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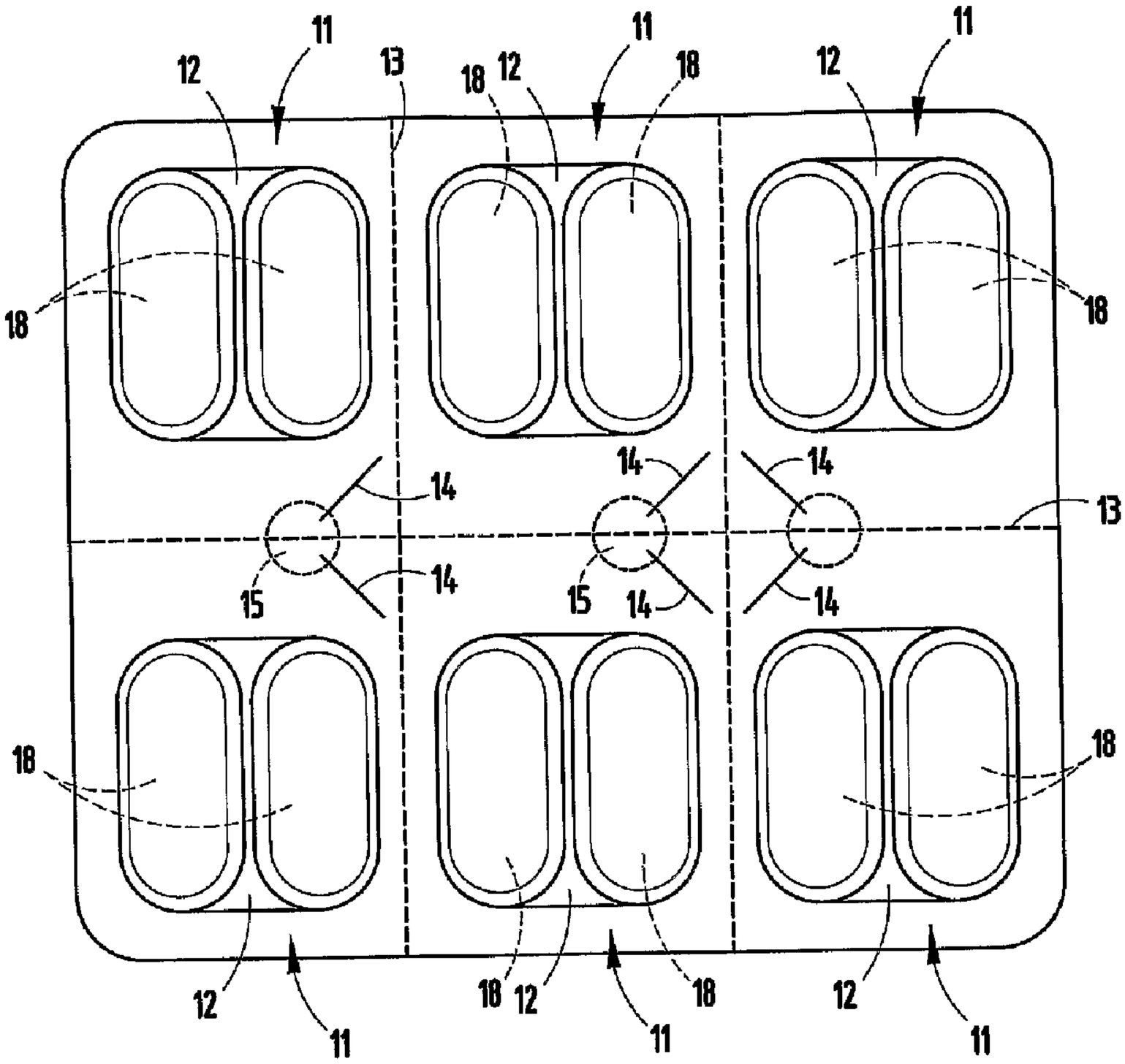
(54) Titre : EMBALLAGE POUR MEDICAMENTS A L'EPREUVE DES ENFANTS
(54) Title: CHILD-RESISTANT MEDICAMENT PACKAGE



(57) Abrégé/Abstract:
An individual blister pack includes an unsealed area formed along an edge, and a die cut slot is formed at an angle adjacent edges of the blister pack and communicates with the unsealed area. The die cut slot allows tearing of the corner of the blister pack, which

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(57) Abrégé(suite)/Abstract(continued):
exposes an easily accessible corner pull tab to allow an impenetrable polymeric film to be peeled away from the underlying foil such that medicament can subsequently be pushed through the foil for dispensing the medicament from the blister pack. The package, therefore, provides a tear-peel-push sequence of operation requiring the cognitive skills of an adult and yet allows an adult an easy manner by which to obtain a finger hold on the impenetrable film layer for peeling it from the blister pack.

