>FECHA:</b> 2014-02-25 12:35:51                 |
| <b>DEP:</b> 2020 DIRECCION DE NUEVAS CREACIONES          | <b>EVE:</b> 378 FASE NACIONAL INCLUIDO CAPITULO I |
| <b>TRA:</b> 11 PCT-PATENTE DE INVENCION CAPITULOS I Y II | <b>FOLIOS:</b> 9                                  |
| <b>ACT:</b> 519 PRESENTACION                             |                                                   |

Abogado(a)/Señor(a)  
CARLOS REINALDO OLARTE GARCIA

|                |             |               |
|----------------|-------------|---------------|
| <b>Asunto:</b> | Radicación: | 12-165832- -4 |
|                | Trámite:    | 11            |
|                | Evento:     | 378           |
|                | Actuación:  | 519           |
|                | Oficio:     | 2418          |
|                | Folios:     | 9             |

|                                     |                   |            |   |                               |  |
|-------------------------------------|-------------------|------------|---|-------------------------------|--|
| Patente de Invención                | X                 |            |   | Patente de Modelo de Utilidad |  |
| Vía Nacional                        |                   |            |   |                               |  |
| Vía PCT (Fase Nacional)             | X                 | Capítulo I | X | Capítulo II                   |  |
| No. Solicitud Internacional         | PCT/IB2011/051033 |            |   |                               |  |
| Fecha de Presentación Internacional | 11/03/2011        |            |   |                               |  |

Como resultado del examen de fondo realizado, con fundamento en el Artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

## 1. Documentos estudiados

|                   |                              |                    |
|-------------------|------------------------------|--------------------|
| Descripción:      | Rad. N° 12-165832-00000-0000 | 24/septiembre/2012 |
| Reivindicaciones: | Rad. N° 12-165832-00000-0000 | 24/septiembre/2012 |
| Dibujos:          | Rad. N° 12-165832-00000-0000 | 24/septiembre/2012 |
| Prioridad:        | US 12/728,482                | 22/Marzo/2010      |

## 2. Objeto de la invención

De acuerdo con lo establecido en el numeral 1.2.2.2 del Capítulo Primero del Título X de la Circular Única para efectos del examen de patentabilidad, se tendrá en cuenta la tasa pagada por el solicitante al momento de comenzar el examen para las reivindicaciones adicionales; esto es que cuando la solicitud contenga más de diez (10) reivindicaciones y no se haya pagado la tasa complementaria, sólo se estudiarán las cubiertas por la tasa pagada. Por lo tanto, se estudiarán las reivindicaciones 1 a 15.

Título de la solicitud: “Unidad para dispensado de dosis volumétrica a prueba de niños” (Fl. 1).

El problema planteado en esta solicitud, consiste en evitar que niños puedan acceder a determinados productos, que en cantidades incontroladas puedan generar daños en su salud.

Para resolver este problema técnico, la solicitud en estudio propone una unidad de envase que comprende un contenedor y una tapa, donde la tapa se acopla de forma deslizante al contenedor. De igual forma, la tapa comprende una parte flexible que al ser aprisionada genera su desacople del contenedor, de tal manera que permita su deslizamiento.

El objeto de la presente solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): B 65 D 50/04.

### 3. De la solicitud de patente

#### Reivindicaciones (Art 30 D 486, Art 22 PCT)

El capítulo reivindicatorio no es claro porque:

- La reivindicación 14 y las expresiones *“adaptado para mantener el contenido dispensado”, “estando dimensionada la abertura para dispensar el contenido a su través”, “en una primera dirección entre una posición cerrada (...) descubierta”, “capaz de ser flexionada en una dirección sustancialmente perpendicular (...) abierta”* (reivindicación 1); *“estando configurado el poste para acoplar el saliente (...) saliente”* (reivindicación 2); *“estando configurada la superficie roma (...) en la primera posición”* (reivindicación 3); *“y que está configurado para cooperar (...) dirección”* (reivindicación 4); *“estando configurado el tope para acoplarse al al menos un deslizador (...) dirección”* (reivindicación 5); *“estando configurado el acoplamiento para transmitir la deflexión (...) posición”* (reivindicación 6); *“estando configurado el retén y el área rebajada (...) predeterminado”* (reivindicación 7); *“configurado para superponerse en la abertura cuando la tapa está en la posición cerrada”, “configurado para recibir el borde cuando la tapa está en la posición cerrada”* (reivindicación 8); *“configurada para ser recibida dentro de la abertura (...) dirección”* (reivindicación 9); *“estando configurado el poste para acoplarse (...) cerrada”* (reivindicación 10); *“configurado para facilitar el deslizamiento de la tapa en la primera dirección a lo largo del contenedor”* (reivindicación 11); *“pudiéndose mover el extremo móvil (...) flexionada”* (reivindicación 12); *“configurada para bloquear la apertura cuando la tapa está en la posición cerrada”, “estando dispuesto el poste de tope para acoplarse al extremo (...) reposo”, “y configurado para acoplarse al brazo flexible”* (reivindicación 13); describen funciones, efectos, ventajas o resultados a alcanzar de la invención reclamada, los cuales no son características susceptibles de patente. Cabe aclarar, que el producto reclamado se debe definir técnicamente mediante sus características estructurales. Se sugiere al solicitante eliminar la reivindicación y expresiones citadas.
- Con el fin de facilitar la identificación de las características técnicas reclamadas en los dibujos y en el resto de la solicitud, se sugiere al solicitante incluir los números de referencia de todas las características incluidas en las reivindicaciones. Se recomienda verificar que los números de referencia que se incluyan, concuerden con los presentados en la descripción y en los dibujos de la solicitud.
- La expresión: *“mecanismo de fijación deslizante”* (reivindicación 11) es de carácter general y sugiere de forma imprecisa que la protección se extiende a otras posibles variaciones o modificaciones, lo que no permite compararlo con el estado de la técnica. Lo anterior, debido a que no se exponen las características constructivas del mecanismo en mención. De acuerdo con lo anterior, se sugiere incluir dichas

características en la reivindicación citada.

- Se presenta un error de digitación en las reivindicaciones 5 al incluir: “a/ a/”. Se sugiere al solicitante realizar la corrección correspondiente.

#### 4. Determinación del Estado de la Técnica

El estado de la técnica se determinó con base en la fecha de presentación de la solicitud de prioridad: marzo 22 de 2010, y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

| Ítem | Documento       | Título                                              | Fecha de Publicación |
|------|-----------------|-----------------------------------------------------|----------------------|
| D1   | US 2006/0138145 | 'Child-resistant closure for dispensing containers' | 29/Junio/2006        |
| D2   | WO2001/015998   | 'Child resistant slide box'                         | 08/Marzo/2001        |
| D3   | US 4'561.544    | 'Child resistant container'                         | 31/Diciembre/1985    |
| D4   | US 5'082.137    | 'Child resistant slide box'                         | 21/Enero/1992        |

El documento D1<sup>1</sup> divulga un envase para dispensar medicamentos que comprende: una tapa, un cierre interno y un contenedor. La configuración de dicho cierre dificulta su apertura por parte de niños (resumen, Párrs. [0001] y [0002]).

El documento D2 <sup>2</sup> divulga una caja (10) resistente a niños, que comprende una base (14) y una tapa (12), la cual está acoplada de forma deslizante a la base (14). La base (14) comprende por lo menos una sección presionable (16), que consta de una proyección (24). La proyección se engancha a la tapa con el fin de prevenir su deslizamiento, a menos que se haga presión en la sección (16) (resumen).

El documento D3 <sup>3</sup> divulga un contenedor resistente a su apertura por parte de niños, que comprende una bandeja que se engancha de forma deslizable con una tapa, y que permanece en posición cerrada por la interacción entre un brazo flexible localizado en la bandeja y una apertura dispuesta en la tapa (resumen).

El documento D4 <sup>4</sup> divulga una caja resistente a su apertura por parte de niños, la cual se abre por la deformación de una lengüeta dispuesta en la gaveta deslizable, que se acopla de forma deslizable a una tapa (resumen).

#### 5. Examen de Patentabilidad (Art 14 D486)

##### Novedad (Art 16 D486)

La reivindicación 1 consiste en: “Una unidad de envase que comprende: un contenedor adaptado para mantener el contenido a ser dispensado y que tiene una abertura en un extremo del mismo...” (Ver página 28 del radicado N° 12-165832-00000-0000)

Comparación de las características técnicas esenciales, con las del estado de la técnica:

1 <https://docs.google.com/viewer?url=patentimages.storage.googleapis.com/pdfs/US20060138145.pdf>

2 [https://www.google.com/patents/WO2001015998A1?cl=en&dq=wo0115998&hl=es&sa=X&ei=8p\\_qUt62B4aFkQe4noH4DQ&ved=0CDgQ6AEwAA](https://www.google.com/patents/WO2001015998A1?cl=en&dq=wo0115998&hl=es&sa=X&ei=8p_qUt62B4aFkQe4noH4DQ&ved=0CDgQ6AEwAA)

3 <https://www.google.com/patents/US4561544?pg=PA1&dq=4561544&hl=es&sa=X&ei=ONnqUoaxFcvrkAe-r4HICA&ved=0CDgQ6AEwAA>

4 <https://www.google.com/patents/US5082137?dq=5082137&hl=en&sa=X&ei=vKXrUpHxGa6-sQS5koCgDw&ved=0CDMQ6AEwAA>

| Características esenciales                                                                       | D1                                                                                                                                                                                             | D2                                                                                                                            |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Unidad de envase que comprende:                                                                  | Envase que comprende:                                                                                                                                                                          | Caja deslizable que comprende:                                                                                                |
| Un contenedor que tiene una abertura en un extremo del mismo.                                    | Un contenedor (12) que tiene una abertura (49) en la porción superior (180) del cuerpo del contenedor (12) (Fig. 5; Párr. [0061]).                                                             | Una base (14) que comprende un lado superior parcialmente abierto (Figs. 3 y 6; Pág. 5, líneas 11 y 12).                      |
| Una tapa configurada para acoplarse de modo deslizable al contenedor sobre un extremo del mismo. | Una tapa (11) configurada para acoplarse de modo deslizable al contenedor sobre un extremo del mismo (Figs. 3, 4 y 21; Párrs. [0017], [0018] y [0087]).                                        | Una tapa (12) acoplada en forma deslizable a la base (14) sobre su superficie superior (Figs. 3 y 6; Pág. 4, líneas 22 a 24). |
| Al menos uno de entre el contenedor y la tapa incluye al menos una parte flexible.               | Un miembro flexible (30) se sitúa en la superficie (28) del cierre (13), el cual se flexiona cuando una fuerza se aplica sobre la superficie (8) de la tapa (11) (Figs. 5 y 16; Párr. [0074]). | La base posee al menos una sección presionable o lengüeta (16) (Figs. 1, 2, 5 y 4; Pág. 5, líneas 1 y 2).                     |

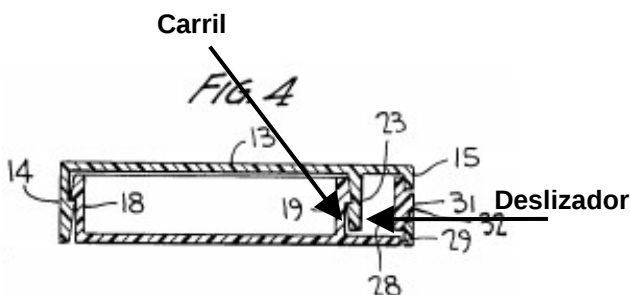
| D3                                                                                                                                   | D4                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contenedor caracterizado por:                                                                                                        | Caja caracterizada por:                                                                                                                                                                                     |
| Una bandeja (12) que tiene una abertura en un su parte superior (Fig. 2).                                                            | Una bandeja (5) que tiene una abertura en un su parte superior (Fig. 3 a 7).                                                                                                                                |
| Una tapa (11) configurada para acoplarse de modo deslizable a la bandeja (12) sobre un extremo de la misma (Col. 2, líneas 15 a 17). | La bandeja (5) y la tapa (3) están acopladas de forma deslizable. La tapa se dispone sobre un extremo de la bandeja (Col. 4, líneas 16 a 19).                                                               |
| La bandeja (12) comprende un brazo flexible (28) (Fig. 2; Col. 2, líneas 38 a 56).                                                   | La tapa (3) comprende las lengüetas flexibles (9) y (7) (Col. 3, líneas 64 a 66). La bandeja (5) consta de la lengüeta (14), sobre la cual se dispone la poción (15) (Figs. 4 a 6; Col. 4, líneas 49 a 67). |

De acuerdo con la tabla anterior, las características esenciales del contenedor de la reivindicación 1 habían sido divulgadas previamente en los documentos D1 a D4, por lo tanto, la materia reivindicada no es nueva.

Asimismo, los documentos D1 a D4 divulgan las características de las reivindicaciones dependientes así:

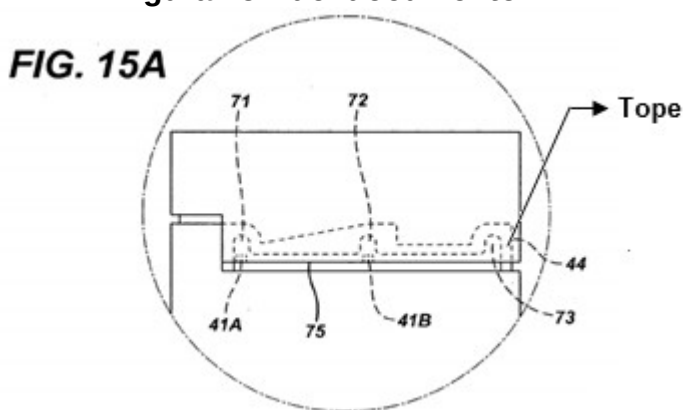
- Reivindicación 3: D3 divulga un carril en la pared (19) de la bandeja (12), próximo al extremo en el que se acopla a la tapa, el cual se extiende en paralelo a la primera dirección, comprendiendo la tapa una pared (23) que comprende un deslizador que se extiende desde la pared superior (Fig. 4). A continuación, se muestran las características técnicas enseñadas en D3:

Figura 4 del documento D3



- Reivindicación 4: D2 enseña la proyección (24) que comprende una superficie frontal cónica y una superficie posterior perpendicular a las paredes laterales de la base (14). Por su parte, las porciones finales posteriores del canal (32) son generalmente cónicas, mientras las porciones finales frontales son perpendiculares a las paredes laterales de la base (14) (Pág. 9, líneas 14 a 23).
- Reivindicación 5: D1 divulga un tope en la superficie superior del contenedor, dispuesto en orientación perpendicular de los deslizadores (41 A) a (41C) (Fig. 15A). Lo anterior se muestra en la siguiente figura:

Figura 15A del documento D1



Por su parte, el documento D2 enseña una porción (60) que se extiende desde la superficie superior de la tapa (12), dispuesta perpendicular al deslizador (Pág. 10, líneas 1 a 5). Cabe agregar, que esta Oficina considera que dicha porción (60) es un equivalente técnico del tope reclamado en la reivindicación 5, toda vez que también logra el efecto de limitar el movimiento de la tapa en la primera dirección, aún si está dispuesta en la superficie superior de la tapa (12). De igual manera, una persona normalmente versada en la materia estaría motivada a disponer la porción (60) en la superficie superior de la base (14), de tal manera que se limite el deslizamiento de la tapa (12).

- Reivindicación 8: D1 enseña una tapa que comprende una pared superior, y paredes laterales (16) y (17) que se extienden desde la pared superior, unos bordes (41 A) a (41C) que se extienden desde las paredes laterales y, un sellado (60) que se superpone sobre la abertura cuando la tapa está cerrada. Por su parte, el contenedor comprende los surcos (71) y (72), para recibir los bordes (41 A) a (41C) en posición cerrada (Figs. 9, 12, 12A, 16 y 16A; Párr. [0070], [0071], [0080], [0082] y [0088]).
- Reivindicación 9: D3 divulga una tapa (11) que consta de una pared superior (13) y una pared lateral (15) que se extiende desde la pared superior, definiendo dicha

- Reivindicación 10: D2 enseña una base (14) que consta de una lengüeta (16), la cual comprende una proyección (24), que interactúa con la sección (56) de los canales (32) para prevenir el deslizamiento de la tapa (12) (Pág. 10, líneas 6 a 10). Cabe agregar, que la lengüeta (16), la proyección (24) y la sección (56) se consideran equivalentes técnicos de la parte en solapa con al menos una parte flexible, el poste y la saliente, respectivamente, reclamados en la reivindicación 10, toda vez que al interactuar entre sí logran el efecto de mantener la tapa en posición cerrada. De igual manera, una persona normalmente versada en la técnica estaría motivada a intercambiar la lengüeta (16) junto con la proyección (24), para que se dispongan en la tapa (12). Así como también, intercambiaría los canales (32) con su sección (56), para que hagan parte de la base (14), con el fin de mantener la tapa en posición cerrada.
- Reivindicación 11: D1 divulga un mecanismo de fijación deslizante, donde la tapa comprende los pines (41 A) a (41C), los cuales, al ser abierta la tapa, se deslizan por la ranura (75) (Figs. 12, 12A, 16 y 16A; Párr. [0088]).
- Reivindicación 12: D4 divulga un brazo o lengüeta flexible (14) dispuesto sobre la superficie superior de la bandeja (5), comprendiendo dicha lengüeta un extremo de pivote y un extremo movable. Teniendo en dicho extremo movable una superficie vertical roma, comprendiendo además el brazo una superficie superior inclinada que se une al extremo de pivote y al extremo móvil (Figs. 4 a 6; Col. 4, líneas 49 a 67). En la siguiente figura se muestran las características enseñadas en el documento D4.

Diagrama de un dispositivo de apertura de una tapa, mostrando un mecanismo de resorte y un extremo móvil. El diagrama incluye las siguientes etiquetas:

- Superficie superior inclinada
- Superficie vertical roma
- Extremo pivote
- Extremo móvil
- Lengüeta flexible

El diagrama muestra una tapa (3) con una superficie superior inclinada (13) y una superficie vertical roma (15). Un extremo pivote (9) está conectado a un extremo móvil (11) a través de un mecanismo de resorte (17) y una lengüeta flexible (33). El extremo móvil (11) está conectado a un extremo pivote (9) a través de un mecanismo de resorte (17) y una lengüeta flexible (33). El extremo móvil (11) está conectado a un extremo pivote (9) a través de un mecanismo de resorte (17) y una lengüeta flexible (33).

## 1er Art 45

Comparación de las características técnicas esenciales, con las del estado de la técnica:

| Características esenciales                                                                                                                                                                                                         | D1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | D2                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Procedimiento para el dispensado de un producto, que comprende:                                                                                                                                                                    | Procedimiento para el dispensado de un producto, que comprende:                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Procedimiento para el dispensado de un producto, que comprende:                                                                                                                                                                                                                                                                                                                                 |
| Proporcionar un producto en una unidad de envase de cualquiera de las reivindicaciones 1 -14.                                                                                                                                      | Proporcionar un envase que comprende contenedor (12) que tiene una abertura (49) en la porción superior (180) del cuerpo del contenedor (12) (Fig. 5; Párr. [0061]). Una tapa (11) configurada para acoplarse de modo deslizante al contenedor sobre un extremo del mismo (Figs. 3, 4 y 21; Párrs. [0017], [0018] y [0087]). Un miembro flexible (30) se sitúa en la superficie (28) del cierre (13), el cual se flexiona cuando una fuerza se aplica sobre la superficie (8) de la tapa (11) (Figs. 5 y 16; Párr. [0074]). | Proporcionar una caja deslizante que comprende una base (14) que consta de un lado superior parcialmente abierto (Figs. 3 y 6; Pág. 5, líneas 11 y 12). Una tapa (12) acoplada en forma deslizante a la base (14) sobre su superficie superior (Figs. 3 y 6; Pág. 4, líneas 22 a 24). La base posee al menos una sección presionable o lengüeta (16) (Figs. 1, 2, 5 y 4; Pág. 5, líneas 1 y 2). |
| Impartir una fuerza sobre uno de entre el contenedor y la tapa de modo que se reflexione al menos una parte flexible en una dirección sustancialmente perpendicular a la primera dirección para desacoplar la tapa del contenedor. | Impartir una fuerza sobre la tapa (11) en dirección de la flecha (93) o (99), causando que la tapa (11) ceda en la misma dirección, logrando el efecto de comprimir el miembro flexible (30), ocasionando que los bordes o pines (41A) a (41C) se desacoplen de los surcos (71) del contenedor (12). (Párr. [0088]; Figs. 15 a 16A)                                                                                                                                                                                         | Impartir una fuerza en la lengüeta (16) de la base (14), que causa la flexión de dicha lengüeta (16) flexible, en una dirección perpendicular a la primera dirección, para desacoplar la proyección (24) de la sección final (56) de la tapa (12) (Pág. 10, líneas 23 a 24; Pág. 11, líneas 1 a 5).                                                                                             |
| Deslizar simultáneamente la tapa en la primera dirección durante la deflexión de al menos una parte flexible de modo que la tapa se mueva a la posición abierta y la abertura quede al menos parcialmente descubierta.             | Mientras se mantiene la fuerza en dirección de la flecha (93) o (99), sobre la tapa (11), dicha tapa (11) puede ser deslizada en dirección de la flecha (92), de modo que la abertura del contenedor se vuelve visible y queda descubierta (Párr. [0089]; Figs. 17 a 22)                                                                                                                                                                                                                                                    | Deslizar simultáneamente la tapa (12) en la primera dirección (Fig. 1) durante la deflexión de la lengüeta flexible (16) de modo que la tapa se mueva a la posición abierta y la abertura quede al menos parcialmente descubierta (Pág. 10, líneas 23 a 24; Pág. 11, líneas 1 a 9).                                                                                                             |

| D3                                                                                                                                                                                                                                                                                                                                            | D4                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Procedimiento para el dispensado de un producto, que comprende:                                                                                                                                                                                                                                                                               | Procedimiento para el dispensado de un producto, que comprende:                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Proporcionar un contenedor caracterizado por una bandeja (12) que tiene una abertura en un su parte superior (Fig. 2). Una tapa (11) configurada para acoplarse de modo deslizante a la bandeja (12) sobre un extremo de la misma (Col. 2, líneas 15 a 17). La bandeja (12) comprende un brazo flexible (28) (Fig. 2; Col. 2, líneas 38 a 56) | Proporcionar una caja caracterizada por una bandeja (5) que tiene una abertura en un su parte superior (Fig. 3 a 7). La bandeja (5) y la tapa (3) están acopladas de forma deslizante. La tapa se dispone sobre un extremo de la bandeja (Col. 4, líneas 16 a 19). La tapa (3) comprende las lengüetas flexibles (9) y (7) (Col. 3, líneas 64 a 66). La bandeja (5) consta de la lengüeta (14), sobre la cual se dispone la porción (15) (Figs. 4 a 6; Col. 4, líneas 49 a 67). |
| Impartir una fuerza sobre el botón de bloqueo (31) causando que del brazo flexible (11) se flexione en una dirección perpendicular a la primera dirección para desacoplar dicho botón (31) de la apertura (32) dispuesta en la tapa (12) (Col. 2, líneas 57 a 68)                                                                             | Impartir una fuerza (F) en la lengüeta (14), causando que dicha lengüeta se flexione en una dirección perpendicular a la primera dirección, ocasionando que la porción (15) se desacople de la porción (21) de la tapa (3) (Figs. 4 a 6; Col. 4, líneas 57 a 68).                                                                                                                                                                                                               |
| Mientras el botón (31) está                                                                                                                                                                                                                                                                                                                   | Mientras la lengüeta (14) junto                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                                                                                                                                                                                                                             |                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| flexionado, se deslizar simultáneamente la tapa (11) en la primera dirección, de modo que la tapa se mueva a la posición abierta y la abertura quede al menos parcialmente descubierta (Figs. 1 y 2Col. 2, líneas 57 a 68). | con la porción (15) están flexionados, se desliza la tapa (3) en la primera dirección, de modo que la tapa se mueva a la posición abierta y la abertura quede al menos parcialmente descubierta (Figs. 4 a 6; Col. 4, líneas 57 a 68). |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

De acuerdo con la tabla anterior, las características esenciales del procedimiento de la reivindicación 15 habían sido divulgadas previamente en los documentos D1 a D4, por lo tanto, la materia reivindicada no es nueva.

Por otro lado, se concluye que las reivindicaciones 2, 6, 7 y 13 pueden dar novedad y nivel inventivo a la creación reclamada.

Finalmente, la reivindicación 14 está objetada en el numeral 3 del presente requerimiento.

6. Conclusión

Los requisitos de Patentabilidad de la presente solicitud están afectados así:

| Ítem | Documento       | Reivindicaciones afectadas | Requisito que afecta    |
|------|-----------------|----------------------------|-------------------------|
| D1   | US 2006/0138145 | 1,5,8,11,15                | Novedad/Nivel Inventivo |
| D2   | WO2001/015998   | 1,3,5,10,15                | Novedad/Nivel Inventivo |
| D3   | US 4'561.544    | 1, 4, 9,15                 | Novedad/Nivel Inventivo |
| D4   | US 5'082.137    | 1,12,15                    | Novedad/Nivel Inventivo |

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta (60) días contados a partir del día siguiente de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Se invita al solicitante se sirva indicar, si así lo considera, su renuncia al término faltante de sesenta (60) días para dar respuesta a este requerimiento y presentarla por escrito.

Finalmente, se le recuerda al solicitante que si como respuesta a este requerimiento llegara a modificar el capítulo reivindicatorio y éste contenga más de diez (10) reivindicaciones, no pagará la tasa de modificación voluntaria pero sí la correspondiente al pago por reivindicación adicional.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No. 10 de 2001.



**JOSÉ LUIS SALAZAR LÓPEZ**  
Director de Nuevas Creaciones (c)

El anterior requerimiento fue notificado por fijación en lista, de fecha 2014-03-04

Elaboró: Monica Andrea Gutierrez Almonacid  
Revisó: Sonia Andrea Diaz Pirazan



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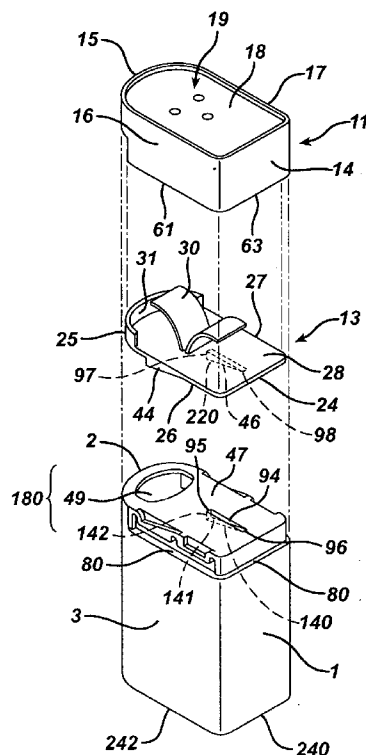
(19) **United States**(12) **Patent Application Publication****Toth et al.**(10) **Pub. No.: US 2006/0138145 A1**(43) **Pub. Date: Jun. 29, 2006**(54) **CHILD-RESISTANT CLOSURE FOR DISPENSING CONTAINERS**(52) **U.S. Cl. .... 220/345.2; 215/322; 215/216; 220/345.4**

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**Richard A. Gross**, Oconomowoc, WI (US); **Dieter F. Lay**, Oconomowoc, WI (US);  
**Roger Rinker**, Hatfield, PA (US); **Kristin Recchiuti**, North Wales, PA (US);  
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**PHILIP S. JOHNSON****JOHNSON & JOHNSON****ONE JOHNSON & JOHNSON PLAZA****NEW BRUNSWICK, NJ 08933-7003 (US)**(21) Appl. No.: **11/018,051**(22) Filed: **Dec. 21, 2004****Publication Classification**(51) **Int. Cl.****B65D 43/12 (2006.01)****B65D 43/20 (2006.01)**(57) **ABSTRACT**

A child resistant, moveable closure member and container device having an overcap, and inner closure, and a container, which may have a non-round body. The overcap has opposed end walls and opposed sidewalls, with at least one leading locking pin and at least one trailing locking pin in at least one of said sidewalls. The inner closure may have at least one guiding bar, which extends downwardly from its lower surface, that is compatible in shape with an opening slot that may be in at least one of the sidewalls along the upper body of the container. The container further has a fixed cover portion facing the inner closure with a dispensing opening therethrough. At least one of the container sidewalls may have a closing notch, a stopping notch distal to the closing notch, and an opening notch therebetween. When the moveable closure is in the operative closure position, at least one of the leading locking pins is removably engaged in one of the closing notches and at least one of the trailing locking pins is removably engaged in at least one of the open notches, and the at least one guiding bar lies in the opening slot of the container. As the moveable closure is moved to its operative open position, the guiding bar engages and slidably travels along the opening slot. When the moveable closure is in its operative open position, at least one of the leading locking pins is removably engaged in one of the open notches and at least one of the trailing locking pins is removably engaged in one of the stopping notches.



