



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
08.05.2013 Bulletin 2013/19

(51) Int Cl.:
A61J 1/03 (2006.01) B65D 75/32 (2006.01)

(21) Application number: **11187601.7**

(22) Date of filing: **03.11.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(71) Applicant: **LEK Pharmaceuticals d.d.**
1526 Ljubljana (SI)

(72) Inventors:
• **Vogel, Peter**
1526 Ljubljana (SI)
• **Zajec, Anton**
1526 Ljubljana (SI)

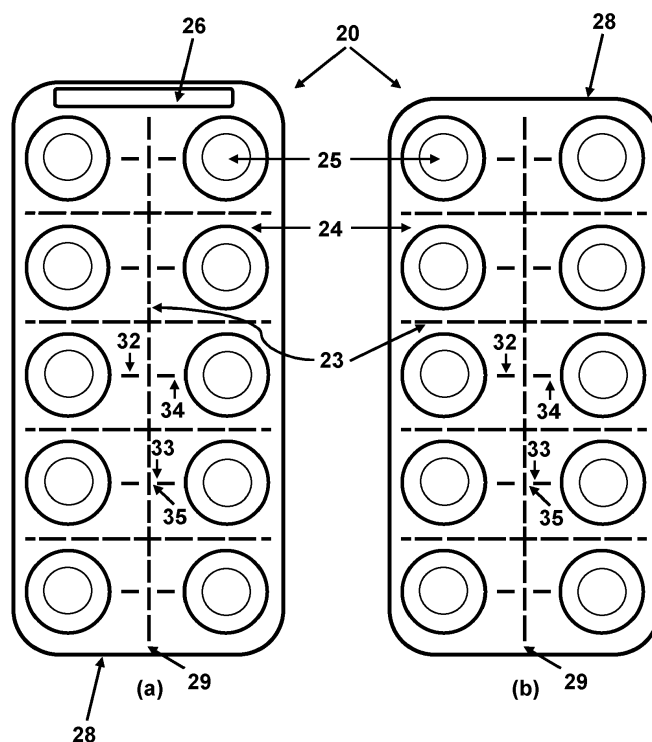
(74) Representative: **Kunic Tesovic, Barbara**
Lek Pharmaceuticals d.d.
Sandoz Development Center Slovenia - Patents
Verovskova 57
1526 Ljubljana (SI)

(54) **Child resistant and senior friendly unit dose blister package**

(57) The present invention relates to a child resistant and senior friendly blister package for unit dose products, composed of a blister forming foil (21) and blister lidding foil (22). The blister forming foil (21) and the blister lidding

foil (22) have plural intersecting perforating lines (23) to form plural cells (24) contiguous with the perforated lines (23). Each cell (24) of the blister lidding foil (22) is the same shape and size as the corresponding cell (24) of the blister forming foil (21).

Fig. 1



Description**Background of the Invention**

5 [0001] This invention relates generally to packaging and more particularly to child-resistant blister packages.

[0002] In the past decades great attention has been directed towards finding a disposable medicinal package that would be child-resistant and at the same time also convenient enough for adults to readily access the medicaments. Various commercially available solutions have been disclosed in the patent literature.

10 [0003] US5088603 (Kirkpatrick) discloses a blister foil package for use with relatively small oblong medicaments, which comprises a base layer and a rigid, substantially rectangular blister layer having an offset, oblong longitudinally oriented blister formed at one thereof. A tear slit oriented towards the end of the oblong blister is disposed through the opposite end of the package. Tear tabs are provided on either side of the tear slit which allow the package to be grasped to create a tear which will extend through entire length of one side of the blister.

15 [0004] In US5551567 (Malone et al.) a blister package is described containing at least one blister with a well adapted to hold a unit medicinal dosage. A cover is placed in sealing arrangement over the blister in order to seal the well from environment. On the blister surface there is a score line which forms a weakened portion on the cover and the blister, such that it enables to tear the blister to gain access to the dosage in the well. In addition, a pair of gripping surfaces is placed on the blister on either side of the score line, which enable the user to grip the blister and more readily open the package.

20 [0005] WO02/04314 A1 discloses a child-resistant blister package for unit dose products, e.g. medicaments. The package comprises a blister layer and a cover layer. The blister has at least one perforated line and at least two cells or units contiguous with its perforated line. The cells of the blister layer have a peripheral planar flanged portion and a blister portion projecting from the flanged portion to form a cavity in which the unit dose product is to be located. The cover layer has at least one perforated line and at least two cells contiguous with its perforated line. Each cell of the cover layer is the same shape and size as a corresponding cell of the blister layer. The cover layer is fixedly secured to the blister layer along the flanged portions, with the at least one perforated line of the cover layer being coincident with the at least one perforated line of the blister layer and with the cells of the cover layer being coincident with the cells of the blister layer. The blister layer additionally comprises a generally keyhole shaped opening in at least one of its cells.

25 [0006] The object of the present invention is to provide an alternative child resistant and senior friendly blister package, which complies with F1 security level, meaning it is easy to open by an adult while at the same time being resistant to opening by a child. Moreover, the blister package of the present invention can be produced at low cost with conventional methods for production of blister packages.

Summary of the Invention

35 [0007] The object of the present invention is typically in the form of a blister package for unit dose products, which allows that only adults can easily access the contents of the package, while children cannot.

