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### (54) A child resistant spout

(57) The present invention provides a package (10) for containing tablets (1). The package comprises a dispensing opening (12). The dispensing opening further comprises a hinged spout (20) for dispensing the tablets, whereby the hinged spout (20) provides a child resistant closure to the dispensing opening (12). A hinge connects the hinged spout (20) with the dispensing opening (12). The package further comprises a rib

(41) engaging a corresponding groove (42) when the hinged spout (20) is in its closed position. The engagement between the rib (41) and the corresponding groove (42) is achieved between the hinged spout (20) and the part of the package immediately surrounding the dispensing opening (12) opposite the hinge of the hinged spout (20).

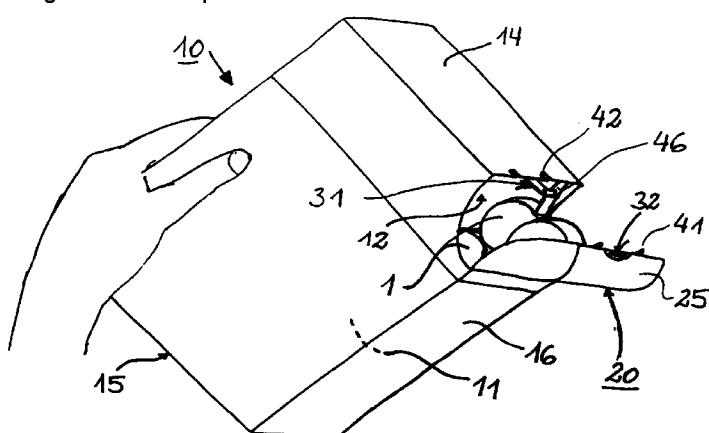


FIG. 1a

**Description****Field of the Invention**

The present invention relates to a reinforced child resistant spout of a package. 5

**Background of the Invention**

Child resistant packaging is understood to be an important concept for preventing inadvertent access by children, for example, to potentially dangerous liquid or dry products. The packaging industry is in need to prevent children the access to detergent tablets which may be ingested by children. This means that especially the apertures to the interior of the packages have to be protected from opening by children. Detergent compositions formed in non particulate solids such as bars or tablets or briquettes are known in the art. In the following, the term "tablet" will refer to any form of non particulate solids. The detergent tablets available on the market are generally sold packed in containers in a loose way or individually wrapped in bags. 10

Due to the difficulty in opening child resistant packages, many persons, especially elderly adults which may also have impaired strength and dexterity, tend to prefer a non-child resistant package. Alternatively, when dangerous products are purchased in child resistant packages by adults, the child resistant package is often not reclosed in order to defeat the child resistant feature. As a result, the danger of child poisonings may increase in the homes. 20

The aforementioned problems are generally recognised in the packaging industry. The co-pending European patent application No. 95308468.8 describes a package for containing and dispensing detergent tablets. The dispensing of the tablets is foreseen through a dispensing opening comprising a hinged spout. Child resistant features on the hinged spout are also foreseen to prevent the opening of the hinged spout by children. Such child resistant spouts are obtained by a double or coordinated action on the spout to open the spout itself. This child resistant spout is simple to use for adults and a good deterrent to opening for children. 30

Nevertheless, it has been found that by applying a sufficient force and by performing a different opening movement, instead of the recommended actions, it is possible to open the child resistant spout. For example, it has been found that by applying a twisting force on some spouts, the spouts can be opened without performing the double or coordinated actions. This twisting force may be applied by some children by trial and error succeeding eventually to open the spout. 40

It is therefore an object of the present invention to provide a hinged spout for dispensing tablets providing an improved child resistance against the opening of the spout. 50

**Summary of the Invention**

The present invention provides a package for containing tablets. The package comprises a dispensing opening. The dispensing opening further comprises a hinged spout for dispensing the tablets, whereby the hinged spout provides a child resistant closure to the dispensing opening. A hinge connects the hinged spout with the dispensing opening. The package further comprises a rib engaging a corresponding groove when the hinged spout is in its closed position. The engagement between the rib and the corresponding groove is achieved between the hinged spout and the part of the package immediately surrounding the dispensing opening opposite the hinge of the hinged spout. 15

**Brief Description of the Figures**

Figure 1a is a perspective front view of an embodiment of the package according to the present invention. Figure 1b is a perspective front view of the top part of the package of Figure 1a. 20

Figures 2a and 2b are cross sectional side views of further embodiments of the child resistant means according to the present invention. 25

Figures 3a and 3b are cross sectional top views of an embodiment of the package according to the present invention. 30

Figure 4a is a top view and Figure 4b is a side view of a hinged spout for the package according to the present invention. 35

Figures 5a, 5b, 6a and 6b are front views of an embodiment of the package according to the present invention without the hinged spout. 40

Figures 7a and 7b are perspective front views of a detergent tablet which may be used in any of the embodiments of packages according to the present invention. 45

**Detailed Description of the Invention**

Figure 1a shows a package (10) according to the present invention. The package comprises a hollow body (11) and a dispensing opening (12). The hollow body preferably comprises a top wall (14), a bottom wall (15) opposed to the top wall and a surrounding wall (16) surrounding the hollow body and connected to the top and the bottom wall. The bottom wall is the part of the package upon which the package stands in its upright position. Preferably, the external shape of the hollow body may be substantially rectangular. Preferably, when the package stands in its upright position, the dispensing opening is located on the upper portion of the surrounding wall, as shown in Figure 1a, or on the top wall. 50

Preferably, the inside of the hollow body (11) is filled with tablets. In the following any form of non particulate solids such as bars or tablets or briquettes will be encompassed by the term "tablet" (1). Pharmaceuticals 55

in tablet form are, for example, tablets according to the present invention. Preferably, the tablet is made of a detergent composition, specifically a detergent composition for washing of laundry or dishes. The tablet may have any shape or dimension. Preferably, the solid, non particulate tablet is symmetrical to ensure the uniform dissolution of the tablet in the wash liquor or in other specific environments.

