

[54] **CHILDPROOF ASPIRIN CONTAINER** 2,579,954 12/1951 O'Neil..... 220/283
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 [73] Assignee: **Continental Can Company, Inc.**, New York, N.Y.
 [22] Filed: **May 24, 1974**
 [21] Appl. No.: **473,101**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 264,115, June 19, 1972, abandoned.
 [52] **U.S. Cl.** 220/283
 [51] **Int. Cl.** **B65d 43/16**
 [58] **Field of Search**..... 220/281, 282, 283

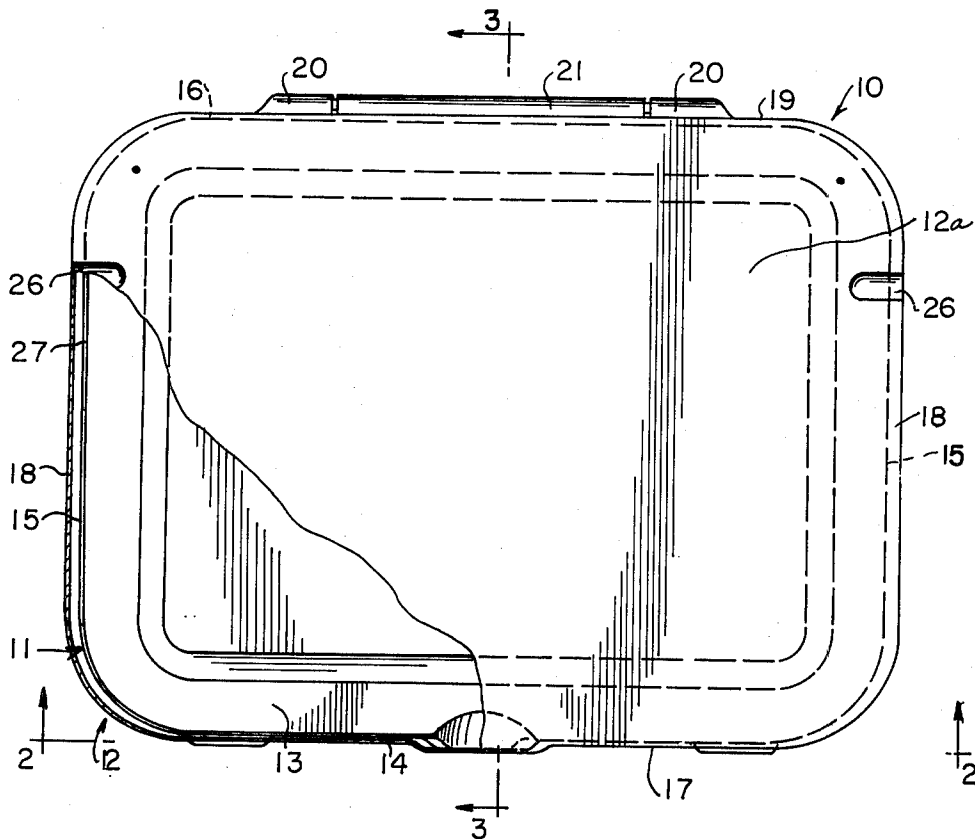
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[57] **ABSTRACT**

A pill box comprising a tray and a cover hingedly attached thereto. The lid and tray having nesting walls of which the front walls are formed with complementary frictional latch means. A pair of detents is provided along the tray side walls so as to provide a fulcrum about which the lid is rocked. Pressure forces are required to be applied simultaneously at the rear corners of the lid to open the box.