[0008] Said child resistant blister package is described by the following embodiments of the invention. In particular, various aspects, advantageous features and preferred embodiments of the present invention will be summarized in the following items which, respectively alone or in combination, further contribute to solving the object of the invention:

1. A child-resistant blister package for unit dose products, the package comprising a blister forming foil and a blister lidding foil, wherein the blister forming foil is formed of a planar material and has at least one perforated line and at least two cells connected with said perforated line, wherein said perforated line has a pair of ends that are located so that each of the ends of said pair of ends is located adjacent but spaced by a gap of a predetermined length from the peripheral edge of the blister package or the inner edge of the code window, wherein the cells have a peripheral planar flanged part and a blister part which projects from the flanged part to form a cavity in which a product is to be located, wherein the blister lidding foil is formed of a planar material and has at least one perforated line, wherein said perforated line has a pair of ends that are located so that each of the ends of said pair of ends is located adjacent but spaced by a gap of a predetermined length from the peripheral edge of the blister package or the inner edge of the code window, and at least two cells connected with said perforated line, wherein each cell of the blister lidding foil is of the same shape and size as a corresponding cell of the blister forming foil, wherein the blister lidding foil is fixedly secured to the blister forming foil along the flanged portions, wherein said at least one perforated line of the blister lidding foil is aligned with said at least one perforated line of the blister forming foil and wherein the cells of the blister lidding foil are coincident with the cells of the blister forming foil, wherein the blister forming foil and the blister lidding foil additionally comprise an elongated slit, that has a pair of ends being located in the cell so that said first one of said pair of ends is located adjacent but spaced by a gap of a predetermined length from said at least one perforated line, wherein the package is resistant to tearing by a child, but can be torn by an adult along said at

least one aligned perforated lines and from there across said gap to said slit.

2. The package according to item 1, wherein the length of each of said gaps is from 1.2 to 1.8 mm, preferably the length of each of said gaps is 1.5 mm.

3. The package according to item 1, wherein said perforated line of the blister forming foil divides said blister forming foil into at least two cells.

4. The package according to item 1, wherein said perforated line of the blister lidding foil divides the blister lidding foil into at least two cells.

5. The package according to item 1, wherein the slit is linear.

6. The package according to item 1 or 5, wherein the length of the slit is from 2 to 5.2 mm, preferably the length of the slit is from 3 to 4 mm.

7. The package according to item 1, wherein the blister forming foil is formed of a cold-formable material or of a thermoformable material.

8. The package according to item 7, wherein the cold-formable material comprises a metal foil in a single or multiple layers or laminate.

9. The package according to item 7 wherein the thermoformable material comprises a plastic in a single or multiple layers or laminate.

10. The package according to item 8, wherein said metal foil is aluminium.

11. The package according to item 1, wherein the blister lidding foil comprises a single layer of a metal foil, a metalized film or a plastic film.

12. The package according to item 1, wherein the blister lidding foil comprises multiple layers or laminate of a metal foil, a metalized film, a plastic film, or combinations thereof.

13. The package according to item 11 or 12, wherein said metal foil is aluminium.

14. The package according to item 1, wherein each of the blister parts is of a shape generally conforming to the shape of the product disposed within its chamber.

15. The package according to item 14, wherein the product is in a shape of a tablet, a pill or a capsule.

16. The package according to any of the previous claims, wherein instructions are printed on the lidding foil.

[0009] When so constructed the blister package of the present invention is resistant to tearing by a child, but can be easily torn by an adult along the at least one perforated line and from there across the gap to the slit. At the same time, said blister package is also airtight and cannot be tampered with. Moreover, it is produced from conventional packaging materials, and can be easily and economically manufactured.

Brief Description of the Figures

[0010]

Fig. 1 shows a top plan view of a preferred embodiment of a child resistant blister package of the present invention with code window (a) and without code window (b), respectively.

Fig. 2 shows a bottom plan view of a preferred embodiment of a child resistant blister package of the present invention with code window (a) and without code window (b), respectively.

Fig. 3 shows enlarged sectional side view of a preferred embodiment of a child resistant blister package of the present

invention.

Fig. 4 shows a section of an example of instructions as printed on the lidding foil of the preferred embodiment of a child resistant blister package of the present invention.

Fig. 5 shows a top plan view of a blister package described in Comparative Example.

Detailed Description of the Invention

[0011] The exemplary embodiment of the present invention is a tear notch blister package shown in Fig. 1, 2 and 3, which provides a means for the delivery of unit-dose medicaments. Said blister is child-resistant, but can be readily opened by an adult. At the same time, said blister package is also airtight and cannot be tampered with. Moreover, it is produced from conventional packaging materials, and can be easily and economically manufactured.

[0012] In the embodiment of the package (20) shown in Fig. 1 there are ten cells (24), in an array of five rows of two columns. Each cell is identically constructed and each contains a unit-dose of the medicament (27) held in its own cavity (25) of a blister forming foil of the package.

[0013] The blister package comprises of two layers, blister forming foil (21) and blister lidding foil (22) as shown in Fig. 3.

[0014] The blister forming foil is formed of a substantially firm material, which can be any conventional thermoformable material used in blister packaging, for example plastic, or cold-formable material, such as metal foils. Moreover, the material may be a single ply or multiple plies or laminations. A preferred metal foil is aluminium foil. In one preferred embodiment of this invention the blister forming foil is formed as a lamination comprising of polyamide, polyvinylchloride and aluminium.

[0015] As shown in Fig. 1, the blister forming foil includes a grid of plural perforated lines (23), which extend through the thickness of the layer, across its width and height. Said perforated lines have a pair of ends that are located so that each of the ends of said pair of ends is located adjacent but spaced by a gap (29) of a predetermined length from the peripheral edge of the blister package (28) or from the code window (26). The length of said gap is for example from 1.2 to 1.8 mm, preferably the length of said gap is 1.5 mm. The perforated lines intersect one another at equidistantly spaced locations to define the respective medicament holding cells (24). The blister forming foil includes cavities (25) for the medicaments (27). In particular, the blister forming foil includes a plurality of raised hollow projections or "blisters," each centred between the intersecting perforated lines forming the cells. The portions of the blister forming foil within the boundaries of the intersecting perforated lines of each of the cells is in the form of a planar peripheral flange surrounding the blister of that cell. Each of the blisters is hollow and forms a cavity within its interior.