According to the present invention the detergent tablet (1) may comprise any ingredients known in the art. Such ingredients may include surfactants, suds suppressers, beaches, chelants, builders, enzymes, fillers and perfumes.

Preferably, the detergent composition of the tablet (1) is prepared in its granular or particulate form and then formed into tablets of the desired shape and size by any one of the methods known in the art. Suitable methods include compression, extrusion and casting. The detergent composition may be homogeneously distributed throughout the tablet or may comprise distinct layers of certain detergent ingredients. Preferably, the shape of the detergent tablet is cylindrical, as shown, for example, in Figure 7a. In this case the dimensions of the detergent tablet are defined by the diameter (d) and by the height (h). Usually, detergent tablets have a cylindrical shape with the diameter being greater than the height of the tablet. Another possible shape of the tablet is rectangular, as shown, for example in Figure 7b. In this case the dimensions of this detergent tablet are defined by the length (L), by the width (w) and by the height (h). Usually, in a rectangular tablet the length is the greatest dimension and the width is equal to the height.

As a preferred option, the top wall (14) of the hollow body (11) comprises a refilling opening. The refilling opening allows to refill the hollow body with new tablets (1) once the package is emptied. Therefore, the dimension of the refilling opening corresponds at least to the dimension of a tablet. As a preferred option, the refilling opening is closed by a closure, more preferably by a child resistant closure. The child resistant closure is adapted to prevent the removal of the tablet (1) through the refilling opening by infants and children. In particular, as used herein, the wording "child resistant closure" refers to any mechanism whereby access to the tablet is reduced so that the tablet cannot be readily removed, especially by infants and children. An example of a child resistant closure is a closure on which the user has to apply a double or co-ordinated action on the closure to open the closure. For example, such child resistant closures are press-and-turn or press-and-pull closures known by the person skilled in the art.

The dispensing opening (12) is dimensioned in such a manner to enable the passage of at least one tablet. Preferably, the dispensing opening is made of a rectangular cut through the thickness of the surrounding wall (16) and/or top wall (14). For a cylindrical tablet as described above, the dispensing opening is made pref-

erably of a cut having the length equal or greater than the diameter (d) and the width equal or greater than the height (h) of a cylindrical tablet. For a rectangular tablet as described above, the dispensing opening is made preferably of a cut. This cut has the length equal or greater than the length (L) of a rectangular tablet, whereby the width of this cut is equal or greater than the width (w) or height (h) of a rectangular tablet. Most preferably, the dispensing opening is located on that part of the surrounding wall having the smallest dimension, as shown in Figure 1a.

As a preferred option, the hollow body (11) of the package comprises a funnel around the dispensing opening (12) to convey the tablets from the interior of the hollow body towards the dispensing opening. This funnel should be made in such a manner that the tablets are prevented to jam in the interior of the hollow body and in front of the dispensing opening blocking the exit through the dispensing opening for other tablets. This funnel may be, for example, conically shaped located in the interior of the hollow body having the smallest dimension in front of the dispensing opening. This funnel directs the tablets towards the dispensing opening in such a manner that the tablets pass through the dispensing opening without blocking each other.

As another preferred option, the internal dimension of the hollow body (11) is such that the tablets are orderly spaced one to each other. This also prevents that the tablets jam in the interior of the hollow body and in front of the dispensing opening blocking the exit through the dispensing opening for other tablets. This is achieved by limiting the internal width (Fig. 3a, W<sub>i</sub>) of the hollow body to a width which is smaller than the largest dimension of the tablets. The "internal width" is hereinafter defined to be shortest distance between adjacent walls in a direction along the drawn line (5) in Figure 3a. Figure 3a is a cross sectional cut of a package according to the present invention on a plane parallel to the bottom wall (15) of the package.

For example, when the tablet (1) has a cylindrical-type of shape as described above, such a detergent tablet may only enter into the hollow body (11), if the tablet is placed onto the bottom wall (15) standing on the surface having the smallest dimension, i.e. its height (Fig. 7a, h). This means that the tablet can never lay on the surface defining the diameter (d) of the tablet. Consequently, the tablets are ordered in a row, as shown, for example, in Figure 3a. As hereinafter referred to, a "row of tablets" is meant to be a row of tablets standing upon the bottom wall (15) or upon another row of tablets whereby each tablet stands on the part of the tablet having the smallest dimension, i.e. on the height (h) for the tablets defined before. Therefore, the internal width is a distance perpendicular to the row.

It has been found that this way of positioning the tablets (1) reduces the friction forces acting onto the tablets. Reducing the friction forces permits an easy dispensing of tablets from the package avoiding that tab-

lets block each other from exiting the package. This is particularly important when the tablets are big and/or heavy where the friction forces between the tablets are substantially high. For example, friction forces between tablets may influence the dispensing of the tablets from the package when the largest dimension of the tablet is greater than 1 cm and/or the weight of the tablet is greater than 10 g. The roughness of the external surfaces of the tablets also contributes to increase the friction forces between the tablets.

The friction forces between the tablets (1) are reduced in the package according to this embodiment of the present invention. Indeed, only the smallest surface of a tablet interacts with other tablets and/or with the end wall. Furthermore, when the tablet is cylindrically shaped as described before, the tablet is able to roll towards the dispensing opening which further reduces the friction. Therefore, the tablet in the hollow body cannot block other tablets contained in the hollow body from exiting through the dispensing opening.

