

FIG. 1

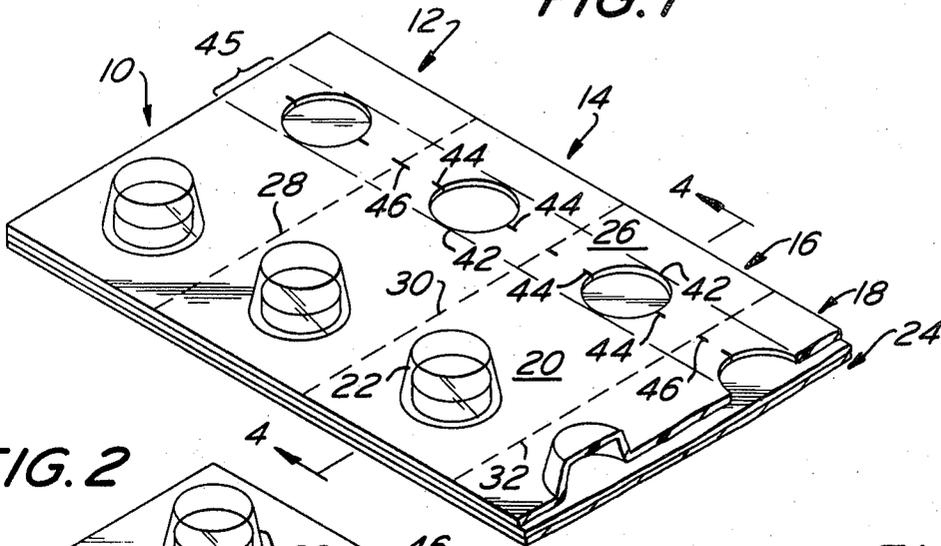


FIG. 2

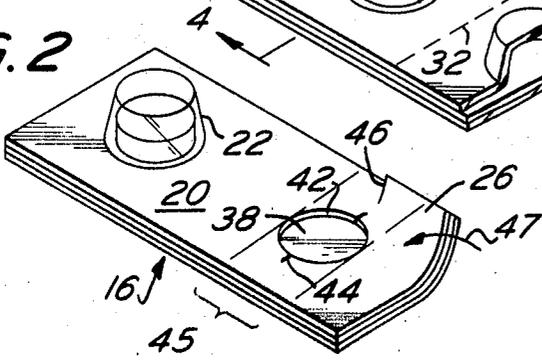


FIG. 3

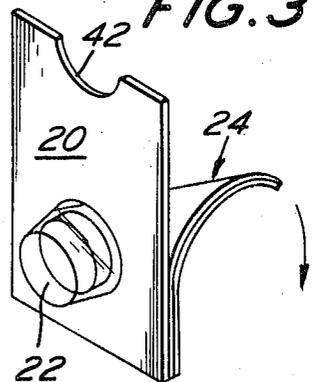


FIG. 5

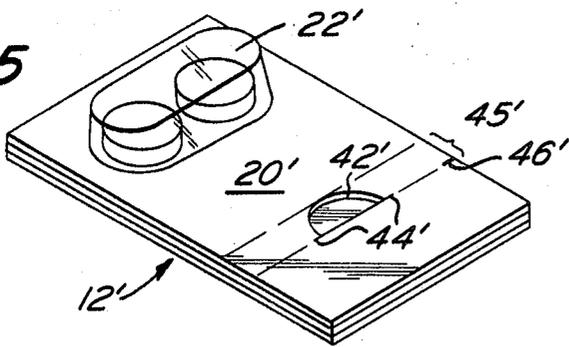


FIG. 6

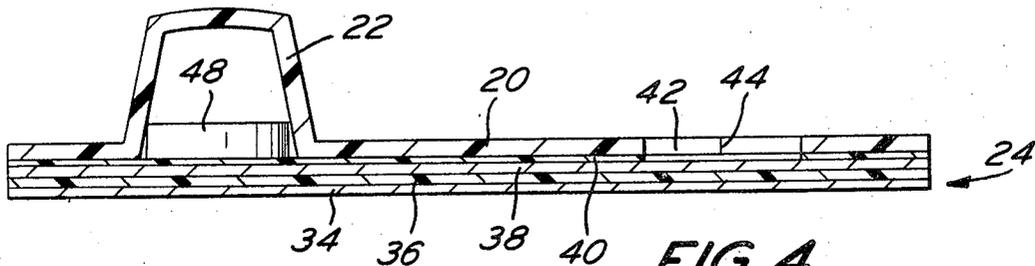
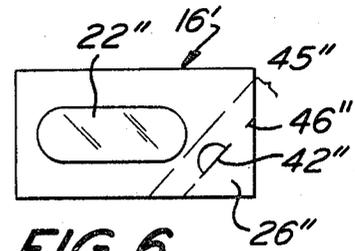


FIG. 4

TAMPERPROOF PACKAGE

This invention is directed to a tamperproof package, and more particularly, to a tamperproof package adapted to contain one or more dosages of pharmaceuticals, poisons, catalysts, etc. while at the same time being capable of complying with the rigorous standards set forth in the Poison Prevention Packaging Act of 1970, part 295. Such standards apply to a wide variety of products including conventional pharmaceutical products such as aspirin. The present invention is particularly directed to single or plural dosage packages.

The present invention has been tested on 100 adults and 200 children as provided for in said Poison Prevention Act of 1970. In accordance with the provision of said Act, at least 85 percent of the children should not attain access to the product and at least 85 percent of the adults should attain access to the product. Test results showed that 95 percent of the children tested were unable to attain access to the product and 97 percent of the adults did attain such access. This is believed to be a completely unexpected result of the present invention.

Thus, the present invention is directed to a package structurally interrelated in a manner whereby it is extremely difficult to attain access to the product unless access is attained in a predetermined manner. The package is constructed in a manner whereby a child cannot bite or tear into the package. In order to attain access to the product in the package, a transverse tear-off strip must be torn and then a laminate peeled with respect to a carrier layer.

In a specific embodiment of the present invention, a carrier layer made from a transparent polymeric plastic material such as polyvinylchloride is provided with a pocket for receiving the product such as a pharmaceutical pill. The carrier layer has a substantial thickness such as 0.0075 to 0.020 inches, so that it is extremely difficult to bite into the pocket as a means for attaining access to the pill. The carrier layer is heat-sealed or