[0016] In another embodiment of the invention each of the blisters is of a general flat circular shape as best seen in Figs. 1 and 3. This shape is appropriate for fitting a tablet shaped medicament (27), as shown in Fig 3. As will be appreciated by skilled artisan the shape of the blisters or cavities is a matter of choice, and depends only on the shape of the medicament to be held therein. Thus, this invention contemplates blister packages that comprise of blisters or cavities of any geometric shape and/or size, to fit the medicaments which are round, oblong, rectangular, triangular, pentagonal, octagonal or any other geometrically feasible shape and/or size. Typically, the medicament is in a form of a tablet, a pill or a capsule.

[0017] The blister lidding foil, utilized for sealing the blister forming foil, is a thin planar sheet of the same size as the blister forming foil and can be formed of any suitable material, such as metal foil, plastic, metalized film, in single or multiple plies or laminations of one or more foregoing. A preferred metal foil is aluminium foil. In another preferred embodiment, the blister lidding foil is formed of lamination comprised of aluminium and polyester. The blister lidding foil includes a grid of plural perforated lines (30), which extend through the thickness of the layer, across its width and height. Said perforated lines have a pair of ends that are located so that each of the ends of said pair of ends is located adjacent but spaced by a gap (31) of a predetermined length from the peripheral edge of the blister package (28) or from the code window (26). The length of said gap is for example from 1.2 to 1.8 mm, preferably the length of said gap is 1.5 mm. The perforated lines intersect one another at equidistantly spaced locations to define the respective medicament holding cells (24). The blister lidding foil is adhesively secured to the blister forming foil by an adhesive layer at the interface of the top layer of the flanges of the blister forming foil and the under-surface of the blister lidding foil.

[0018] The materials making up the blister forming and lidding foil, respectively, are sufficiently tear-resistant that the package is resistant to being easily opened by a child, while an adult has the strength to access the content of the blister. In the first step the gap (29) between peripheral edge of the blister package (28) or from the code window (26) and one of the ends of the pair of ends of the perforated lines needs to be torn to reach the perforated lines (23). By tearing the package along the perforated lines the cells (24) can be separated from the rest of the blister package. This step, however, will not provide access to the contents of any of the cells. To gain access to the contents of the cavity (25) of the selected cell a second tearing step is required. Said second step again cannot be readily accomplished by a young child, but can be readily accomplished by an adult by making use of a tear facilitating opening in both the blister forming

and lidding foil of that cell.

[0019] In particular, the tear facilitating opening is in a form of a linear slit (32) having a first end (33) and a second end (34). The length of said slit is from 2 mm to 5.2 mm, preferably the length of the slit is from 3 to 4 mm. Said slit is located in both the blister forming foil and the blister lidding foil in the area forming a respective one of the cells (24), with the first end (33) of the slit (32) being located slightly spaced, for example, 1.2 mm to 1.8 mm, preferably 1.5 mm inward of the perforated line forming an inner marginal edge of the cell. This space forms a short bridgeable gap (35). The slit is oriented so that it extends perpendicular to its associated perforated line. The second end of the slit is located 2 to 5 mm from the cavity; preferably said end of the slit is located 3 to 4 mm from the cavity.

[0020] In order to gain access to any of the cells, first the gap (29) between peripheral edge of the blister package or from the code window and one of the ends of the pair of ends of the perforated lines needs to be torn to reach one of the perforated lines. Then, the perforated line defining one of the boundaries of that cell unit must be torn. This can be accomplished by tearing at least two intersecting perforated lines to physically separate the desired cell from the rest of the package, or by tearing along only one perforated line to provide access to the cell, while still leaving the cell secured to one or more of the other cells of the package. In either case, once the perforated line in vicinity of the tear facilitating slit has been freed to provide access to a side of the cell containing the medicament to be dispensed, the cell's blister can be opened by tearing on its flange contiguous with the gap. Once the gap (35) has been breached by the user tearing it, the tear propagates down the linear slit (32) to the blister a short distance away, with the direction of the tear being dependent upon the direction of the tearing force applied by the user. The medicament can then be removed from the cavity. While an adult will have the strength and coordination to tear the materials of the top and bottom layer along the length of both gaps, i.e. the gap (29) and the gap (35), a young child will not.

[0021] In order to alleviate the opening of the blister package of said invention instructions may be added to the package. The instructions may be either printed on a separate sheet of paper or may be printed directly on the blister lidding foil. In a preferred embodiment the instructions are printed directly on the blister lidding foil (Fig. 4).

[0022] A blister package of this invention can be produced by applying usual production methods for manufacturing of blister packages.

[0023] A blister package of this invention provides a protective environment for holding medium to high toxicity medicines. Two simple tearing operations have to be accomplished to gain access to the content of the cavity, without having to utilize tools, such as a scissors or knives. As should be appreciated by the foregoing and shown in the examples, the package of this invention is particularly suitable for limited access or child-resistant applications.

Examples:

[0024] Two versions of tear notch blister packages have been designed and produced, and subsequently submitted to testing for determining whether the respective package qualifies to obtain a designation to be child-resistant and adult-friendly. F1 certification to US 16 CFR 1700.20 was sought.