15 Claims, 17 Drawing Figures



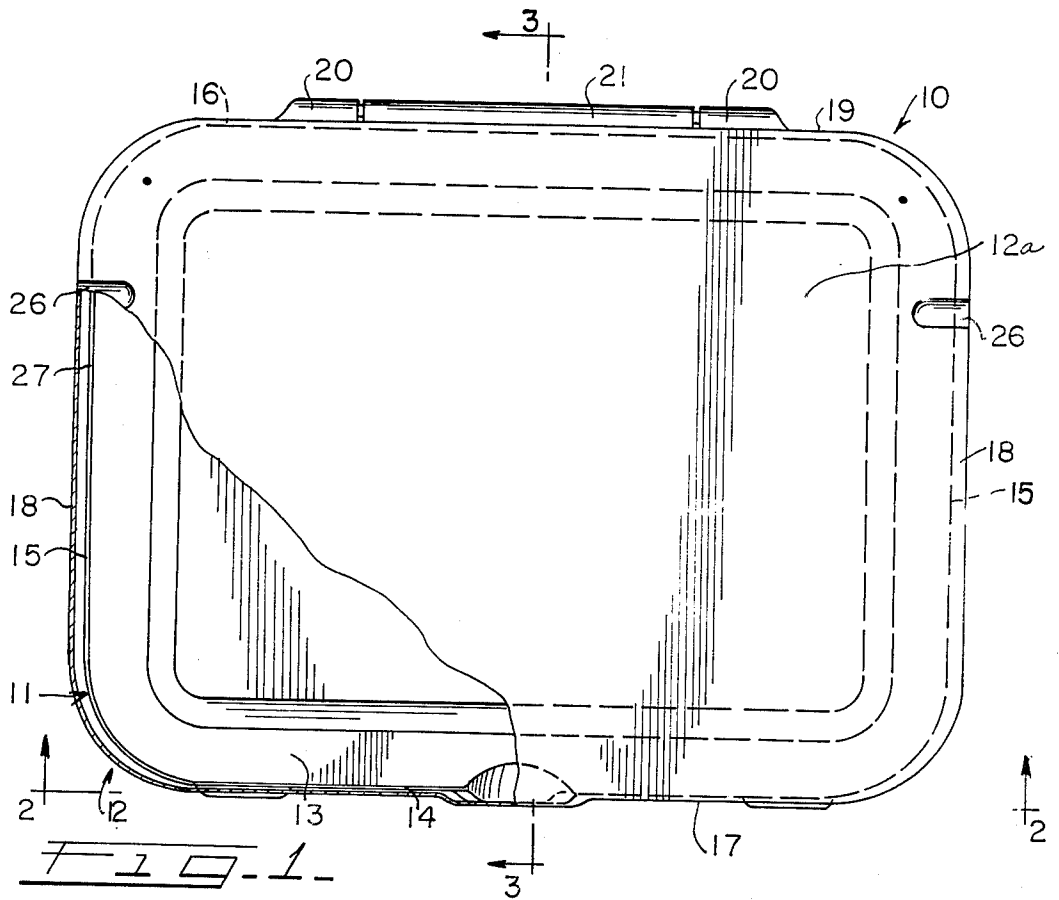


FIG. 1

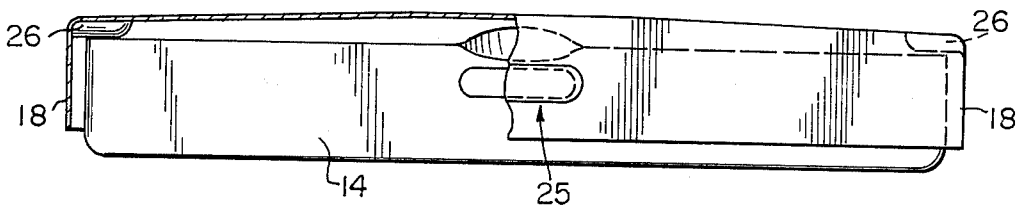


FIG. 2

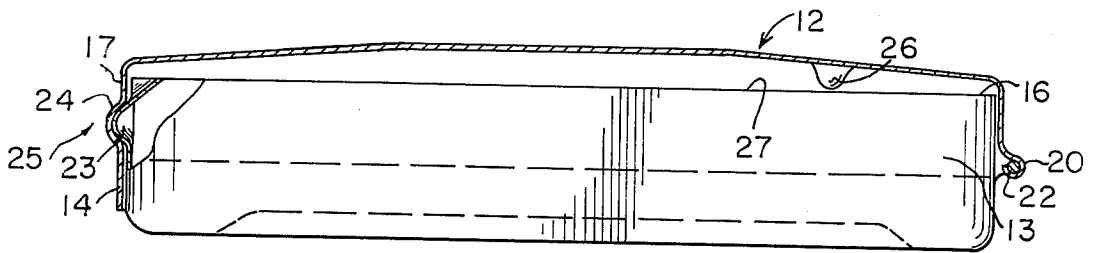


FIG. 3

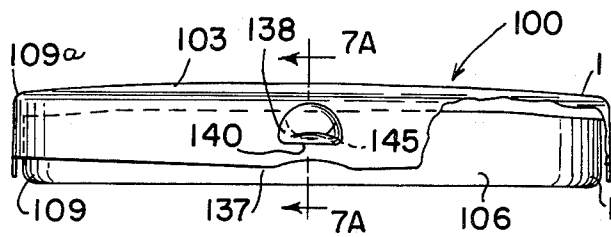


FIG. 4

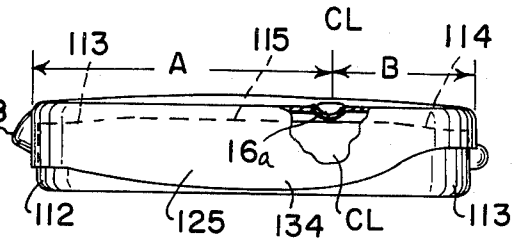


FIG. 6

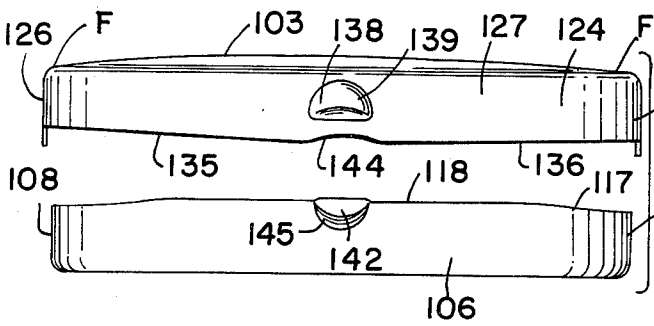


FIG. 5

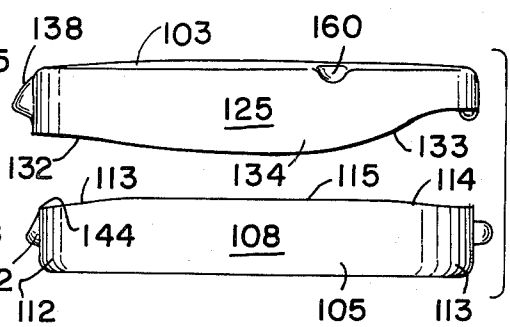


FIG. 7

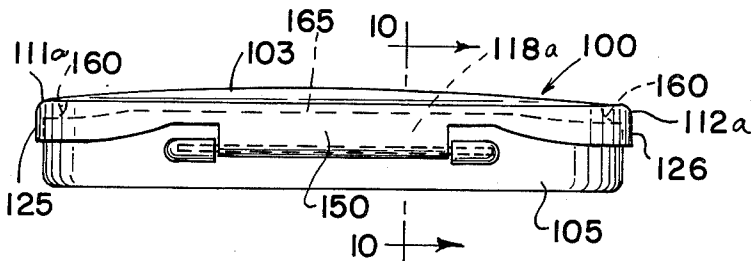


FIG. 8

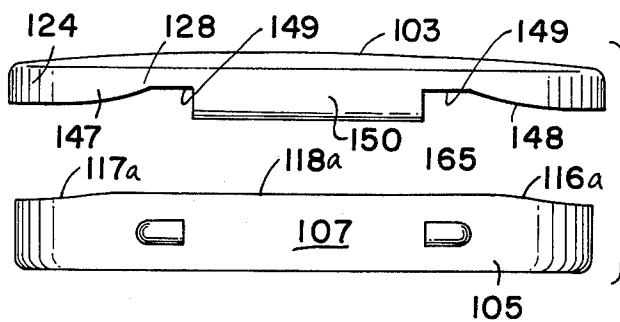


FIG. 9

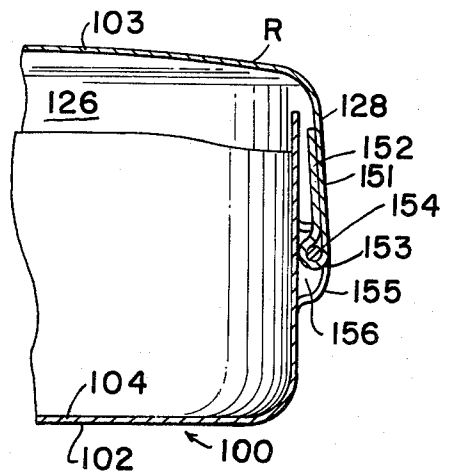


FIG. 10

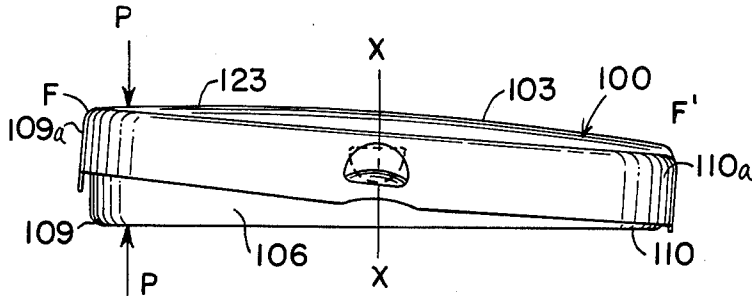


FIG. 11

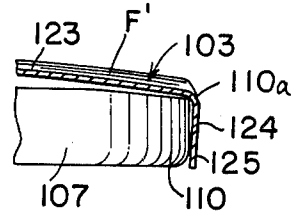


FIG. 12

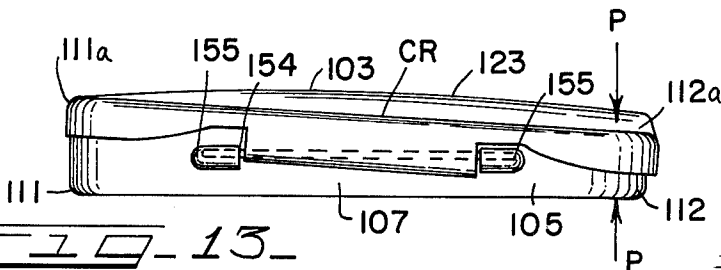


FIG. 13

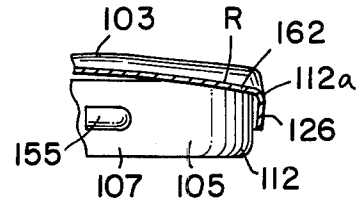


FIG. 14

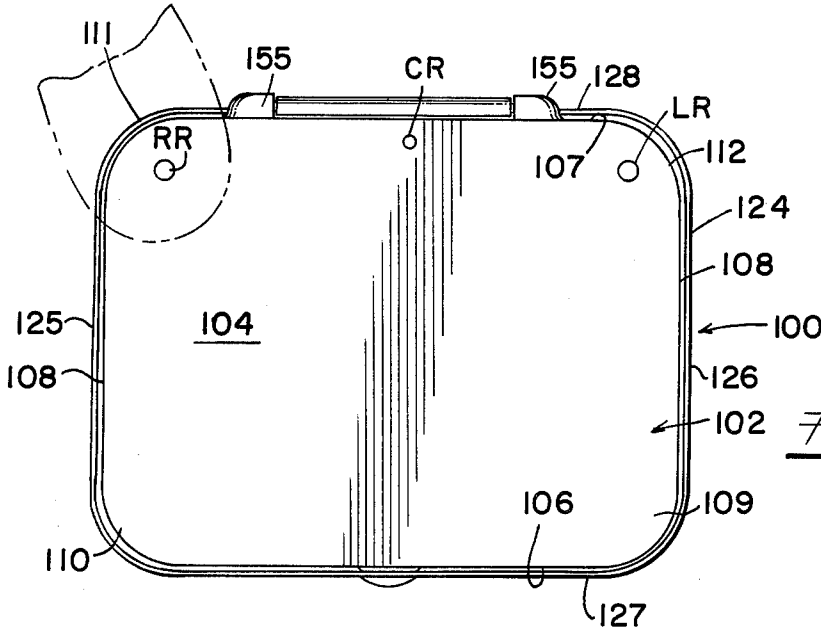


FIG. 15

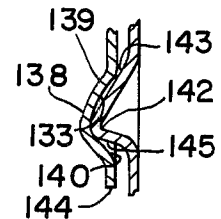


FIG. 7A

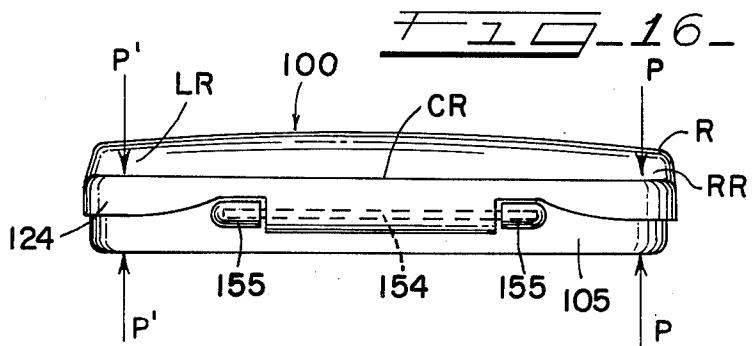


FIG. 16

CHILDPROOF ASPIRIN CONTAINER

This application is a Continuation-In-Part of my application Ser. No. 264,115, filed June 19, 1972, now abandoned.