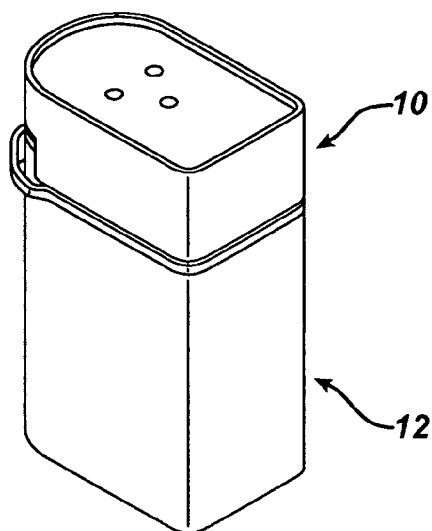


**FIG. 1**

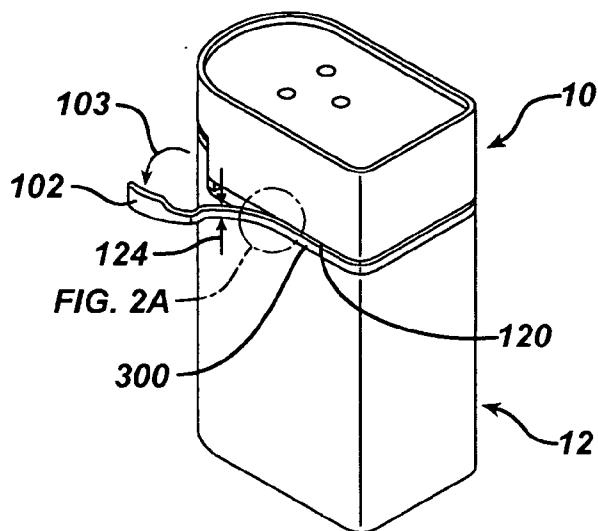


**FIG. 2**

**FIG. 2A**

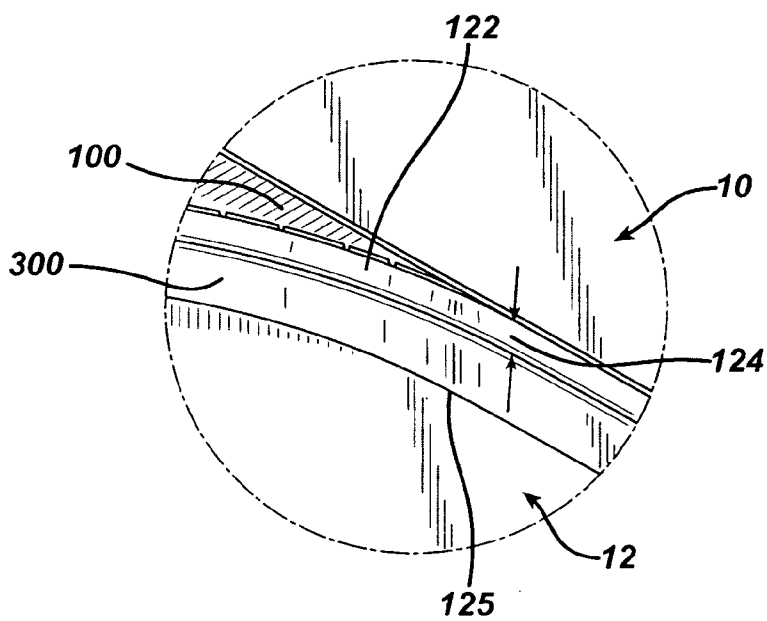


**FIG. 3**

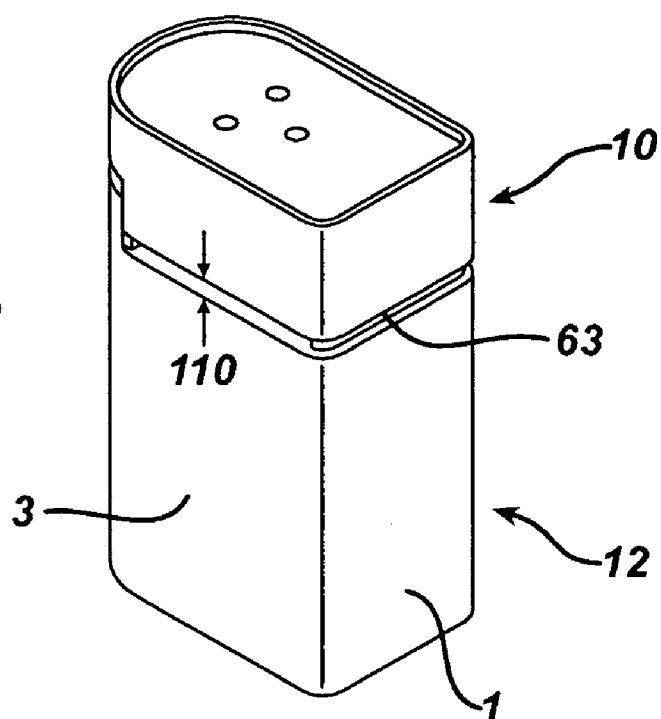


**FIG. 4**

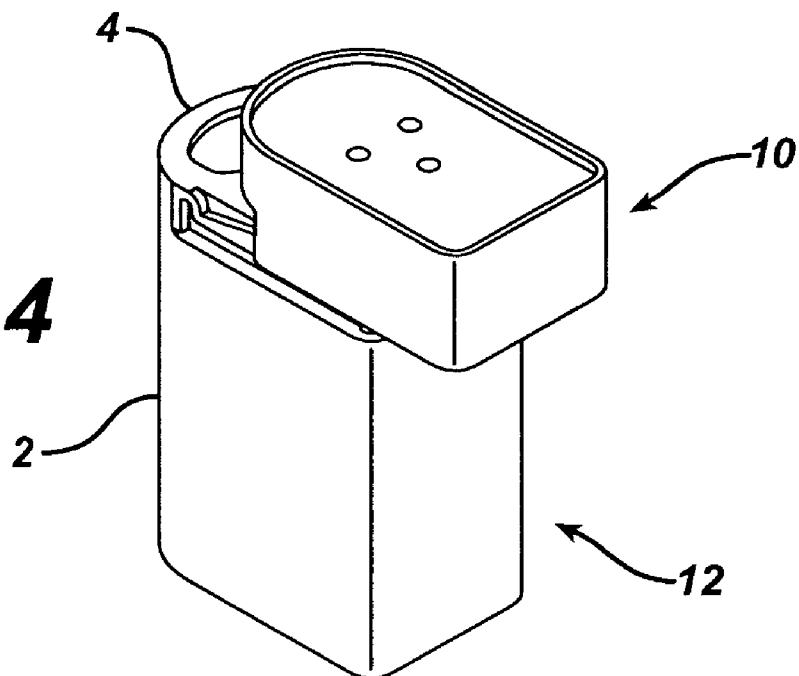
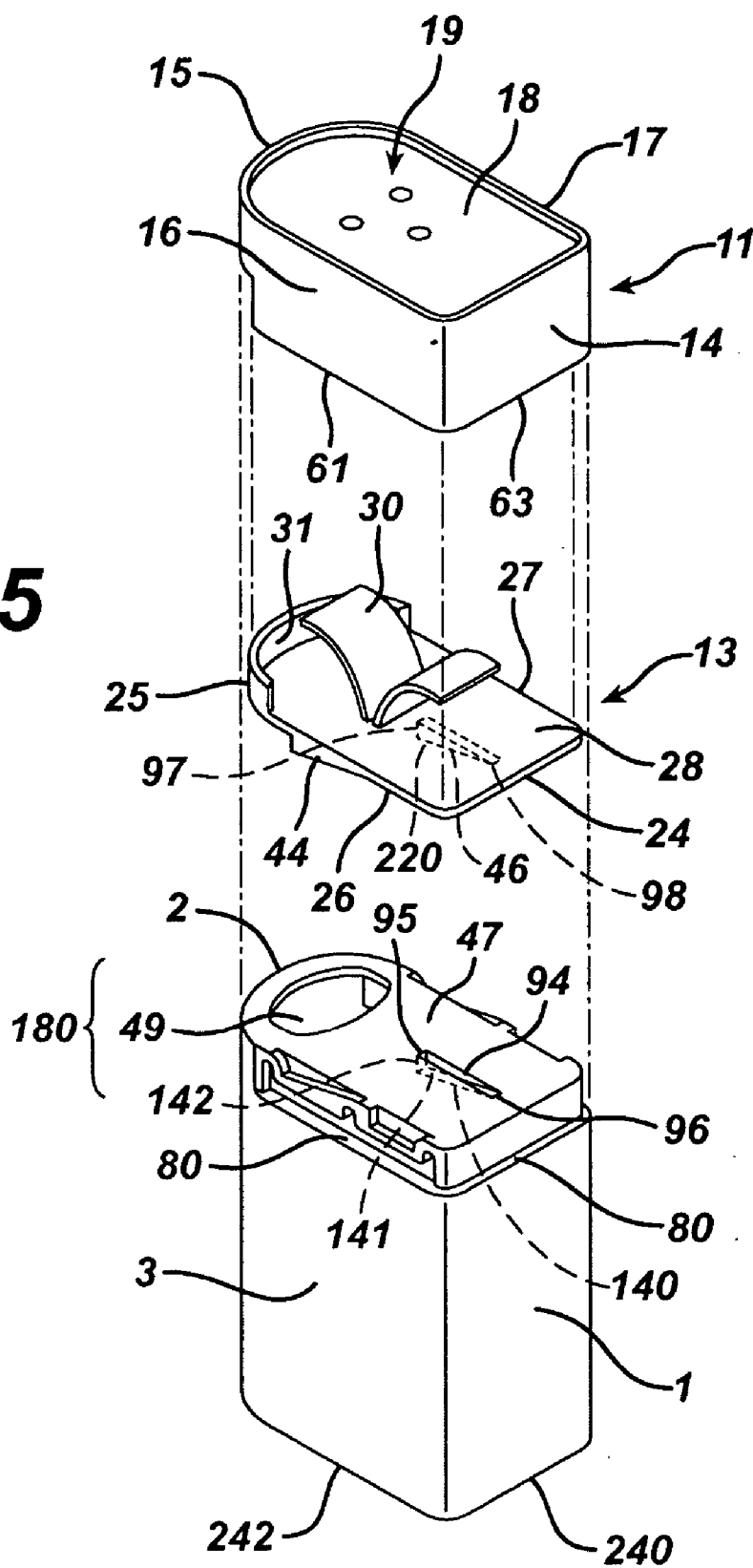


**FIG. 5**



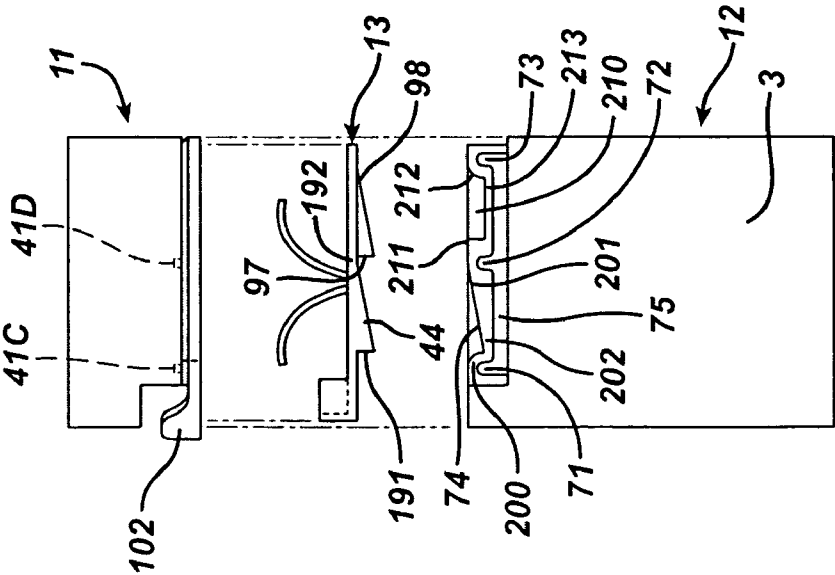


FIG. 6

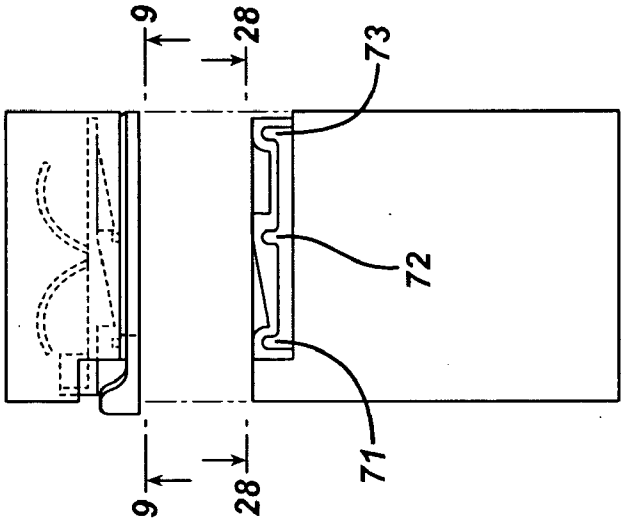


FIG. 7

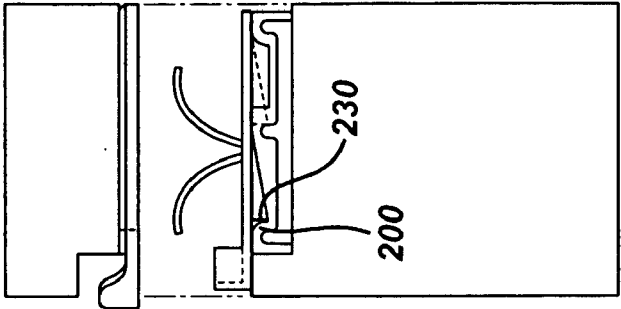
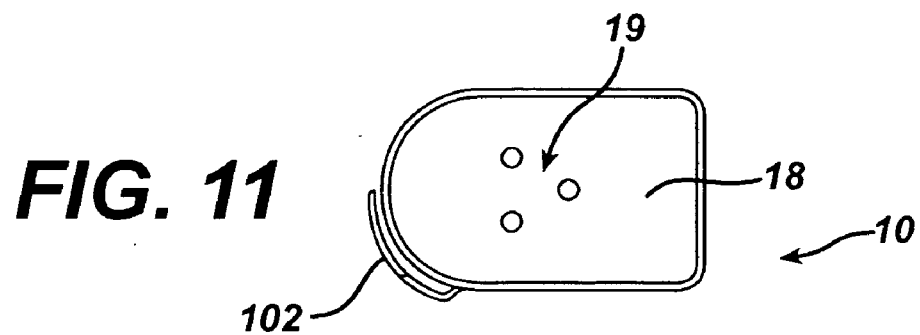
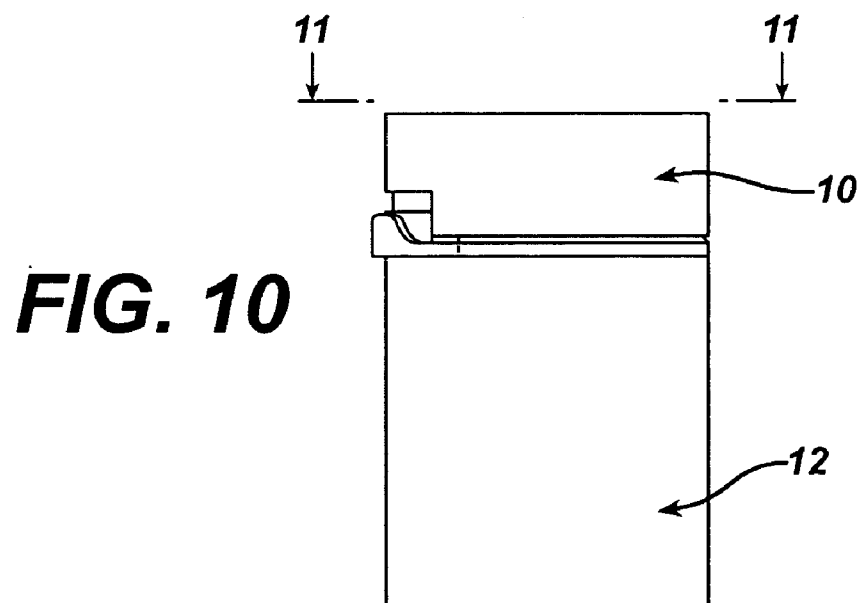
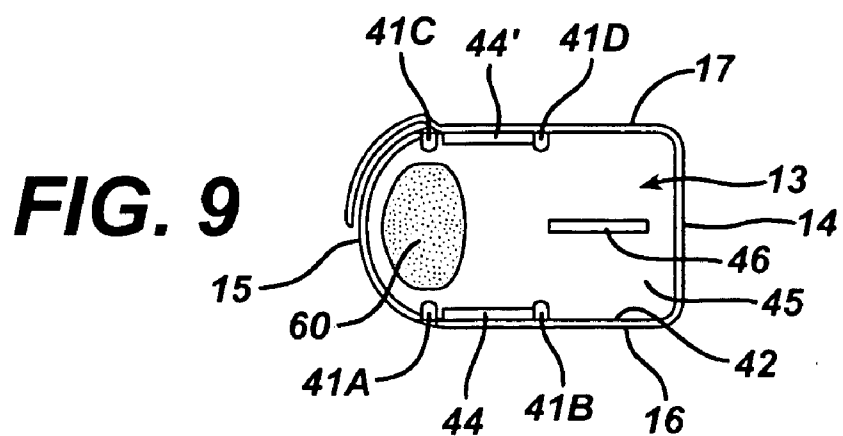


FIG. 8



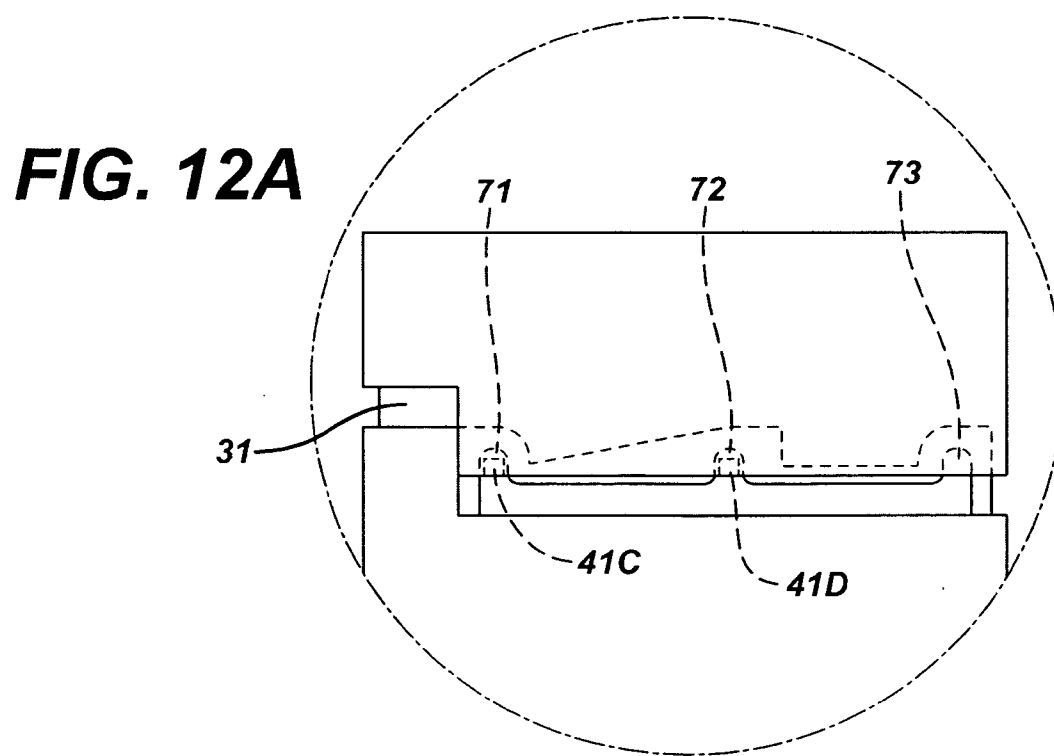
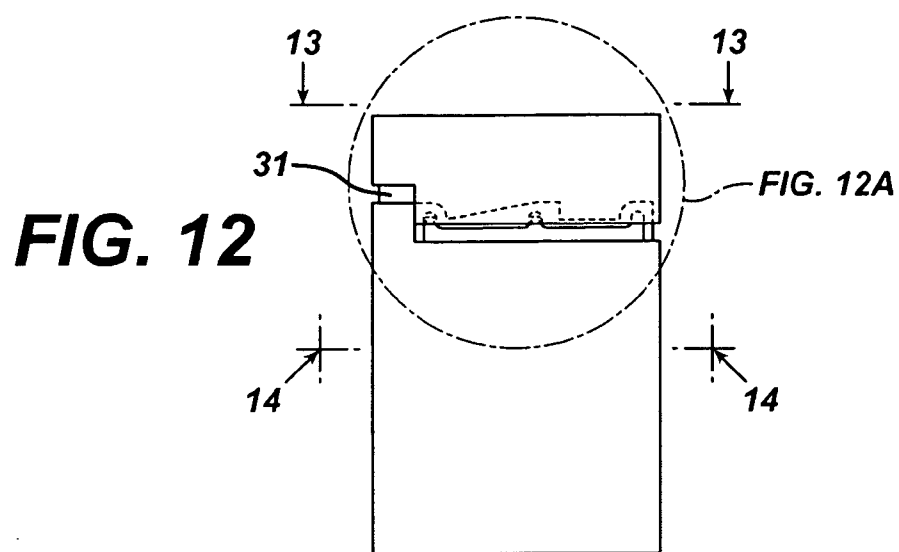


**FIG. 13**

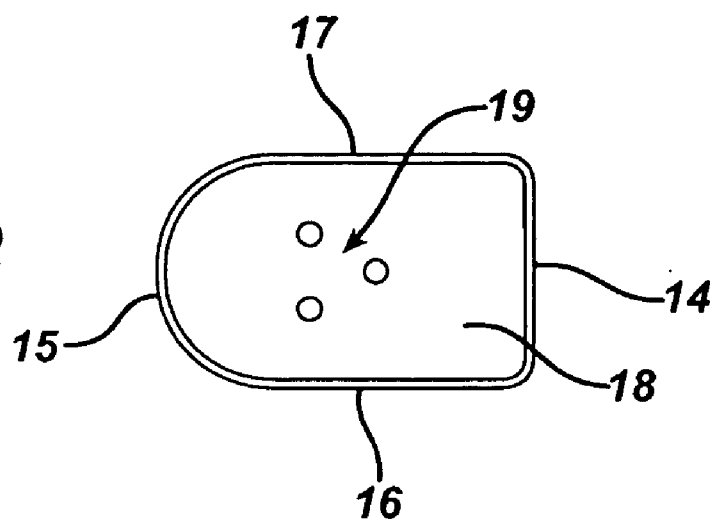


**FIG. 14**

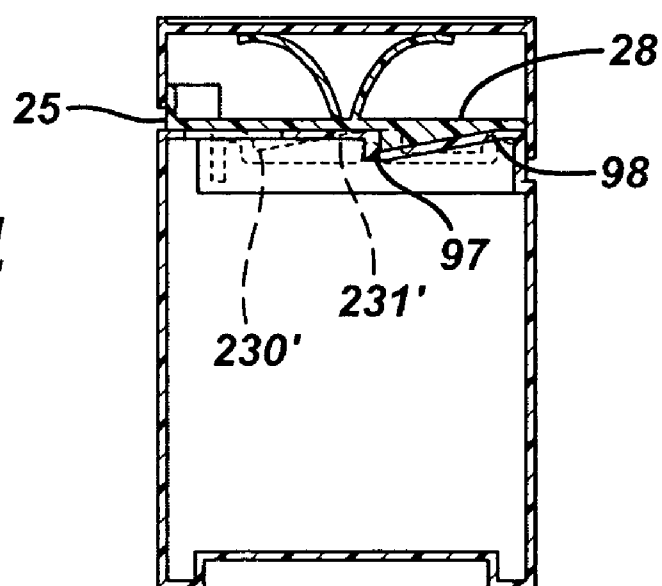


**FIG. 15**

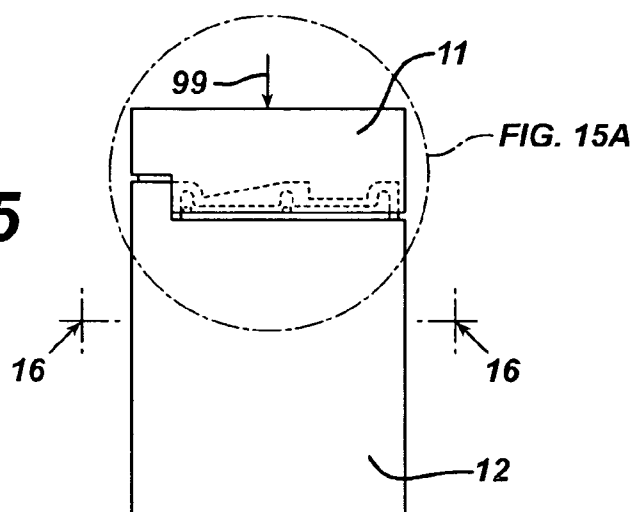


**FIG. 15A**

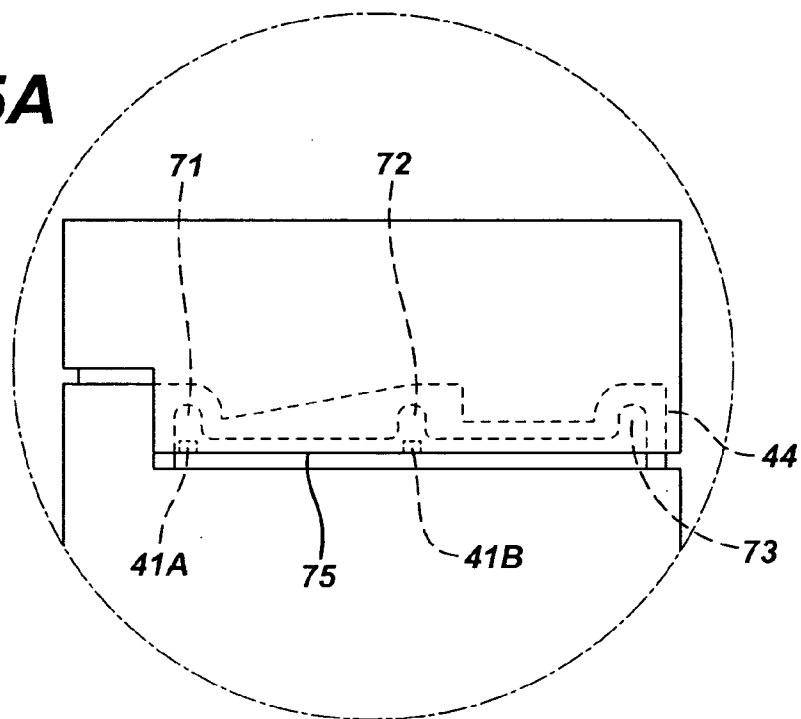


**FIG. 16**

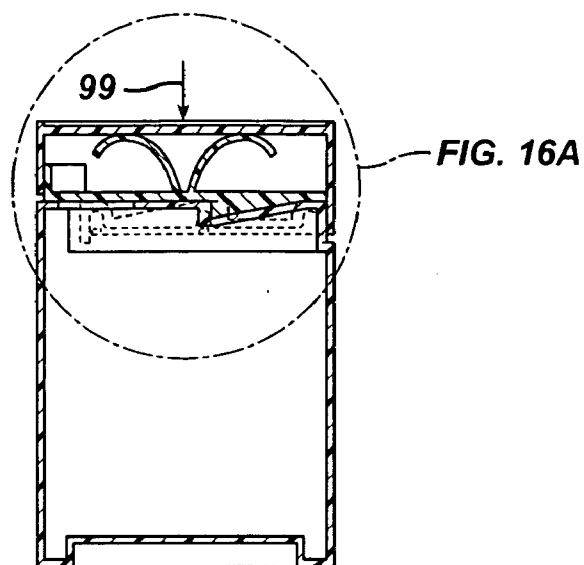


**FIG. 16A**

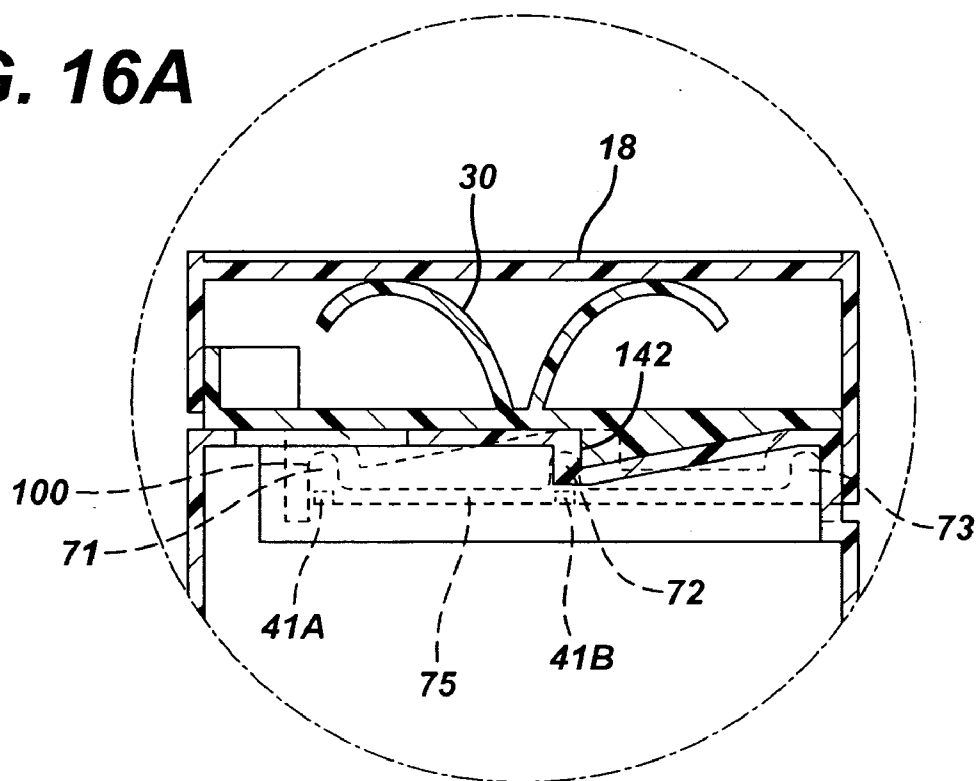


**FIG. 17**

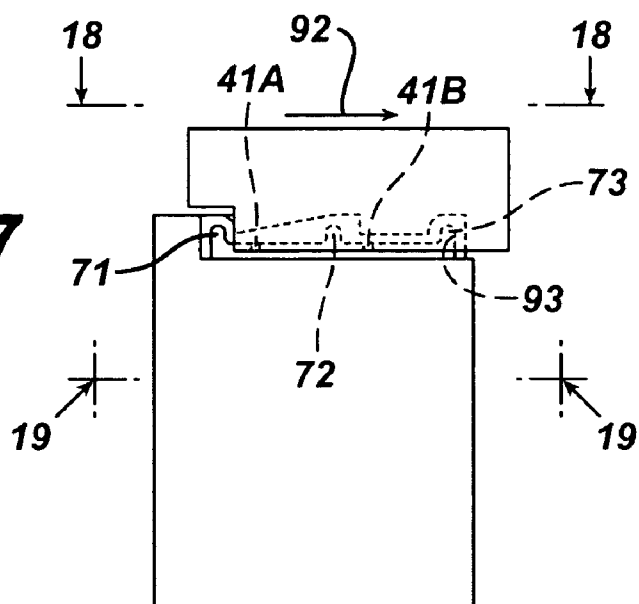


**FIG. 18**

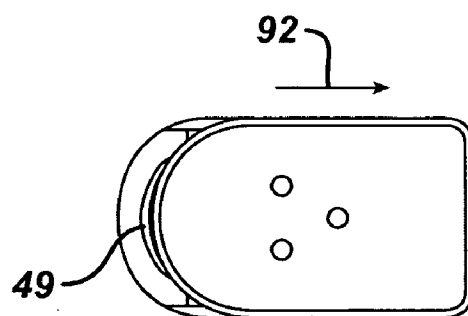


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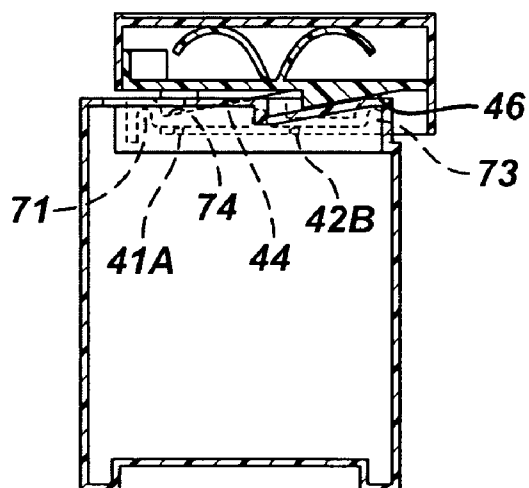