otherwise joined at the open end of the pocket to a laminate. The laminate has substantial tear strength whereby access to the product cannot be attained by tearing or biting into the laminate. The carrier layer has a tear-off strip which begins at a zone extending across the carrier layer at which location the carrier layer is not heat-sealed or otherwise joined to the laminate. When the tear-off strip is separated from the carrier, it is then possible to peel the laminate off the carrier and thereby attain access to the product in the pocket.

It is an object of the present invention to provide a novel tamperproof package.

It is another object of the present invention to provide a tamperproof package which is acceptable to the trade and simultaneously complies with the rigorous standards recently adopted in connection with packaging of a wide variety of products including pharmaceuticals, poisons, catalysts, cleaning compositions, etc.

It is another object of the present invention to provide a single dosage package which is structurally interrelated in a manner so as to make it extremely difficult for children to attain access to a product in the package.

Other objects will appear hereinafter.

For the purpose of illustrating the invention, there is shown in the drawings a form which is presently pre-

ferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIG. 1 is a partial perspective view of a strip of single dosage packages in accordance with the present invention.

FIG. 2 is a perspective view of a single dosage package in accordance with the present invention when initiating opening of the package.

FIG. 3 is a perspective view of a partially opened single dosage package in accordance with the present invention.

FIG. 4 is a sectional view taken along the line 4-4 in FIG. 1.

FIG. 5 is a perspective view of a single dosage package in accordance with another embodiment of the present invention.

FIG. 6 is a plan view of another single dosage package.

Referring to the drawing in detail, wherein like numerals indicate like elements, there is shown a strip designated generally as 10 of single dosage packages in accordance with the present invention designated as 12, 14, 16 and 18. Each of the packages 12-18 is identical. Accordingly, only package 16 will be described in detail.