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates to boxes and more particularly to boxes formed of sheet metal and designed to contain small articles such as pills, tablets or the like.

Heretofore, boxes have been constructed so that upon application of pressure at one corner of the box, the lid is fulcrumed and may be opened. This design makes it very simple for a child to open. This creates a problem because children frequently gain access to the medicine cabinets and remove the aspirin boxes and consume the contents thereof.

By the present invention, it is proposed to modify the construction of the conventional pill or aspirin box so as to make it more difficult for a child to open and yet not too difficult for an adult.

This is accomplished by providing a pill box including a tray having a base and four upstanding walls. A lid is hingedly attached to the rear wall of the tray and includes a top having depending walls which nestingly receive the tray walls. The front walls of the tray and lid are provided with frictional engageable latch means. The lid is provided a pair of detents located adjacent to the rear wall and in engagement with the respective upper edges of the upstanding side walls of the tray. The detents serve as fulcrum points about which the lid rocks upon pressure applied by the thumb and forefinger at each of the rear ends of the container to overcome the frictional forces of the latch means to snap the front of the lid to an open position. The fulcrums are preferably located so that the lever arm relationships require pressure force at both of the rear corners simultaneously. The dual action of simultaneously applied pressures has been found to be beyond the understanding of a child less than about five years of age.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a pill box incorporating the features of the present invention with some of the parts broken away to show underlying detail of structure.

FIG. 2 is a front view of the box taken generally along the lines 2—2 of FIG. 1 with some of the parts broken away to show underlying details of structure.

FIG. 3 is a cross-sectional view taken generally along the lines 3—3 of FIG. 1.

FIGS. 4—16 illustrate a further embodiment of the invention:

FIG. 4 is a front edge view of the novel container in closed position with a portion of the shirt broken away.

FIG. 5 is a front edge view of the base and cover of FIG. 4.

FIG. 6 is a side edge view of one side of the container in closed position.

FIG. 7 is a side edge view of the cover and base of FIG. 6.

FIG. 7A is an enlarged sectional view taken on line 7A of FIG. 4.

FIG. 8 is a rear edge view of the container closed.

FIG. 9 is a rear edge view of the cover and base of FIG. 8 showing the parts separated.

FIG. 10 is an enlarged fragmentary cross-sectional view taken substantially on line 10-10 of FIG. 8.

FIG. 11 is a front edge view of the container showing the deflection of the parts when the left rear corner only is pressed.

FIG. 12 shows the position of the parts at the front right corner when the parts are according to FIG. 11.

FIG. 13 shows the rear edge of the container with the parts deflected at the left rear corner.

FIG. 14 is a fragmentary cross-section of the cover portion showing the position of the parts at the left rear corner.