In a preferred embodiment of the present invention the tablets (1) are orderly held in the hollow body (11) in one row within its internal width ( $W_i$ ). Other single rows may be placed on top of the lowest row starting from the row standing on the bottom wall (15) until the hollow body is filled up to the top wall (14). As another possibility, the hollow body may be such to contain more than one row of tablets parallel to each other within the internal width ( $W_i$ ), when the diameter (d) or the length of the tablet is greater than twice the height of the tablet. Indeed, the hollow body may contain, for example, two parallel rows of tablets within the internal width ( $W_i$ ), as shown in Figure 3a. Also in this case, the diameter (d) or the length of a tablet is greater than the width ( $W_i$ ) of the hollow body, the width ( $W_i$ ) being now equal or slightly greater than twice the height of a tablet. Again, these double rows of tablets are placed each over another filling up the hollow body to the top wall (14) starting from the bottom wall (15). It has been found that when the tablets are placed inside the hollow body, the tablets automatically get ordered in these single or double rows. Indeed, the tablets are forced into one of the rows by the weight of the tablets of the above rows. The same applies for more than two parallel rows of tablets when the diameter of the tablet (d) is greater than n-times the height (h) of the tablet, n being greater or equal to 2.

As a further preferred option, when two or more rows of tablets (1) are to be placed inside the hollow body, the hollow body comprises preferably at least one divider (30), as shown in Figure 3b. Figure 3b is again a cross sectional cut along a plane parallel to the bottom wall (15). The divider is perpendicular to the direction drawn by line (31) in Figure 3b. The divider starts from the bottom wall (15) up to the top wall (14). The hollow body may comprise more than one divider to contain several rows of tablets. The width (w) between the surrounding wall (16) and the divider or between each divider is smaller than the largest dimension, i.e. the

diameter or the length, of the tablet. Consequently, the dividers divide the parallel rows of tablets from each other. In this manner, the friction between parallel rows is reduced to achieve an easy and readily dispensing of the tablets. When the hollow body comprises the dividers (30), the package may preferably comprise one dispensing opening (12) enabling the tablets of each divided row to exit the package.

The dispensing opening (12) further comprises a hinged spout (20). In a preferred embodiment, as shown in Figure 4a, the hinged spout comprises a supporting wall (21). One end edge (26) of the supporting wall is connected to the package, specifically at the dispensing opening. The connection between the end edge (26) of the hinged spout and the dispensing opening is a hinge. The other edges of the supporting wall, i.e. the side edges (28) and (29) and end edge (27), are free from any attachments to the package. The hinged spout (20) is attached to the dispensing opening (12) in such a manner that a tablet exiting the dispensing opening is received by the hinged spout when the hinged spout is in its open position. For example, when the dispensing opening is located on the surrounding wall (16), the supporting wall (21) is located under the dispensing opening when the package stands in its upright position and the hinged spout is in its open position, as shown in Figure 1a.

Preferably, the hinged spout further comprises two side walls (22), more preferably two side walls and an end wall (25). The side walls and the end wall, if present, are all located on one side of the supporting wall. The two side walls are preferably located along the side edges (28) and (29) of the supporting wall. The side walls are opposed to each other along the side edges (28) and (29). The side walls may remain at the same distance from each other or the distance between the side walls may become narrower or broader towards the end wall.

The end wall, if present, is located opposed to the dispensing opening and is placed parallel to the end edge (27) or the width ( $W_s$ ) of the supporting wall, i.e. the end wall is located at least partially along the width ( $W_s$ ) of the supporting wall. For example, the end wall may be a bar, whereby each end of the bar is connected to a side wall (22). Preferably, the end wall is connected to the supporting wall and located along the end edge (27). The end wall and the side walls are inclined walls with respect to the supporting wall, and the end wall may also be inclined to the side walls. In a preferred embodiment of the hinged spout, the end wall and the side walls are perpendicular to each other and to the supporting wall. In another preferred embodiment of the hinged spout, the end wall and the side walls are connected to each other, therefore leaving no interspaces between the end wall and the adjacent side walls.

The shape and the dimensions of the hinged spout (20) are such to enable the receiving of a tablet (1) contained in the package. For example, when the package

contains cylindrical tablets, as described above, and the dispensing opening (12) has a rectangular shape the hinged spout has preferably following dimensions shown in Figures 4a and 4b. The width ( $W_s$ ) of the supporting wall (21) is preferably slightly greater than the height (h) of the tablet. This allows the tablet to stand on the surface of the tablet having the smallest dimension, i.e. its height (Fig. 7a, h). Consequently, the tablet is facilitated to exit the dispensing opening by rolling onto the supporting wall. Preferably, the width ( $W_s$ ) of the supporting wall is between about 1 times the height (h) of the tablet and 1.5 times the height (h) of the tablet, more preferably about 1.2 times the height (h) of the tablet.

The dimensions of the preferred embodiment of the hinged spout (20) further comprising the end wall (25) and the side walls (22) are such that a tablet is held onto the hinged spout. The end (25) and the side walls (22) of the hinged spout prevents that the tablet (1) exiting from the dispensing opening (12) falls from the hinged spout. Furthermore, until the tablet remains on the hinged spout, the exit of other tablets through the dispensing opening may be prevented. Indeed, the dimensions of the hinged spout may allow only one tablet to stay on the hinged spout. Consequently, other tablets are prevented to exit the dispensing opening by the tablet already staying on the hinged spout. Therefore, the hinged spout enables a one-by-one dispensing of the tablets through the dispensing opening. Furthermore, the additional end wall prevents that tablets fall uncontrollably from the dispensing opening. The user has only to grasp the tablet which is held on the hinged spout. This avoids messiness in the dispensing of tablets.

The height ( $H_s$ ) and lengths ( $L_{s,2}$ ) and ( $L_{s,3}$ ) of the side walls (22) and the end wall (25) respectively, if present, should provide a sufficient barrier which impedes the falling of the tablet from the supporting wall of the hinged spout. Consequently, the tablet is held onto the hinged spout with the help of the end and side walls. On the contrary, the height ( $H_s$ ) of the end and side walls should not impede an easy grasping of the tablet by a user. The height is the minimum distance between the supporting wall and the upper edge of the end wall or side walls. For example, when the end wall is a bar as described above, the height is the distance between the supporting wall and the upper edge of the bar. The length, however, is measured parallel to the end edge (27) or side edges (28) and (29), i.e. perpendicular to the height.