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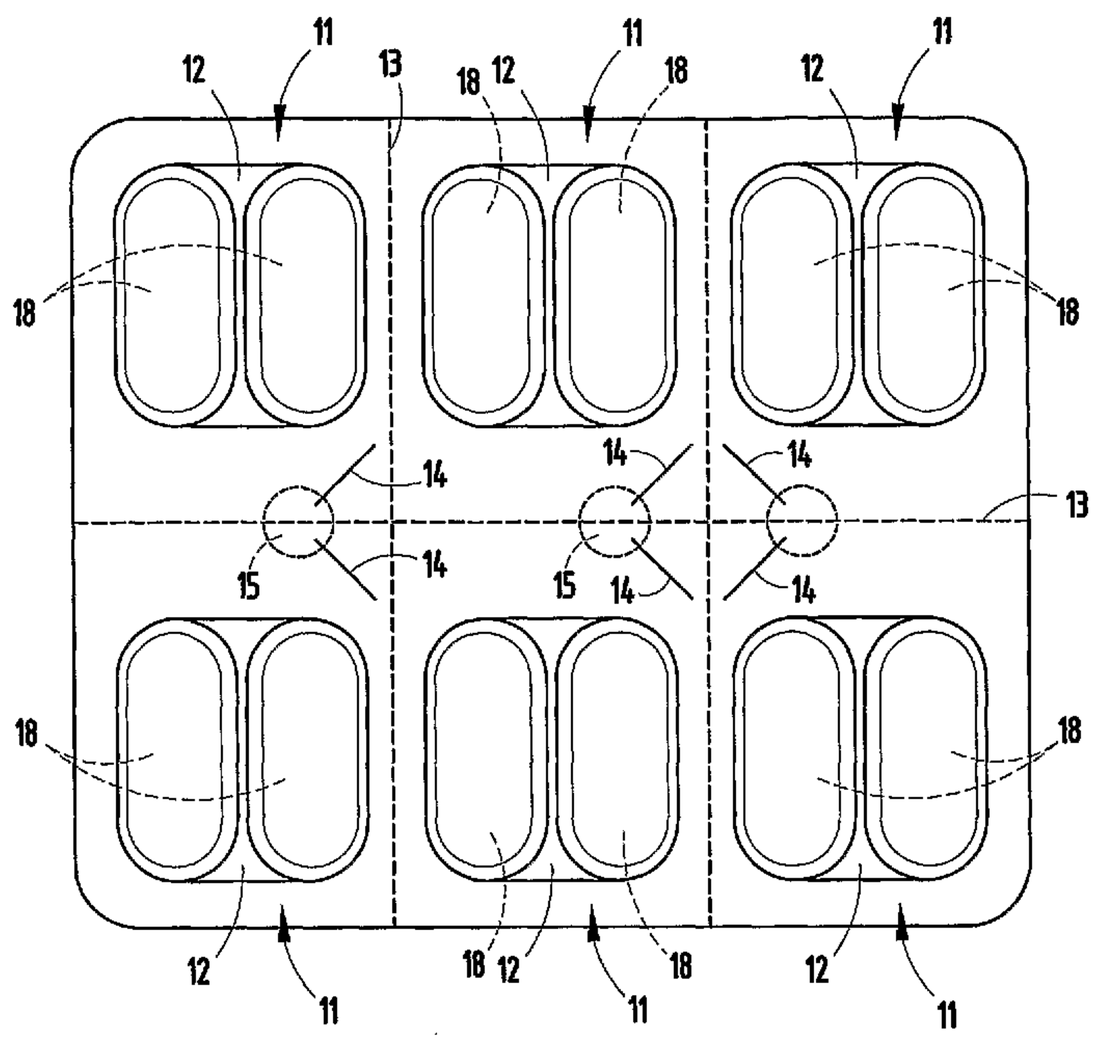
(54) Title: CHILD-RESISTANT MEDICAMENT PACKAGE



(57) Abstract: An individual blister pack includes an unsealed area formed along an edge, and a die cut slot is formed at an angle adjacent edges of the blister pack and communicates with the unsealed area. The die cut slot allows tearing of the corner of the blister pack, which exposes an easily accessible corner pull tab to allow an impenetrable polymeric film to be peeled away from the underlying foil such that medicament can subsequently be pushed through the foil for dispensing the medicament from the blister pack. The package, therefore, provides a tear-peel-push sequence of operation requiring the cognitive skills of an adult and yet allows an adult an easy manner by which to obtain a finger hold on the impenetrable film layer for peeling it from the blister pack.

