A method and apparatus for breaking tablets or pills into separate, generally equal sized portions. A container for the tablets has a surface with an elongated, generally straight, raised ridge member extending along the container surface. A tablet or pill is placed on the topmost surface of the raised ridge with the outer tablet edges extending along the container surface. A tablet or pill is placed on the topmost surface of the raised ridge with the outer tablet edges extending outwardly beyond the raised ridge and spaced above the container surface. Generally equal forces are simultaneously exerted downwardly on the outer tablet edges urging the outer edges downwardly toward the container surface breaking the tablet into two generally equally sized tablet portions.
METHOD AND APPARATUS FOR BREAKING TABLETS OR PILLS

FIELD OF THE INVENTION

[0001] This invention relates to a method and apparatus for breaking pills or tablets.

BACKGROUND OF THE INVENTION

[0002] The present apparatus is a container or package having a generally straight, raised, integrally-formed breaker ridge extending along a surface of the container or package. The method comprises placing a tablet along the top-most surface of the breaker ridge and exerting downward force on the outer edges of the tablet. The pill is broken along the longitudinal ridge into two separate generally equal portions.

[0003] Unlike prior art tablet splitters or pill cutters, the present apparatus and method utilizes no cutter or blade. Such prior art blades required a number of special elements to protect the user from the sharp blade edge when the cutter is in use. Examples of such cutter type pill splitters include those taught in U.S. Pat. Nos. 7,458,500; 6,974,525; 6,968,987; and 6,739,488. All of these prior art devices use a sharp cutter or fulcrum to engage the tablet and “cut” the tablet.

[0004] The present inventive embodiment does not require and even teaches away from any sharp cutter edge or blade to engage the pill or tablet. Thus, the breaker ridge may be integrated into an outer surface of a standard tablet or pill container without exposing the user to a sharp cutter edge or blade. In one embodiment, the breaker ridge may be adapted to extend along the inside surface of a container cap. In other embodiments, such as standard envelope-style pill pockets or multi-tablet foil packages, a stiff breaker ridge may extend along the outer surface of the package raised slightly above the package surface. As will be understood from the description below, the breaker ridge has a smooth, arcuate uppermost curved apex surface only slightly raised above the outer surface of the container. The ridge must only be sufficiently raised to enable downward forces to be applied to the outer edges of a tablet and the outer edges to be extended below the topmost surface of the breaker ridge. Thus, the tablet will crack and break along the top of the ridge into two separate portions.

[0005] Because the present embodiment may be integrated into the original tablet packaging or the product container, no separate pill storage or cutter container is required. No replacement blades are necessary. The present apparatus may be entirely disposable.

SUMMARY OF THE INVENTION

[0006] The present invention is a method and apparatus for breaking tablets or pills into separate, generally equal sized portions. Typically, the tablets or pills that are broken are pharmaceutical tablets or pills, but it should be understood that any tablet or pill, including but not limited to non-pharmaceutical products, vitamins, veterinary products and even hard candies and the like may be broken. A container for the tablets has a surface with an elongated, generally straight, raised ridge member extending along the container surface. A tablet or pill is placed on the topmost surface of the raised ridge with the outer tablet edges extending outwardly beyond the raised ridge and spaced above the container surface. Generally equal forces are simultaneously exerted downwardly on the outer tablet edges urging the outer edges downwardly toward the container surface breaking the tablet into two generally equally sized tablet portions. A tablet guide member may be provided to facilitate positioning the tablet on the breaker ridge.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a perspective view of the present apparatus with a breaker ridge integral with the cap surface of a container.

[0008] FIG. 1A is a perspective view of the present apparatus with a breaker ridge integral with the inside cap surface of a container.

[0009] FIG. 2 is a perspective view of the present apparatus with a breaker ridge integral with the bottom surface of the container.

[0010] FIG. 3 is a perspective view of the present method showing a tablet received on the topmost surface of a breaker ridge ready for force to be applied to the outer opposite edges of a tablet.

[0011] FIG. 4 illustrates a broken tablet urged downwardly from the smooth, arcuate topmost apex surface of the breaker ridge.

[0012] FIG. 5 is a top perspective view of a tablet guide affixed to the container surface for cooperation with the smooth, arcuate topmost apex surface of the breaker ridge.

[0013] FIG. 5A illustrates a tablet urged into the guide and received on the topmost apex surface of the breaker ridge.

[0014] FIG. 6 illustrates a perspective view of an embodiment of the apparatus on the outer surface of an envelope-type tablet container.

[0015] FIG. 6A illustrates a perspective view of an embodiment of the apparatus on the outer surface of a foil tablet package (a multi-tablet package).

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Reference is made to the drawings which are a part of the disclosure of this invention.

[0017] FIG. 1 illustrates a perspective view of the present application 10 having a generally elongated, straight, raised, ridge member 12 extending laterally across an outside surface of a cap 14 of a tablet or pill container 16. It should be understood that, while the drawings and description herein often refer to the standard, cylindrical, plastic pharmaceutical pill container or vial, the invention is applicable to most containers for tablets and pills. This includes envelope-type packages, foil-type containers, pill packers, hinged container, pill boxes, and the like.

[0018] In FIG. 1, a child-proof cap 14 has a raised collar or outer ring 15 to facilitate opening the container. Some caps require a downward push on the cap while it is being twisted in order to open the container. The collar or ring 15 creates a recessed surface portion 18 in the outer surface of the cap. FIG. 1A illustrates a breaker ridge 12a disposed on the inner surface of the cap 14.