Preferably, the height (Fig. 4b,  $H_s$ ) of the side walls and the end wall is between about 0.2 times the diameter (d) of the tablet and about 1 times the diameter (d) of the tablet. Most preferably, the height ( $H_s$ ) of the side walls and the end wall is about 0.5 times the diameter (d) of the tablet. As a preferred option, the height ( $H_s$ ) of the end wall is equal to the height of the side walls. As another preferred option, the height ( $H_s$ ) of the side walls is not constant. For example, the height ( $H_s$ ) of the

side walls is curved increasing the height ( $H_s$ ), as shown for example in Figure 4b. In this case, the maximum height ( $H_{s,\max}$ ) is still within the range described before. The side walls may curve only at one end or at both ends of the side walls. The curvature may also be such to decrease the height ( $H_s$ ) of the side walls, but still within the range of the height ( $H_s$ ) as described before. The length ( $L_{s,2}$ ) of the side walls is preferably between about 0.5 times to 1 times the length ( $L_{s,1}$ ) of the supporting wall (21). The length ( $L_{s,3}$ ) of the end wall is preferably between 0.5 times to 1 times the width ( $W_s$ ) of the supporting wall (21).

The distance between the end edge (26) and the end wall (25), if present, is preferably such that substantially a complete tablet has a sufficient space on the hinged spout. In this arrangement the tablet can easily exit from the dispensing opening (12) and can be easily grasped by the user. Preferably, the distance between the end edge (26) and the end wall is between about 0.8 times the diameter (d) of the tablet and about 2 times the diameter (d) of the tablet, more preferably between about 1 times the diameter (d) of the tablet and about 1.6 times the diameter (d) of the tablet.

The hinged spout (20) closes the dispensing opening (12). This may be achieved, for example, when the hinged spout pivots around the end edge (26) hingedly connected to the package. The hinged spout is therefore closed by pushing the hinged spout into the dispensing opening (12), the hingedly connected end edge (26) acting as a hinge. The hinged spout is retained in the dispensing opening through a closing mechanism between the hinged spout and the lip of the dispensing opening. The closing mechanism keeps the hinged spout inside the dispensing opening in a closed position. An example of a closing mechanism is a snapping engagement between the hinged spout and the lip of the dispensing opening.

The hinged spout (20) according to the present invention closes the dispensing opening (12) in a child resistant manner. The child resistant means of the hinged spout is adapted to prevent the removal of the tablet (1) through the dispensing opening by infants and children. In particular, as used herein, the wording "child resistant" refers to any mechanism whereby access to the tablet is reduced so that the tablet cannot be readily removed, especially by infants and children. An example of a child resistant means is a closure on which the user has to apply a double or coordinated action on the closure to open the closure.

For example, such a child resistant means is shown in Figures 1a, 1b, 2a and 2b. The hinged spout (20) comprises a child resistant means located between the end wall (25) and the top wall (14). Preferably, the child resistant means comprises a hook (31) and holding means (32). The holding means engages with the hook in such a manner that the hook is retained by the holding means until the hook is disengaged or unhooked from the holding means. Preferably, the holding means

(32), located on the end wall (25) of the hinged spout, comprise a slot (33) in which the hook (31), located on the top wall (14), at least partially snaps into. The location of the hook and the holding means may also be reversed to each other, as shown in Figure 2a, i.e. the hook on the end wall and the holding means on the top wall. To disengage the hook from the slot, the hook is pressed until the hook exits from the slot. Furthermore, to completely open the hinged spout, the hinged spout has to disengage from the closing mechanism described before between the hinged spout (20) and the surrounding wall (16) of the package (10).

The holding means (32) may alternatively comprise a counter-hook (34), as shown in Figure 2b. The hook and counter-hook are located in opposition to each other, whereby the hook or counter-hook may be located on the end wall or the top wall. Preferably, the hook or the counter-hook may bent in such a manner that it conform to the rest of the outermost surface of the end wall or the top wall, as shown in Figure 2b. Indeed, the hook (31) of Figure 2b located on the top wall (14) comprises a bent wall (35) uniting the hook to the outermost surface of the top wall. By pressing on the top wall, the hook can be disengaged from the counter-hook (34). This child resistant means can be foreseen also for other types of closures, like screw-on or snap-on caps. The hook/holding means combination is only an example of a child resistant means according to the present invention. Other possible child resistant means suitable for the package according to the present invention, like where the spout has to be first pressed on the side wall of the spout and then pulled, are described in the co-pending European patent application No. 95308468.8.

To further improve the child resistance against the opening of the hinged spout (20) according to the present invention, the package (10) further comprises a rib (41) engaging a corresponding groove (42) when the hinged spout (20) is in its closed position. The engagement between the rib and the corresponding groove is achieved between the hinged spout and the part of the package immediately surrounding the dispensing opening (12) opposite the hinge of the hinged spout. The engagement of the rib and the groove may simply be a fitting of the rib into the groove without further engaging means. As a preferred option, to further improve the child resistance, the rib may engage into the groove with a clipping mechanism into the groove. The positioning of the rib and the groove is such that the opening of the hinged spout is prevented when the spout is twisted. Indeed, the rib engaged in the groove prevents that the hinged spout is opened in another direction different from the pivoting direction of the hinge of the hinged spout.