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CHILD-RESISTANT MEDICAMENT PACKAGE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority under 35 U.S.C. § 119(e) on U.S. Provisional Application No. 60/603,489 entitled CHILD-RESISTANT MEDICAMENT PACKAGE, filed on August 20, 2004, by Timothy Richard Williams, Jr.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to a child-resistant medicament package and particularly to an opening feature for a blister-type package.

[0003] Blister packages have become popular for the child-resistant packaging of medicaments, such as antihistamines and other medicaments which are available over the counter and in common use by adults but which must be taken according to instructions and are required to be packaged in a child-resistant package. Existing packages have been provided with a paper foil backing over which a polymeric film is heat-sealed to encase the medicament in what is generally referred to as a blister pack.

[0004] In order to access the medicament for use, a die cut is usually formed in spaced relationship to an edge of the package and aligned with the blister enclosing the medicament. The die cut slit allows an adult to tear open the blister pack with some effort by tearing through the edge material and then the blister itself for gaining access to the medicament contained therein. Typically, a child will not have the strength required to open such a package.

[0005] Although this type of package has provided an effective, popular child-resistant package for medicaments, they are somewhat difficult to open by adults. U.S. Patent No. 6,422,391 discloses a blister pack which is easier for an adult to open and requires significant cognitive skills which prevents a child from accessing such a package. The `391 patent employs a tear-away tab on a blister pack, which subsequently forms a notch with a pair of legs which can be easily gripped for subsequent tearing through the blister pack itself. This type of package is particularly useful for blister packs which are not the push-through type packages which constitute another popular form of blister pack construction.

[0006] In push-through packages, an impenetrable polymeric layer typically overlies a foil layer sealing a medicament-holding blister formed on a base layer. The impenetrable polymeric layer is first peeled away by a tab along an edge which then allows a medicament to be pushed through the remaining foil sealing layer for accessing the medicament. There exists numerous push-through type packages of such peel-push construction, however, they frequently require considerable dexterity for adults to initiate the peeling of the impenetrable polymeric layer for subsequent access to the medicament.

[0007] When tested, too often children are able to access peel-push packages, which have an unsealed area located at one or more corners or an edge of the individual blister unit. Also, too often seniors have difficulty opening tear-notch or tear-slit packages, which rely on the user having sufficient finger strength to tear through the cavity to expose the product.

[0008] A child-resistant bend-peel package is also known in which the blister sheet is scored at one corner. The customer is instructed to bend the corner at the score line, which will break the blister sheet layer but leave the backing layers attached to the blister sheet. The broken corner, comprised of the broken blister sheet which is still attached to all backing layers, can then be used to pull all of the backing layers away from the remaining blister sheet, thereby exposing the product.

SUMMARY OF THE INVENTION

[0009] The tear-peel-push (TPP) package of the present invention was designed with the intention of making it more difficult for children to locate and utilize an unsealed portion of the package. At the same time, the tearing strength requirement for seniors is less than what is required for packages utilizing a typical tear-notch feature.

[0010] The TPP blister pack of the present invention incorporates a unique opening feature once an individual blister pack has been segregated from an array of blister packs typically employed for packaging several dosages of a given medicament. An unsealed area between the polymeric film forming the blister pack and the backing material is formed along an edge of a segregated blister pack. A die cut slot is formed at an angle to the edges of the blister pack and communicates with the unsealed area. The corner of the blister pack is torn away utilizing the die cut slot which results in an

easily accessible corner pull tab which allows an impenetrable polymeric film to be peeled away from the underlying foil such that medicament can subsequently be pushed through the foil for dispensing the medicament from the blister pack. In one embodiment of the invention, the unsealed area is formed in a generally circular pattern spanning adjacent blister packs in an array of blister packs, while the die cut is formed at an angle of about 45° between adjacent edges of the blister pack with one end of the die cut intersecting the unsealed area and the other end closely adjacent but not extending through the edge of the blister pack.