FIG. 15 is a bottom plan view of the container showing the pressure point position to effect the FIGS. 11-14 deflection of the parts; and

FIG. 16 is a rear view of the container showing the disposition of the parts upon pressure being applied to both rear corners of the container.

DESCRIPTION OF THE EMBODIMENT OF FIGS. 1-3

The container or box 10 is formed of sheet metal, preferably of generally oblong shape and having rounded corners as shown in FIG. 1. The box 10 includes a tray 11 and lid 12 hingedly attached thereto.

The tray 11 comprises generally a base or bottom 13 having a front wall 14, side walls 15 and a rear wall 16. The walls 14, 15 and 16 terminate in edges 27.

The lid 12 comprises a top wall 12a having a downwardly depending front wall 17, side walls 18—18 and a rear wall 19. The rear wall 19 is formed with a pair of spaced hinge leaves 20 between which there is disposed a single hinge leaf 21 provided on the rear wall 16 of the lid 12. Extending between the hinge leaves 20 and through the center hinge leaf 21 of the lid 12 is a pintle 22 which serves to pivotally connect the lid 12 to the tray 11.

The front upstanding wall 14 is formed with an outward convex projection 23 which seats within and frictionally engages a complementary concave indentation 24 formed in the downwardly depending front wall 17 of the lid 12. The convex projection 23 and concave indentation 24 form a latch 25 which retains the lid 12 closed over the tray 11 until the frictional forces between the contacting surfaces of the projection 23 and the indentation 24 are overcome.

In accordance with the present invention, a pair of detents 26—26 are formed in the top wall 12a of the lid 12 along each of the downwardly depending sides. The detents are each of shallow concave contour to permit limited rocking of the lid 12 on the upper edges 27—27 of the upstanding side walls 18—18 and thereby to serve as fulcrums for the lid 12. The detents 26—26 are of such a height and located so that pressure must be simultaneously exerted between the thumbs and forefingers at both of the rear corners of the lid 12 to create a force overcoming the frictional forces at the latch. The lid 12 may then be freely raised above the tray 11. The location of the detent 26 may be selectively positioned along the side of the lid so as to make the lever arm relationship such that the finger force required to release the lid is greater than that capable of being exerted by a small child. Moreover, it has been found that a child up to an age of understanding of about five usually does not understand that both rear corners must be depressed simultaneously.

To forestall the opening of the container by a child as by prying between the front walls of the lid and tray, the downwardly depending walls 17, and 18—18 on the lid 12 extend substantially to the base 13. This minimizes the possibility that a child may pry the latch open by placing his teeth or finger nails between the front walls of the lid 12 and tray 11.

DESCRIPTION OF THE EMBODIMENTS OF FIGS. 4 - 16

The container designated 100 is of the type typically used for packaging aspirin and other tablet medications and comprises a rectangular base 102, and a complementary cover 103.

The base or tray comprises a bottom wall 104 and a peripheral upstanding skirt 105 which includes front and rear web portions 106, 107 and identical side portions 108, 108.

All four corners 109, 110, 111 and 112 are sheared off at their upper edges diagonally whereby each side web has downwardly sloping end edges 113 and 114 (FIG. 7) and a ridge-like intermediate section 115 and similarly the front and rear portions of the skirt 105 have inclined upper end edges 116, 117 (FIG. 5) and a ridge-like center section 118 with a top edge preferably parallel to the base, and the rear portion 107 has inclined end edges 116a, 117a and a ridge-like center section 118a with a top edge preferably parallel to the base.

This construction affords relief for accommodating canting of the front corners 109a, 110a of the upper cover 103 of the container for purpose hereinafter explained.

The cover 103 has a domed upper wall 123 and a peripheral depending skirt 126 which loosely fits over the upstanding skirt 105 of the base. The cover skirt 124 has side webs 125, 126 and front and rear webs 127, 128. The corners 109a, 110a and corners 111a, 112a are sheared diagonally and thus the side webs have upwardly angled edges 132, 133 and a depending center wide section 134. The front wall 127 also has upwardly angled lower end edges 135, 136 (FIG. 5) and an extended center section 137.