Preferably, the free end edge (27) of the hinged spout comprises the rib (41) engaging into the groove (42) located on the surrounding wall (16) when the hinged spout (20) is in its closed position. Alternatively, the positioning of the rib and the groove may be inter-

changed with respect to the previous configuration. When the hinged spout comprises the child resistant means given by the hook/holding means arrangement, the engagement between the rib and the groove is preferably obtained at least on one side of the hook/holding means engagement. More preferably, the hinged spout comprises two ribs or grooves on opposite sides with respect to the hook/holding means engagement. In this manner, the resistance to opening by children with a twisting movement is further improved.

The groove (42) is at least a partial cut through the thickness of the package or of the hinged spout (20). The dimensions of the groove (42) correspond to the dimensions of the rib (41) so that the rib goes completely into the groove. The groove may be located on the outermost or innermost surface of the package or on the upper or lower surface of the hinged spout. More than one groove with corresponding rib can be foreseen on the package according to the present invention. For example, the package may comprise succeeding ribs engaging into corresponding succeeding grooves.

As a preferred option, the hinged spout (20) further comprises a stopping notch (1a, 45). The stopping notch stops the opening of the hinged spout to a partial opening position of the hinged spout, as shown in Figure 1a. Several stopping notches can be foreseen, each of the stopping notches determining a different partial opening position of the hinged spout. Preferably, in a first opening position only one tablet is able to exit onto the hinged spout. This means that specifically this stopping notch ensures that tablets are dispensed one by one from the container. This is due to the inclination of the supporting wall with respect to the full opening of the hinged spout. Indeed, the higher inclination limits the available space for the tablets. It has been found that the one by one dispensing of tablets can be made independent, with the help of the stopping notch, from the length of the supporting wall of the hinged spout. Indeed, it has been found that the length of the supporting wall may be greater than 1 time the diameter (d) of the tablet, and still only one tablet is able to exit on the hinged spout when the stopping notch stops the opening of the hinged spout to a partial opening position. When the hinged spout is further opened passing over the stopping notch, the hinged spout may be stopped by another stopping notch or, finally, the hinged spout is completely opened.

The stopping notch (45) may be located in any place of the hinged spout (20) such that the hinged spout interacts with the opening (12) and stops the opening of the hinged spout to a partial opening position. Preferably, the stopping notch is positioned on the outermost surface of at least one of the side wall (22) of the hinged spout (20). Specifically, the stopping notch is an extension protruding away from the outermost surface of at least one side wall. As a preferred option, both side walls (22) may comprise each a stopping notch. As another preferred option, several stopping notches may

be provided on each of the side walls. The position of the stopping notch may also be such that the stopping notch interacts with the upper or lower portion of the opening when the package stands in its upright position.

When the package comprises divided rows of tablets, as described before with or without the dividers (30), the package may preferably comprise a hinged spout (20) for each divided row of tablets. More preferably, the hinged spouts are attached to the neighbouring hinged spout corresponding to another row of tablets forming a single hinged spout capable to dispense a multiple of tablets at the same time, as shown in Figure 1a. As an option, the opening comprises a retaining barrier (46), as shown in Figure 1a. As described before, the stopping notch (45) on the hinged spout stops the hinged spout to a partial opening position. The partial opening position of the hinged spout allows only one tablet at a time to exit onto the hinged spout from one row. At the same time, the retaining barrier (46) on the opening prevents that another tablet of another row exits on the hinged spout. The retaining barrier may, for example, be a flap extending from the top edge of the opening (12) downwards, as shown in Figure 1a. Consequently, the tablets of only one row are allowed to exit onto the hinged spout.

When the tablets of one row are finished, the hinged spout (20) may be opened further until the hinged spout is again stopped by another stopping notch (45) or the hinged spout is completely opened. In one of these opening positions, the hinged spout is sufficiently opened that the tablets of the other row are able to pass under the retaining barrier (46). The retaining barrier may also be a flap (47) hinged on a divider in the opening region, as shown in Figures 5a and 5b. The hinged flap (47) extending into the opening of the tablets of a row prevents the exit of these tablets (Fig. 5a). Once one row is emptied, the hinged flap (47) is turned to the empty row, as illustrated in Figure 5b enabling the tablets of the other row to exit on the hinged spout. Another possibility is a removable cover (48) which can be applied in the opening region of one row of tablets, as shown in Figures 6a and 6b. The removable cover may be anything which impedes the exit of tablets through the opening. For example, a removable cross, as illustrated in Figure 6a, or a adhesive sticker, as illustrated in Figure 6b may be used as a removable cover.

Preferably, the package (10) and the hinged spout are made of thermoplastic material. Such thermoplastic materials have been extensively described in the art and include vinyl chloride based resins, polymers and co-polymers derived from olefins, acrylic polymers and co-polymers, polyethylene, polypropylene, polystyrene, polyethylene terephthalate, polyethylene terephthalate glycol, or mixtures thereof. The container can be made of single or multi-layer extrusion of such materials. It can also comprise recycled thermoplastic materials. A preferred thermoplastic material used herein is polyethylene. Preferably the package is made of low cost

thermoplastic material such as polypropylene and formed by injection moulding. Alternatively, the package may be made of cardboard based material. The cardboard based material may be a multi-layer material comprising cardboard carton as the material giving rigidity to the package. In this case, the hinged spout may be made also of cardboard material or of other materials like a thermoplastic material as described before or of a metal material. Aluminium is a possible metal material for the hinged spout.