[0011] The TPP package of this invention, therefore, provides a tear-peel-push sequence of operation which requires the cognitive skills of an adult and which provides an adult an easy manner by which to obtain a finger hold on the impenetrable film layer for peeling it from the blister pack.

[0012] These and other features, objects and advantages of the present invention will become apparent upon reading the following description thereof together with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Fig. 1 is a top plan view of the child-resistant blister package, showing multiple individual blister units;

[0014] Fig. 2 is a top plan view of one of the individual blister units shown in Fig. 1;

[0015] Fig. 3 is a bottom plan view of the individual blister unit shown in Fig. 2;

[0016] Fig. 4 is a plan view of the individual blister unit of Fig. 3, showing one corner of the individual blister unit detached at the single cut line;

[0017] Fig. 5 is a plan view of the individual blister unit of Fig. 4, showing the paper sheet and flexible polymeric material layers peeled away exposing the foil layer;

[0018] Fig. 6 is a plan view of the individual blister unit of Fig. 5, showing the product rupturing the foil layer; and

[0019] Fig. 7 is an enlarged cross-sectional view of the individual blister unit, showing the material layers and a portion of the unsealed area.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0020] Referring first to Figs. 1 and 7, the child-resistant package as a whole is indicated by the reference character 10. Package 10 may contain a single but more

typically multiple individual blister units 11. Each unit 11 has a single or double cavity 12 of any desired shape which conforms to the shape of the product 18 contained within the package. The individual blister units 11 can be separated by tearing the package along perforated cut lines 13. Typically the product 18 is a medicament, such as a tablet or caplet, requiring child-resistant packaging.

[0021] Referring to Figs. 2-7, each individual blister unit 11 includes a single die cut line 14 and an unsealed area 15 which intersect and provide an opening feature for individual blister units 11. The single die cut line 14 penetrates the outer blister sheet 19 (Fig. 7) and all backing layers 21, 23, and 25. Die cut 14 extends at an angle of about 45° to the adjacent edges of each blister unit 11 and has one end 13 which intersects the unsealed area 15 and an opposite end 17 which terminates in spaced relationship to an edge 19 of unit 11 adjacent the edge in which the unsealed area 15 is formed. The unsealed area 15 comprises, as best seen in Fig. 7, a gap between the lidding 26 and specifically the peel-resistant adhesive 20 and the facing blister sheet 19, leaving a gap of approximately .010 inches.

[0022] The unsealed area 15 is formed during the heat sealing of lidding 26 to the blister sheet 19 by providing circular openings in the lower sealing tool, which engages the blister sheet. The circular openings are aligned with the blister pack 10 to place unsealed areas 15 centered between individual blister units 11 and toward one corner of each blister unit, as seen in Fig. 1. A heated sealing plate engages the lidding 26 on a side of blister pack 10 opposite the lower sealing tool and the blister sheet 19. The circular openings therefore prevent sealing pressure from being applied to the blister pack in the circular areas 15 resulting in the unsealed areas 15, as seen in Figs. 1 and 7.

[0023] When the corner 30 of an individual blister pack 11 is torn away at die cut 14, as seen in Fig. 4, a new corner 16 or tab is presented within the unsealed area 15. This allows a thumb or finger nail to be inserted in the gap between the lidding 26 and blister sheet 19 for peeling the paper and polymeric film 25 and 23 away from blister sheet 19, as seen in Fig. 5, exposing the foil seal layer 21 through which the medicament 18 can then be pushed, as illustrated in Fig. 6. As seen in Fig. 5, the unsealed area 15 is exposed and a portion 21´ of the foil 21 remains on the backside of layer 23.

[0024] Backing sheet or lidding 26, as shown in Fig. 7, contains a strong peel-resistant heat seal coating 20, a foil barrier sheet 21, a peelable adhesive 22, a strong flexible

polymeric sheet material (e.g. polyester such as polyethylene terephthalate, etc.) 23, a strong peel-resistant adhesive layer 24, and a paper sheet 25 which can have printing on the outer surface to convey information to the consumer, such as package contents and opening instructions. The blister sheet 19 can be a single or multiple layered material consisting of various polymeric materials (e.g. polyvinyl chloride, polyvinyl chloride and polyvinylidene chloride, etc) formed with cavities 12 to contain medicaments between sheet 19 and lidding 26.