[0025] The tear notch blister package was produced by the following general procedure: Forming foil was first unwinding from a first reel, and subsequently introduced into the forming tool, which formed cavities of desired volume. Next, the products, i.e. medicaments, were placed into said cavities. This was followed by unwinding the (optionally pre-printed) lidding foil from a second reel and placing it on the top of the forming foil in a manner that content of the cavities could not fall out once both foils were sealed together. After that both foils were introduced between the sealing plates or sealing rollers (it depends from the type of the blistering machine) and sealed using pressure temperature approach. After the sealing step, the perforations were made at the perforation station. Finally, the perforated and sealed foils passed through the cutting die, which gave the blister package its final form.

Comparative example:

[0026] Tear notch blister package presented in Fig. 5 has been produced. Said package (40) differs from the blister package of this invention in two details. First, the perforated lines (41) extend through the thickness of both blister forming foil and blister lidding foil, across their full width and height. In addition, the tear facilitating opening, i.e. the linear slit (3 mm) (42) is located in both the blister forming and lidding foil in the area forming a respective cell (43), with the first end (44) of the slit being located on the perforated line. No bridgeable gap exists. Each of the blisters had a circular shape (45) that is appropriate for accommodating a tablet. Blister forming foil and blister lidding foil were prepared from the material as presented in Tables 1 and 2, respectively.

EP 2 589 365 A1

Table 1: Blister forming foil (material listed from outside to inside)

Material	Base	Thickness or grammage
OPA	Polyamide	25 $\mu\text{m} \pm 10\%$
Adhesive	PU	3.5 $\pm 0.8 \text{ g/m}^2$
Primer	Epoxy resin or PU	0.9 - 2.2 g/m^2
Aluminium soft dull / bright	Aluminium soft	45 $\mu\text{m} \pm 15\%$
Adhesive	PU	4 $\pm 2 \text{ g/m}^2$
PVC	Polyvinylchloride	60 $\mu\text{m} \pm 10\%$
Total weight	242 $\text{g/m}^2 \pm 15\%$	

Table 2: Blister lidding foil (material listed from outside to inside)

Material	Base	Thickness or grammage
PETP	Polyester	23 $\mu\text{m} \pm 15\%$
Adhesive	PU	3 $\pm 1 \text{ g/m}^2$
Aluminium soft dull / bright	Aluminium soft	20 $\mu\text{m} \pm 15\%$
Heatseallacquer	PVP-PVAP Copolymer	7 $\pm 2 \text{ g/m}^2$
Total weight	96 $\text{g/m}^2 \pm 15\%$	

[0027] The tear notch blister package presented in Fig. 5 was initially submitted to the pilot test, the positive results of which would trigger the start of a full certification test. 14 children aged 42-51 months with a good balance of age and sex were tested in their usual familiar, playgroup or nursery schools. Each child was handed a blister pack and told to open it in any way they like. 5 minutes was allowed for the attempt after which the test assessor removed the pack any child who had not yet opened. The assessor then showed the children how the pack is opened. Further 5 minutes were allowed for additional attempts. Five children were able to remove 9 tablets or more within 10 minute test period (35.7%), revealing that this pack would have no chance of passing the full certification test.

[0028] The overwhelming weakness of this pack was that it was easy to separate all blisters and then tear along the short slit to reveal the tablets.

Example 1:

[0029] Tear notch blister package presented in Figs. 1 to 4 has been produced. The perforated lines, which extend through the thickness of both blister forming foil and blister lidding foil, across their full width and height, have a pair of ends being located so that each of the ends of said pair of ends is located spaced by a gap 1.5 mm from the peripheral edge of the blister package (28) or from the code window (26). In addition, the tear facilitating opening, i.e. the linear slit is located in both the blister forming and lidding foil in the area forming a respective cell (24), with the first end (33) of the slit (32) being located 1.5 mm from the respective perforated line. A bridgeable gap (35) exists. The linear slit is 3 mm long. Each of the blisters had a circular shape that is appropriate for accommodating a tablet.

[0030] Blister forming foil and blister lidding foil were prepared from the material as presented in Tables 1 and 2, respectively (see Comparative example). Moreover, at the outer side of the lidding foil, the instructions as shown on Fig. 4 were printed.

[0031] The tear notch blister package presented was initially submitted to the pilot test, the positive results of which would trigger the start of a full certification test. 14 children aged 42-51 months with a good balance of age and sex were tested in their usual familiar, playgroup or nursery schools. Each child was handed a blister pack and told to open it in any way they like. 5 minutes was allowed for the attempt after which the test assessor removed the pack any child who had not yet opened. The assessor then showed the children how the pack is opened. Further 5 minutes were allowed for additional attempts. No children were able to remove any tablets whatsoever within 10 minute test period.

[0032] After successfully passing the pilot test, the full certification test was conducted. 50 children aged 42-51 months with a good balance of age and sex were tested in their usual familiar, playgroup or nursery schools. Each child was handed a blister pack and told to open it in any way they like. 5 minutes was allowed for the attempt after which the test

assessor removed the pack any child who had not yet opened. The assessor then showed the children how the pack is opened. Further 5 minutes were allowed for additional attempts. No children successfully opened the pack before demonstration and accessed 1 or more tablets. Post demonstration, 4 children successfully opened and accessed 1 tablet, 1 child was able to open and access 3 tablets. 45 children failed to open the pack at all.

[0033] 100 adults aged 50-70 with a good balance of age and sex were tested. The tested adults were asked to open the package according to the instructions presented. Two series of tests were conducted, allowing 5 minutes and 1 minute to remove 1 tablet, respectively. Altogether, 97 tablets successfully removed a tablet. Two adults were unable to open the pack in the 5 minute test. One adult was unable to open the pack in the 1 minute test.

[0034] The results satisfied to obtain a F1 certification to US 16 CFR 1700.20 for the tear notch blister package. Hence said blister package is designated to be child-resistant and adult-friendly.