## Claims

1. A package (10) for containing tablets (1), the package comprising a dispensing opening (12), the dispensing opening further comprising a hinged spout (20) for dispensing the tablets, the hinged spout (20) providing a child resistant closure to the dispensing opening (12), a hinge connecting the hinged spout (20) with the dispensing opening (12), characterized in that the package further comprises a rib (41) engaging a corresponding groove (42) when the hinged spout (20) is in its closed position, the engagement between the rib (41) and the corresponding groove (42) being achieved between the hinged spout (20) and the part of the package immediately surrounding the dispensing opening (12) opposite the hinge of the hinged spout (20).
2. A package according to claim 1 characterized in that the hinged spout (20) comprises the rib (41) and the part of the package immediately surrounding the dispensing opening comprises the groove (42).
3. A package according to claim 2 characterized in that the groove (42) is on the outermost surface of the package.
4. A package (10) according to any of the preceding claims characterized in that the hinged spout (20) comprises a supporting wall (21), side walls (22) and an end wall (25), the end wall (25) being located on the same side of the supporting wall as the side walls and at least partially along the width ( $W_s$ ) of the supporting wall (21) such that the side walls (22) and the end wall (25) retain a tablet onto the supporting wall of the hinged spout.
5. A package according to any of the preceding claims characterized in that the end wall (25) and the side walls (22) are connected to each other.
6. A package according to any of the preceding claims characterized in that the hinged spout further comprises a stopping notch (45).
7. A package according to claim 6 characterized in

that the dispensing opening (12) comprises a retaining barrier (46).

8. A package according to any of the preceding claims characterized in that the package comprises a funnel around the dispensing opening (12) to convey the tablets one-by-one from the interior of the package towards the dispensing opening (12). 5
9. A package according to any of the preceding claims characterized in that the package further comprises dividers (30) separating parallel rows of tablets (1) from each other. 10
10. A package according to any of the preceding claims characterized in that the package further comprises a refilling opening. 15

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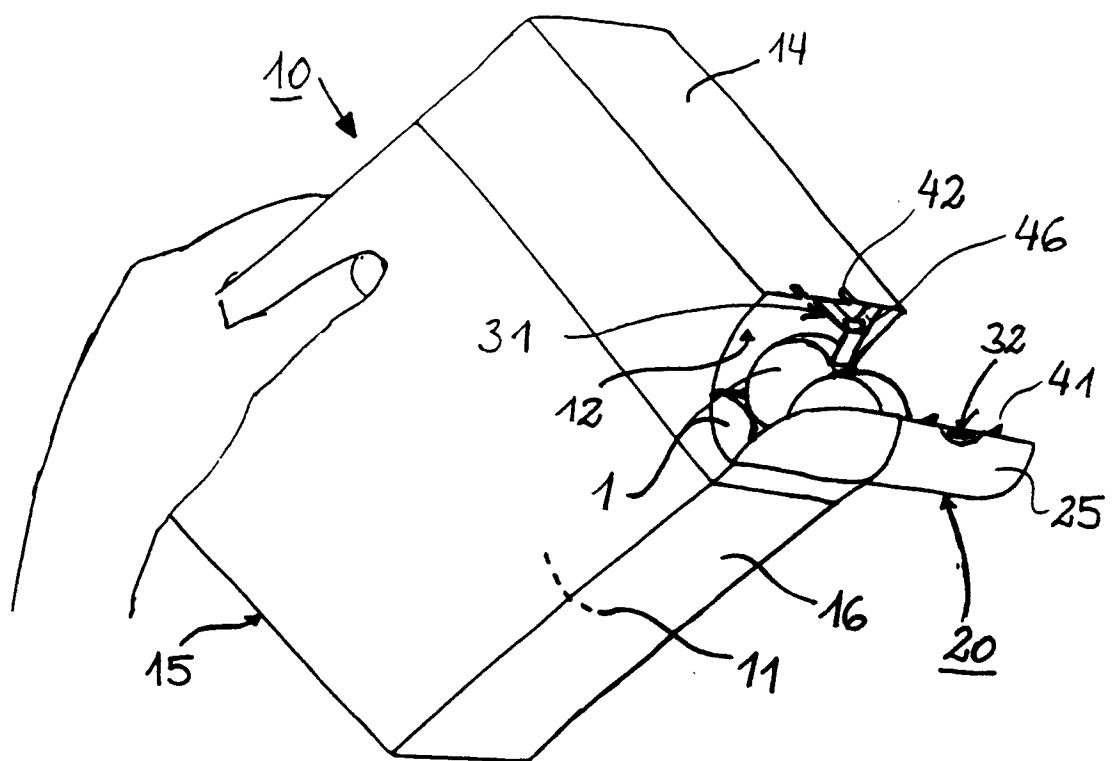