**FIG. 20**

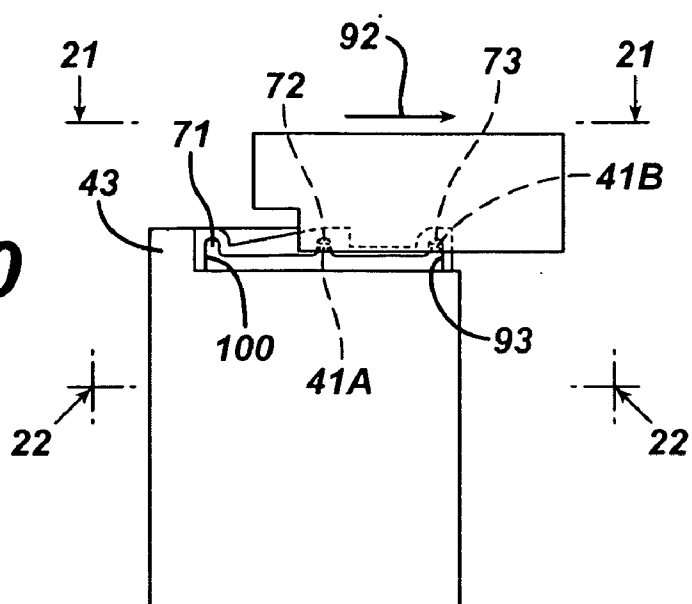


**FIG. 21**

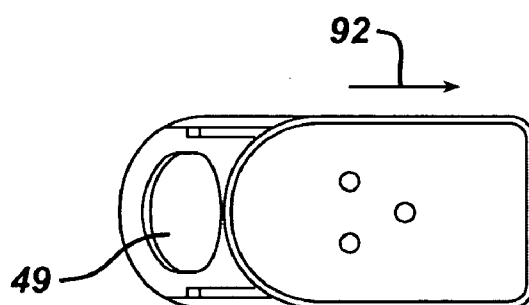
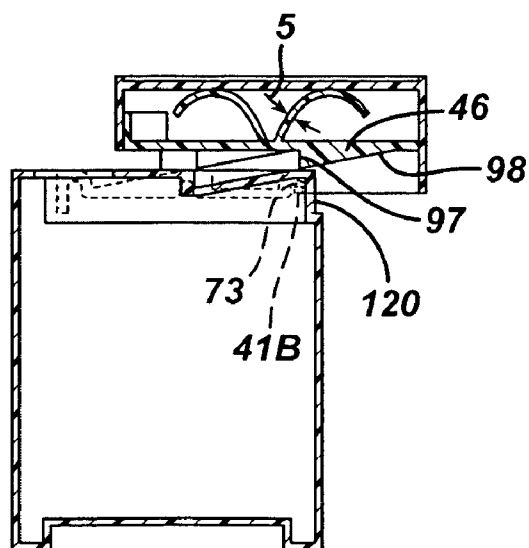


**FIG. 22**



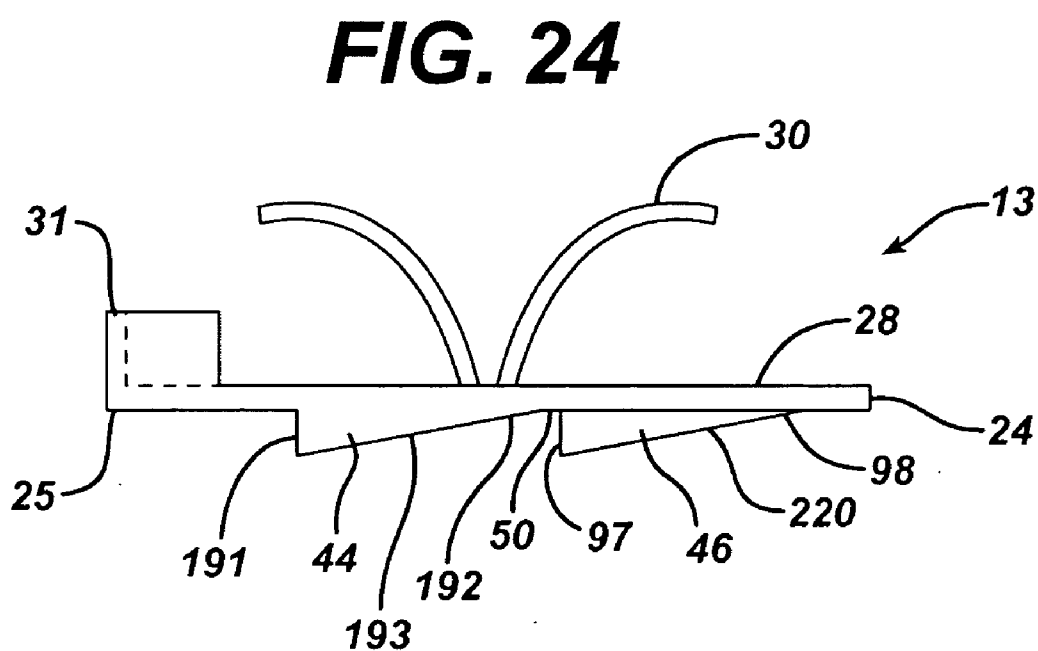
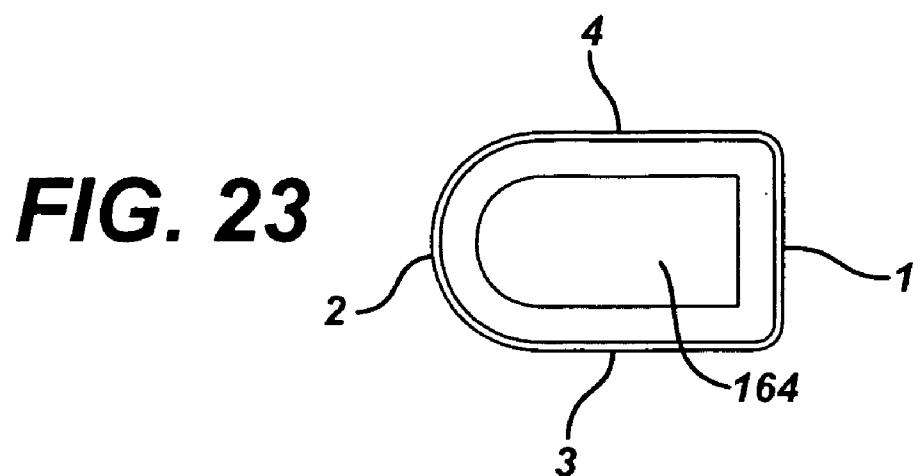


**FIG. 25**

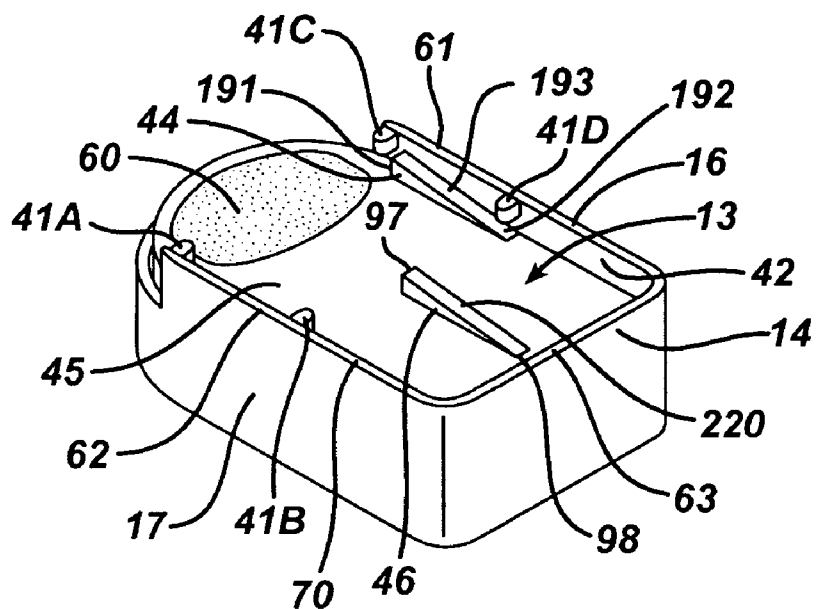


**FIG. 26**

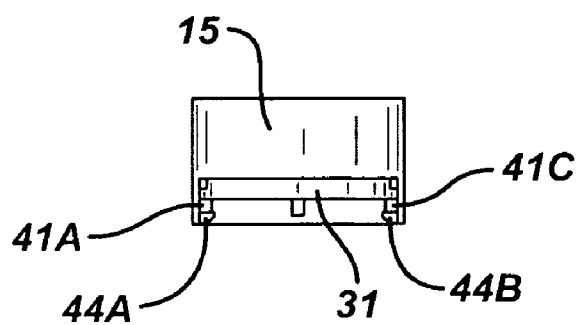


**FIG. 27**

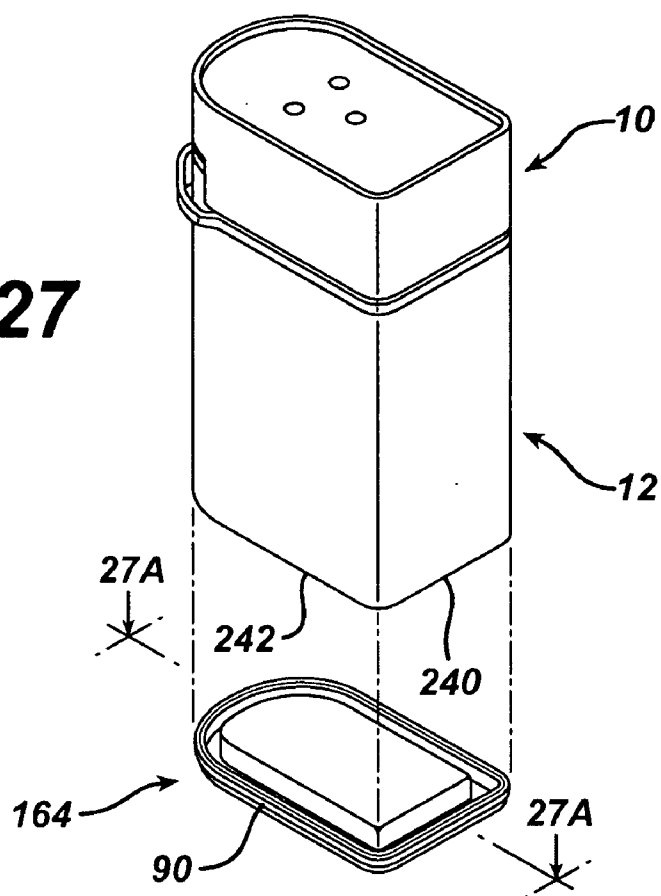


**FIG. 27A**

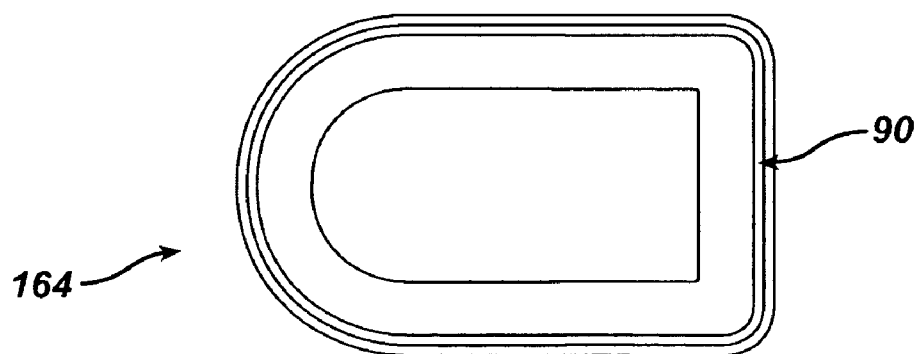


**FIG. 28**

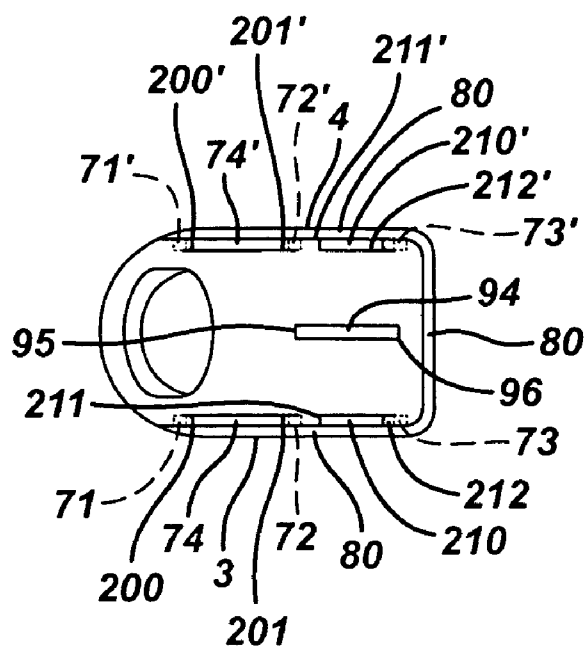
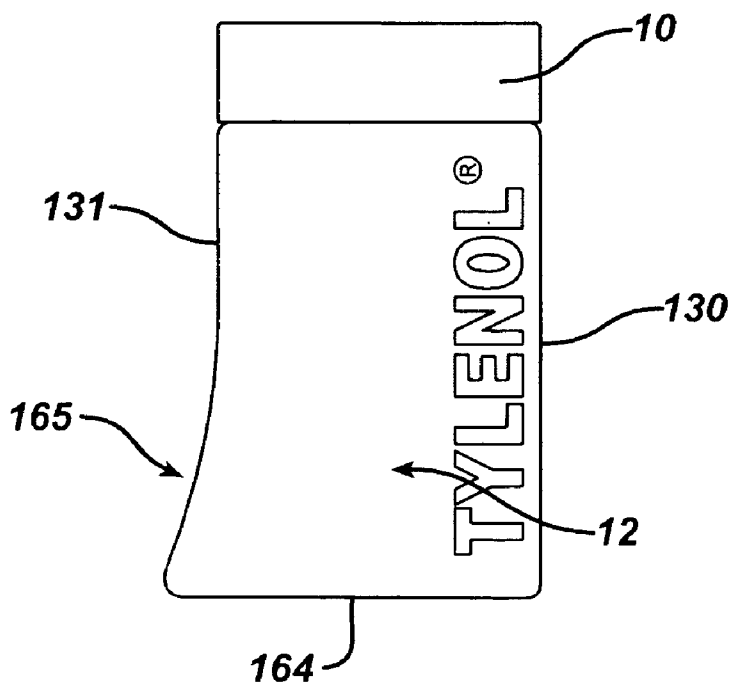
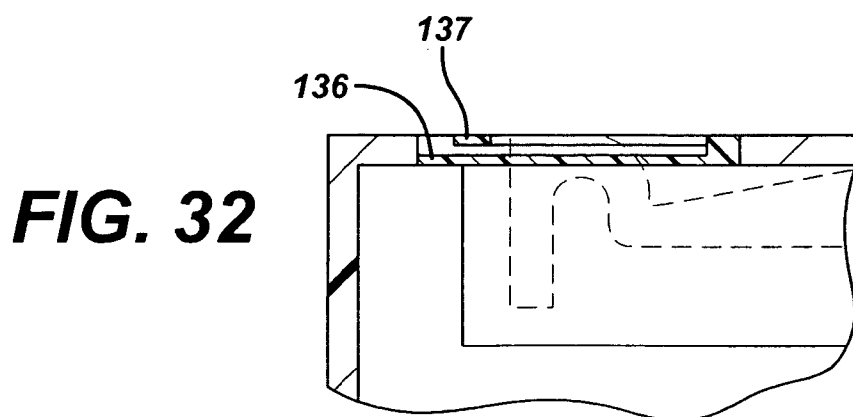
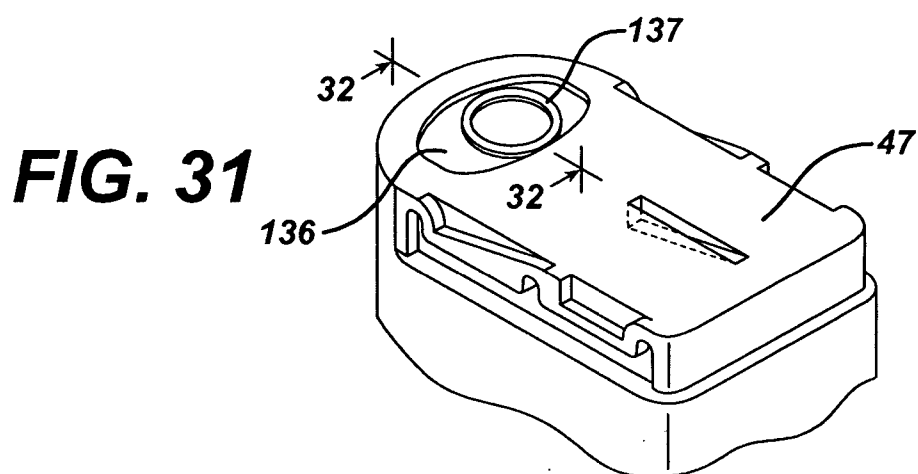
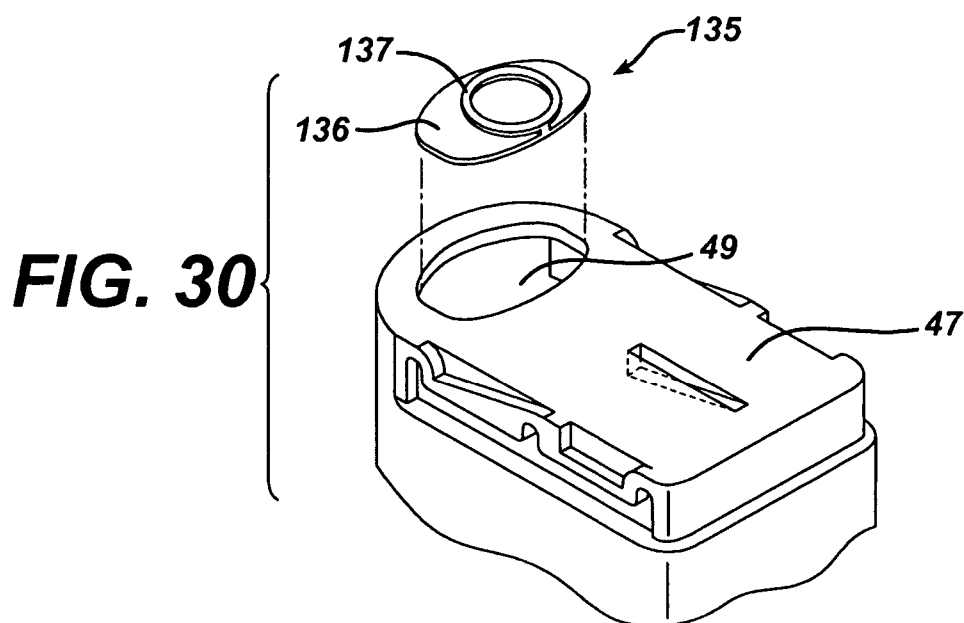


**FIG. 29**





## CHILD-RESISTANT CLOSURE FOR DISPENSING CONTAINERS

### FIELD OF THE INVENTION

[0001] This invention relates to child-resistant closures for dispensing containers, such as those for dispensing pharmaceuticals, and more specifically to non-round containers.

### BACKGROUND OF THE INVENTION

[0002] There is an increasing awareness of the requirement to protect children from inadvertently gaining access to pharmaceutical medications. However, this requirement is often balanced with the necessity to provide containers for medications that may otherwise may be readily and easily opened by an adult, i.e., any person having the cognitive ability to understand the instructions for opening a container requiring a certain manipulation and manual dexterity. Such persons are assumed, as well, to have the ability to understand that opening a container to gain access to the medication therein is a deliberate action, and is only undertaken when there is a necessity to attain access to the pharmaceutical medication contained therein.

[0003] Often, such adults have the sufficient manual dexterity to open a container, but may suffer from a debilitating condition such as arthritis. Such persons may still desire to have their medications in containers that require specific manipulation and manual dexterity, and thus child-resistance, but with lesser physical effort.

[0004] There are several well-known child-resistant containers in the market that are capable of dispensing one or a plurality of dosage forms such as tablets, gel-caps, capsules, or the like. They include the so-called "arrow-alignment" closures or the "push-and-turn" closures. In both cases, the containers are of the standard cylindrical variety.

[0005] The push-and-turn systems require that the closure be pushed axially downwardly and rotated at the same time. Disadvantageously, very considerable force, which is often beyond that which can easily be exerted by arthritic patients, may be required. Moreover, the specific force required between two otherwise identical, push-and-turn closures and containers, often differs from one to the other.

[0006] A user of closures having the arrow-alignment systems often needs to have relatively good eyesight in order to properly align an arrow on the closure or cap with an arrow typically embossed on the container. Even after the arrows are aligned, a user may still need to exert a very considerable force to push up the cap away from the container, so as to remove the cap, which also may be difficult for an arthritic patient.

[0007] Currently produced pharmaceutical containers tend to be cylindrical in shape and not very space efficient. These containers may not be easily stacked except in an end-to-end fashion, and even then only precariously. Moreover, placement of a number of cylindrical pharmaceutical containers together on a shelf results in an inefficient use of the volume in which they are placed due to the spaces left between the curved cylindrical walls. In order to improve storage efficiency, such containers are often packed in an outer rectangular paper packaging; however, the inclusion of such outer packaging is not only economically undesirable, but it also increases the production cycle time. Still further, it is also

often difficult to read the label directions for pharmaceuticals contained in a cylindrical pill container due to the continual need to turn or rotate the cylindrical container.

[0008] Another disadvantage associated with closures suitable for cylindrical tablet containers is that the closure becomes physically separated from the container upon opening. The closure may then either become lost, or in the event where multiple medications are being dispensed, may inadvertently be secured incorrectly or loosely secured onto the wrong container. Still further, there is also a risk that children may place the separated cap into their mouth, which might result in choking.

[0009] One approach to overcoming such disadvantages is disclosed in U.S. Pat. No. 6,095,364, which discloses a unitary child-resistant closure having a rectangular base and a hinge connecting a moveable closure member to an end wall of the base. Such closures are suitable for use in rectangular containers. Disadvantageously, the hinge may break due to stresses associated with repetitive openings and closings. Also, this type of dosage form relies upon the use of only one finger for its operation, which still may cause difficulties for those suffering from arthritis.

[0010] Consumers of ingestible goods, such as nutraceutical or pharmaceutical medications also may wish to be assured in their own minds that the container of such goods has not been tampered with in the interval after the container left the manufacturing facility.

[0011] It would be desirable to have a child-resistant closure that is suitable for use in both cylindrical and non-cylindrical shaped containers, that is not easily removed from its container, and that may be opened by adults who may have compromised hand strength.

### SUMMARY OF THE INVENTION

[0012] In accordance with the present invention, there is provided a child-resistant closure for containers, and a combination of a child-resistant closure together with a container and an optional tamper-evident means as disclosed in the claims.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The novel features which are believed to be characteristic of the present invention, as to its structure, organization, use and method of operation, together with further objectives and advantages thereof, will be better understood from the following drawings in which an embodiment of the invention will now be illustrated by way of example. It is expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention. Embodiments of this invention will now be described by way of example in association with the accompanying drawings in which:

[0014] **FIG. 1** is a perspective view of a child-resistant closure of the present invention when placed on a container, as shown in the closed position prior to removal of the tamper evident band;

[0015] **FIG. 2** is a perspective view of the child-resistant closure and container of **FIG. 1**, wherein the tamper evident band is in the process of being removed;

[0016] **FIG. 2A** is an enlarged perspective view of a portion of the tamper evident band on the container of **FIG. 2** while it is in the process of being removed.

[0017] **FIG. 3** is a perspective view of the child-resistant closure and container of **FIG. 1** after the tamper evident band has been removed;

[0018] **FIG. 4** is a perspective view of the child-resistant closure and container of **FIG. 3** with the closure being displaced so as to partially expose the dispensing opening in the container;

[0019] **FIG. 5** is an exploded perspective view of the various components of a child-resistant closure of the present invention when placed on a container, wherein the closure is in the closed position;

[0020] **FIG. 6** is an exploded left side elevational view of the child-resistant closure and container of **FIG. 5** with an optional tamper evident band, with the right side elevational view being substantially a mirror image thereof;

[0021] **FIG. 7** is a left side elevational view of the closure and container of **FIG. 6** showing the overcap having the inner closure (in phantom) assembled therein;

[0022] **FIG. 8** is a left side elevational view of the closure and container of **FIG. 6** showing the arrangement of the inner closure on the container;

[0023] **FIG. 9** is a bottom plan view of the inner closure as taken along view line 9-9 of **FIG. 7**;

[0024] **FIG. 10** is a left side elevational view of the assembled child-resistant closure and container of **FIG. 6** with an optional tamper evident band, with the right side view being substantially a mirror image thereof;

[0025] **FIG. 11** is a top plan view of the child-resistant closure and container of **FIG. 6**;

[0026] **FIG. 12** is a left side elevational view of the assembled child-resistant closure and container of **FIG. 3** after the tamper evident band has been removed, with the right side being substantially a mirror image thereof;

[0027] **FIG. 12A** is an enlarged view of the child resistant closure and container assembly of **FIG. 3**.