[0025] A strong peel-resistant heat seal coating is utilized for layer 20, so that as the paper sheet 25 and strong flexible polymeric material 23 are pulled back, the foil layer 21 will not peel back to expose the cavity area 12.

[0026] Backing sheet or lidding 26 need not contain all three layers of foil 21, strong (*i.e.* impenetrable) polymeric sheet 23, and paper sheet 25. The strong polymeric material, however, is necessary for the purposes of providing a safety backing to the blister sheet 19 so that the product cannot be forced out of the package without first peeling away material 23.

[0027] Referring to Fig. 7 and reference characters identified below, in one embodiment, the following material types and thicknesses were employed:

[0028] Reference No. 19 - 10 mil (0.010") PVC (polyvinylchloride)

[0029] <u>Reference Nos. 20-25 (Alcoa ID = Safety Pak 226)</u>

[0030] Reference No. 20 - 3.5# Heat Seal Coating (Alcoa ID = C11158)

[0031] Reference No. 21 - 0.001" Foil (Alcoa ID = MALB102.5DR1235-0)

[0032] Reference No. 22 - 1.1# W/B Laminate Adhesive (Alcoa ID =A11960)

[0033] Reference No. 23 - 60 GA. Biaxially oriented nylon film (Alcoa ID = NYL60E)

[0034] Reference No. 24 - 2.0# Thermoset Adhesive (Alcoa ID = C1360)

[0035] Reference No. 25 - 25# Calend. Bleach Paper (Alcoa ID = 25BLP)

[0036] The following ranges of materials may be employed in other embodiments:

[0037] Reference No. 19 - 7.5-30 mils

[0038] Reference No. 20 - 2.5 to 4.5 pounds per ream

[0039] Reference No. 21 - 0.00035" to 0.03"

[0040] Reference No. 22 - 0.75 to 1.25 pounds per ream

[0041] Reference No. 23 - 30 to 90 gauge

[0042] Reference No. 24 - 1.5 to 2.5 pounds per ream

[0043] Reference No. 25 - 20 to 30 pounds per ream

[0044] Although the unsealed areas 15 between adjacent units 11 were generally circular, any geometric shape to achieve a gap or slot between layer 19 and lidding 26 for peeling away the impenetrable layer 23 can be employed.

CLAIMS:

1. A child-resistant blister package comprising:

a first polymeric film defining a pocket for receiving a medicament therein;

a foil layer covering said pocket;

an impenetrable polymeric film sealed to said first polymeric film for sealing a medicament in said pocket;

an unsealed area between said first polymeric film and said impenetrable polymeric film, said unsealed area extending along one edge of said blister pack; and

a die cut extending at an acute angle to adjacent edges of said blister pack and having only one end intersecting and extending into said unsealed area and an opposite end extending toward one edge of said blister pack adjacent said edge on which said unsealed area is located, wherein said package can be opened by tearing the die cut to remove a comer of the blister pack to expose a tab which can be gripped for peeling the impenetrable polymeric film from said package to allow a medicament to be pushed through the foil layer.

2. The package as defined in claim 1 wherein said die cut extends through said first polymeric film and said impenetrable polymeric film.

3. The package as defined in claim 2 wherein said die cut terminates before reaching said one edge.

4. The package as defined in claim 3 wherein said die cut extends from said unsealed area at an angle of about 45° to said one edge.

5. The package as defined in claim 4 wherein said unsealed area is curvilinear.

6. The package as defined in claim 5 wherein said unsealed area is a semicircle.

7. A child-resistant blister package comprising:

a first polymeric film defining a plurality of spaced-apart pockets for receiving medicaments therein;

a foil layer coupled to said first polymeric film to enclose said pockets;

a laminate including an impenetrable polymeric film sealed to said first polymeric film

for sealing medicaments in said pockets;

perforations formed through said first film and said laminate to allow separation of individual blister units;

a plurality of unsealed areas between said first polymeric film and said laminate and located between pairs of adjacent blister units; and

a die cut extending at an acute angle to adjacent edges of each blister unit and having only one end extending into said unsealed area and an opposite end extending toward one edge of said blister unit adjacent said edge on which said unsealed area is located, wherein said blister unit can be opened by tearing the die cut at the unsealed area to remove a corner of the blister unit to expose a tab which can be gripped for peeling the impenetrable polymeric film from said unit to allow a medicament to be pushed through the foil layer.