The center section 137 has a half-moon shape socket portion 138 substantially centered thereon between its top and bottom and end edges and provides a pocket 139a. The upper portion 139 of the socket is arcuate and the lower edge is straight and provides a downwardly and inwardly sloping ledge 140 which is adapted to spring out with the wall section 137 over a half-moon shaped projection 142 formed adjacent to the upper edge 144 of the center portion of the front web of the base skirt. The outer face 143 of the projection slopes upwardly and inwardly and is aligned with the lower edge portion 144 of the socket and provides a ramp for the portion 144 to slide over and snap the ledge portion 145 of the locking projection 142. The tangential contact of the flat face of ledge 140 with the arcuate portion 145 in the closed position of the cover, permits the cover to rock or flex about a fore and aft minor axis X—X (FIG. 4) of the container as hereinafter explained.

The rear wall or web 28 of the upper skirt also has shallow end portions 147, 148 and is cut out at 149, 149 (FIG. 9) at opposite ends of the center hinge portion 150 which has inner and outer folded segments

151, 152 forming a bight 153 through which is extended a resilient spring steel pintle 154. The ends of the pintle fit into outwardly offset sockets 155, 155 formed in the rear wall of the bottom skirt. The socket cavities 156 (FIG. 10) are substantially larger than the diameter of the pintle to accommodate vertical movement of the cap attendant to opening of the container. The cutouts provide clearance for the rear wall of the upper skirt about the sockets 155 when the rear portion of the cover is depressed at its side webs.

The upper wall of the cover is provided with a pair of fulcrums 160, 160 which are aligned with the ridge portions 115 of the side webs of the bottom skirt. These fulcrums are positioned from the front of the container to obtain approximately a three to one leverage ratio. As a typical example in one type of container the distance "A" from the centerline (CL) (FIG. 6) of each fulcrum to the front wall of the top skirt is 0.673 inches and the distance "B" to the back wall of the top skirt 0.225 inches. In another container the distance A is 0.7315 inches and B is 0.245 inches; in another A is 0.988 inches and B is 0.322 inches. The material of the container is thin steel and as best seen in FIGS. 11—14 by pressing of the top cover in only one corner, the cover is caused to flex laterally. FIG. 11 shows pressure being applied at P—P by the thumb and forefinger of the person attempting to open the container. The rear portion R of the cover at the point of pressure moves down until the underside of portion R abuts as at 162 (FIG. 14) preventing further depression of portion R. When portion R moves down the portion F of the cover forwardly of the adjacent fulcrum 160 moves upwardly as seen in FIG. 11. At the same time the cover flexes laterally about an axis X—X FIG. 11 and the corner (110a) is caused to descend. However, since the corresponding corner 110 is sheared off at the top (FIG. 12) sufficient clearance is provided to prevent the top wall front portion F' at corner 110a from fulcruming on the upper edge of corner 110 and popping the container open. At the same time the construction of the latch prevents it from opening since as seen in FIG. 11 the flat ramp or ledge 140 (FIGS. 4 and 7A) permits the arcuate edge 145 to rock thereon preventing the latch from unlatching.

In order to prevent the cap from being opened by pressing at the center of the rear portion identified CR or anywhere between the points LR and RR at the left and right rear corners respectively. (FIG. 16) the elevation of the upper edge 165 (FIGS. 8 and 9) of the ridge portion 118a is such that it serves as a stop to prevent the user from depressing the rear portion of the cap downwardly a distance sufficient to open the latch.

As best seen in FIG. 16 by pressing at P—P and P'—P' simultaneously, the cap does not flex laterally and the forces are directed parallel to the sides of the container without attenuation and snap the latch open, it being understood that the side portions of the upper skirt serve as beams between the points of pressure application and the front portion of the lid. Since the lid does not laterally deflect, sufficient force may be applied without bottoming the RR and LR portions of the lid against the upper edges of the respective rear corners of the bottom skirt thereby snapping the lid open.

What is claimed is:

1. A pill box comprising a tray including a base having peripheral upstanding side walls, front and rear walls which terminate in edges substantially parallel to

said base, a lid including a top having downwardly depending sides, front and rear walls disposed thereabout and nestingly receiving said upstanding walls of said tray, co-acting frictional latch means on said front wall of said tray and said front walls of said lid, detent means of shallow concave contour on said top along each of said edges and in engagement with the respective edges of each of said side walls of said tray to provide fulcrums about which said lid rocks, said detent means being of a height and located so that pressure forces must be simultaneously exerted at each of the rear corners of said lid to create a force capable of releasing said frictional latch means.