The package 16 includes a carrier layer 20. The carrier layer 20 is preferably a transparent polymeric plastic material such as polyvinylchloride, but may be made from a wide variety of polymers and copolymers including polystyrene, nylon, etc. The carrier layer preferably has a substantial thickness of about 0.0075 to 0.020 inches so that a child will have extreme difficulty in biting or tearing into the package 16 by way of the carrier layer 20.

The carrier layer 20 is provided with a pocket 22 which may be attained by conventional vacuum forming methods. The carrier layer 20, has a surface thereof heat-sealed or otherwise adhesively joined to a laminate designated generally as 24 which overlies and covers the pocket 22. The construction of laminate 24 will be described in detail hereinafter. The carrier layer 20 is also provided with a tear-off strip 26.

The packages 12 and 14 are separated by a perforation line 28 extending through the respective carrier layers and laminates. The packages 14 and 16 are separated by a perforation line 30 extending through the respective carrier layers and laminates. The packages 16 and 18 are separated by a perforation line 32 extending through the respective carrier layers and laminates. The strip 10 is preferably constructed whereby a single carrier layer is first formed having respective pockets, and then joined to a single laminate 24. Thereafter, the perforation lines 28, 30 and 32 are applied to thereby delimit the respective single or multiple dosage packages 12, 14, 16, 18, etc.

As shown more clearly in FIG. 4, the laminate 24 is comprised of a plurality of layers heat-sealed or otherwise adhesively joined together. The lowermost layer of the laminate 24 is preferably a layer 34 of paper such as 30 lb. paper or No. 7 point paperboard. By making the layer 34 of paper, it is possible to type or otherwise print thereon data with respect to the specific single dosage package 16 as disclosed in copending patent application Ser. No. 113,404 filed Feb. 8, 1971 for SINGLE DOSAGE PACKAGING APPARATUS, now U.S. Pat. No. 3,754,374.

The next layer, above the paper layer 34, is a layer 36 of tough tear-resistant plastic such as polyethylene terephthalate sold commercially under the brand name Mylar, or reinforced acetal resins sold commercially under the brand name Delrin. By application of heat and pressure, layer 34 may be heat-sealed or otherwise adhesively joined to the layer 36.

The next layer of the laminate 24 above the layer 36 is a layer of material such as aluminum foil 38. The upper surface of the foil layer 38 is provided with a coating of vinyl designated as 40. By application of heat and pressure, the carrier layer 20 becomes heat-sealed to the layer 38 which in turn is heat-sealed or otherwise adhesively joined to the layer 34. In a preferred embodiment of the present invention, the entire thickness of the laminate 24 is approximately 0.003-0.005 inches thick.

The layer of vinyl 40 may be applied to the upper surface of the foil layer 38 in a manner so as to leave an exposed zone transversely across the layer 38 so that there will be a nonsealed zone 45 between layers 20 and 38. The width of unsealed zone 45 is defined by the parallel dotted lines. The width of the zone 45 corresponds generally to the transverse dimensions of a hole 42 which is die cut or otherwise applied to the carrier layer 20. The hole 42 is substantially equidistant from the perforation lines 30 and 32 which define side edges or side edges of transverse the package 16.

The non-sealed zone 45 may also be attained by application of heat and pressure at two locations separated by the zone 45 at which location no heat or pressure is applied. In this manner, the layer of vinyl 40 may be applied uniformly across the width and length of the upper surface of foil layer 38.

The carrier layer 20 is provided with a perforation cut, slit or nick 44 on opposite sides of the hole 42 approximately in the center of the unsealed zone 45. A similar cut, nick or perforation 46 is applied so as to extend from but not across the perforation lines 30 and 32. A cut, nick or perforation 46 does extend across the first perforation line of the strip 10 such as perforation line 28. In this manner, it is extremely difficult to tear more than one package at a time in the strip 10. Such cuts, perforations, or nicks facilitate tearing the carrier layer 20 so as to separate therefrom the tear-off strip 26. When the tear-off strip 26 has been separated from the carrier layer 20 by tearing along the line defined by the perforations, cuts, or nicks 44 and 46 which lie in the unsealed zone 45, the resultant components when partially torn in the direction of arrow 47 will assume the disposition shown in FIG. 2. The strip 26 can only be torn in one direction starting at the cut, nick, or perforation 46. The paper layer 34 may be provided with an arrow to indicate the direction of tear.