[0028] **FIG. 13** is a top plan view of the assembled child-resistant closure and container of **FIG. 3** after the tamper evident band has been removed as taken along view line 13-13 of **FIG. 12**;

[0029] **FIG. 14** is a cross-sectional view of the assembled child-resistant closure and container of **FIG. 3** after the tamper evident band was removed, as taken along section line 14-14 of **FIG. 12**;

[0030] **FIG. 15** is a side elevational view of the assembled child-resistant closure and container of **FIG. 14** showing a progressive step during an opening operation of the closure.

[0031] **FIG. 15 A** is an enlarged side elevational view of the assembled child-resistant closure and container of **FIG. 15**.

[0032] **FIG. 16** is a cross-sectional view of the container of **FIG. 15**, as taken along section line 16-16 of **FIG. 15**;

[0033] **FIG. 16 A** is an enlarged cross-sectional view of the assembled child-resistant closure and container of **FIG. 16**.

[0034] **FIG. 17** is a left side elevational view of the assembled child-resistant closure and container of **FIG. 15** showing a further progressive step during an opening operation of the child-resistant closure, with the right side view being substantially a mirror image thereof;

[0035] **FIG. 18** is a top plan view of the assembled child-resistant closure and container of **FIG. 17** as taken along view line 18-18 of **FIG. 17**;

[0036] **FIG. 19** is a cross-sectional view of the assembled child-resistant closure and container of **FIG. 17** as taken along section line 19-19 of **FIG. 17**;

[0037] **FIG. 20** is a side elevational view of the assembled child-resistant closure and container of **FIG. 15** showing the closure in a fully opened position;

[0038] **FIG. 21** is a top plan view of the assembled child-resistant closure and container of **FIG. 20** as taken along view line 21-21;

[0039] **FIG. 22** is a cross-sectional view of the assembled child-resistant closure and container of **FIG. 20** as taken along section line 22-22 of **FIG. 20**.

[0040] **FIG. 23** is the bottom view of the container illustrated in **FIG. 1**;

[0041] **FIG. 24** is an enlarged left side view of the inner closure, with the right side view being substantially a mirror image thereof.

[0042] **FIG. 25** is a perspective, bottom view of the inner closure assembled in the overcap;

[0043] **FIG. 26** is the front end view of the inner closure assembled in the overcap;

[0044] **FIG. 27** is an exploded perspective view of a container and base plate;

[0045] **FIG. 27A** is an enlarged plan view of the base plate of **FIG. 27** as taken along section line 27A-27A;

[0046] **FIG. 28** is a plan view of the container.

[0047] **FIG. 29** is a perspective view of an alternative embodiment of a container.

[0048] **FIG. 30** is an exploded perspective view of a second tamper evident feature on the dispensing opening of the container illustrated in **FIG. 1**.

[0049] **FIG. 31** is a perspective view of the second tamper evident feature as assembled on the dispensing opening of the container illustrated in **FIG. 1**.

[0050] **FIG. 32** is a sectional view of the second tamper evident feature on the dispensing opening as taken along view line 32-32 of **FIG. 31**.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0051] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which the invention belongs. Also, all publications, patent applica-

tions, patents, websites, and other references mentioned herein are incorporated by reference.

[0052] As used herein, “child-resistant” shall mean that, when the package is tested by a group which comprises children, the container cannot be opened by at least about 85% of those children prior to a demonstration to them as to the proper means of opening the package; but still cannot be opened by at least about 80% of those children after the demonstration to them of the proper means for opening the package. In the case where a child-resistant package is provided to a test group of adults, it must be capable of being opened by at least about 90% of those adults; and, where the package is designed so that it may be re-closed, it can be re-closed by at least about 90% of those adults but still cannot be opened by at least about 85% of children to whom no demonstration as the proper method of opening the package has been given, nor by about 80% of those children after a demonstration has been made.

[0053] Moreover, throughout the present disclosure, the use of the word “tablet” in describing a tablet container or any pharmaceutical medication which may be placed in the container is meant to refer to any particulate prescribed medications of the sort generally embodied by tablets, pills, caplets, capsules, gel-caps, or and the like. Any such medications are prescribed and dispensed by numbers of units—for example, administrative instructions may require the oral consumption of two tablets daily for a period not to exceed one week would mean that not more than 14 tablets be dispensed.

[0054] As used herein, the term “dosage form” applies to any ingestible forms, including pharmaceuticals, nutraceuticals, as well as confections.

[0055] In one embodiment, dosage forms are solid, semi-solid, or liquid compositions designed to contain a specific pre-determined amount (i.e. dose) of a certain ingredient, for example an active ingredient as defined below. Suitable dosage forms may be pharmaceutical drug delivery systems, including those for oral administration, buccal administration, rectal administration, topical, transdermal, or mucosal delivery, or subcutaneous implants, or other implanted drug delivery systems; or compositions for delivering minerals, vitamins and other nutraceuticals, oral care agents, flavorants, and the like. In one embodiment, the dosage forms of the present invention are considered to be solid; however, they may contain liquid or semi-solid components. In another embodiment, the dosage form is an orally administered system for delivering a pharmaceutical active ingredient to the gastrointestinal tract of a human. In yet another embodiment, the dosage form is an orally administered “placebo” system containing pharmaceutically inactive ingredients, and the dosage form is designed to have the same appearance as a particular pharmaceutically active dosage form, such as may be used for control purposes in clinical studies to test, for example, the safety and efficacy of a particular pharmaceutically active ingredient.

[0056] “Active ingredients,” as used herein, includes, for example, pharmaceuticals, minerals, vitamins and other nutraceuticals, oral care agents, flavorants and mixtures thereof. Suitable pharmaceuticals include, but are not limited to, analgesics, anti-inflammatory agents, antiarthritics, anesthetics, antihistamines, antitussives, antibiotics, anti-infective agents, antivirals, anticoagulants, antidepressants,

antidiabetic agents, antiemetics, antifatulents, antifungals, antispasmodics, appetite suppressants, bronchodilators, cardiovascular agents, central nervous system agents, central nervous system stimulants, decongestants, diuretics, expectorants, gastrointestinal agents, migraine preparations, motion sickness products, mucolytics, muscle relaxants, osteoporosis preparations, polydimethylsiloxanes, respiratory agents, sleep-aids, urinary tract agents and mixtures thereof.

[0057] The child-resistant closure is shown generally at 10; a container is shown generally at 12. Although not shown, the size of the container 12 may vary, depending on the volume which is required. For example, a container into which thirty tablets might be dispensed may have a general appearance such as that shown in FIG. 1, whereas a container into which ninety tablets will be dispensed would be considerably larger.

[0058] Unlike the containers used with prior art child-resistant closures, the shape of the containers that are suitable for use in the present invention is not critical. Referring particularly to, for example, FIGS. 1 through 5, a container 12 having a first flat end 1, a second curved end 2 opposite therefrom, and a pair of flat side walls 3, 4 is shown for illustration purposes only. However, when aesthetics is of particular concern, the “footprint” formed by the end walls 1, 2 and side walls 3, 4 of the container 12, and in particular the footprint of the upper body portion 180 preferably resembles the footprint formed by the end walls 14, 15 and side walls 16, 17, respectively, of the overcap 11.

[0059] In one embodiment as illustrated in FIG. 29, the container 12 may be asymmetrically shaped. In this embodiment, the container 12 may have a straight, substantially flat side 130, which facilitates the orientation of the container either on its side 130 or its bottom 164 when displayed on a shelf, and a rounded side 131 having a portion of concave curvature 165. Such containers 12' may have only one plane of symmetry, with the asymmetric side wall 131 being sized to easily fit into a human hand and optionally serving as an “easy-to-grip” feature.

[0060] Optionally, the bottom 164 of the container 12 may be configured in a manner that permits it to be stacked on top of the major upper surface 18 of an overcap 11 on another container. For example, the bottom 164 may have conformations (not shown), such as ridges and grooves, that removably engage with the similar conformations in the major upper surface 18 of an overcap 11.

[0061] As particularly shown in FIGS. 5, 22 and 23, the upper body portion 180 of the container 12 further has a fixed cover portion 47 that overlies the opening defined by the endwalls 1, 2 and sidewalls 3, 4. Proximate to the endwall 2 is a dispensing opening 49 that extends through the fixed cover portion 47. The shape and size of the dispensing opening 49 is not critical but should be of a sufficient size to permit the removal of the dosage forms from the container 12. Distal to the endwall 2 is an optional sliding slot 94 having a first end 95 and a second end 96 opposite thereto, which may optionally extend through the fixed cover portion 47 and is preferably compatible in shape, size, and location with the optional sliding bar 46 of the inner closure 13. As will be discussed in further detail later, in order to place the closure 10 into its operative open position, the closure 10 is moved in the substantially hori-

zontal direction of arrow 92, and the sliding bar 46 of the inner closure 13 travels along the sliding slot 94 from the first end 95 of the sliding slot 94 to the second, opposed end 96. When the closure 10 is in its fully opened position, the first end 97 of the sliding bar 46 emerges from the sliding slot 94 in a location proximate to the upper container back edge 120 as illustrated in FIG. 22.

[0062] In an alternative embodiment, the sliding slot 94 may have a shape and length sufficient to permit the sliding bar 46 to slidably travel across the sliding slot 94 and remain substantially engaged within the sliding slot 94 when the closure 10 is in its fully opened position.

[0063] With reference to FIGS. 5, 6, 23 and 27, the sidewalls 3, 4 of the upper body portion 180 of the container 12 have at least two notches: a closing notch 71 and at least one open notch 72. In one embodiment, one of the sidewalls 3, 4 has both a closing notch 71 and an open notch 72, while in another embodiment one sidewall 3, may contain a closing notch 71 and the other sidewall 4 may contain an open notch 72. For the particular container illustrated in FIG. 6, which has an overcap 11 with two pairs of locking pins (that is, a pair of leading locking pins 41C and 41A, and a pair of trailing locking pins 41B and 41D), each respective sidewall 3, 4 of the container 12 may have a closing notch 71, 71', an open notch 72, 72', and a stopping notch 73, 73'. In embodiments where it is desirable to have a dispensing opening 49 of varied shape and/or size, the sidewalls 3, 4 may have one or more intermediate notches (not shown) between the closing notch 71 and the open notch 72. As illustrated in, for example, FIG. 6, the closing notch 71, the open notch 72, and the stopping notch 73 are interconnected by a tracking slot 75. Although not shown, the closing notch 71', the open notch 72', and the stopping notch 73' in sidewall 4 are also interconnected by a second tracking slot 75'.

[0064] Between the closing notch 71 and the opening notch 72 is an opening slot 74 that is compatible in shape and location with the guiding bar 44 of the inner closure 13. The guiding bar 44, 44' has a first end 191, 191' and a second opposed end 192, 192'. Similarly, between the closing notch 71' and the opening notch 72' in sidewall 4 is an opening slot 74' that is compatible in shape and location with the guiding bar 44 B of the inner closure 13.

[0065] Each opening slot 74, 74' has a first end 200, 200' and a second end 201, 201' opposite therefrom, and an opening slot bottom edge 203, 203' that may be substantially parallel, angled upwards, or angled downwards with respect to the fixed cover portion 47 of the container 12.

[0066] Between the opening notch 72 and the stopping notch 73 is an optional secondary opening slot 210 that is preferably compatible in shape and location with the guiding bar 44 of the inner closure 13 when the closure 10 is in the operative opening position. Similarly, between the opening notch 72' and the stopping notch 73' in sidewall 4 may be an additional, optional secondary opening slot 210' that is compatible in shape and location with the guiding bar 44 B of the inner closure 13 when the closure 10 is in the operative opening position.

[0067] Each secondary opening slot 210, 210' has a first end 211 and a second end 212 opposite therefrom, and a secondary opening slot bottom edge 213 that may be sub-

stantially parallel, angled upwards, or angled downwards with respect to the fixed cover portion 47 of the container 12.

[0068] As illustrated in, for example, FIGS. 5 and 13, one embodiment of the child-resistant closure of the present invention comprises a two-part closure with an outer overcap 11 and an inner closure 13. The outer overcap 11 has a first end 14 and a second end 15 opposite thereto, and a first overcap side wall 16 and a second overcap sidewall 17 opposite thereto. The outer overcap 11 further has a major upper surface 18 which overlies the opening defined by the end walls, 14, 15 and the side walls, 16, 17.

[0069] For purposes particularly of opening the child-resistant closure 10, as described in greater detail hereafter, the major upper surface 18 of the outer overcap 11 may have a gripping means 19. As illustrated in FIG. 5, the gripping means 19 may be in the form of raised bumps arranged in an arrow formation. Advantageously, this formation also instructs the user of the direction in which the closure should be slid in order to open the closure 10; however, any arrangement for the bumps or the like is suitable. Any gripping means known in the art is suitable for use in this invention such as, for example, knerlements such as one or more raised bump(s) having any shape or one or more raised line(s); handle(s); knob(s) and the like. The gripping means 19 may be formed from the same material as the overcap 11, or they may be formed from a soft pliable material including but not limited to a thermoplastic elastomer, such as that available under the tradename, "DYNAFLEX TPE;" a thermoplastic rubber, such as that available under the tradename, "KRATON TPR," or other flexible rubber material. Other examples of suitable pliable materials nonexclusively include those set forth at [www.glsincorporation.com/home](http://www.glsincorporation.com/home) or [www.kraiburg.com](http://www.kraiburg.com). In embodiments wherein injection molding processing of the gripping means will not be used, the gripping means may also be formed from silicone.

[0070] The overcap 11 has at least one locking means such as a locking pin 41 that may be formed in the inner surface 42 of the overcap sidewalls 16, 17. The size and shape of the locking pin 41 is not critical, so long as it preferably is complimentary with the engaging means, e.g., closing notch 71, of the container 12. In one embodiment, the locking pin 41 terminates proximate to the bottom edge 61, 62 of the overcap sidewalls 16, 17 as illustrated in, for example, FIG. 25. Other suitable locking means include, but are not limited to hooks, balls, and the like.

[0071] In the embodiment illustrated in FIGS. 9 and 25, the overcap 11 has two pairs of locking pins 41A, 41B, 41C, and 41D, two of which extend from the inner surface 42 of the first overcap sidewall 16 and the other two of which extend from the inner surface 42 of the second overcap sidewall 17. Two of the locking pins 41C, 41 D terminate at the first bottom edge 61 of the first overcap sidewall 16, while the other two locking pins 41A, 41B terminate at the second bottom edge 62 of the second overcap sidewall 17. The number of locking pins in excess of one is not critical. In the embodiment particularly illustrated in FIG. 26, the locking pins 41 may also provide support to the inner closure 13 when set inside of the overcap 11. The operation and purpose of the locking pins 41 and the notches 71, 72, 73 are described in greater detail hereafter.

[0072] When the closure 10 is in the closed position as illustrated in FIG. 15, the locking pins 41A, 41B are

engagably retained by the respective engaging means such as notches 71, 72 in the outer surface 43 of sidewall 3 of the container 12. The size and the shape of the engaging means are not critical, so long as they are capable of engaging the locking means, such as locking pins, and may include but not be limited to openings, slots, grooves, and the like.

[0073] As illustrated in, for example, FIGS. 5, 9, 14, and 24, the inner closure 13 has a first closure end 24 and a second closure end 25 opposite thereto, and a first closure side wall 26 and a second closure sidewall 27 opposite thereto. The inner closure 13 further has a first major surface 28 that is proximate to the lower surface 45 of the outer overcap 11 and a second major surface 50 opposite thereto.

[0074] A spring member 30 is shown generally at 30, and it is formed so as to be upstanding from the first major surface 28 of the inner closure 13. Although shown as a pair of arcuate projections, the shape is not critical so long as the spring member 30 is resilient enough to deflect when a downward force, as shown by the arrow in FIG. 16, is applied to the major upper surface 18 of the overcap 11 and preferably resume its approximate original shape when such force is removed. Suitable springs may be made from any known materials such as, for example, metal, plastic, rubber, elastomers, or any other material having such resilience properties. Examples of suitable spring members include a coiled spring, U-shaped spring, S-shaped spring, elliptic spring, bellow, or a molded spring such as one having at least one arcuate member comprised of a flexible material, the pair of which is illustrated in FIG. 5.

[0075] A stop wall is shown generally at 31, and it is formed so as to be upstanding from the second closure end 25 of the first major surface 28 of the inner closure 13.

[0076] As illustrated in FIGS. 9 and 24, the inner closure 13 has at least one and preferably a pair of guiding bars 44, 44' that extend downwardly from the second major surface 50 of the inner closure 13, and are proximate to the front end or second inner closure end 25. The size, shape, and location of the guiding bar(s) 44, 44' are not critical, but are preferably complimentary with the opening slot(s) 74, 74' in the upper body portion 180 of the container 12.

[0077] Each guiding bar 44, 44' has a first end 191 and a second end 192 opposite therefrom, and a guiding bar bottom edge 193 that may be substantially parallel, angled upwards, or angled downwards with respect to the first major surface 28 of the inner closure 13.

[0078] The inner closure 13 may optionally have at least one sliding bar 46 that extends downwardly from the second major surface 50 of the inner closure 13 and preferably is located distally from the guiding bar 44, 44'. The size, shape and location of the sliding bar 46 is not critical so long as it is complimentary with the sliding slot 94 in the fixed cover portion 47 of the container 12.

[0079] The sliding bar 46 has a first end 97 and a second end 98 opposite therefrom, and a sliding bar bottom edge 220 that may be substantially parallel, angled upwards, or angled downwards with respect to the first major surface 28 of the inner closure 13.

[0080] As illustrated in FIG. 9, the inner closure 13 further may have an optional gasket 60 proximate to the second end 15 of the lower surface 45. The shape and size

of the gasket 60 are not critical, but preferably should be somewhat larger in surface area than that of the dispensing opening 49 of the container 12. Advantageously, the incorporation of such a gasket 60 minimizes moisture penetration into the container 12, and is beneficial in embodiments wherein a hermetic seal is of importance. The gasket 60 is typically made via two-shot injection molding using, for example, the aforementioned soft pliable materials. Alternatively, the gasket 60 may be spray coated onto the closure 13 via methods well known in the art. In order to minimize the formation of cracks between the gasket 60 and the closure 13, the gasket 60 may first be injection molded, followed by the subsequent injection molding of the remaining closure 13.

[0081] The inner closure 13 may be frictionally fit within the outer overcap 11 to form a two-piece assembly. Alternatively, the inner closure 13 may be attached to the overcap 11 via a hinge (not shown) between the first closure end 24 and the bottom edge 63 of the first end wall 14 of the outer overcap 11. Typically, the hinge is a living hinge, whereby the inner closure 13 is adjoined proximately to the first end wall 14 of the overcap 11. However, the hinge may be formed as a two-piece bolt-type or piano-type hinge, where two mating hinge halves are hingingly secured together by a hinge pin. In this case, the hinge pin is put into place and upset at both ends so as to make it impossible to be removed, thus resulting in a unitary structure for the child-resistant closure 10. It has been noted that one embodiment of the present invention particularly provides a unitary child-resistant closure for tablet containers. By "unitary", it is meant that the child-resistant closure may be molded as a single piece, using injection molding techniques; or that the child-resistant closure may be constructed and assembled in such a manner that, once it is assembled, it is not ordinarily possible to be disassembled. Thus, in any and all events, the child-resistant closure of this embodiment will exhibit the characteristics of being a unitary or one-piece whole structure.

[0082] Thus, it can be seen from FIGS. 5-8, and 12-16 for example, that the closure 10 has an operative closed position as shown in those Figures. Moreover, as seen particularly from FIG. 15, the moveable overcap is frictionally fit or snap fit onto the container 12 such that the pair of inwardly projecting leading locking pins 41A, 41C are engaged in the pair of closing notches 71, 71', respectively, and the pair of inwardly projecting trailing locking pins 41B, 41D are engaged in the pair of open notches 72, 72', respectively. To assist in the action of the child resistant closure of the present invention, when the moveable closure 10 is in its operative closure position, there will be an interference engagement between the closing notches 71, 71' and the locking pins 41A, C, as well as another interference engagement between the trailing locking pins 41B, D and the open notches 72. Additional engaging means such as ridges 80 may be formed in at least the end wall 1 or at least one of the sidewalls 3,4 of the container 12. The ridge(s) should compliment the shape, size, and location of at least the bottom edge 63 of the first end 14, the second end 15, and/or at least one of the bottom edges 61, 62 of the sidewalls 16, 17 of the overcap. That engagement may be an enhancement to both opening and closing the child-resistant closure of the present invention, so as to gain or preclude access to the prescribed medication in the container 12, as discussed hereafter.

[0083] When the moveable overcap 11 is in its operative closure position, the dispensing opening 49, which is less than about 75% (e.g., less than about 50% or less than about 33% or less than about 25%) of the opening defined by the end walls 1, 2, and side walls 3, 4 in the of the container 12, is covered.

[0084] It has been noted above that the child-resistant closure of the present invention is intended for use with a container 12 that may have any cross-sectional shape, but preferably the shape or “footprint” of the open mouth formed along the upper body portion 180 compliments the shape formed by the bottom edges 61, 62, 63 of the overcap.

[0085] The operation of the child-resistant closure 10, in association with a container 12, will now be discussed. First, it will be assumed that the requisite number of dosage forms have been inserted into a container 12 having a suitable volume, and a child-resistant closure having an appropriate size and shape 10 has been placed over the container 12. In one embodiment, the container may first be formed without a base plate 164, then filled with dosage forms through the lower opening of the container 12 formed by the bottom edges 240, 241 of the endwalls 1, 2 and the bottom edges 242, 243 of the side walls 3, 4. After the container 12 contains the desired amount of dosage forms, the base plate 164 may be attached to the container 12 along the bottom edges 240, 241, 242, 243 via any means known in the art such as, for example, induction sealing, sonic welding, microwaving, friction-fitting, heat welding, or adhesion. In embodiments wherein having a hermetic seal is of particular importance, a gasket 90 may first be placed on the upper surface 91 of the base plate 164. The gasket may be formed from any material, such as for example the aforementioned soft pliable materials, and should be of a sufficient size and shape to be substantially covered by the bottom edges 240, 241, 242, 243 of the sidewalls 3, 4 and endwalls 1, 2.

[0086] In any event, the manipulation and physical movements that are required to open the child-resistant closure 10 are particularly revealed in FIGS. 15 through 22. From FIG. 12 it will be seen that the closure 10 is in its closed operative position so that, in the first instance, there is an engagement of the leading locking pins 41 C, 41A with the closing notches 71, 71', as well as an engagement of the trailing locking pins 41D, 41B with the open notches 72, 72'. In this closed position, the guiding bars 44, 44' which may be in the form of ramps, are slidably engaged with the opening slots 74, 74', which may be in the form of inverse ramps.

[0087] It will be seen in FIG. 21 that, when the closure 10 is opened, there is an essentially unrestricted access through the dispensing opening 49 to the interior of the container 12.

[0088] It will be seen from an examination of FIGS. 16-22 that, pushing down the overcap 11 in the direction of arrow 93, will cause the closure 11 to recede somewhat downwardly in the same direction. This, in turn, will have the effect of compressing the spring member 30, as again will be noted from an examination of, for example, FIGS. 16A and 19. The leading locking pins 41A, 41C and the trailing locking pins 41B, 41D will also disengage from the closing notches 71, 71' and the open notches 72, 72' and enter the tracking slots 75, 75'.

[0089] While maintaining a downward force, the overcap 11 may then be slid in the direction of arrow 92 as particu-

larly illustrated in FIGS. 17-19. In this embodiment, the leading locking pins 41A, 41C and the trailing locking pins 41B, 41D remain disengaged from the closing notches 71, 71' and the open notches 72, 72', respectively, and continue to move slidably along the sidewalls 3, 4 in the tracking slots 75, 75'. The tracking slots 75, 75' are preferably substantially horizontal as illustrated in FIG. 16, but they may also be angled upward towards the fixed cover portion 47 or downward towards the base plate 48 of the container 12. As particularly illustrated in FIG. 18, the dispensing opening becomes visible as the overcap 11 is permitted to slide in the direction of arrow 92.

[0090] One purpose of the guiding bars 44, 44' of the inner closure 13 and the opening slots 74, 74' of the container 12 is to create a slidable surface or surfaces therebetween to assure a smooth transition of the position of the closure 11 from the closed position shown in, for example, FIG. 16 ultimately to the open position shown in FIG. 22. The interaction between the guiding bars 44, 44' of the inner closure 13 and the opening slots 74, 74' of the container 12 is illustrated in FIG. 19. To further keep the closure properly aligned during the opening operation, the sliding bar 46 also may remain engaged in the sliding slot 94 of the container and be slid therein from the first end 95 to the second end 96 of the sliding slot 94.

[0091] It will be noted from FIGS. 20-22 that the closure may be slid in the direction of arrow 92 until the point that the trailing locking pin(s) 41B, 41 D contact the stopping notch walls 93, 93'. At this point, the downward force on the closure 10 may be removed, and the resiliency of the spring member 30 will urge the closure 10 in the upward direction. As the closure 11 moves upwardly, the leading locking pins 41A, 41C become engaged in the open notches 72, 72', respectively, and the trailing locking pins 41B, 41D become engaged in the stopping notches 73, 73' as illustrated in FIG. 20. In a preferred embodiment, the sliding bar 46 also becomes substantially disengaged from the sliding slot 94 in the container 12. That is, the first end of the 97 of the sliding bar 46 is near or beyond the second end 96 of the sliding slot 94. As a result, the dispensing opening 49 is visible in an amount sufficient to permit the removal of the dosage forms from the container 12.

[0092] In another embodiment, the closure 13 does not have a sliding bar 46, and the container 12 does not have a sliding slot 94.

[0093] In embodiments wherein the container 12 has an optional sliding slot 94, the sliding slot 94 may be in the form of either an opening through the fixed cover portion 47, or it may have at least one endwall 142, 142' two sliding slot sidewalls 141, 141', and a sliding slot bottom edge 140. The sliding slot bottom edge 140 may either be substantially parallel with the fixed cover portion 47 (not shown), substantially downward towards the second end 96 (not shown), or preferably substantially angled upward towards the second end 96 as shown in FIG. 5. Advantageously, the sliding slot 94 contributes to the stabilization of the closure during opening and closing operations. In embodiments wherein moisture sensitivity with in the container 12 is of importance, use of sliding slots 94 with sliding slot sidewalls 141, 141' is preferred.

[0094] The strength of the spring member 30 may be varied from one configuration of child-resistant closure to

another, by, for example, adjusting the width, length, and/or in some instances, the thickness 94 of the spring member 30.

[0095] When the moveable closure 10 is in the fully open position, the sliding bars 44, 44' become engaged in the secondary opening slots 210, 210' such that the first end 191 of the guiding bar 44, 44' contacts the first end 211 of the secondary opening slot(s) 210, 210'.

[0096] To close the child-resistant closure so that the closure 10 assumes its inoperative closed position, is more or less a reversal of the manipulation required to open the child-resistant closure. Thus, reviewing FIGS. 16 and 20-22, it will be seen that first the closure 10 must be moved in a direction towards the container, i.e., in the direction of arrow 99, so that the leading locking pins 41A, 41C clear and become disengaged with the open notches 72, 72', respectively, and the trailing locking pins 41B, 41D clear and become disengaged with the stopping notches 73, 73'. That downward force is easily accomplished, particularly by engaging the gripping means 19 with the thumb, finger(s), or palm.

[0097] However, it is not enough that the closure 10 be moved in a direction towards the container 12, because unless it is also slid in the direction opposite that shown by arrow 92 so as to assume a position such as that shown in FIGS. 15 and 16, the action of the spring member 30 will merely cause the closure 10 to re-assume an open position such as that shown in FIGS. 20-22. In other words, a very deliberate downward-and-slide action is required.

[0098] After the leading locking pins 41A, 41C clear the open notches 72, 72', respectively, and the trailing locking pins 41B, 41D clear the stopping notches 73, 73', the closure 11 may then be slid along the tracking slots 75, 75' in the direction opposite to arrow 92 while maintaining a downward force on the closure until the leading locking pins 41A, 41C contact the closing notch wall 100, 100'. At this point, the downward force on the closure 10 may be removed, and the resilient action of the spring member 30 will urge the closure 10 in the upward direction. As the closure 11 moves upwardly, the leading locking pins 41A, 41C become engaged in the closing notches 71, 71', respectively, and the trailing locking pins 41B, 41D become engaged in the open notches 72, 72' as illustrated in FIGS. 12-16. The sliding bar 46 also becomes substantially engaged with the sliding slot 94 in the container 12. That is, the first end of the 97 of the sliding slot 46 is near or at the first end 95 of the sliding slot 94. As a result, the dispensing opening 49 is no longer visible in an amount sufficient to permit the removal of the dosage forms from the container 12.

[0099] It will be apparent to persons skilled in the art that numerous modifications may be made to the closure and the container described in this specification without departing from the scope of the invention as earlier defined. The closure, for instance, may be provided with a tamper evident feature 100 adapted to provide an indication of removal or attempted removal of the closure from a container. Examples of suitable tamper evident features include, but are not limited to "skip-pattern" bands, which could extend around a portion or all of the first end 14, second end 15, and sidewalls 16, 17 of the overcap 11 and/or around a portion or all of the first end 1, second end 2, and side walls 3, 4, of the container by connection through plurality of frangible bridges.