2. The invention as defined in claim 1 wherein said frictional latch means comprises a complementary projection and indentation formed on said front walls of said lid and said cover, respectively.

3. The invention as defined in claim 2 wherein said lid is hinged to said tray at said rear walls.

4. The invention as defined in claim 3 wherein said front and side walls of said lid are substantially the same height as the height as said front and side walls of said tray.

5. The invention according to claim 1 wherein said terminal edges of said front and rear walls are located intermediate the ends of said front and rear walls and said front and rear and side walls form corners and have end edges sloping downwardly from the terminal edges toward the corners.

6. The invention according to claim 5 and said top being flexible, said end edges of said side walls adjacent to the rear wall being sloped toward the adjacent corners and having upper edges providing abutment means limiting downward movement of the adjacent overlying portion of the top a distance less than sufficient to open said latch means.

7. The invention according to claim 5 and said rear wall having an upper edge providing an abutment at an elevation engaging said top at a locus preventing opening of the latch means by bottoming of said top against said abutment.

8. The invention according to claim 1, wherein said lid is flexible laterally and distortable upon application of force at either corner alone to prevent opening of the latch.

9. The invention according to claim 8 wherein each rear corner has an abutment surface engageable with the lid upon application of force to either corner alone to prevent opening of the latch.

10. The invention according to claim 9 and said front wall having a relieved area adjacent each end preventing fulcruming of the lid in the region of the said area upon application of force at a diagonally opposite rear corner to prevent opening of the latch.

11. A quadrilaterally-shaped metal container comprising a tray including a bottom wall and a peripheral skirt having spaced side walls and interconnecting front and rear walls forming front and rear corners there-

with, said walls having upper edges and said corners having apices disposed lower than said edges and said walls having upper end edge portions sloping upwardly toward respective upper edges from the apices, a flexible lid having a rear wall pivotally secured to the rear wall of said tray, said lid additionally having side walls and a front wall, said walls of the lid telescoped over the corresponding walls of the tray, means providing fulcrums on the lid for engagement with the upper edges of said side walls of the tray adjacent to said rear walls, a projection on one of said front walls and a socket on the other for reception of the projection and forming a latch therewith, said projection and socket having rockably interengaging catch means permitting lateral deflection of said lid attendant to the application of pressure at either one of the rear corners of the lid to prevent unlocking of the latch, and said end edge portions at said rear corners being at an elevation to abut said lid during such deflection to prevent sufficient movement of the rear portion of the lid as would open the container.

12. The invention according to claim 11 and said side walls of the lid providing beam means between the respective front and rear corners for transmitting force simultaneously along both of said side walls of the lid whereby the lid is maintained rigid and thereby transmits sufficient force to open the latch within the limit of movement of the rear portion of the lid upon application of force thereto simultaneously at both rear corners.

13. The invention according to claim 11 and said lid and rear wall of the tray abutable upon application of opening force only against a rear portion of the lid intermediate said rear corners thereof.

14. A pill box comprising a tray including a base having peripheral upstanding side and front and rear walls which terminate in upper edges, a lid including a top having depending peripheral side and front and rear wall portions nestingly receiving said upstanding walls of the tray, said wall portions of the lid forming front and rear corners, coacting frictional latch elements on said front wall of the tray and said front wall portion of the lid, means on said top along each of said edges of the side walls of the tray and in engagement therewith and providing fulcrums about which said lid is adapted to be rocked for opening the lid, said means being of a height and being so located so that pressure forces must be simultaneously applied at each of the rear corners to transmit a force through the lid attendant to rocking of the lid about said means capable of releasing said frictional latch elements.

15. The invention according to claim 14 wherein said lid is flexible and certain upper edges of the walls of the tray are positioned to abut the underside of the lid upon application of force only to either of the rear corners and attendant deflection of the lid attenuating said force whereby it is insufficient to open said latch.

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