Claims

1. A child-resistant blister package for unit dose products, the package comprising a blister forming foil (21) and a blister lidding foil (22), wherein the blister forming foil is formed of a planar material and has at least one perforated line (23) and at least two cells (24) connected with said perforated line, wherein said perforated line has a pair of ends that are located so that each of the ends of said pair of ends is located adjacent but spaced by a gap (29) of a predetermined length from the peripheral edge of the blister package (28) or the inner edge of the code window (26), wherein the cells have a peripheral planar flanged part and a blister part which projects from the flanged part to form a cavity (25) in which a product is to be located, wherein the blister lidding foil is formed of a planar material and has at least one perforated line (30), wherein said perforated line has a pair of ends that are located so that each of the ends of said pair of ends is located adjacent but spaced by a gap (31) of a predetermined length from the peripheral edge of the blister package (28) or the inner edge of the code window (26), and at least two cells (24) connected with said perforated line, wherein each cell of the blister lidding foil is of the same shape and size as a corresponding cell of the blister forming foil, wherein the blister lidding foil is fixedly secured to the blister forming foil along the flanged portions, wherein said at least one perforated line of the blister lidding foil is aligned with said at least one perforated line of the blister forming foil and wherein the cells of the blister lidding foil are coincident with the cells of the blister forming foil, wherein the blister forming foil and the blister lidding foil additionally comprise an elongated slit (32), that has a pair of ends being located in the cell so that said first one of said pair of ends (33) is located adjacent but spaced by a gap (35) of a predetermined length from said at least one perforated line, wherein the package is resistant to tearing by a child, but can be torn by an adult along said at least one aligned perforated lines and from there across said gap (35) to said slit (32).
2. The package according to claim 1, wherein the length of each of the gap (29), (31) and (35) is from 1.2 to 1.8 mm, preferably the length of each of said gaps is 1.5 mm.
3. The package according to claim 1, wherein the perforated line of the blister forming foil (23) divides said blister forming foil into at least two cells (24).
4. The package according to claim 1, wherein said perforated line of the blister lidding foil (30) divides the blister lidding foil into at least two cells (24).
5. The package according to claim 1, wherein the slit (32) is linear.
6. The package according to claim 1 or 5, wherein the length of the slit (32) is from 2 to 5.2 mm, preferably the length of the slit (32) is from 3 to 4 mm.
7. The package according to claim 1, wherein the blister forming foil (23) is formed of a cold-formable material or of a thermoformable material.
8. The package according to claim 7, wherein the cold-formable material comprises a metal foil in a single or multiple layers or laminate.
9. The package according to claim 7, wherein the thermoformable material comprises a plastic in a single or multiple layers or laminate.
10. The package according to claim 8, wherein said metal foil is aluminium.

EP 2 589 365 A1

11. The package according to claim 1, wherein the blister lidding foil (30) comprises a single layer of a metal foil, a metalized film or a plastic film.

5 12. The package according to claim 1, wherein the blister lidding foil (30) comprises multiple layers or laminate of a metal foil, a metalized film, a plastic film, or combinations thereof.

13. The package according to claims 11 or 12, wherein said metal foil is aluminium.

10 14. The package according to claim 1, wherein each of the blister parts is of a shape generally conforming to the shape of the product disposed within its chamber.