[0100] Alternatively, in the embodiment illustrated in FIG. 2, a removable tamper evident band 300 may be

formed by extending the bottom edge(s) 61, 62, 63 of overcap sidewalls and/or endwalls to form a secondary lower edge 125 of the overcap downward so that it rests in the ridge 80, and by reducing the thickness 124 of sidewalls and/or end walls of the overcap 11 along the upper band edge 122. In order to open the container, the sealing flange 102 may be pulled in the direction of arrow 103 such that is disengages with the remainder of the overcap along the upper band edge 122. After the tamper evident band 300 is removed, a tamper evident gap 110 is created as shown in FIG. 3. The tamper evident gap 110 also provides the closure 10 with the vertical space necessary for it to be pushed in a downward direction, causing the disengagement of the leading locking pin(s) 41C and trailing locking pin(s) 41 B,D as aforementioned.

[0101] In yet another embodiment (not shown), a label may be placed on both the container 12 and the child-resistant closure 10 to form a tamper indicator. If the label has been broken by a sliding action of the closure 10, it would be very evident.

[0102] As illustrated in FIGS. 30-32, the dispensing opening 49 may be covered with a second tamper evident means 135 such as a cover or plug 136 with an opening means 137 such as a ring, tab, or the like.

[0103] The tamper evident features provides an indication of the opening or attempted opening of the closure and thus serves to ensure the integrity of the container's contents until ultimate use or consumption by the consumer of the container's contents.

[0104] A particular advantage to the patient from the use of non-cylindrical containers, in general, is the fact that, for example, a rectangular container may fit more easily into a pocket or purse. Moreover, it has been noted above that the use of rectangular containers provides a greater packing density and therefore a better storage efficiency, either on the store shelf or in the medicine cabinet, than the use of cylindrical pharmaceutical containers.

[0105] The child-resistant closure of the present invention is typically injection molded using polypropylene which provides for a pharmaceutically acceptable material, and one which will permit formation of a living hinge if desired to keep with one embodiment of the present invention. High density polyethylene is particularly suitable in embodiments wherein moisture protection is desired. Polypropylene is particularly suitable in embodiments wherein clarity is desired. Also, polypropylene has sufficient elastic memory that the spring action of the spring member 30 may be assured. Moreover, polypropylene may be molded with sufficient detail that a two-part closure may be accurately molded, if necessary or if required.

[0106] Typically, containers 12 are formed from polyethylene, crystal-polystyrene, or mixtures of polypropylene, in much the same manner and using the same materials as conventional cylindrical tablet containers.

[0107] In embodiments using the tamper evident band, it is recommended that both the container and the overcap are made using polyethylene.

[0108] In one embodiment, a dosage form, such as a pharmaceutical sold "over the counter," i.e., e.g. without a prescription ("OTC dosage form"), may be packaged in a container 12' comprised of a translucent, transparent, or

opaque material. Optionally, this filled container 12' may be sold without an outside secondary package, e.g. carton, which would then enable a consumer to view the dosage forms inside of the container 12' prior to purchase.

[0109] Advantageously, the closure of the present invention cannot be easily removed from the container, which would not only reduce the possibility of having the closure incorrectly secured or loosely secured onto the wrong container, but also reduce the possibility that children may place a separated cap into their mouth. The closure of the present invention also only provides an effective child-resistant feature, while being readily openable by an adult having compromised hand strength. In addition, the closure remains in substantially one plane during opening and closing operations, which is less intrusive than many of the multi-planar closures of the prior art. Further, the closure is suitable for use in containers having other than cylindrical shapes.

[0110] There has been described a child-resistant closure, and the combination of a child-resistant closure together with a dosage form container, all in keeping with the general principles of the present invention as defined as described above. It will be understood, of course, that variations may be made to any configuration in keeping with the present invention, and modifications may be made to specific features of the child-resistant closure of the present invention, without departing from the spirit and scope of the appended claims.

[0111] Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not to the exclusion of any other integer or step or group of integers or steps. In addition, any number followed by an apostrophe, "'", shall refer to the same element as it would appear at another location of the product.

[0112] Moreover, the word "substantially" when used with an adjective or adverb is intended to enhance the scope of the particular characteristic; e.g., substantially rectangular is intended to mean rectangular, nearly rectangular, and/or exhibiting characteristics associated with a rectangular configuration.

What is claimed is:

1. A child resistant, moveable closure member and container device comprising:

- a) an overcap having opposed first and second end walls, opposed first and second sidewalls, an upper surface and a lower surface opposite thereto, at least one leading locking pin in at least one of said sidewalls proximate to the second end wall, and at least one trailing locking pin in at least one of said sidewalls distal to the second end wall;
- b) an inner closure having a front end and an opposed back end, a first major closure surface and second major closure surface opposite thereto, said first major closure surface facing the lower surface of the overcap, said inner closure and said overcap forming a moveable closure member;
- c) a container having a hollow body, a portion of said hollow body being an upper body adjacent to a fixed

cover portion, said upper body having a container footprint with opposed first and second container end walls, and opposed first and second container side walls, said fixed cover portion facing the second major closure surface and having a dispensing opening there-through proximate to the second container end;

wherein at least one of said sidewalls of the upper body has a closing notch proximate to the second container end wall, a stopping notch distal to the second container end wall and proximate to the first container endwall, and an opening notch therebetween;

wherein at least one of the leading locking pins is removably engaged in one of the closing notches and at least one of the trailing locking pins is removably engaged in at least one of the open notches when the overcap is in the its operative closure position;

wherein, when the moveable closure member is in its operative open position, at least one of the leading locking pins is removably engaged in one of the open notches and at least one of the trailing locking pins is removably engaged in one of the stopping notches.

2. The child resistant moveable closure member and container device of claim 1, wherein said closure is further comprised of a spring member upstanding from the first major closure surface, and said container is further comprised of at least one tracking slot in at least one of said sidewalls of the upper body, said tracking slot being contiguous with the at least one closing notch, the stopping notch, and the opening notch;

wherein a user may first push said overcap downwardly on said upper surface so as to disengage at least one of the leading locking pins from at least one of the open notches and disengage at least one of the trailing locking pins from at least one of the stopping notches, then push said overcap horizontally on said upper surface so as to move at least one of the leading locking pins and at least one of the stopping notches along the tracking slot, and wherein the spring action of the spring member will urge the overcap upwardly when at least one of the leading locking pins is in vertical alignment with at least one of the open notches and at least one of the trailing locking pins is in vertical alignment with at least one of the stopping notches.

3. The child resistant moveable closure member and container device of claim 1, wherein said inner closure is further comprised of at least one guiding bar extending downwardly from the second closure major surface and proximate to the closure front edge, and the container is further comprised of at least one opening slot in at least one of its sidewalls along the upper body,

wherein the at least one guiding bar lies in the opening slot when the overcap is aligned with the container in its operative closed position, and as the overcap is moved towards the operative open position, the guiding bar engages and slidably travels along the opening slot.

4. The child resistant moveable closure member and container device of claim 3, wherein the guiding bar has opposed first and second guiding bar ends, and the opening slot has opposed first and second opening slot ends, and wherein when the moveable closure member is in the closed position, the guiding bar first end contacts the opening slot first end.

5. The child resistant moveable closure member and container device of claim 3, wherein the guiding bar and the opening slot are in the form of ramps.

6. The child resistant moveable closure member and container device of claim 1, wherein said inner closure is further comprised of at least one sliding bar extending downwardly from the second closure major surface and proximate to the inner closure back end, said sliding bar having opposed first and second sliding bar ends, and the container is further comprised of a sliding slot in its fixed cover portion that is distally located from the dispensing opening, said sliding slot having opposed first and second sliding slot end walls, said first sliding slot end wall having a first bottom edge, and

wherein the first sliding bar end contacts the first bottom edge of the sliding slot end wall when the moveable closure member is aligned with the container in its operative closed position, and as the moveable closure member is moved towards the operative open position, the sliding bar travels along the sliding slot bottom edge.

7. The child resistant moveable closure member and container device of claim 6, wherein the sliding bar and the sliding slot are in the form of ramps.

8. The child resistant moveable closure member and container device of claim 6, wherein the sliding slot further comprises a sliding slot bottom edge extending upwardly from the first sliding slot end wall to the second sliding slot end wall.

9. The child resistant moveable closure member and container device of claim 1, wherein said inner closure is further comprised of at least one sliding bar extending downwardly from the second closure major surface and proximate to the inner closure back end, said sliding bar having opposed first and second sliding bar ends, and the container is further comprised of a sliding slot in its fixed cover portion that is distally located from the dispensing opening, said sliding slot having opposed first and second sliding slot ends, and

wherein the first sliding bar end contacts the first sliding slot end when the moveable closure member is aligned with the container in its operative closed position, and as the moveable closure member is moved towards the operative open position, the sliding bar travels along the sliding slot bottom edge.

10. The child resistant moveable closure member and container device of claim 1, wherein the upper surface of the overcap is further comprised of gripping means.

11. The child resistant moveable closure member and container device of claim 1, wherein said overcap sidewalls and said overcap end walls have a bottom edge, and wherein the container footprint substantially corresponds to an outside footprint formed by said bottom edge of the overcap.

12. The child resistant moveable closure member and container device of claim 11, wherein the outside footprint of the overcap is substantially non-circular.

13. The child resistant moveable closure member and container device of claim 1, wherein the inner closure is further comprised of a stop wall extending upwardly from the front edge and having a substantially similar contour as the second end wall of the container.

14. The child resistant moveable closure member and container device of claim 13, wherein the contour of the second end wall is curved.

15. A closure comprising:

- a) an overcap having opposed first and second end walls, opposed first and second sidewalls, an upper surface and a lower surface opposite thereto, at least one leading locking pin in at least one of said sidewalls proximate to the second end wall, and at least one trailing locking pin in at least one of said sidewalls distal to the second end wall; and
- b) an inner closure having a front end and an opposed back end, a first major closure surface and second major closure surface opposite thereto, said first major closure surface facing the lower surface of the overcap,

wherein said at least one leading locking pin and said at least one trailing locking pin support the inner closure within the overcap.

16. An overcap and container device comprising:

- a) an overcap having opposed first and second end walls, opposed first and second sidewalls, an upper surface and a lower surface opposite thereto, at least one leading locking pin in each sidewall proximate to the first end wall, and at least one trailing locking pin in each sidewall distal to the first end wall;
- b) a container having a hollow body, a portion of said hollow body being an upper body adjacent to a fixed cover portion, said upper body having a container footprint with opposed first and second container end walls, and opposed first and second container side walls, said fixed cover portion facing the lower surface of the overcap, and having a dispensing opening therethrough and proximate to the second container end;

wherein each sidewall of the upper body has at least one closing notch proximate to the second container end wall, and a stopping notch distal to the second container end wall and proximate to the first container end wall;

wherein at least one of the leading locking pins is removably engaged in at least one of the closing notches when the overcap is in its operative closure position;

wherein, when the moveable closure member is in its operative open position, at least one of the trailing locking pins is removably engaged in at least one of the stopping notches.

17. A method of selling dosage forms without a prescription comprising:

displaying said dosage forms in a container having an asymmetric shape, wherein said container is comprised of a material that permits a user to see the dosage forms through the container.

18. The method of claim 17, wherein the container is displayed without an outer secondary package.

19. The method of claim 17, wherein the container is comprised of a material that is translucent or transparent.

20. The method of claim 17, wherein the container is comprised of a material that is opaque.

21. The method of claim 17, wherein said container has one plane of symmetry.

22. The method of claim 17, wherein the container has a bottom base plate, two opposed side walls, a front wall and an opposed back wall, wherein at least one of said side walls has a portion of concave curvature.

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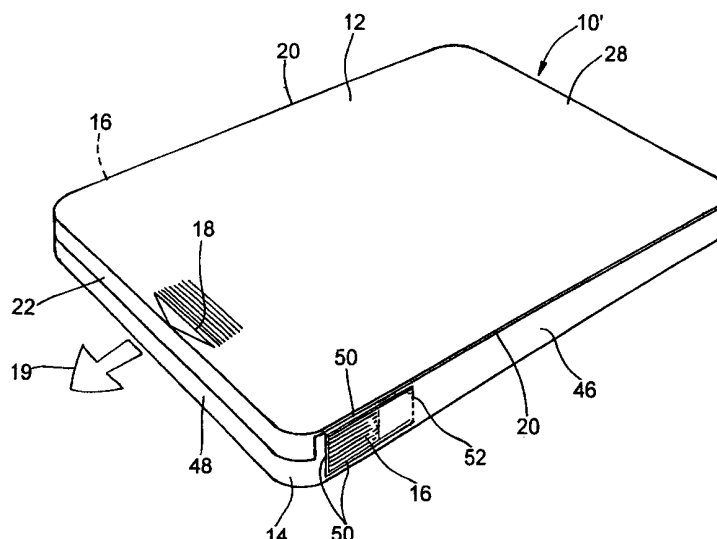
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(54) Title: CHILD RESISTANT SLIDE BOX



(57) Abstract: A child resistant box (10) having a base (14) and a cover (12) slidably engaged with a top side of the base. The cover has a closed position substantially overlapping the top side of the base so as to prevent access to an interior of the box via the top side. The base has at least one squeeze tab (16) bearing a projection (24). The projection is engagable with the cover to prevent the cover from being slid out of the closed position unless the at least one squeeze tab is depressed. The cover bears at least one gap (38, 42) which is engaged by the projection on the at least one squeeze tab once the cover has been slid open a predetermined amount. While the projection on the at least one squeeze tab is engaging the at least one gap the cover is secured in position, preventing the cover from being further opened, and preventing the cover from being moved toward the closed position.

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## TITLE OF THE INVENTION

## Child Resistant Slide Box

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## BACKGROUND OF THE INVENTION

This invention relates to containers and, more specifically, to a slide box that can secure materials in a manner that is hard to access by small children.

Many of the pill and capsule containers presently available on the market can be readily opened by children too young to understand the nature of the containers' contents. This lack of understanding may result in children consuming the contents of the pill and capsule containers. In order to avoid this hazard, containers have been designed which require greater strength or skill to open, but many of these containers have proved inconvenient and inaccessible for their intended users, such as adults with impaired or limited dexterity.

Another problem with several known child resistant containers is the inability to hold two separate blister cards of medicine in a convenient side-by-side fashion. The inability to hold multiple blister cards in a side-by-side manner has reduced the overall usefulness of such child resistant containers. Yet another problem with contemporary child resistant containers is that the associated covers can be completely removed from the container, which increases the frequency of spillage of the contents.

## SUMMARY OF THE INVENTION

One embodiment of the present invention is directed to a child resistant box including a base having a bottom surface, first and second sidewalls extending from the bottom surface, and a partially open top side proximate to edges of the first and second

sidewalls that are remote from the bottom surface. A cover is slidably engagable with the base generally along the partially open top side of the base. At least one squeeze tab is positioned on one of the first and second sidewall. Characterized in that a projection positioned on the at least one squeeze tab extends generally away from the bottom surface.

- 5   Wherein the cover bears a first plurality of gaps for receiving the projection from the at least one squeeze tab. A first gap of the first plurality of gaps receives the projection when the cover at least essentially covers the partially open top side of the base and a second gap of the first plurality of gaps receives the projection when the cover is slid open along the partially open top side of the base by a predetermined amount at least partially exposing the
- 10   partially open top side of the base wherein the cover is prevented from being further removed from the base and the cover is prevented from being slid toward a closed position.

The present invention is alternatively directed to a child resistant box having a base and a cover slidably engaged with a top side of the base. The cover has a closed position overlapping the top side of the base so as to prevent access to an interior of the box

15   via the top side. The base has at least one squeeze tab bearing a projection. The projection is engagable with the cover to prevent the cover from being slid out of the closed position unless the at least one squeeze tab is depressed. Characterized in that the cover bears at least one gap which is engaged by the projection on the at least one squeeze tab once the cover has been slid open a predetermined amount. While the projection on the at least one

20   squeeze tab is engaging the at least one gap the cover is secured in position, preventing the cover from being further opened, and preventing the cover from being moved toward the closed position.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The following detailed description of preferred embodiments of the invention, will be better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there is shown in the drawings embodiments which are presently preferred. It should be understood, however, that the invention is not  
5 limited to the precise arrangements and instrumentalities shown. In the drawings:

Fig. 1 is a perspective view of a slide box according to the first embodiment of the present invention;

Fig. 2 is a left side elevational view of the slide box of Fig. 1;

Fig. 3 is a top planar view of the slide box of Fig. 1 with the cover fully  
10 extended;

Fig. 4 is a perspective view of a slide box in accordance with a second embodiment of the present invention;

Fig. 5 is a left side elevational view of the base of the slide box shown in Fig.  
4;

Fig. 6 is a top planar view of the slide box of Fig. 4 with the cover fully  
15 extended, similar to the position of the slide box of Fig. 3, and showing an alternate arrangement of the blister cards;

Fig. 7 is a front elevational view of the base taken along lines 7-7 in Fig. 5;

Fig. 8 is a cross-sectional view taken along lines 8-8 in Fig. 5;

Fig. 9 is a left side elevational view of the cover in accordance with the  
20 second embodiment of the invention shown in Fig. 4;

Fig. 10 is a cross-sectional view taken along lines 10-10 in Fig. 9;

Fig. 11 is a front perspective view of the slide box with the cover in the open position showing features common to the slide boxes of Figs. 1 and 5;

Fig. 12 is a plan view of the inside of the cover prior to assembly showing features common to the slide boxes of Figs. 1 and 5; and

Fig. 13 is a plan view of the inside of the base portion of the slide box of Fig. 1 prior to assembly.

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#### DETAILED DESCRIPTION OF THE INVENTION

Certain terminology is used in the following description for convenience only, and is not limiting. The words "right," "left," "lower" and "upper" designate directions in the drawings to which reference is made. The words "inwardly" and "outwardly" refer to directions toward and away from, respectively, the geometric center of the slide box and designated parts thereof. The terminology includes the words above specifically mentioned, derivatives thereof and words of similar import. Additionally, the word "a," as used in the claims and the corresponding portions of the specification, means "at least one."

Referring to the drawings in detail, wherein like numerals indicate like elements throughout, there is shown in Figs. 1-13 preferred embodiments of a child resistant slide box, generally designated 10 and 10'. The first embodiment of the slide box 10 is shown in Figs. 1-3 and 11-13. The second embodiment of the slide box 10' is shown in Figs. 4-9. However, the only difference in the slide boxes 10,10' is the overall dimensions. The release mechanism and operation of the slide boxes 10,10' are the same. Preferably, the slide boxes 10,10' are used to provide child resistant storage of medicines or other items that are not appropriate for free access by young children.

Generally speaking, the slide boxes 10,10' of the present invention have a base 14 and a cover 12 slidably engaged with a top side of the base 14. The cover 12 has a closed position overlapping the top side of the base 14 so as to prevent access to an interior

of the box via the top side. The base 14 has at least one squeeze tab 16 bearing a projection 24. The projection 24 is engagable with the cover 12 to prevent the cover 12 from being slid out of the closed position unless the at least one squeeze tab 16 is depressed. Characterized in that the cover 12 bears at least one gap 42 which is engaged by the projection 24 on the at least one squeeze tab 16 once the cover 12 has been slid open a predetermined amount.

While the projection 24 on the at least one squeeze tab 16 is engaging the at least one gap 42 the cover 12 is secured in position, preventing the cover 12 from being further opened, and preventing the cover 12 from being moved toward the closed position.

The slide box 10,10' includes a cover 12 slidably disposed on a base 14. The

base 14 has a bottom surface, first and second sidewalls 46 extending from the bottom surface, and a partially open top side located proximate to edges of the first and second sidewalls 46 that are remote from the bottom surface. A cover is slidably engagable with the base generally along the partially open top side of the base. At least one squeeze tab 16 is preferably, but not necessarily, located one of the first and second sidewalls of the base 14 which engages the cover 12 (while the cover 12 is in the closed position) to lock the cover 12 to the base 14.

To open the slide box 10, 10' the at least one squeeze tab 16 is preferably pressed inwardly while simultaneously sliding the cover 12 partially off of the base 14 (i.e., in the direction of the arrow 19 shown in Fig. 4). To facilitate the sliding of the cover 12, a textured surface or gripping surface 18 is preferably provided along a portion of the cover 12. The gripping surface 18 is preferably arrow-shaped. The squeeze tab 16 engages the cover 12 and prevents the cover 12 from being slid along the base 14 unless the squeeze tabs 16 are depressed to disengage from the cover 12, as explained in detail below.

A projection 24 is positioned on the at least one squeeze tab 16 and extends generally away from the bottom surface. The projection has a generally-frontward-facing-projection-surface which is tapered and the projection 24 has a generally rearward-facing-projection-surface which is generally perpendicular to either one of the first sidewall and the second sidewall. The cover 12 bears a first plurality of gaps 38, 42 for receiving the projection from the at least one squeeze tab 16. A first gap 38 of the first plurality of gaps 38, 42 receives the projection 24 when the cover at least essentially covers the partially open top side of the base 14 and a second gap 42 of the first plurality of gaps 38, 42 receives the projection 24 when the cover 12 is slid open along the partially open top side of the base 14 by a predetermined amount at least partially exposing the partially open top side of the base 14 wherein the cover 12 is prevented from being further removed from the base 14 and the cover 12 is prevented from being slid toward a closed position.

Another squeeze tab 16 is positioned on a remaining one of the first and second sidewalls 46 and has a projection 24. A second plurality of gaps 38, 42 are positioned to engage the other squeeze tab when the one squeeze tab 16 is engaged with one of the first plurality of gaps 38, 42.

Referring to Figs. 1-13, the slide boxes 10, 10' include the base 14 and the cover 12. The cover 12 is slidably engaged with the base 14. Referring to Figs. 3, 6, and 13, the base 14 is preferably generally rectangularly shaped. The base 14 has first and second sidewalls 46 which run generally parallel to the direction in which the cover 12 slides. A flange 26 is preferably attached to each of the first and second sidewalls 46. Each flange 26 is preferably attached appropriately along the top edge and extending inwardly in a manner substantially parallel to the bottom surface of the base 14, as best shown in Figs. 7 and 8. The flanges 26 form guide rails which are slidably engaged by the cover 12.

The cover includes a set of channels 32 each positioned proximate to opposing lateral sides of the cover and extending toward the bottom surface of the base when the cover 12 is engaged with the base 14. The set of channels 32 on the cover 12 each form an outwardly facing groove 36 that is slidably engagable with the flange 26 of one of the first sidewall and the second sidewall. A preferred relative sizing of the base 14 of the slide boxes 10,10' is shown, but could be varied depending upon the particular application for which the slide boxes 10,10' are designed.

Referring to Figs. 1-3 and 5, at least one squeeze tab 16 is located on one of first and second sidewalls 46 of the base 14 proximate to a front side 48 of the slide box 10. The squeeze tabs 16 preferably, but not necessarily, have a generally rectangular shape and are formed in the sidewalls 46 by three gaps 50 located in each of the sidewalls 46 around three sides of each squeeze tab 16. Essentially, the three gaps 50 form three sides of each of the generally rectangularly shaped squeeze tabs 16. A fourth side 52 of each of the squeeze tabs 16 preferably faces a rear side of the base 14 and is preferably contiguous with the sidewall 46. Thus, when the squeeze tabs 16 are pressed inwardly, each squeeze tab 16 elastically flexes around the fourth side 52 (shown in phantom line in Figs. 1-3 and 5) of the squeeze tab 16. The degree of elasticity of the squeeze tabs 16 depends upon the material used to form the base 14.

While the preferred embodiments of the slide box 10 use generally rectangular squeeze tabs 16, those of skill in the art will appreciate from this disclosure that the particular shape of the squeeze tab is not critical to the present invention. The only important aspect to the squeeze tabs 16 is that they are capable of engaging with and disengaging from the cover 12 as further detailed below.

Referring to Figs. 6-8, each squeeze tab 16 supports a projection 24 located on an inner surface of the squeeze tab 16 which preferably extends generally upwardly above the top edge of the squeeze tab 16. When the squeeze tabs 16 are not depressed, the projections 24 are generally aligned with an inner surface 54 of the sidewalls 46, as shown in Fig. 9.

While it is preferable that the squeeze tabs 16 are formed by part of the base 14, it will be understood by those of skill in the art from this disclosure that the squeeze tabs 16 may be formed using separate materials that are joined to the base 14 in a manner that is well known to those of skill in the art when considered in combination with this disclosure.

Referring to Figs. 3, 6, 9, and 10, the cover 12 has a generally rectangular shape which corresponds to the shape of the base 14 for the corresponding embodiment of the invention. As shown in detail in Figs. 9 and 10, a channel 32 is preferably disposed along each of the lateral sides 20 of the cover 12. The channels 32 preferably generally extend along most of the length of the cover 12. The channels 32 extend generally downwardly toward the bottom surface of the base 14 while the cover 12 is engaged with the base 14. Referring to Fig. 7, an outwardly facing groove 36 is formed by each of the channels 32 and the inner surface of the cover 12. The grooves 36 are each configured for sliding engagement with a corresponding one of the flanges 26 of the base 14. Thus, it is preferably the interaction between the flanges 26 and the grooves 36 in the channels 32 that slidably engages the cover 12 with the base 14. While it is preferred that the cover 12 and the base 14 are substantially rectangularly shaped, those of skill in the art will appreciate from this disclosure that the shapes of either the base 14 or the cover 12 can be varied as long as the cover 12 and the base 14 can be slidably engaged.

As shown in Figs. 6 and 9, a front panel extends generally at least partially along a front portion of the cover. The front panel being located to form gaps 38 with each of the set of channels 32 thus, forming the first gap 38 of each of the first and second plurality of gaps 38,42. First gaps 38 are preferably positioned proximate to a front panel 22 which preferably, but not necessarily, forms the front end of the cover 12. The gaps 38 are preferably located between the forward ends 56 of the set of channels 32 and the front panel 22 of the cover 12 and are further discussed below.

A set of end channel portions 60 are each positioned proximate to a rear portion of the cover 14 and are each generally aligned with one of the set of channels 32 to form one of the first and second plurality of gaps 38, 42 therebetween. The end channel portions each have a generally-frontward-facing-end-channel-surface which is generally perpendicular to one of the first and second sidewalls 46 and each have a generally-rearward-facing-end-channel-surface which is generally tapered.

Each of the ends of the first sets of flanges 26 is preferably, but not necessarily, tapered to allow smooth mating and engagement between the flanges 26 and the grooves 36 in the channels 32. The channels 32 are preferably tapered on the end adjacent to the rear portion 28 of the cover and the end formed by the gap 42 which faces in the same direction. The set of channels 32 each have a generally frontward-facing-channel-surface 56 which is generally perpendicular to one of the first and second sidewalls 46 and each of the set of channels 32 have a rearward-facing-channel-surface which is generally tapered. The tapers on the channels 32 cause the projections 24 to be slightly displaced when mounting the cover 12 onto the base 14 to allow the cover 12 to slide onto the base 14 without obstruction from the projections 24.

The end channel portions 60 preferably include front ends 62 which are untapered to cause the end channel portions 60 to abut projections 24 when the cover 12 is positioned to engage the projections 24 with the second gaps 42. Thus, the second gaps 42 limit the extent to which the cover 12 can be extended from the base 14 without depressing the squeeze tabs 16 a second time as further detailed below.

Once the cover 12 is fully engaged with the base 14, the ends 56 of the channels 32 engage projections 24 of the squeeze tabs 16. The engagement between the ends 56 of the channels 32 and the projections 24 prevents the cover 12 from being slidably removed from the base 14 without simultaneously depressing the at least one squeeze tab 16 as well as applying a sliding force to the cover 12. This feature increases the difficulty of removing the cover 12 from the base 14, and makes the slide box 10 child resistant. Preferably, since the flanges 26 and the channels 32 extend almost the entire longitudinal length of the base 14 and the cover 12, the amount of friction between the cover 12 and the base 14 makes it more difficult to slide the cover 12 off of the base 14.

While it is preferable that the flanges 26 and the channels 32 run substantially the entire length of the slide box 10, it is understood by those of skill in the art through this disclosure that flanges 26 and channels 32 having a shorter length could be used without departing from the scope of the invention. Additionally, while it is preferable to form both the cover 12 and the base 14 out of a thermoplastic material, those of skill in the art will appreciate from this disclosure that the cover 12 and the base 14 can be formed of any suitably rigid material or combination of materials as long as the squeeze tabs 16 are depressible.

To open the slide box 10, the at least one squeeze tab 16 must be depressed, which causes the projection 24 to move out of alignment with the front end 56 of one of the

set of channels 32. Once the projections 24 are disengaged from the end 56 of one of the set of channels 32, the cover 12 can be slid in the direction shown by the arrow in Fig. 1. Once the cover 12 has been slid forward far enough to cause the ends 56 of the channels 32 to pass any projections 24, the squeeze tabs 16 may be released without interfering with the sliding of the cover 12. As the cover 12 continues to slide along the base 14, the projections 24 slide along an inner surface of the channels 32. Thus, when the cover 12 is at least opened to partially expose the partially open top side of the base 14 and also opened less than the predetermined amount, the projection 24 presses against the inner surface of one of the set of channels 32 to provide a motion damper.