Thereafter, it is possible to place one's thumbnail into the hole 42 and peel back the laminate 24 to thereby provide access to the product 48 within the pocket 22. See FIG. 3. Because of the toughness of the layer 36, it is not possible to tear across the laminate 24 at a location where it is sealed to layer 20. Thus, in order to attain access to the product 48, which may be any one of the products set forth above, it is necessary to tear the carrier layer 20 and laminate 24 partially or wholly along the line defined by elements 46 and 44 in the unsealed zone 45. Thereafter, a portion of the hole 42 facilitates the initiation of peeling back the laminate from the carrier layer 20.

In FIG. 5, there is illustrated a multiple dosage package in accordance with the present invention designated generally as 12'. The package 12' is identical with the package 12 except as will be made clear hereinafter. The pocket 22' is elongated so as to accommodate a cylindrical capsule or a plurality of products 46'. Instead of being circular, the hole 42' is semicircular. This results in the unsealed zone 45' being narrower than the unsealed zone described above. Otherwise, the package 12' is identical with the package 12.

In FIG. 6, there is set forth another embodiment of the present invention which is identical to that described above and shown in FIGS. 1-4 except as will be made clear hereinafter. The package 16' includes an elongated pocket 22'' for receiving a capsule. The unsealed zone 45'' extends transversely across the package between two adjacent sides so as to define a triangular shaped tear-off strip 26''. Also, hole 42'' is generally semi-circular with a nick, cut or perforation at opposite locations like hole 42'.

The data which may be typed or otherwise printed or applied to the layer 34 may include the name of the product, the name of the patient to receive any such pharmaceutical product, the date, any other products which must be taken at the same time that the product in the package must be taken, etc. Thus, each of the packages described may be personalized for the recipient.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A package comprising

- a. a carrier layer having a generally rectangular shape, said layer having a pocket, said pocket being open on one side of said layer, said pocket containing a product;
- b. a laminate having a surface sealed to said one side of said layer and covering said pocket, said seal being between said layer and laminate surface except for an unsealed zone which extends between two edges of said layer from edge to edge, said zone containing a hole only in said carrier layer,
- c. said layer and laminate having a tear-off strip, at least a part of said hole being between said pocket and said strip,
- d. means weakening said layer and said laminate in a direction which is generally parallel to said zone and intersects or is tangent to said hole for initiating tearing said laminate and layer in said direction along said zone,
- e. and said laminate including a tough polymeric reinforcing plastic layer between and bonded to a layer of paper and a layer of metal foil, said laminate surface being on said metal foil layer.

2. A package in accordance with claim 1 wherein said weakening means includes a cut in said carrier layer at two locations contiguous with the hole, said cuts being aligned with one another and generally parallel to said zone.

3. A package in accordance with claim 1 wherein said carrier layer is a polymeric plastic layer having a thickness of about 0.007-0.02 inches thick, said carrier

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layer being a transparent polymeric plastic, and said product being a pharmaceutical product.

4. A package in accordance with claim 1 wherein said zone extends across two adjacent edges of said carrier layer so that said strip is generally triangular in shape. 5

5. A package in accordance with claim 1 including a. a plurality of packages having their carrier layers and laminates jointed side-by-side and delineated by rows of generally parallel perforations, said zone on one carrier layer being aligned with the corresponding zone on the next adjacent carrier layer, 10

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b. means to prevent simultaneous tearing of more than one tear-off strip, said means including a cut extending transversely across one of said rows of perforations which delineates the last package of a strip with respect to the remainder of the strip, and the side edge of said last package of the strip which is opposite said one row of perforations being free from any cut or perforation, whereby it is necessary to separate said last package from the strip along said one row of perforations before initiating tearing of the tear-off strip thereon.

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