15

20

25

30

35

40

45

50

55

Fig. 1

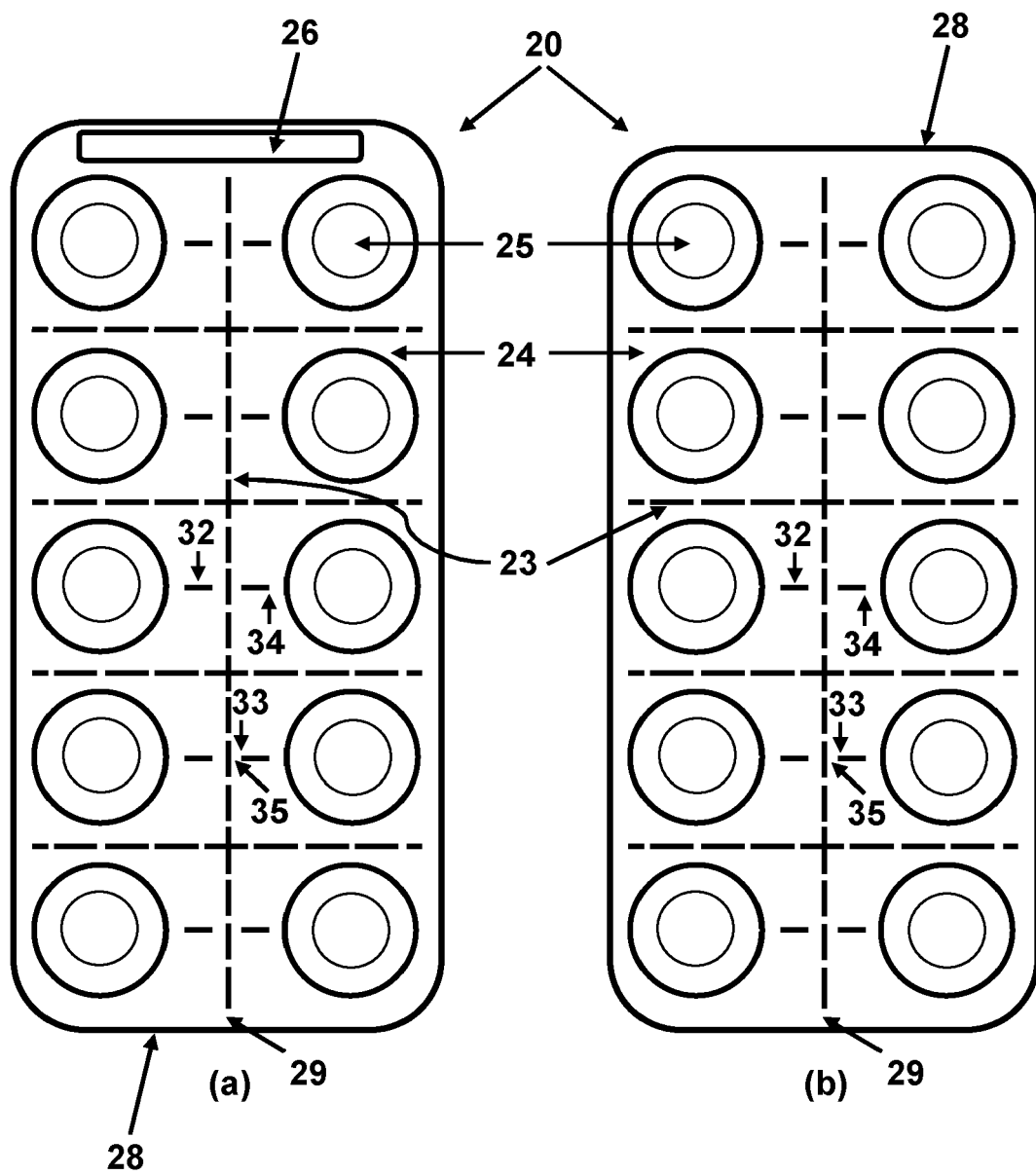


Fig. 2

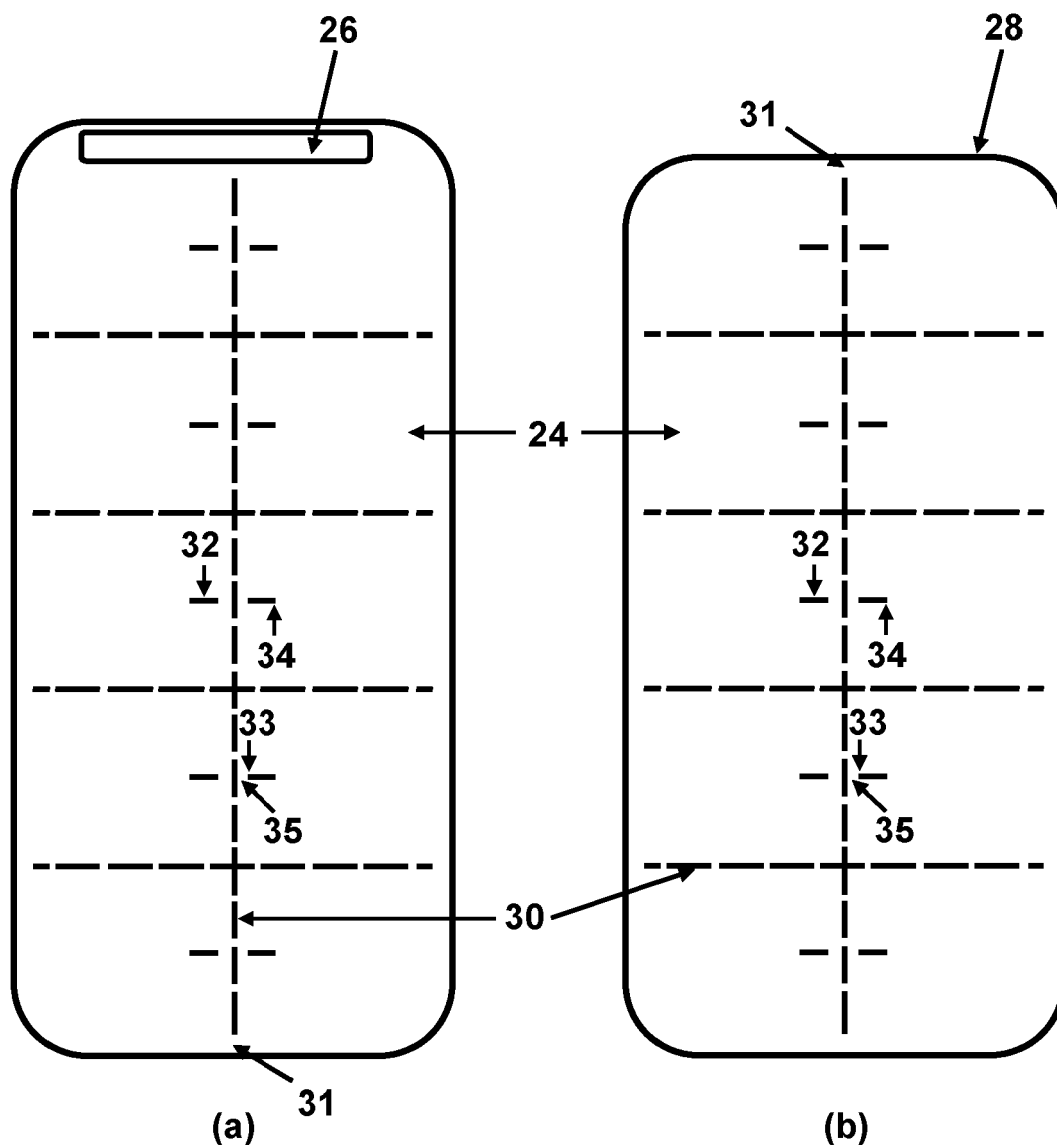


Fig. 3

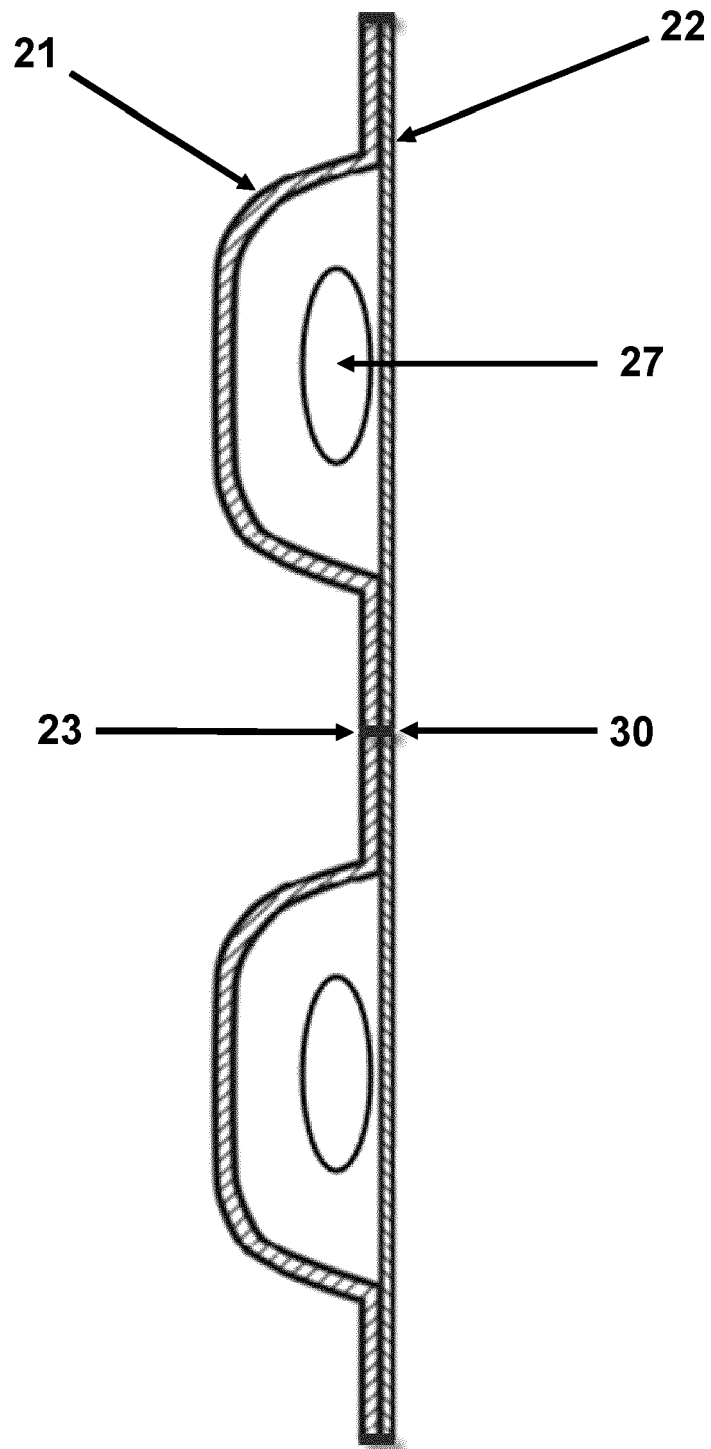


Fig. 4

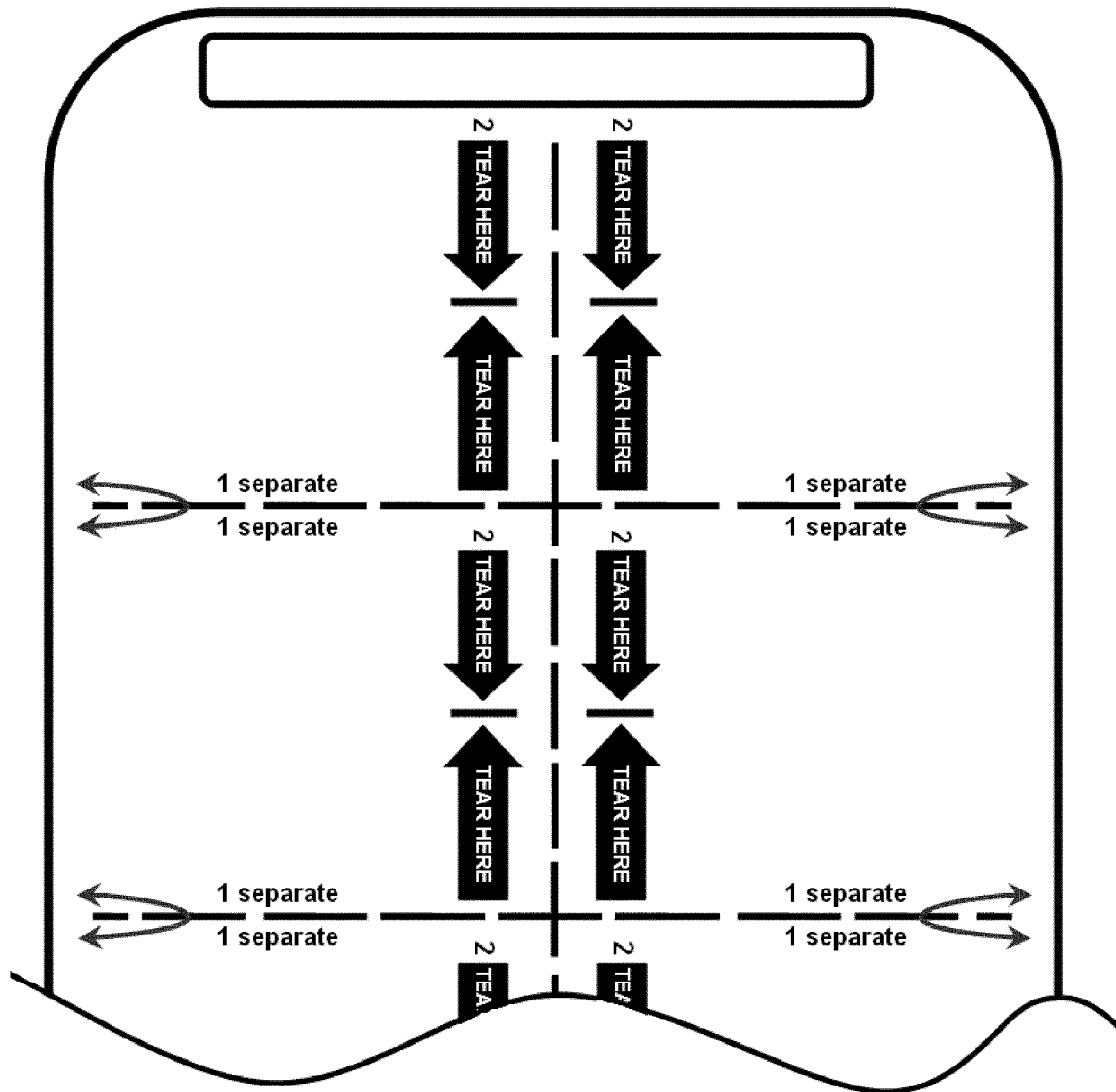
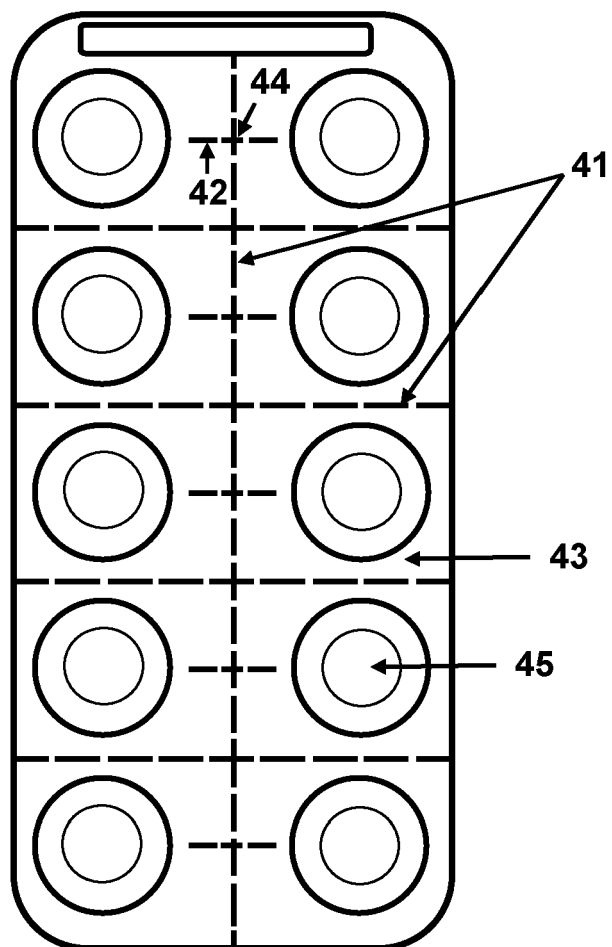


Fig. 5





EUROPEAN SEARCH REPORT

Application Number
EP 11 18 7601

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 2009/147134 A1 (BOEHRINGER INGELHEIM INT [DE]; GESER JOHANNES [DE]; METZGER BURKHARD P) 10 December 2009 (2009-12-10) * page 2, line 9 - page 2, line 14; figure 1 *	1-14	INV. A61J1/03 B65D75/32
Y,D	WO 02/04314 A1 (WARNER LAMBERT CO [US]) 17 January 2002 (2002-01-17) * page 9, line 3 - page 11, line 2; figure 1 *	1-14	