When the slide box 10 is fully opened (i.e., as the cover 12 is increasingly slid forward off of the base 14), the projection 24 engages second gap 42. Once any projections 24 engage the second set of gaps 42, the ends 62 of the end channel portions 60 abut projections 24 and prevent the cover 12 from being further removed from the base 14. While the preferred embodiment of the present invention uses a second set of gaps 42 that are positioned proximate to the rear side 28 of the cover 12, those of skill in the art will appreciate from this disclosure that the second set of gaps 42 can be placed anywhere along the longitudinal sides of the slide box 10. The positioning of the second gaps 42 depends only on the degree to which the slide box 10 is to be opened before the cover 12 is prevented from being opened further. Alternatively, additional gaps can be provided so that the cover 12 locks in multiple positions.

To completely remove the cover 12 from the base 14, the squeeze tabs 16 must be depressed a second time to disengage the projections 24 from the second gaps 42 while sliding the cover 12 in the direction shown by the arrow 19 in Fig. 1. The increased

difficulty in completely removing the cover 12 from the base 14 reduces the chance of spillage of the contents of the slide box 10.

Referring to Fig. 6, various tabs or projections 30 can be formed on the interior of the base 14 to facilitate the positioning of various blister packs 44. An alignment tab 67 is preferably positioned on the bottom surface of the base 14 for securing a blister pack 44 in the base 12. The alignment tab 67 is preferably oriented with a longitudinal axis generally perpendicular to one of the first and second sidewalls. It is also preferred, but not necessary, that a plurality of alignment tabs are positioned along one of the first and second sidewalls for securing a plurality of blister packs in the base 14.

Holes (not shown) are preferably formed through the base 14 in an aligned position with the individual blisters on the blister packs. Referring to Fig. 2, an alignment tab 67 may project upwardly from the bottom of the base 14 on the right side of the blister packs 44. The positioning of the alignment tab can be varied, depending upon the size of the individual blister packs 44. Fig. 2 illustrates a two-stack blister card 44 in a base 14 having sufficient depth to hold the two stack blister card 44.

Alternatively, blister packs 45 can be aligned in a side-by-side manner as shown in Fig. 6. Alignment tabs 30 extend inwardly from one of the sides 46 of the base 14 to maintain the proper alignment of the blister packs 45 in the base 14. Thus, it is possible to maintain the blister packs 45 in alignment within the base 14 in a side-by-side manner.

The alignment tabs 30 preferably have a triangular shape and engage similarly shaped notches 64 in the blister packs 44.

While the alignment tabs 30 are disposed along the sides 46 of the slide box 10' are preferably triangularly shaped, those of skill in the art will appreciate from this disclosure that the alignment tabs 30 can be of any shape which corresponds to the notches

64 in the blister packs 44. While Figs. 1-6 show exemplary relative sizes of various components of the slide box 10, the sizes illustrated are for the purposes of example only, and are not intended to limit the scope of the present invention. Accordingly, both embodiments of the slide box 10,10' may be constructed using any desired dimensions as would be well known to one of skill in the art when considered in combination with this disclosure.

It is recognized by those skilled in the art, that changes may be made to the above-described embodiments of the invention without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, but is intended to cover all modifications which are within the spirit and scope of the invention.

## CLAIMS

1. A child resistant box, comprising:

a base having a bottom surface, first and second sidewalls extending from the bottom surface, and a partially open top side proximate to edges of the first and second

5 sidewalls that are remote from the bottom surface;

a cover slidably engagable with the base generally along the partially open top side of the base;

at least one squeeze tab positioned on one of the first and second sidewalls;

and

10 characterized in that a projection positioned on the at least one squeeze tab extends generally away from the bottom surface, wherein the cover bears a first plurality of gaps for receiving the projection from the at least one squeeze tab, a first gap of the first plurality of gaps receiving the projection when the cover at least essentially covers the partially open top side of the base and a second gap of the first plurality of gaps receiving  
15 the projection when the cover is slid open along the partially open top side of the base by a predetermined amount at least partially exposing the partially open top side of the base wherein the cover is prevented from being further removed from the base and the cover is prevented from being slid toward a closed position.

20 2. The box of claim 1 further comprising another squeeze tab positioned on a remaining one of the first and second sidewalls and having a projection, wherein a second plurality of gaps on the cover are positioned to engage the other squeeze tab when the one squeeze tab is engaged with one of the first plurality of gaps.

3. The box of claim 2 wherein the cover further comprises:

a set of channels each positioned proximate to opposing lateral sides of the cover and extending toward the bottom surface of the base when the cover is engaged with the base; and

5 a set of end channel portions each positioned proximate to a rear portion of the cover and each generally linearly aligned with one of the set of channels to form one of the first and second plurality gaps therebetween.

4. The box of claim 3 wherein the cover further comprises a front panel

10 extending generally at least partially along a front portion of the cover, the front panel being located to form gaps with each of the set of channels thus, forming the first gap of each of the first and second plurality of gaps.

5. The box of claim 3 further comprising:

15 a flange attached to each of the first and second sidewalls proximate to the partially open top side;

wherein the set of channels on the cover each form an outwardly facing groove that is slidably engagable with the flange on one of the first sidewall and the second sidewall.

20

6. The box of claim 1 further comprising an alignment tab positioned on the bottom surface of the base for securing a blister pack in the base.

7. The box of claim 6 wherein the alignment tab is oriented with a

longitudinal axis generally perpendicular to one of the first and second sidewalls.

8. The box of claim 1 further comprising a plurality of alignment tabs positioned along one of the first and second sidewalls for securing a plurality of blister  
5 packs in the base.

9. The box of claim 8 further comprising an additional alignment tab positioned on the bottom surface of the base for further securing at least one of the plurality of blister packs therein, the additional alignment tab being oriented with a longitudinal axis  
10 generally perpendicular to one of the first and second sidewalls.

10. The box of claim 3 wherein when the cover is at least opened to partially expose the partially open top side of the base and also opened less than the predetermined amount, the projection presses against an inner surface of one of the set of  
15 channels to provide a motion damper.

11. The box of claim 10 wherein the projection has a generally-frontward-facing-projection-surface which is tapered and the projection has a generally-rearward-facing-projection-surface which is generally perpendicular to either one of the first  
20 sidewall and the second sidewall.

12. The box of claim 3 wherein the set of channels each have a generally frontward-facing-channel-surface which is generally perpendicular to one of the first and second sidewalls and each of the set of channels have a rearward-facing-channel-surface

which is generally tapered.

13. The box of claim 3 wherein the set of end channel portions each have a generally-frontward-facing-end-channel-surface which is generally perpendicular to one of the first and second sidewalls and each have a generally-rearward-facing-end-channel-surface which is generally tapered.

14. A child resistant box having a base and a cover slidably engaged with a top side of the base, the cover having a closed position overlapping the top side of the base so as to prevent access to an interior of the box via the top side, the base having at least one squeeze tab bearing a projection, the projection being engagable with the cover to prevent the cover from being slid out of the closed position unless the at least one squeeze tab is depressed;

characterized in that the cover bears at least one gap which is engaged by the projection on the at least one squeeze tab once the cover has been slid open a predetermined amount, while the projection on the at least one squeeze tab is engaging the at least one gap the cover is secured in position, preventing the cover from being further opened, and preventing the cover from being moved toward the closed position.

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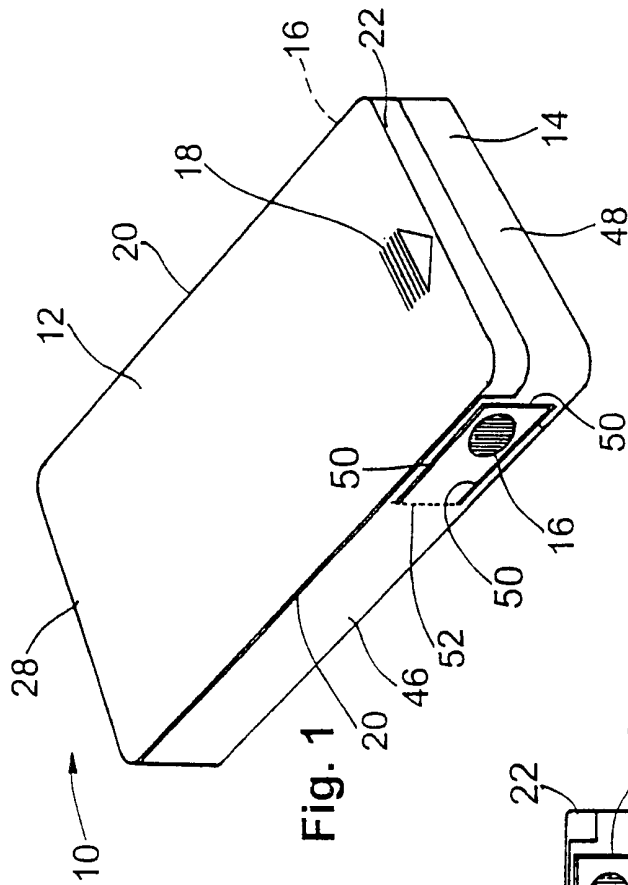


Fig. 1

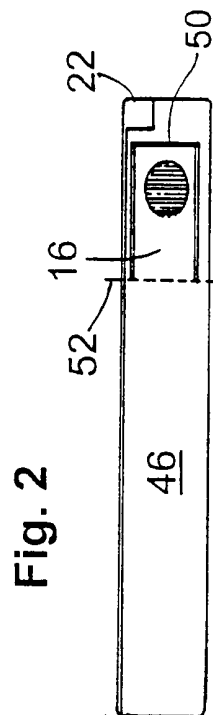


Fig. 2

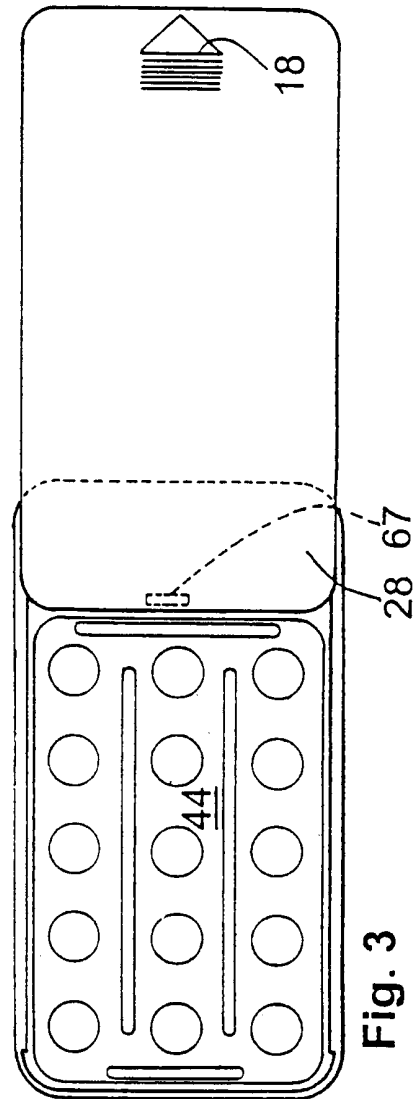


Fig. 3

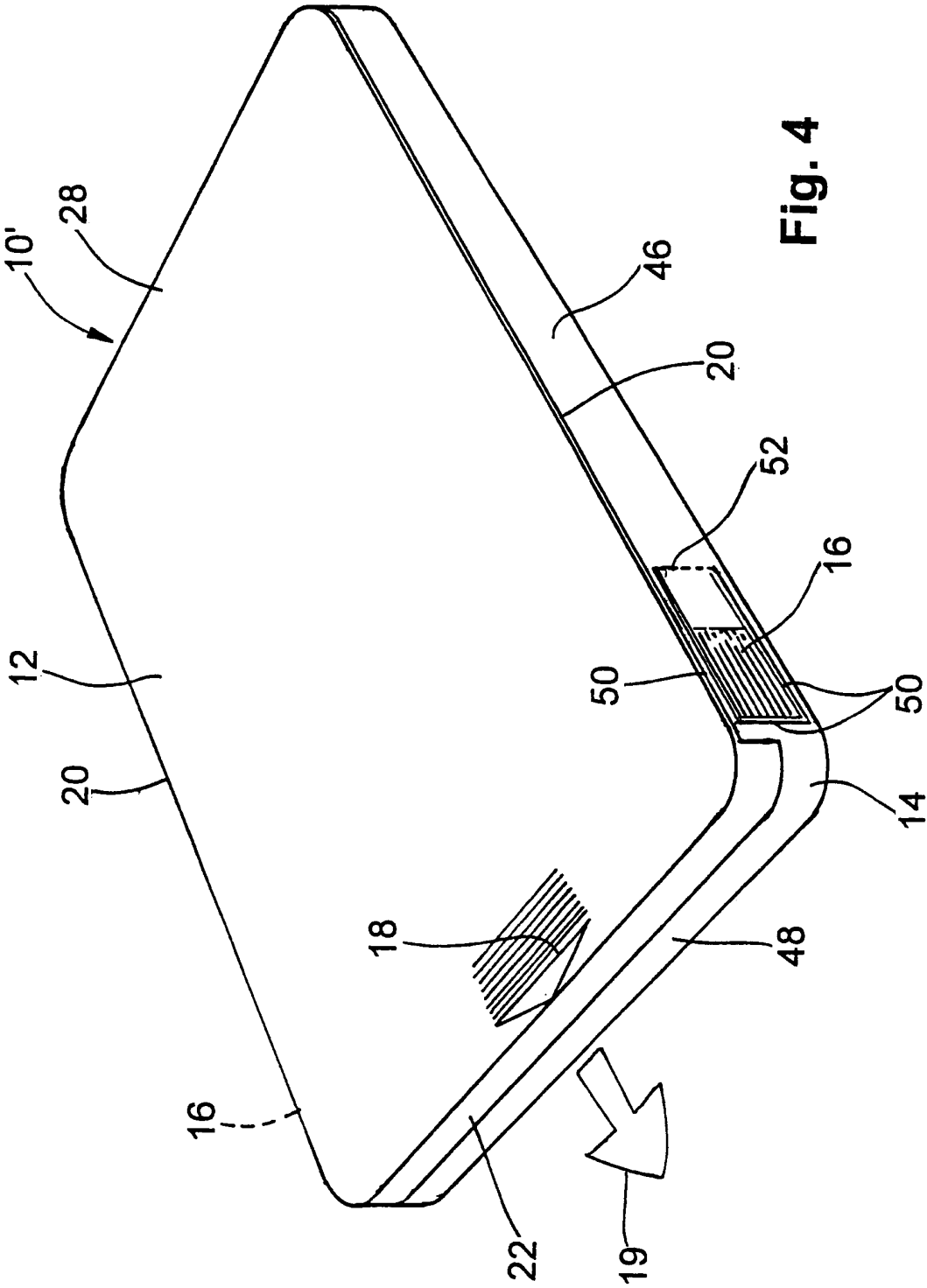


Fig. 4

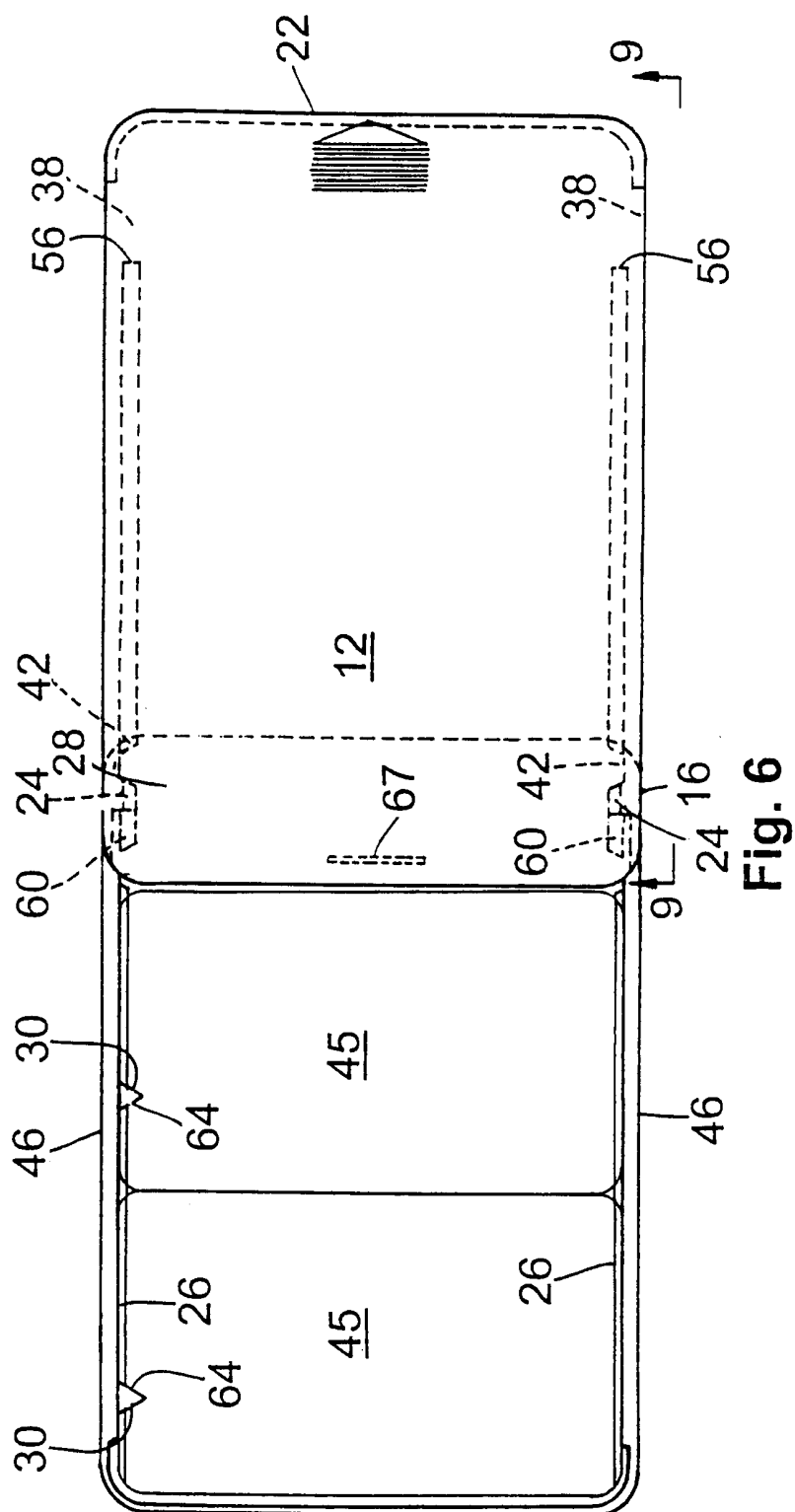


Fig. 10

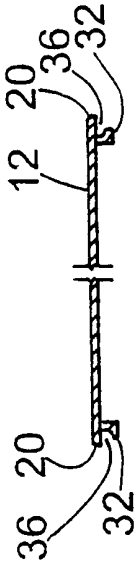


Fig. 9



Fig. 7

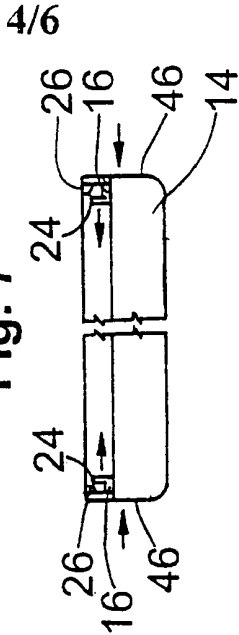


Fig. 8

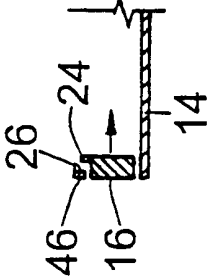
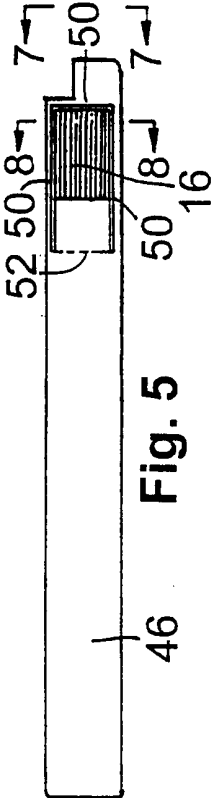


Fig. 5



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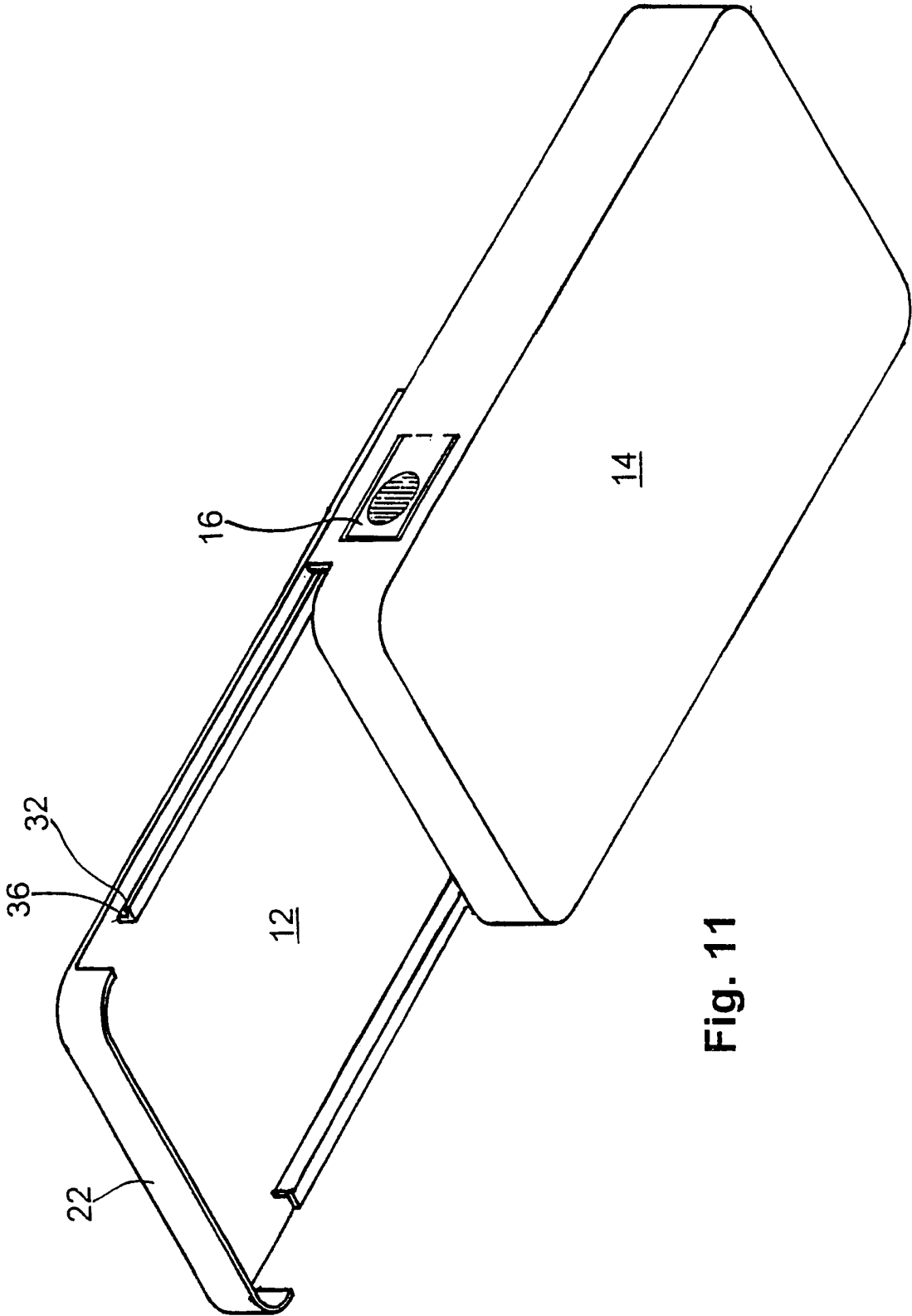
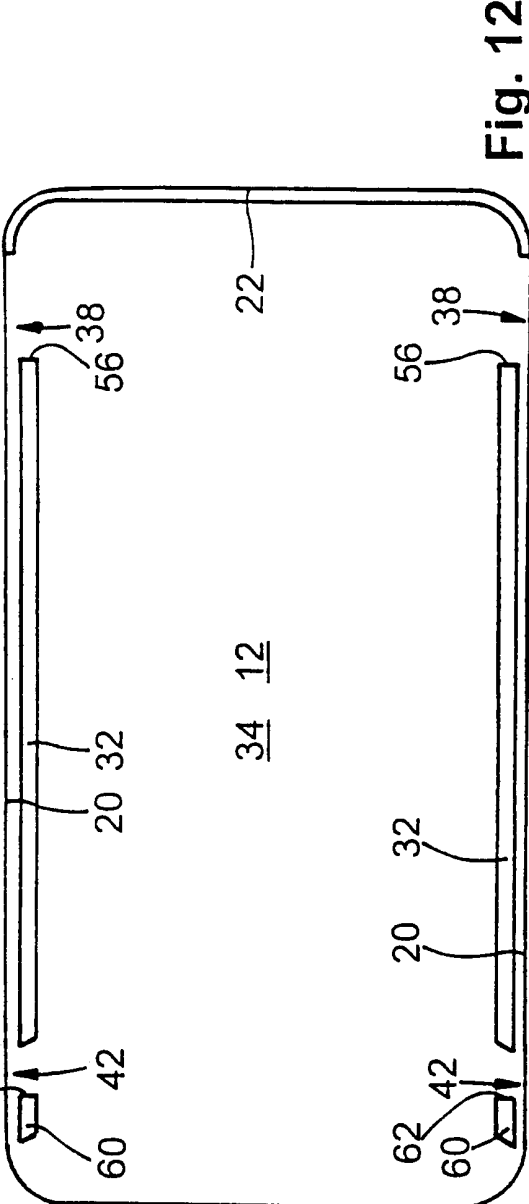
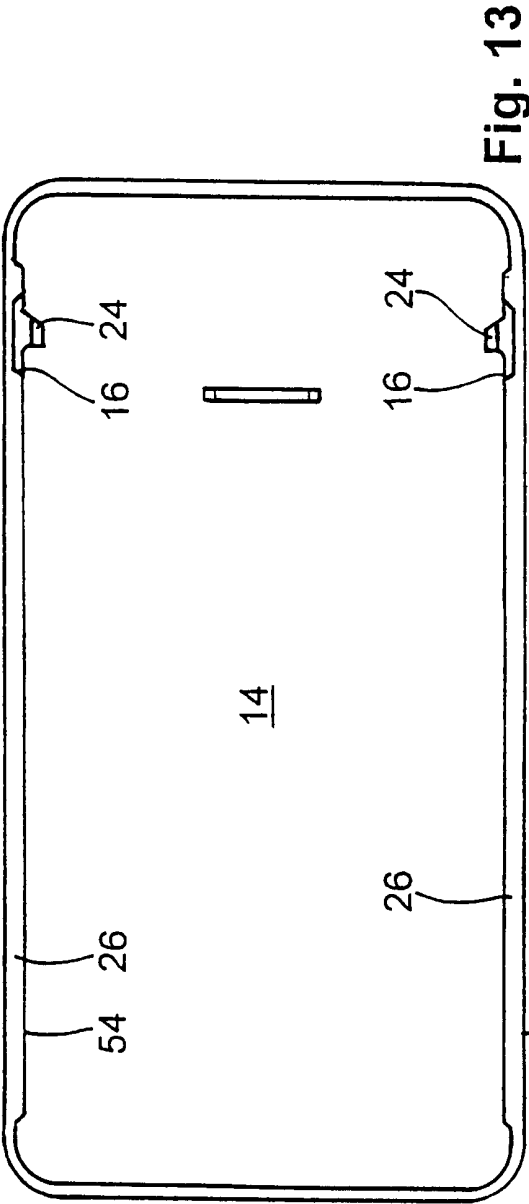


Fig. 11



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/23919

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : B65D 85/00, 6/06, 43/20

US CL : 206/531, 1.5, 540; 220/345.3

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)

U.S. : 206/1.5, 531, 532, 539, 540; 220/345.3, 345.4

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)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|------------------------------------------------------------------------------------|-----------------------|
| X         | US 5,275,291 A ( <i>SLEDGE</i> ) 04 January 1994, See Figures 25-32b.              | 14                    |
| ---       |                                                                                    | -----                 |
| Y         |                                                                                    | 1-2,6-7               |
| Y         | US 3,782,584 A ( <i>SWENSON et al.</i> ) 01 January 1974, See Figures 1-4.         | 1-2,6-7               |
| Y, P      | US 5,878,887 A ( <i>PARKER et al.</i> ) 09 March 1999, See col. 5, lines 36-48.    | 6-7                   |
| A         | US 5,082,137 A ( <i>WEINSTEIN</i> ) 21 January 1992.                               | 1,14                  |
| A         | US 4,997,103 A ( <i>DALY</i> ) 05 March 1991.                                      | 1,14                  |