FIG. 1a

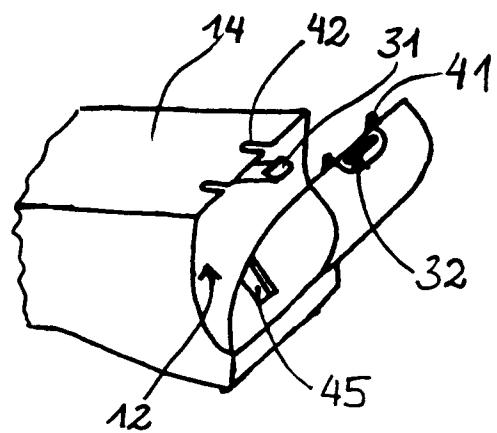


FIG. 1b

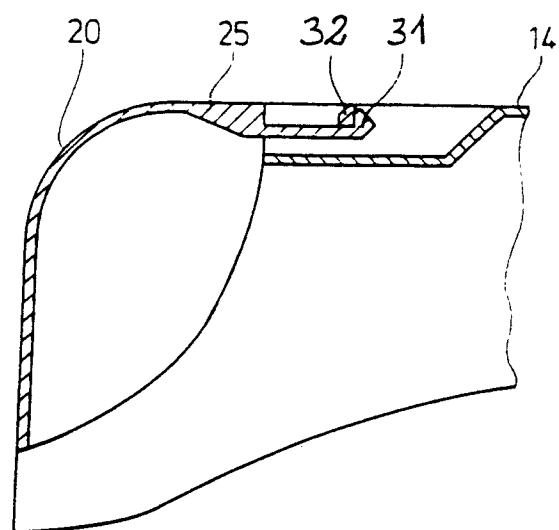


FIG. 2a

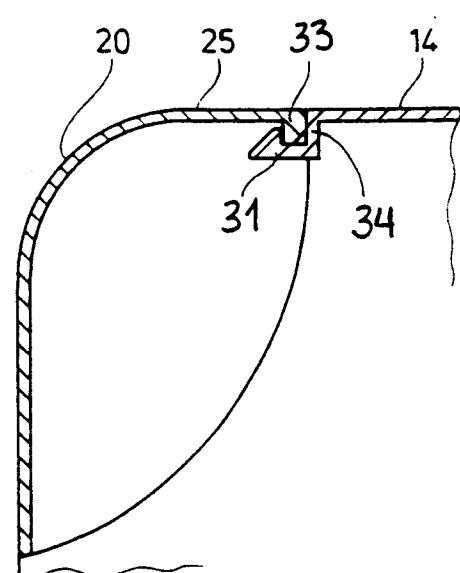
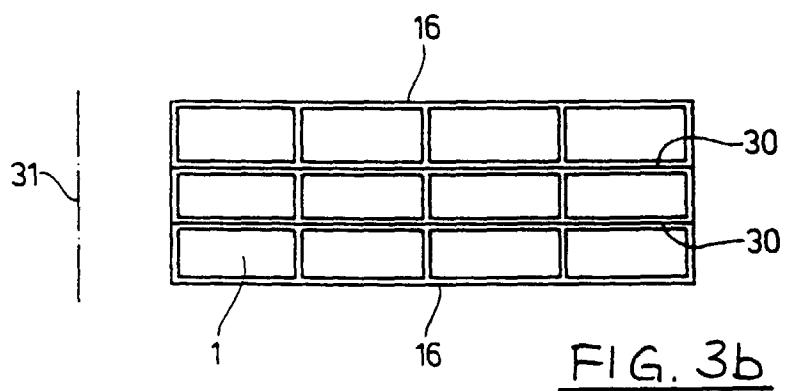
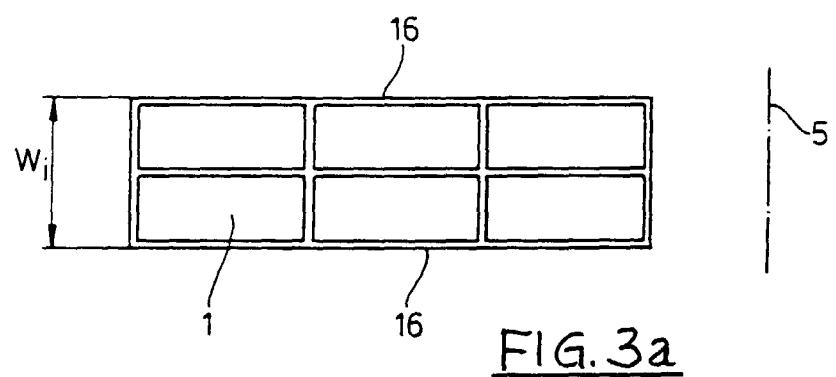