A	EP 0 045 449 A1 (DIXIE UNION VERPACKUNGEN GMBH [DE]) 10 February 1982 (1982-02-10) * page 10, line 11 - line 17; figure 6 *	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 20 March 2012	Examiner Vesterholm, Mika
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : 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</p>			

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 18 7601

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-03-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009147134 A1	10-12-2009	NONE	

WO 0204314 A1	17-01-2002	AT 263720 T	15-04-2004
		AU 6300201 A	21-01-2002
		AU 2001263002 B2	26-05-2005
		CA 2413034 A1	17-01-2002
		DE 60102699 D1	13-05-2004
		DE 60102699 T2	31-03-2005
		DK 1301415 T3	02-08-2004
		EP 1301415 A1	16-04-2003
		ES 2214421 T3	16-09-2004
		JP 3693996 B2	14-09-2005
		JP 2004502611 A	29-01-2004
		MX PA02011884 A	10-04-2003
		NZ 522950 A	29-08-2003
		PT 1301415 E	31-08-2004
		TR 200400876 T4	21-06-2004
		US 6352158 B1	05-03-2002
		WO 0204314 A1	17-01-2002
		ZA 200209646 A	27-02-2004

EP 0045449 A1	10-02-1982	CA 1222483 A1	02-06-1987
		DE 3029253 A1	11-03-1982
		EP 0045449 A1	10-02-1982
		FR 2487790 A1	05-02-1982
		GB 2081227 A	17-02-1982
		JP 57055867 A	03-04-1982
		MX 152239 A	12-06-1985

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 5088603 A, Kirkpatrick [0003]
- US 5551567 A, Malone [0004]
- WO 0204314 A1 [0005]