[0019] The raised ridge member 12 extends only slightly above this recessed surface 18. In some embodiments, the topmost apex surface 20 is approximately 1/8" in height, while it may extend to as high as 3/16" in circumstances when the recess depth is 1/4". As may be seen in FIG. 1, the top
Surface 20 is a generally smooth, arcuate curvature presenting a non-cutting surface. The length of the ridge 12 may be from \( \frac{1}{4}^\circ - \frac{1}{2}^\circ \) depending on the diameter of the cap 14.

FIG. 1 also illustrates an embodiment in which a breaker ridge 21 may be integrated into an outer surface of the container along a side wall 22 when the container is being manufactured.

Alternatively, a breaker ridge 23 may be formed into a surface 25 in the recessed bottom portion 24 of a container 26 as shown in FIG. 2. Again, the length and height of the raised breaker ridge 23 is dependent on the container size or the size of the tablet (as discussed below).

The method of the present invention comprises obtaining a container for a pill or tablet as shown, for example, in FIGS. 1 and 2, having a surface 16, 18, 25 with an elongated generally straight, raised ridge member 12, 21, 23 extending along the surface. The ridge may be integrally formed into the container or carton along the outer side walls, or inner closure flaps, or the vial cap during the manufacturing process or it may be applied to such surfaces with any acceptable fastening process, including adhesive, glues, heat fusion, and sonic welding.

The ridge has a generally smooth, arcuate topmost surface 20 as shown in FIG. 3. A tablet 30 is placed on or received on the topmost surface 20 of the ridge with the outer tablet edges 32, 34 extending outwardly beyond the topmost surface of the ridge and spaced above the container surface 16, 18, 25. FIG. 3 shows generally equal forces \( F_1 \) and \( F_2 \) being simultaneously exerted to the outer tablet edges 32, 34 and urging the outer tablet edges downward to the container surface.

Most pills or tablets utilized in the present invention are sufficiently rigid and brittle that they snap or break into generally equally sized tablet portions \( T_1 \) and \( T_2 \) upon the application of the downward as shown in FIG. 4. It should be noted that the raised ridge member does not cut the tablet as prior art devices do.

In other embodiments of the invention, a tablet guide member 40, as shown in FIG. 5, may be added. The guide 40 may be U or V-shaped and extends higher above the container surface 16 than does the topmost surface 20 of the ridge member 12. The "open" shape of the guide allows a tablet 30 to be slid between the side walls 42, 44 and urged against the front wall 46 when received or placed on the topmost surface 20 of the ridge.

As seen in FIG. 5A, the outer edges 32, 34 of the tablet extend outwardly from the ridge 12 and are spaced above the container surface 16. The outer edges 32, 34 do not rest on the top of the side walls 42, 44 or the front wall 16 of the guide member 40. Thus, when forces \( F_1 \) and \( F_2 \) are applied to the tablet outer edges, the edges are urged downwardly snapping the tablet into portions \( T_1 \) and \( T_2 \).

In those embodiments (see FIGS. 6 and 6A), where the container is an envelope-type package 50 or a multi-tablet foil package 52, a breaker ridge 12 may be formed into or affixed to the outer surface 16 of the package. While not illustrated, it should be understood that a tablet guide member may be added to the packages 50, 52 where appropriate. Further, a ridge could be formed on an inner surface of the envelope and urge the outer flexible packaging surface to have a raised ridge 12 upon which the tablet may be placed and broken as shown in FIG. 6A.

Although the invention has been described in connection with the preferred embodiment, it is not intended to limit the invention's particular form set forth, but on the contrary, it is intended to cover such alterations, modifications, and equivalents that may be included in the spirit and scope of the invention as defined by the appended claims.

1. A method for breaking a tablet having opposing outer tablet edges into separate portions comprising the steps of: obtaining a container for said tablet, said container having a surface with an elongated, generally straight, raised, ridge member extending along said surface; placing said tablet on a topmost surface of said raised ridge with said outer tablet edges extending outwardly beyond said raised ridge and spaced above said container surface; simultaneously exerting generally equal forces to said outer tablet edges urging said outer tablet edges downward toward said container surface; and breaking said tablet into two generally equally sized tablet portions.

2. The method of claim 1, wherein said raised ridge member extends along an outer surface of a cap of said container.

3. The method of claim 1, wherein said raised ridge member extends along an inner surface of a cap of said container.

4. The method of claim 1, wherein said raised edge member extends along a recessed bottom portion of said container.

5. The method of claim 1, wherein said container is selected from the group consisting of a generally cylindrical tablet bottle, a tablet carton, an envelope tablet package, and a foil tablet package.

6. The method of claim 1, wherein said container further comprises a tablet guide member affixed to said container surface and cooperating with said raised ridge member to facilitate placement of said tablet along said ridge member, said tablet guide having an uppermost surface extending above said topmost surface of said ridge member and positioned outwardly beyond said outer tablet edges when said tablet is placed upon said topmost surface of said raised ridge member.

7. The method of claim 1, wherein said topmost surface of said raised ridge member is a generally smooth arcuate, non-cutting surface.

8. An apparatus for breaking a tablet comprising a container for said tablet having an integral, elongated, generally straight, raised ridge member extending along a surface of said container, said raised ridge extending upwardly from said surface and adapted to receive said tablet along a topmost ridge surface with opposite outer tablet edges extending outwardly from said raised ridge and spaced above said container surface, said outer tablet edges adapted to receive simultaneously generally equal downward forces sufficient to break said tablet.

9. The apparatus of claim 8, further comprising a tablet guide member affixed to said container surface and cooperating with said raised ridge member to facilitate receipt of said tablet along a topmost surface of said ridge member to facilitate receipt of said tablet along a topmost surface of said ridge member and positioned outwardly beyond said outer tablet edges when said tablet is received on said topmost surface of said raised ridge member.

10. The apparatus of claim 9, wherein said topmost surface of said raised ridge member is a generally smooth, arcuate, non-cutting surface.

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