FIG. 2b



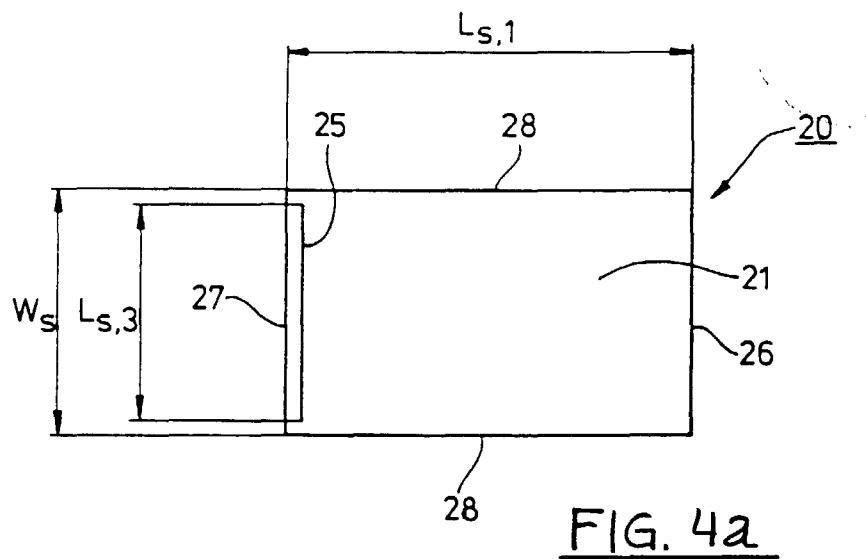


FIG. 4a

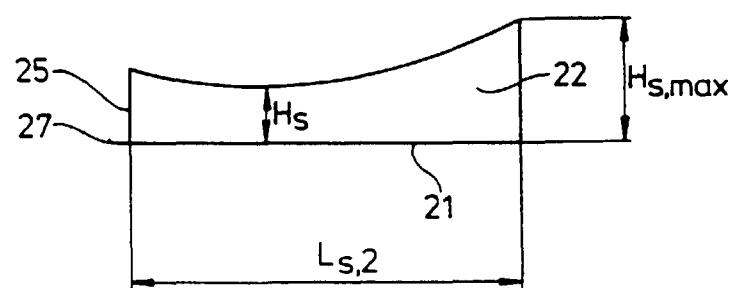


FIG. 4b

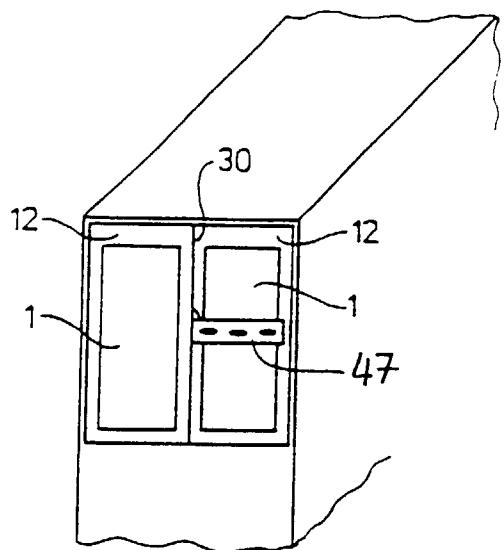


FIG. 5a

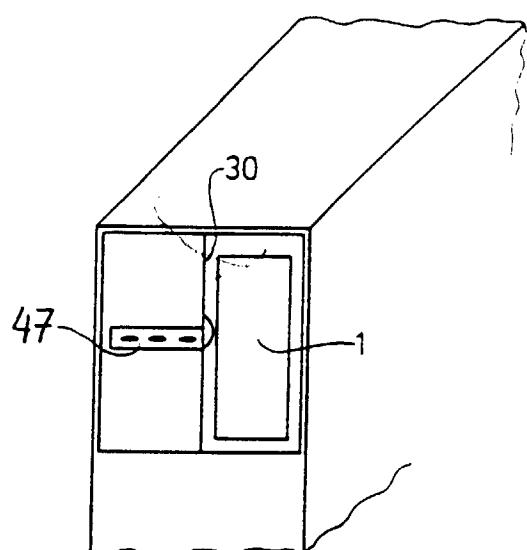


FIG. 5b

FIG. 6a

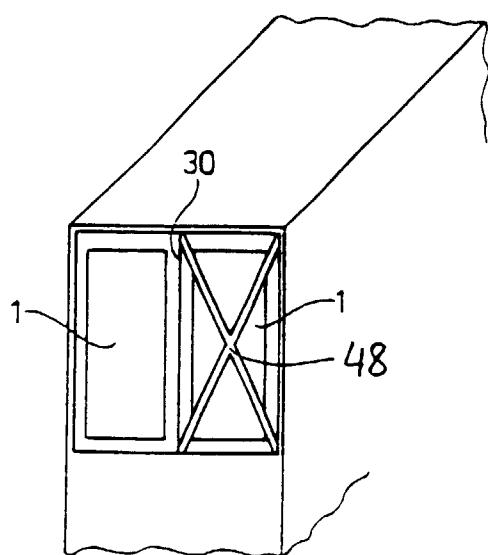
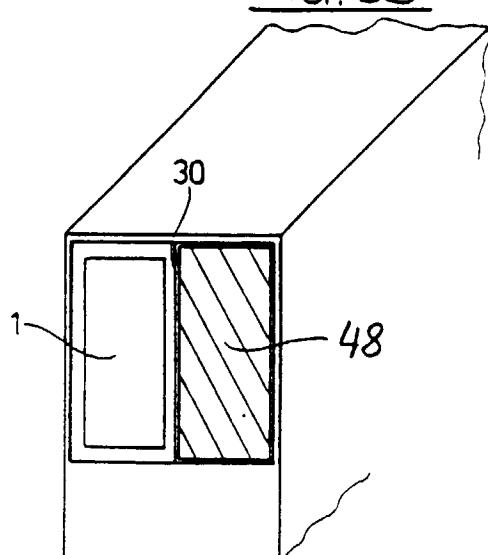
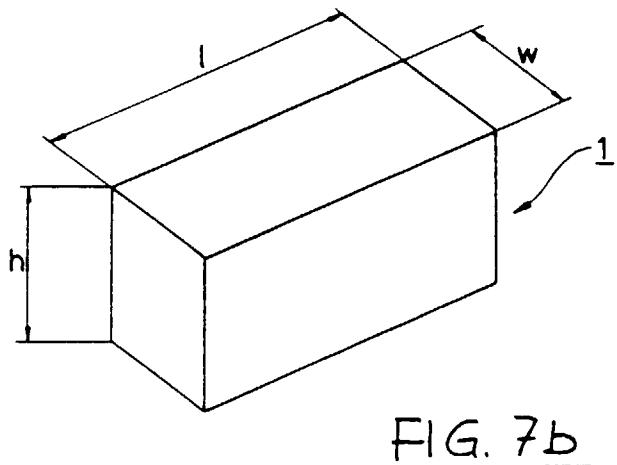
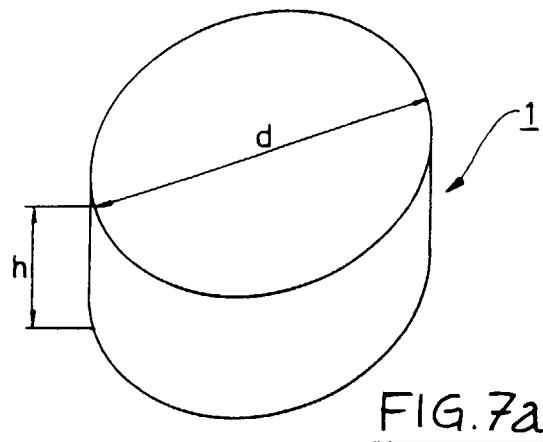


FIG. 6b







European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 96 20 3590

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 4 921 104 A (HOLMES GORDON W) 1 May 1990 * column 7, line 61 - column 9, line 43; figures 5-9 *	1	B65D83/04 B65D25/46
A	DE 30 15 993 A (HENKEL KGAA) 5 November 1981 * page 7, line 11 - page 8, line 20; figures 1,2 *	1	
A	WO 91 11367 A (RICHARDIER MARTIN) 8 August 1991 * page 3, line 10 - page 4, line 30; figures *	1	
A	US 5 445 316 A (ROCCAFORTE HARRY I) 29 August 1995 * column 2, line 21 - column 3, line 31; figures *	1	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
BERLIN	21 April 1997	Olsson, B	
CATEGORY OF CITED DOCUMENTS		I : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
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