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

|                                                                                                                                                                         |                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * Special categories of cited documents:                                                                                                                                | "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                                              |
| "A" document defining the general state of the art which is not considered to be of particular relevance                                                                | "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                                                                     |
| "E" earlier document published on or after the international filing date                                                                                                | "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 |
| "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) | "&" document member of the same patent family                                                                                                                                                                                                    |
| "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                                                                  |                                                                                                                                                                                                                                                  |

|                                                                                                                                                       |                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of the actual completion of the international search<br>19 OCTOBER 2000                                                                          | Date of mailing of the international search report<br>14 NOV 2000                                                                                         |
| Name and mailing address of the ISA/US<br>Commissioner of Patents and Trademarks<br>Box PCT<br>Washington, D.C. 20231<br>Facsimile No. (703) 305-3230 | Authorized officer<br>BRYON GEHMAN<br>Telephone No. (703) 308-3866<br><i>Sheila Venev</i><br><i>Paralegal Specialist</i><br><i>Technology Center 3700</i> |

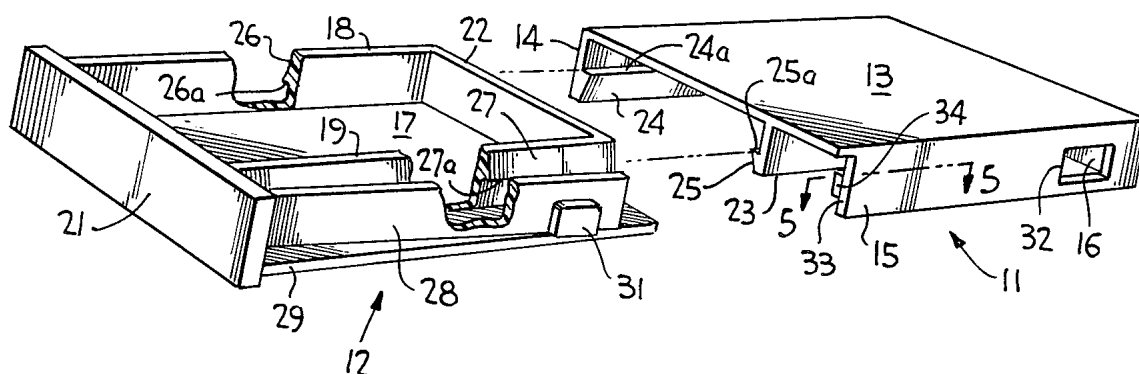
## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/23919

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|------------------------------------------------------------------------------------|-----------------------|
| A         | US 4,561,544 A ( <i>REEVE</i> ) 31 December 1985.                                  | 1,14                  |
| A         | US 3,987,891 A ( <i>HORVATH</i> ) 26 October 1976.                                 | 1,14                  |
| A         | US 3,888,350 A ( <i>HORVATH</i> ) 10 June 1975.                                    | 1,14                  |

[45] **Date of Patent:** Dec. 31, 1985



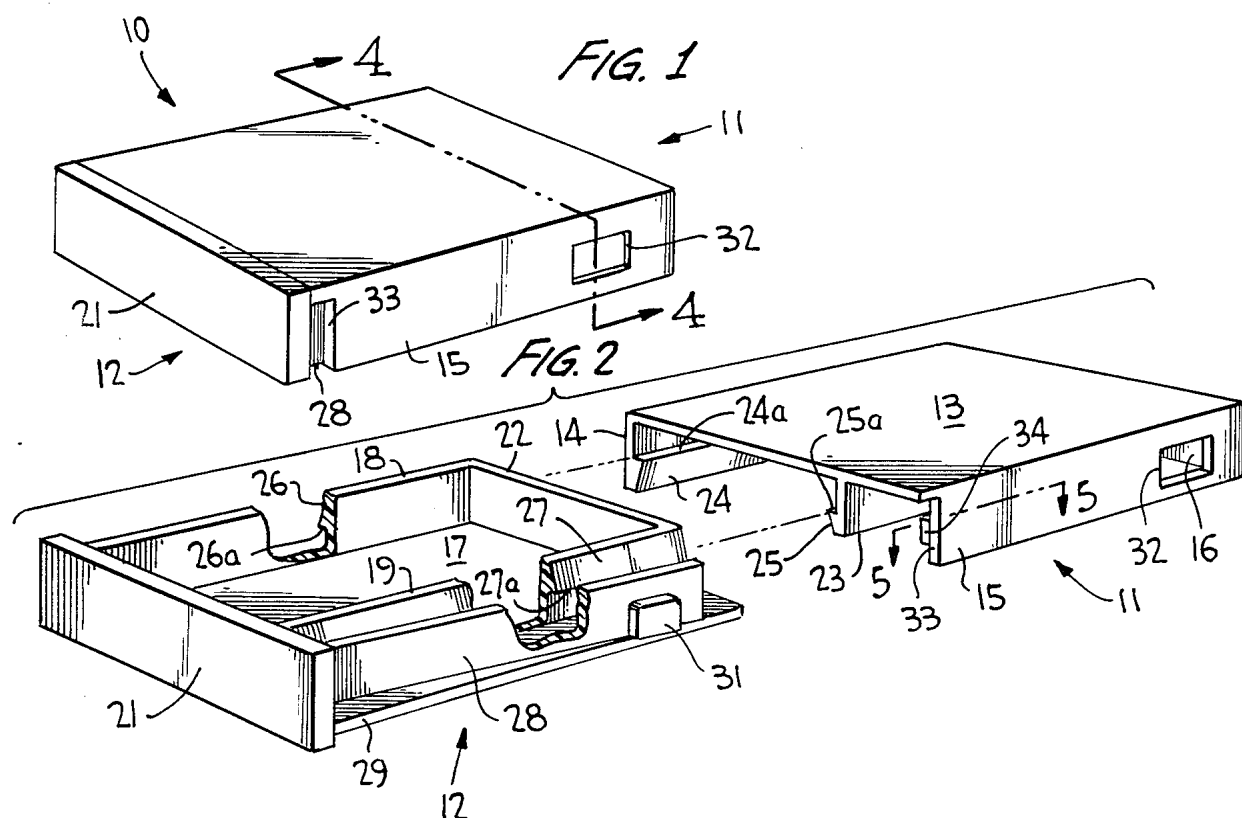


FIG. 3

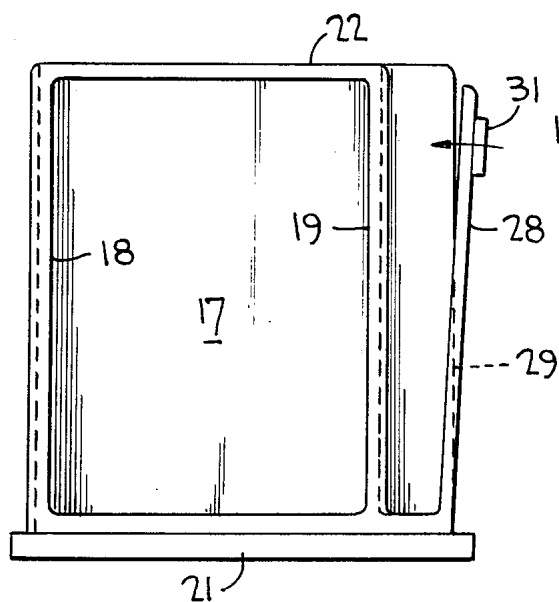


FIG. 4

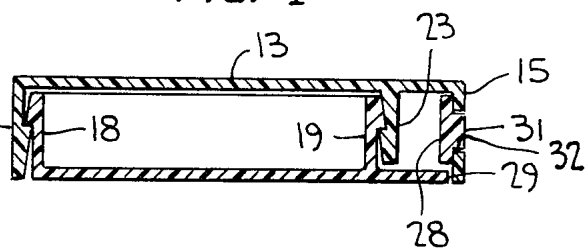
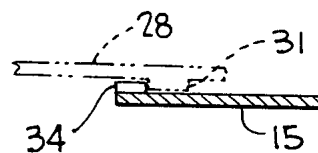


FIG. 5



## CHILD RESISTANT CONTAINER

## BACKGROUND OF THE INVENTION

This invention relates generally to a child resistant container for pills and the like including a tray and a lid engageable therewith for relative sliding movement between closed and open positions of the tray. More particularly, the tray and lid are locked together in the closed position, by a locking mechanism which includes a locking detent required to be continually depressed for unlocking the tray while pulling it open.

Various types of child resistant or safety containers have been developed which include a tray and a slidably engaging lid with the tray locked in the closed position using some type of locking mechanism. However, many of such containers are relatively complex in construction and operation, and largely require manual deformation of the lid and/or tray for releasing the locking mechanism prior to pulling open the tray. However, many of these pill and capsule containers, although child resistant, have proven inconvenient and cumbersome to operate for the users.

## SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a child resistant container of the aforementioned general type which is not only durable, economical and of simple construction, but which is convenient and easy to operate as an effective child-safe container.

Another object of the present invention is to provide such a container wherein a spring arm in the form of a resilient locking tongue is mounted at one end on the front wall of the tray and engages with the lid as a locking detent button thereon extends into a locking aperture in a side wall of the lid for locking the tray in a fully closed position. The button must be manually released from the locking aperture while the operator grasps the front wall and pulls open the tray.

A further object of this invention is to provide such a container as having sub-features such as a cutout provided in the side wall of the lid adjacent the front wall of the tray to permit the same to be easily grasped, and a stop element on such wall in alignment with the locking button in its release position for limiting the open extent of the tray.

Other objects, advantages and novel features of the invention will become more apparent from the following detailed description of the invention when taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the child resistant container according to the invention, shown with the tray locked in its fully closed position;

FIG. 2 is a perspective view of the present container showing the tray and lid completely separated for clearly illustrating details thereof;

FIG. 3 is a top plan view of the tray with its spring arm shown in a relaxed condition;

FIG. 4 is a cross-sectional view of the container taken substantially along the line 4—4 of FIG. 1; and

FIG. 5 is a detail view, in section, taken substantially along the line 5—5 of FIG. 2.

## DETAILED DESCRIPTION OF THE INVENTION

Turning now to the drawings wherein like reference characters refer to like and corresponding parts throughout the several views, the child-safe container according to the invention is generally designated 10 and includes a lid 11 in sliding engagement with a tray or drawer 12 shown locked in its fully closed position in FIG. 1. The lid comprises a generally rectangular top wall 13 and connecting side walls 14, 15 joined thereto. A connecting rear wall 16, joined to the top and side walls, may likewise be provided but could be eliminated without departing from the invention.

The tray or drawer is engageable with the lid for relative sliding movement between closed and open positions of the tray, and comprises a generally rectangular bottom wall 17, opposed side walls 18, 19, a front wall 21 and a rear wall 22, the side, front and rear walls being joined to the bottom wall to form a receptacle therewith.

A wall 23 depends from top wall 13 of the lid, lies inwardly of side wall 15 and parallel thereto, and lies outwardly and adjacent side wall 19 of the tray (FIG. 4). Inwardly directed flanges 24 and 25 are provided on walls 14 and 23 of the lid and respectively present undercut surfaces 24a, 25a. Corresponding, but outwardly directed, flanges 26 and 27 are provided on side walls 18 and 19 of the tray and define undercut surfaces 26a and 27a which respectively engage undercut surfaces 24a and 25a for sliding movement between open and closed positions of the tray. The undercut surfaces on the lid and the tray are suitably spaced from their respective top and bottom walls so that, when engaged, the tray will be snugly received within the lid, and front wall 21 of the tray will completely close the open front end of the lid in the locked position of FIG. 1.

Container 10 is rendered child resistant according to the invention by the provision of a spring arm or resilient tongue 28 mounted at one end to the inner surface of front wall 21 and extending toward rear wall 22. The spring arm, at its root end, lies slightly inwardly of an adjacent end of front wall 21 a distance substantially equal to the thickness of side wall 15 of the lid so that, when the lid and tray are interengaged, the outer surface of wall 15 will be substantially flush with this edge of front wall 21, as shown in FIG. 1. And, arm 28 diverges slightly outwardly of side wall 19 of the tray such that its outer surface likewise diverges outwardly of end edge 29 of bottom wall 17. And, an outwardly extending locking button or detent 31 is provided adjacent the free end of spring arm 28, and is spring biased toward side wall 15, when moved inwardly in the direction of the arrow of FIG. 3, as the outer surface of the detent bears against the inner surface of wall 15 when the lid and tray are interengaged.

A locking aperture 32, corresponding in shape to that of detent 31, is provided in wall 15 of the lid and is located a distance from the inner surface of wall 21 of the tray equal to the spacing between detent 31 and such surface so that, in a fully closed position of the tray shown in FIG. 1, detent 31 fully extends into locking aperture 32 as it snaps into place. For opening the tray, the operator depresses detent 31 with a finger of one hand into a release position inwardly away from its locking aperture and, while maintaining the button depressed, grasps front wall 21 with the other hand for sliding the tray outwardly of the lid. To ensure a posi-

tive grasp of an end of front wall 21, side wall 15 may be provided with a cutout section 33 at the forward open end of the lid. And, a limit stop 34 (FIG. 5) may be provided on the inner surface of wall 15 adjacent this cutout section and in alignment with locking detent 31 so as to avoid separation of the tray from the lid when fully opened as the locking detent bears against this limit stop.

From the foregoing, it can be seen that a safety closure has been developed which is completely child resistant in that it requires both hands of the operator to depress the locking detent and maintain it slightly inwardly of side wall 15 while at the same time grasping front wall 21 of the tray and pulling it open. The spring arm is completely hidden from view, does not interfere with the opening and closing movements of the tray, and does not detract from the overall neat and streamlined appearance of the container. And, the tray is self-locking in its fully closed position as the locking detent simply snaps into place within its locking aperture.

Obviously, many modifications and variations of the present invention are made possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A child resistant container for pills and the like, comprising a lid of one-piece construction having an open front, a top wall and connecting side walls integrally joined thereto, a wall integrally joined to and depending from said top wall lying parallel to and spaced inwardly of one of said side walls, a tray of one-piece construction having a bottom wall and connecting side walls and end walls integrally joined thereto forming a receptacle, said side walls of said tray being in sliding engagement with said depending wall and the other of said side walls of said lid, means on said

depending wall and said other wall in engagement with said tray for slideably supporting and guiding said tray within said lid between closed and open positions of said tray, one of said end walls defining a closure for said open front of said lid, a spring arm integrally connected only at one end to said closure and extending toward the other of said end walls, said arm being spaced inwardly of an adjacent end edge of said closure, lying between said one side wall and said depending wall of said lid and being spring biased for movement toward and away from said one side wall, an outwardly extending lock button on said arm adjacent the free end thereof and spaced a predetermined distance from said closure, and said one side wall of said lid having an aperture therein spaced from said closure equal to said predetermined distance in said closed position for the reception of said button under the spring bias of said arm for locking said lid and said tray together in the closed position, said button being manually depressible for movement out of said aperture against the spring bias of said arm into a release position to facilitate the opening of said tray while continuing to manually depress said button.

2. The container according to claim 1, wherein said engagement means comprise confronting surfaces on said lid and said tray.

3. The container according to claim 1, wherein said engagement means comprise inwardly directed flanges on said other side wall of said lid and on said depending wall, and outwardly directed flanges on said side walls of said tray in engagement with said inwardly directed flanges.

4. The container according to claim 1, wherein said one wall of said lid has a cutout therein at said open front of said lid to ensure a positive manual grasp of said one end wall for pulling open said tray.

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US005082137A

# United States Patent [19]

Weinstein

[11] Patent Number: 5,082,137

[45] Date of Patent: Jan. 21, 1992

## [54] CHILD RESISTANT SLIDE BOX

[75] Inventor: Jack Weinstein, Manchester Township, Ocean County, N.J.

[73] Assignee: Primary Delivery Systems, Inc., Flemington, N.J.

[21] Appl. No.: 641,383

[22] Filed: Sep. 21, 1990

[51] Int. Cl.<sup>5</sup> ..... B65D 43/20

[52] U.S. Cl. .... 220/346; 206/1.5; 206/540

[58] Field of Search ..... 220/281, 346, 347, 350; 206/1.5, 540

## [56] References Cited

## U.S. PATENT DOCUMENTS

|           |         |               |         |
|-----------|---------|---------------|---------|
| 3,888,350 | 6/1975  | Hervath       | 206/531 |
| 3,942,630 | 3/1976  | Phillips      | 206/1.5 |
| 4,113,098 | 9/1978  | Howard        | 206/540 |
| 4,174,034 | 11/1979 | Hoo           | 206/1.5 |
| 4,284,204 | 8/1981  | Carey, Jr.    | 220/346 |
| 4,561,544 | 12/1985 | Reeve         | 206/540 |
| 4,844,284 | 7/1989  | Drozdz et al. | 220/281 |

Primary Examiner—Stephen P. Garbe

Assistant Examiner—Nova Stucker  
Attorney, Agent, or Firm—Kenneth P. Glynn

## [57] ABSTRACT

The present invention is directed toward a child resistant locking slide box that is opened by deforming a locking tab on the slide box drawer that positively engages the surrounding cover. There are tracks on the inside surfaces of the cover side walls that positively engage and slide along tracks positioned on the outside surfaces of the drawer side walls. The engagement of the cover and draw tracks allow only for the respective lateral movement of the cover across the drawer. The lateral movement of the cover allowed by the tracks is restricted in one direction by the cover end tabs, and in the other direction by the drawer locking tab.

The drawer locking tab has a step that overlaps the cover surface. To open the slide box the cover tab must first be deformed backward, removing the step from above the cover, and then downward so that the whole locking tab is beneath the cover. Once the draw tab is below the cover, the drawer can be pushed past the cover, exposing the contents of the drawer.

17 Claims, 4 Drawing Sheets

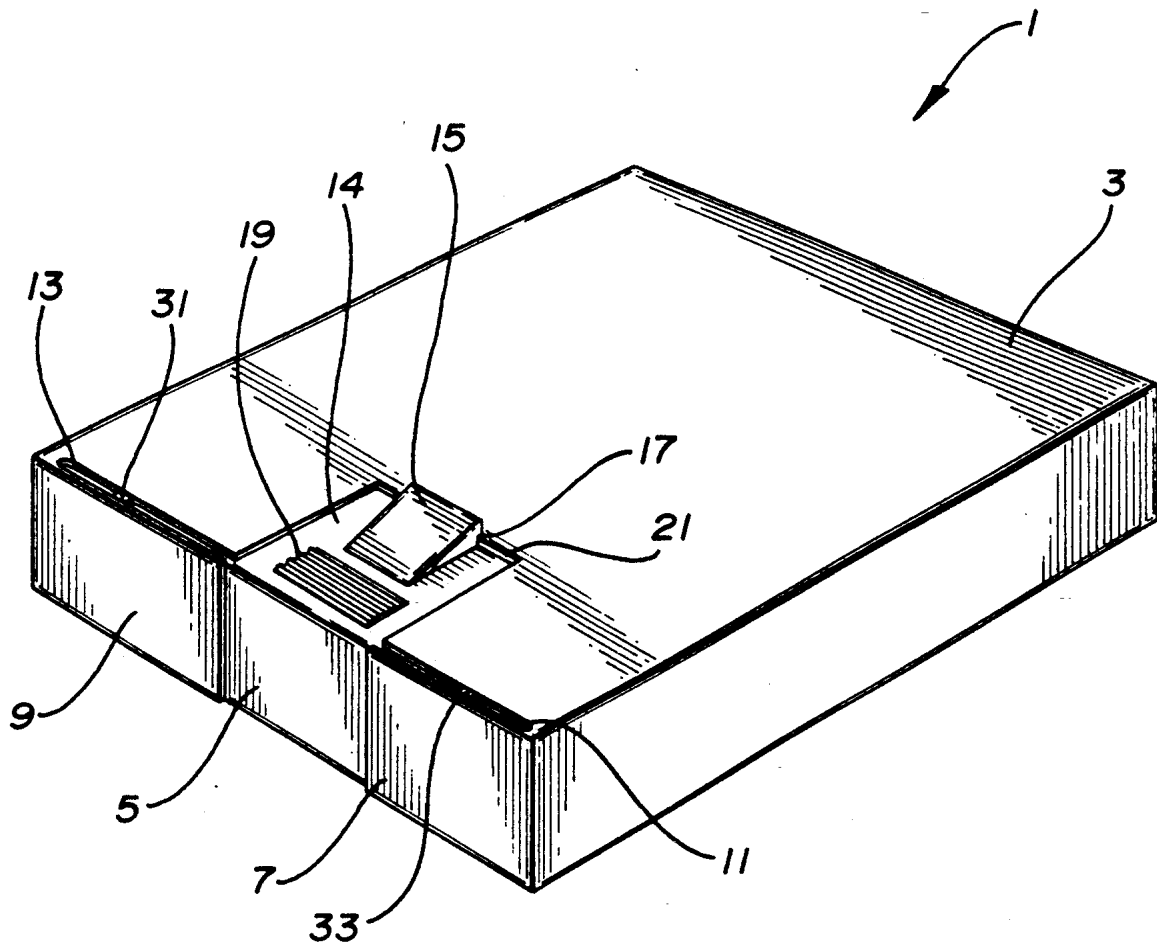


**FIG-1**

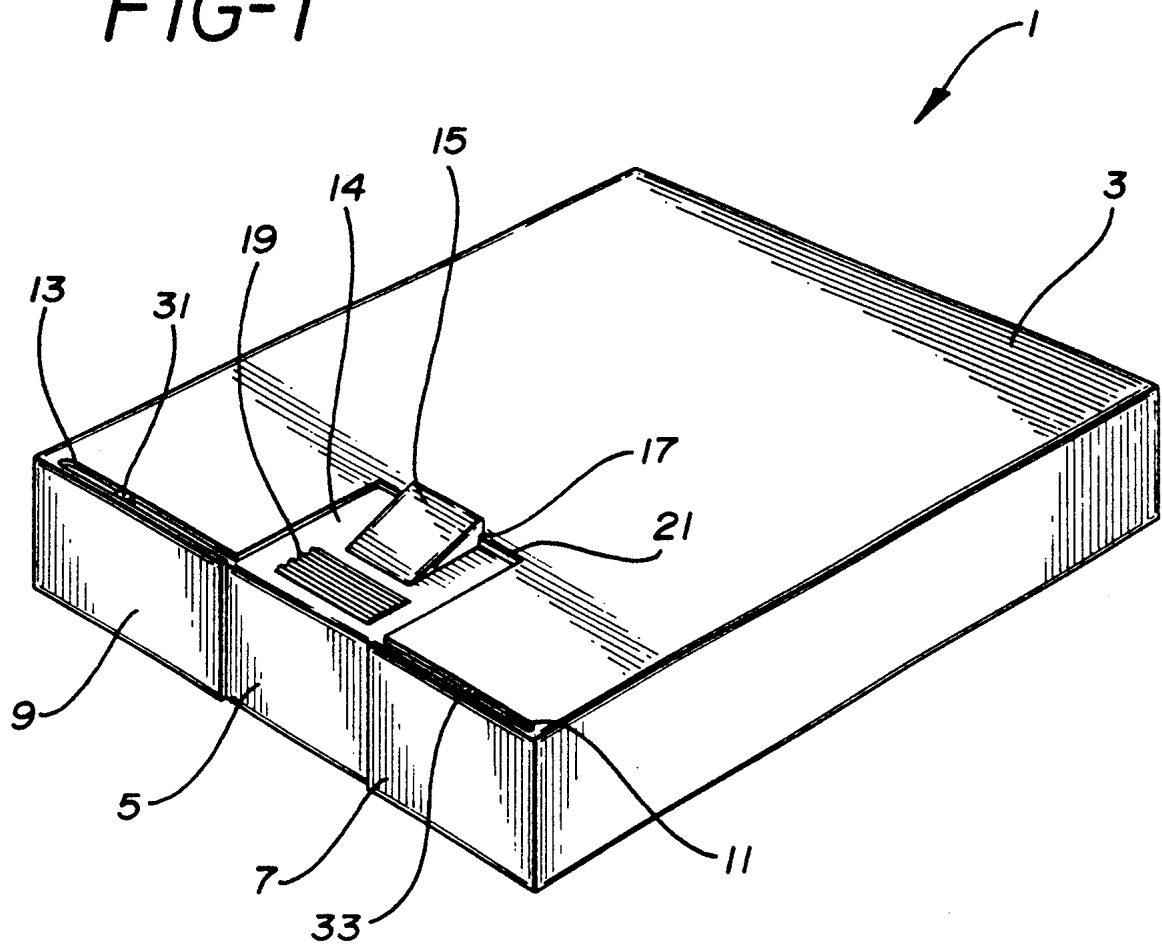
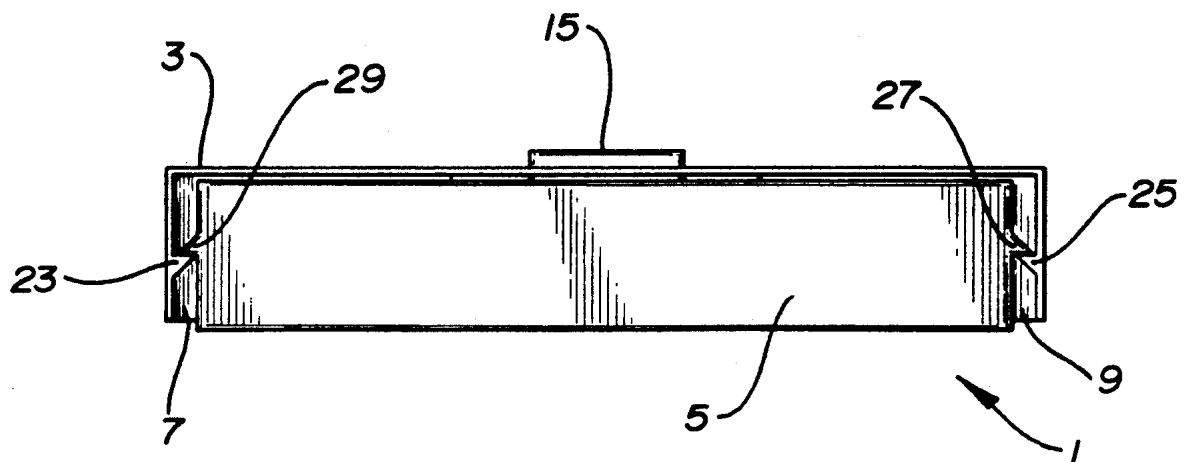


**FIG-2**



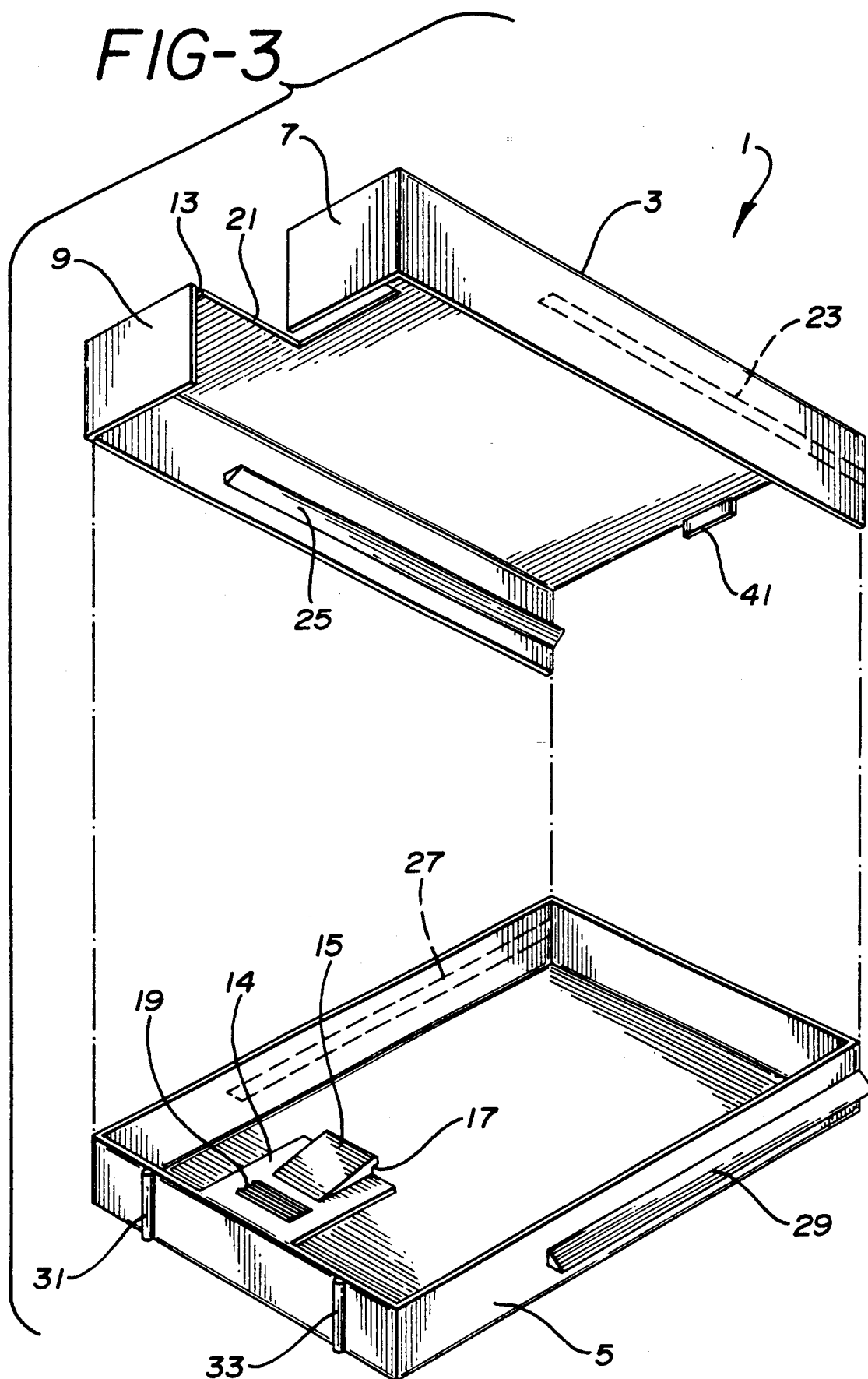


FIG-4

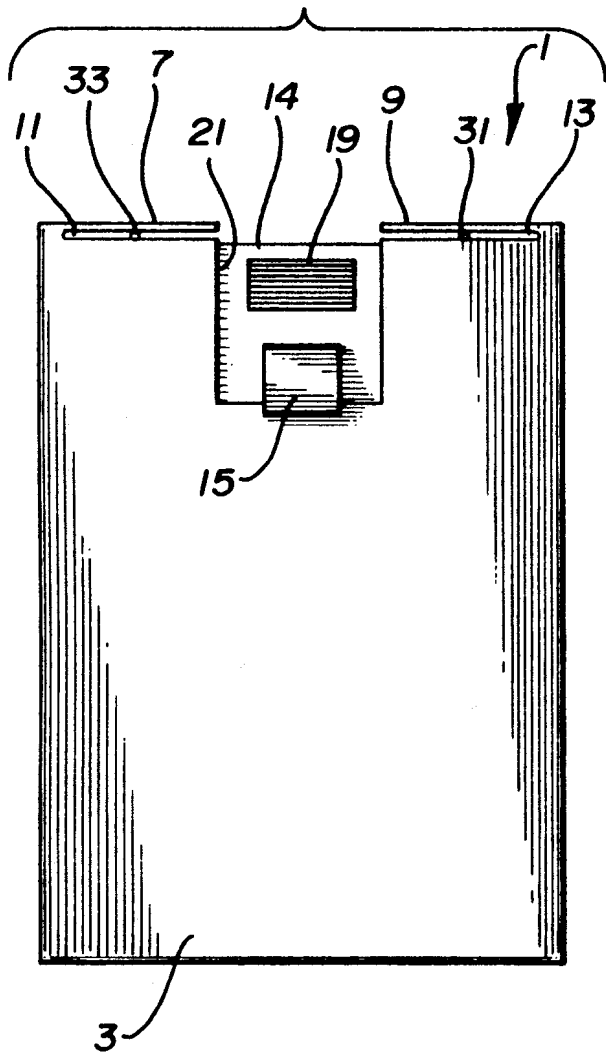


FIG-5

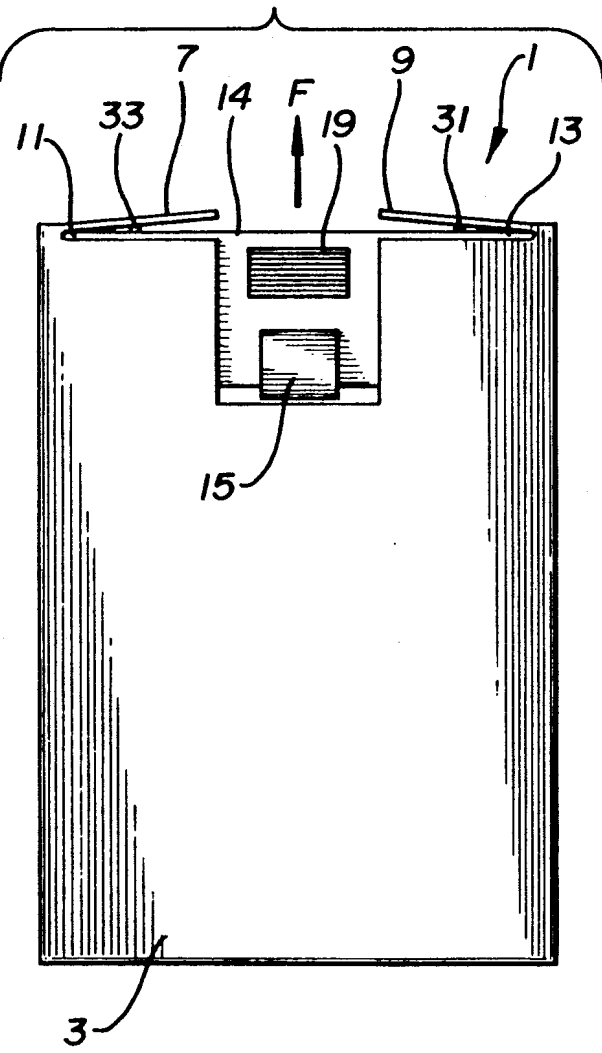
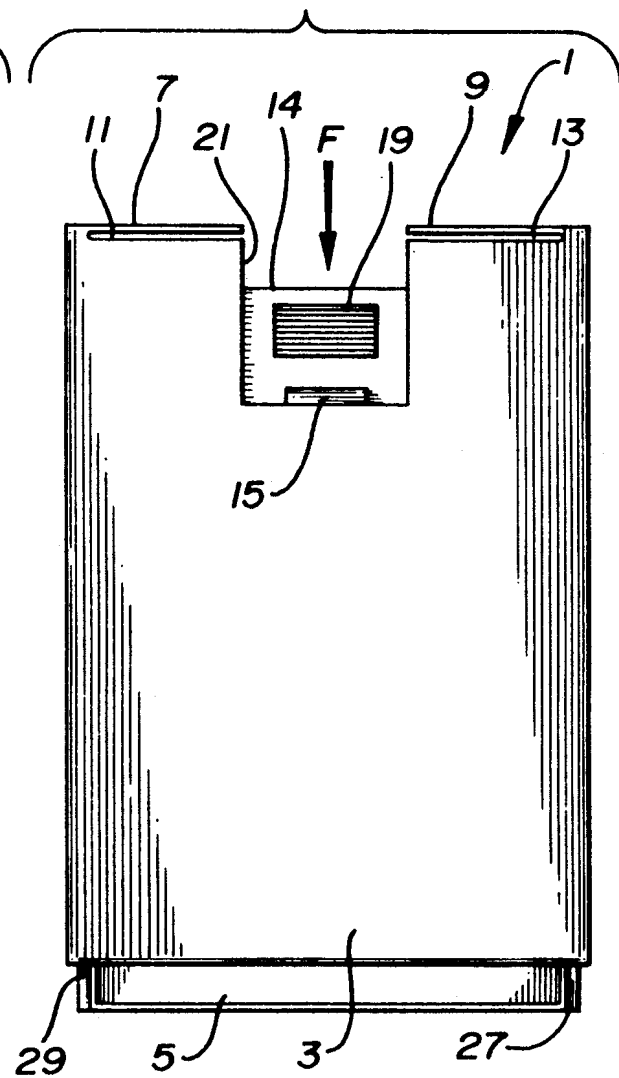
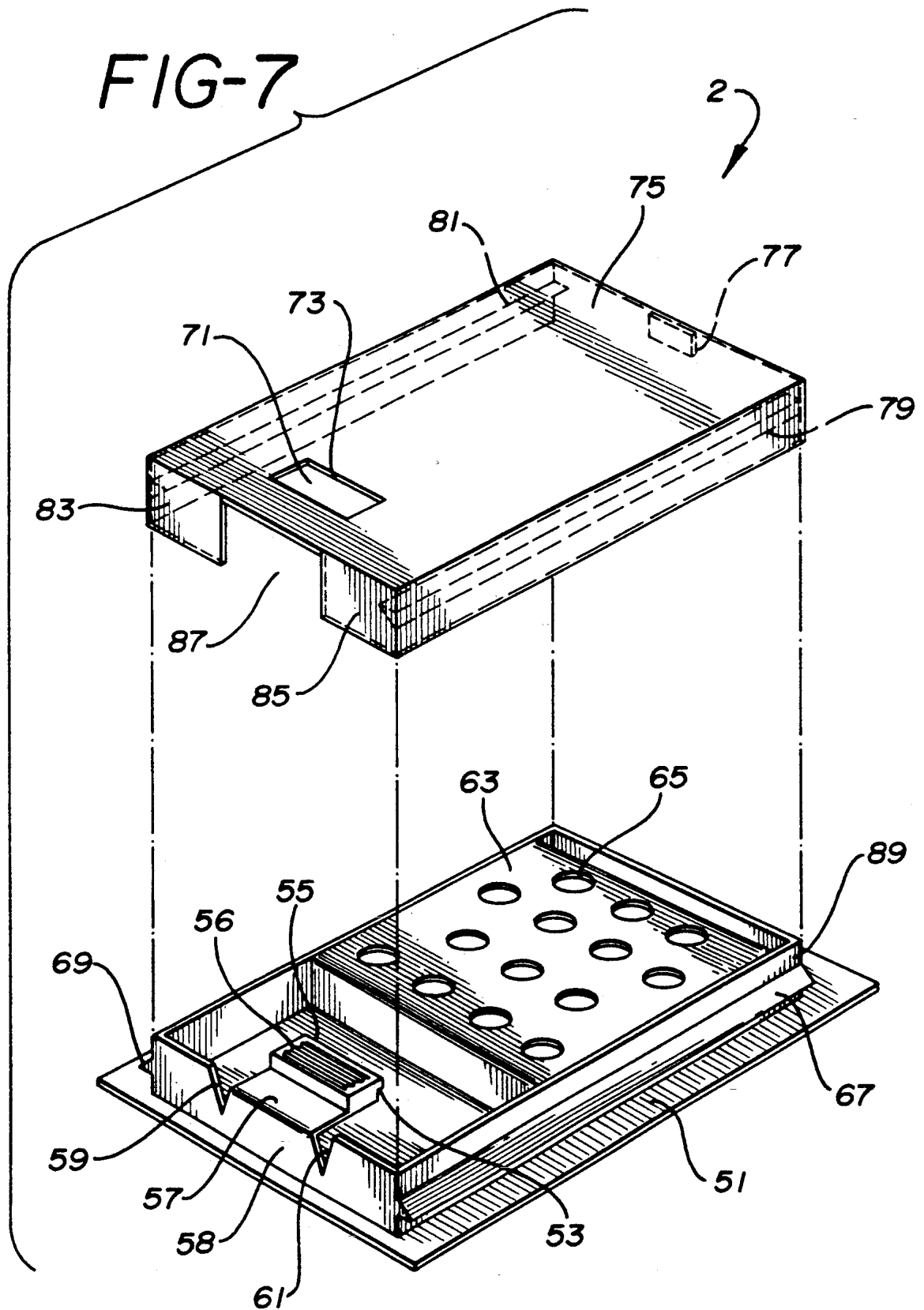


FIG-6





## CHILD RESISTANT SLIDE BOX

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention is directed toward a child resistant slide box container, and more particularly to such slide box containers that have a drawer that positively engages a protective cover, preventing the removal of the cover until the drawer is deformed in a specific area and manner by a user.

#### 2. Prior Art Statement

Slide boxes are a very old and commonly used technology. The most popular use of a slide box is probably for the storage of wooden matches, and has been so for over two centuries. The slide boxes popularity stems from its unique ability to efficiently store small loose items, in such a manner, as to isolate those items from its surroundings, and assure the stored items remain in a flat orientation. The attributes of slide boxes, have facilitated its adaptation to pharmaceuticals, pesticides, deodorants and other products that need protection from, or limited exposure to, the surrounding environment. Because of the nature of products stored within slide boxes, it has become important to create slide boxes within a child resistant capability. The most popular means of creating a child resistant slide box, is by creating slide box with a positively engaging drawer and cover. Usually the engagement is released when either the drawer or the cover is deformed by the user in a specific location. The prior art exemplifying this design form is as follows:

U.S. Pat. No. 3,888,350 to Horvath shows a slide box in which a tab on the cover prevents the drawer from passing. The cover has stress deflection points created within it, so that when the cover is pressed from the sides, the cover will buckle upwards lifting the locking tab away from the drawer and permitting its free movement;

U.S. Pat. No. 4,113,098 to Howard has a lock/unlock mechanism very similar to the Horvath patent. As the cover of the slide box is pressed the top buckles upward, disengaging the cover locking tab over the drawer locking tab, allowing the movement of the drawer;

U.S. Pat. No. 4,174,034 to Hoo teaches a slide box that has a cover with a deformation relief, and a drawer with a protruding locking tab. As the cover is pressed from its sides, the deformation relief lifts above the range of the drawer locking tab allowing the drawer to move freely; and

U.S. Pat. No. 4,844,284 to Drozd, et al, shows a cover with side locking tabs that grip the drawer. As the cover is deformed downwardly in its middle, the side locking tabs expand outwardly, disengaging from the drawer and allowing the drawer to move.

In addition to child resistant slide boxes that unlock from the effects of an indirect cover deformation, there are child resistant slide boxes that unlock from the direct disengagement of the locking tabs. These patents are as follows:

U.S. Pat. No. 4,561,544 to Reeve shows a drawer with a spring lock that fits into a cover orifice. To open the slide box, the spring lock is simply pressed away from the cover orifice as the drawer is pulled open;

U.S. Pat. No. 3,987,891 to Horvath shows a drawer with locking tabs on its sides that engages cover tabs, the cover is deformed at the area of the drawer locking

tabs, disengaging the two and allowing the drawer to move freely; and

U.S. Pat. No. 4,730,731 to Allison is a hinged flip top box that has a deformation point that moves the bottom lock away from the cover lock allowing the lid to be opened.

Thus, although prior art does show child resistant slide boxes that have deformation points that allow for the disengagement of locking tabs for a given applied force, prior art neither teaches nor suggests the type of locking device or the orientation of locking/unlocking movements described by the present invention.

### SUMMARY OF THE INVENTION

The present invention is directed toward a child resistant locking slide box that is opened by deforming a locking tab on the slide box drawer that positively engages the surrounding cover. The slide box consists of a drawer created from a flexible material that has at least one locking tab that extends past the cover plane. The cover has two side walls and a blocking tab at one of its open ends. There are tracks on the inside surfaces of the cover side walls that positively engage and slide along tracks positioned on the outside surfaces of the drawer side walls. The engagement of the cover and drawer tracks allow only for the respective lateral movement of the cover across the drawer. The lateral movement of the cover allowed by the tracks is restricted in one direction by the cover end tabs, and in the other direction by the drawer locking tab. With the drawer locking tab in place, the cover can not move and can not be forced open by a child.

The drawer locking tab has a step that overlaps the cover surface. To open the slide box the cover tab must first be deformed backward, removing the step from above the cover, and then downward so that the whole locking tab is beneath the cover. Once the drawer tab is below the cover, the drawer can be pushed past the cover, exposing the contents of the drawer. The needed backward deformation of the drawer locking tab is accomplished in one of two ways. Either the cover spring tabs are created with a stress relief that allows them to elastically deform backward, or the drawer locking tab itself is created with the needed stress reliefs. Either orientation allows the locking tab to be elastically deformed both in the up/down and rearward/forward directions. The compounded motion of pulling the drawer locking tab backward, pushing it below the cover, and pushing the drawer forward, creates a slide box that is resistant to children of most all ages. Yet the compound motion is easily mastered by an adult, removing the frustrations about use and the concerns about safety common with most child resistant packaging.

### BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be more fully understood by referring to the following detailed specifications, the above specification and the claims set forth herein, when taken in connection with the drawings appended hereto, wherein:

FIG. 1 shows a perspective view of one preferred embodiment of the present invention in a closed locked orientation;

FIG. 2 shows a rear view of the embodiment depicted in FIG. 1;

FIG. 3 shows an exploded perspective view of the embodiment depicted in FIGS. 1 and 2;

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FIGS. 4, 5, and 6 are front views of the preferred embodiment depicted in FIGS. 1, 2 and 3, shown at various stages during opening; and,

FIG. 7 is an exploded perspective view of an alternative embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

The present invention is, as mentioned, directed toward a child resistant slide box that is normally locked and can not be opened by the manipulation of a child. In the past, a large variety of items, from match sticks to pills, have been stored in slide boxes. Slide boxes protect their contents from coming into contact with the surrounding environment, and shallow slide boxes prevent its contents from losing a desired flat orientation. Slide boxes also have the added feature of having a variable opening, thus limiting contact with the outside environment, or limiting the removal rate of material from the slide box. The characteristics of slide boxes lend themselves to the storage of potentially hazardous or dangerous materials. Slide boxes are ideal for storing matches, pills, foil packs, cigarettes and other items that are best preserved flat, oriented and protected from the environment. Also, slide boxes are often used to hold insect traps, rodent poison, room deodorizers, air quality testers and the like that are best protected before and after use. Because of the substances often stored within slide boxes, it is often desirable to create those slide boxes so that it is child resistant.

Child resistant slide boxes have been in existence for decades. However, some slide boxes are more child resistant than others. Child resistance is a term of art and a child resistant package can be created that a four or five year old child may not be able to open but that a six or seven year old may open with little effort. Still other child resistant packages may be developed that are so complex or difficult, that the elderly, weak, or illiterate may not be able to open the container. The present invention slide box requires a compounded action to open. Unlike other child resistant slide boxes that require only a large force to be applied in an indicated region to open, the present invention derives its child resistance from a combination of force and understanding that is common to most every adult but absent in all but the oldest children. To open the present invention slide box, a user must first pull back on the locking tab and then must push down the locking tab and simultaneously push forward on the slide box drawer. This opening procedure would be obvious to any adult, but the understanding capabilities of children are not fully developed and the combination of the manipulation of force, and the visualization of the forces effect in opening the invention, will prevent most all children from successfully opening the slide box. In addition, the compound movements needed to open the present invention, insure that a child playing with the slide box will not accidentally open the slide box with a lucky application of force.

Referring now to FIG. 1, there is shown one preferred embodiment of the present invention 1. The invention 1 is made of two primary parts, the drawer 5 and a cover 3. The cover 3 has dependent side members that cover the sides of drawer 5, and end spring tabs 9 and 7 that partially cover the forward end of the drawer 5. The tabs 9 and 7 are partially separated from the top surface of the cover 3 by two slots 11 and 13. The slots assure that the spring tabs 9 and 7 are primarily depen-

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dent from the side wall members of the cover 20 so that the spring tabs 9 and 7 can elastically deform away from the top surface of the cover 3. The locking mechanism of the present invention 1 is created by the lock tongue 14 of the drawer 5. The lock tongue 14 is dependent upon the forward wall of the drawer 5 and its location responds to the gap in the forward wall of the cover 3 between locking tabs 7 and 9. The lock tongue 14 fills the recess that is formed in the top surface of the cover 3 and the tab 15 atop the lock tongue 14, has a stepped configuration 17. The tab 15, due to its stepped configuration 17 both engages and overlaps the exposed edge 21 of the cover recess, preventing the tab 15 from being pushed below the cover 3, and preventing the withdrawal of the drawer 5 from the cover 3.

FIG. 2 is a rearward view of the present invention 1 depicted in FIG. 2 with like parts being like numbered and best shows how the drawer 5 and the cover 3 are slidably engaged. As shown in FIG. 2 the drawer 5 has a ledge 27 and 29 protruding from each external side wall surface. And the cover 3 has a ledge 23 and 25 extending from the interior of its side wall surfaces. The drawer ledges 27, 29 and the cover ledges 25, 23 are so oriented so that the ledges overlap along a flat surface. The overlap of the ledges holds the drawer 5 firmly to the cover 3 yet lets both be moved laterally along the ledges 23, 25, 27, 29.

FIG. 3 is an exploded perspective view of the present invention 1 depicted in FIGS. 1 and 2 with like parts being like numbered. FIG. 3 best shows the interworkings of the invention 1. The drawer 5 has four walls, the side walls each have a locking ledge 25, 29 and the forward wall has the locking tongue 14 dependent thereon. The forward wall of the drawer 5 has two bumpers 31 and 33 that help the drawer 5 engage and deform the spring tabs 9 and 7 of the cover 3. Although two bumpers 31, 33 are shown, no bumpers or many bumpers can be used with varying degrees of effectiveness. The cover 3 has ledges 25, 23 that engage the drawer 5 ledges 27 and 29 respectively. The cover has an end stop 41 that restricts the amount of lateral travel between the cover 3 and the drawer 5. When the cover 3 is placed on the drawer 5, the lock tongue 14 fills the space left open in the cover 3. The drawer ledges 27 and 29 engage the cover ledges 25 and 23, and the cover is prevented from moving laterally along the ledges by the bumpers 31, 33 touching the spring tabs 9, 7 and the lock tab 15 engaging the edge of the cover recess 21.

The process of opening and closing the present invention 1 is best shown in FIGS. 4, 5 and 6 which depict a top view of the present invention 1 during various positions during opening (or closing). Referring first to FIG. 4, the present invention 1 is shown in its closed locked position. The cover spring tabs 7, 9 are linear and the locking tab 15 is overlapping the cover recess edge 21. Referring now to FIG. 5 the first step in opening the invention 1 is depicted. A force F is applied to the locking tab 14, usually applied to the thumbpad 19. The force F is transferred to the drawer 5, forcing the drawer bumpers 33 and 31 against the cover spring tabs 7 and 9. The spring tabs 7, 9 deform allowing the drawer 5 to move backward and allowing the locking tab 15 to clear the cover recess edge 21. Once the locking tab 15 is clear of the cover recess edge 21, the locking tab 15 is pushed downward (force not shown) forcing the locking tab 15 below the planar surface of the cover 3. Referring now to FIG. 6, once the locking tab 15 is pressed below the cover 3, the force F is reversed

and the drawer 5 is pushed past the cover 3. The drawer bumpers 33, 31 leave contact with the cover spring tabs 7, 9 and the spring tabs 7, 9 return to their original position. Since the locking tab 15 is below the cover 3, the entire lock tongue 14 is subducted beneath the cover 3. Since the lock tongue 14 no longer resists lateral movement, the drawer 5 can be pushed from beneath the cover 3, appearing from the far end of the cover. To close and lock the invention 1. The process is simply reversed until the locking tab 15 can be placed overlapping the cover recess edge 21.

FIG. 7 shows an alternative embodiment for the present invention other than the one expressed in FIGS. 1 through 6. FIG. 7 shows an exploded perspective view of the present invention 2 holding a manufactured product 65 with a locking mechanism varying from that previously described. In the embodiment the forward wall members 83, 85 of the cover 75 are fully dependent and not separated from the top planar surface of the cover 75. The spring action previously shown in the spring tabs of the cover are now embodied in the forward wall members of the drawer 89. The forward wall member of the drawer 89 has two reliefs 59, 61 immediately adjacent to the forward wall section 58 that supports the lock tongue 57. The reliefs 59, 61 allow the supporting forward wall section 58 to deform independently from the remaining forward wall of the drawer 89. When the cover 75 is positioned on the drawer 89 the lock tongue 57 travels under the top planar surface of the cover 75 until it emerges through an orifice 71 formed within the cover 75. The lock tab 55 then overlaps and engages the back edge 73 of the cover orifice 71. To open this embodiment of the present invention 2. A force is applied to the locking tab 55 at the finger grip 56. The force is transferred to the forward supporting wall member 58 and the reliefs 59, 61 adjacent to the forward supporting wall member 58 allows it to elastically deform without substantially effecting the remainder of the forward wall of the drawer 89. The elastic deformation of the forward supporting wall member 58 allows the locking tab 55 to overcome its overlap with the rear edge 73 of the cover orifice 71. Once the overlap is erased the locking tab 55 can be pushed below the cover 75 and the cover 75 can be moved laterally across the draw 89. To close and lock the invention 2, the above described process is reversed until the locking tab 55 again overlaps the rear edge 73 of the cover orifice 71.

FIG. 7 also has the added feature of having a manufactured product 65 held within in the invention 2. The manufactured product 65 can be deodorant, insecticide, radon level tester, rodent trap, pill foil packs, or any other product that requires a cover before or after use. The manufactured product 65 can be made as an intricate part of the drawer 89 or the manufactured product 65 can be made as a removable and replaceable subcomponent. When produced as a replaceable subcomponent, the present invention slide box 2 can be repeatedly used to protect various products or different batches of the same product. For example, if the present invention slide box 2 is used to protect a foil pill pack, when the pill pack is emptied, a new foil pill pack can be substituted for the emptied pack. The replacement allows the present invention slide box to be reused, greatly reducing the unit cost of protected manufactured items, wherein a one time purchase of the present invention slide box 2 can protect an indefinite number of future refills.

FIG. 7 also shows the drawer 89 having an enlarged base 51 and the manufactured product 65 having a perforated lid 63. The enlarged base 51 is desirable in many situations, such as with rodent poison or adhesive rodent traps, where the foreseeability of post-placement movement is high. The widened base prevents the drawer 89 from tipping over, thus preventing the contamination of the surrounding area by any of the manufactured product stored within. The perforated lid 63 can be used in conjunction with room deodorants, radon level testers, powered products or the like to further limit the amount of exposure the manufactured product 65 has with the surrounding environment. The perforated lid 63 may be protected by an adhesive foil (not shown), placed onto the perforated lid 63 by the manufacturer. The foil would protect the manufactured product 65 from contamination prior to use. The foil being removed manually from atop the manufactured product 65, when needed.

Obvious, in light of the above teachings, is that numerous modifications and variations of the present invention are possible. It is therefore understood that within the scope of the appended claims, that the invention may be practiced otherwise than is specifically described herein.

What is claimed is:

1. A child resistant container comprising in combination:

(a) a drawer having a substantially planar drawer bottom, a drawer forward wall member, a drawer rear wall member, and oppositely disposed drawer side wall members;

(b) a cover having a substantially planar top with a predetermined width, having depending oppositely disposed cover side wall members and at least one cover forward wall member and an open rear edge, said at least one cover forward wall member not traversing the full width of said planar top, an area wherein said cover planar top terminates with an open edge;

(c) a stop means depending from said cover for engagement with said drawer rear wall member to limit the relative sliding movement therebetween;

(d) a releasable locking means extending from said drawer forward wall member toward said drawer rear wall member, said locking means engaging and overlapping said open edge of said cover planar top; and,

(e) interengaging slide means on said cover side wall members and said drawer side wall members.

2. A child resistant container as recited in claim 1, further comprising:

a slotted area substantially separating said at least one cover forward wall member from said cover planar top, whereby said at least one cover forward wall member is primarily extending from a cover side wall member, allowing said at least one cover forward wall member to be elastically deformed away from said cover planar top.

3. A child resistant container as recited in claim 2, further comprising:

at least one bumper extending from said drawer forward wall member whereby said bumper extends outwardly and is adapted to engage said at least one cover forward wall member.

4. A child resistant container as recited in claim 1, further comprising:

a plurality of slots formed within the said drawer forward wall member, adjacent to said locking means, whereby a portion of said drawer forward wall member supporting said locking means is substantially separated from a remaining portion said drawer forward wall member, allowing the portion of said drawer forward wall member supporting said locking means to be elastically deformed without substantially deforming said remaining portion of said drawer forward wall member.

5. The container of claim 1 wherein said interengaging slide means has a directed flange inside each cover side wall member in a slidably engaging relation with matching and opposing flanges outside each drawer side wall member.

6. The container of claim 1 wherein said open edge of said cover planar top is relieved a distance into said cover planar top away from said at least one cover forward wall member.

7. The container of claim 6 wherein said locking means extending from said drawer forward wall member toward said drawer rear wall member extends through said relieved area in an orientation substantially similar to said cover planar top, filling said relieved area.

8. The container of claim 1 wherein said cover planar top has an orifice cut therethrough.

9. The container of claim 8 wherein said locking means extending from said drawer forward wall member toward said drawer rear wall member extends under said cover and emerges through said orifice, engaging and overlapping said open edge of said cover planar top.

10. The container of claim 1 wherein said planar bottom of said drawer extends beyond said drawer forward wall member, drawer rear wall member and drawer side wall members.

11. The container of claim 1 wherein said at least one cover forward wall member may be elastically deformed by said drawer a predetermined distance when said drawer is engaged with said cover and is being opened, so as to eliminate said locking means overlapping of said open edge of said cover planar top and thereby to release said locking means.

12. The container of claim 2 wherein said at least one cover forward wall member may be elastically deformed by a force applied to said drawer a predetermined distance when said drawer is engaged with said cover and is being opened, so as to eliminate said locking means overlapping of said open edge of said cover planar top and thereby to release said locking means.

13. The container of claim 4 wherein said at least one cover forward wall member may be elastically deformed by a force applied to said drawer a predetermined distance when said drawer is engaged with said cover and is being opened, so as to eliminate said locking means overlapping of said open edge of said cover planar top and thereby to release said locking means.

14. The container of claim 11 wherein said locking means can be elastically deformed below said planar top of said cover.

15. The container of claim 12 wherein said locking means can be elastically deformed below said planar top of said cover.

16. The container of claim 13 wherein said locking means can be elastically deformed below said planar top of said cover.

17. The container of claim 1 wherein said locking means has a discernable area, an outer surface with said area being engageable for the application of forces by a user in moving said locking means away from said open edge of said cover planar top and deforming said locking means beneath said cover planar top so as to release said locking means.

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