8. The package as defined in claim 7 wherein said die cut extends through said first polymeric film and said laminate.

9. The package as defined in claim 8 wherein said die cut terminates before reaching said one edge.

10. The package as defined in claim 9 wherein said die cut extends from said unsealed area at an angle of about 45° to said one edge.

11. The package as defined in claim 10 wherein said unsealed areas are curvilinear.

12. The package as defined in claim 11 wherein said unsealed areas are circular.

13. A method of manufacturing a blister pack comprising the steps of:

heat sealing a polymeric film having a plurality of pockets containing medicaments therein with a laminate comprising a foil layer and an impenetrable film layer;

while heat sealing said film and laminate, forming unsealed areas between said film and laminate;

providing perforations between adjacent pockets for separating individual blister units from said blister pack; and

die cutting a slot extending from each unsealed area toward an edge of each blister unit at an acute angle to allow a corner of each blister unit to be torn away.

14. The method of claim 13 wherein said forming step comprises providing apertures in a heat sealing tool which prevents sealing of said polymeric film and laminate in the areas of said apertures.

15. A child-resistant tear-peel-push blister package comprising:

a first polymeric film defining a plurality of spaced-apart pockets for receiving medicaments therein;

a lidding including a foil layer and an impenetrable polymeric film selectively heat sealed to said first polymeric film for sealing medicaments in said pockets;

perforations formed through said first film and said laminate-lidding to allow separation of individual blister units;

a plurality of unsealed areas between said first polymeric film and said lidding and located between pairs of adjacent blister units; and

a die cut extending at an acute angle to adjacent edges of each blister unit and having only one end extending into said unsealed area and an opposite end extending toward one edge of said blister unit adjacent said edge on which said unsealed area is located, wherein said blister unit can be opened by tearing the die cut at the unsealed area to remove a corner of the blister unit to expose a tab which can be gripped for peeling the impenetrable polymeric film from said unit to allow a medicament to be pushed through the foil layer.

16. The package as defined in claim 15 wherein said die cut extends through said first polymeric film and said laminate.

17. The package as defined in claim 16 wherein said die cut terminates before reaching said one edge.

18. The package as defined in claim 17 wherein said die cut extends from said unsealed area at an angle of about 45° to said one edge.

19. The package as defined in claim 18 wherein said unsealed areas are curvilinear.

20. The package as defined in claim 19 wherein said unsealed areas are circular.

21. The package as defined in claim 15 wherein said polymeric film is a polyvinylchloride having a thickness of from about 7.5 to about 30 mils.

22. The package as defined in claim 21 wherein said impenetrable film is a biaxially oriented nylon film of from about 30 to about 60 gauge.

23. The package as defined in claim 22 wherein said foil layer is and aluminum foil having a thickness of from about .00035 inches to about .03 inches.

24. The package as defined in claim 22 wherein said lidding further includes a paper layer on a side of said impenetrable layer opposite said foil.

25. A child-resistant blister package comprising:

a first polymeric film defining a pocket for receiving a medicament therein;

a foil layer enclosing said pocket;

a laminate including an impenetrable polymeric film sealed to said first polymeric film for sealing a medicament in said pocket;

an unsealed area between said first polymeric film and said laminate, said unsealed area extending along one edge of said blister pack; and

a die cut extending at an acute angle to adjacent edges of said blister pack and having only one end extending into said unsealed area and an opposite end extending toward one edge of said blister pack adjacent said edge on which said unsealed area is located, wherein said package can be opened by tearing the die cut to remove a corner of the blister pack to expose a tab which can be gripped for peeling the impenetrable polymeric film from said package to allow a medicament to be pushed through the foil layer.

26. The package as defined in claim 25 wherein said die cut extends through said first polymeric film and said laminate.

27. The package as defined in claim 26 wherein said die cut terminates before reaching said one edge.

28. The package as defined in claim 27 wherein said die cut extends from said unsealed area at an angle of about 45° to said one edge.

29. The package as defined in claim 28 wherein said polymeric film is a polyvinylchloride having a thickness of from about 7.5 to about 30 mils.

30. The package as defined in claim 29 wherein said impenetrable film is a biaxially oriented nylon film of from about 30 to about 60 gauge.

31. The package as defined in claim 30 wherein said foil layer is and aluminum foil having a thickness of from about .00035 inches to about .03 inches.

32. The package as defined in claim 31 wherein said laminate further includes a paper layer on a side of said impenetrable layer opposite said foil.

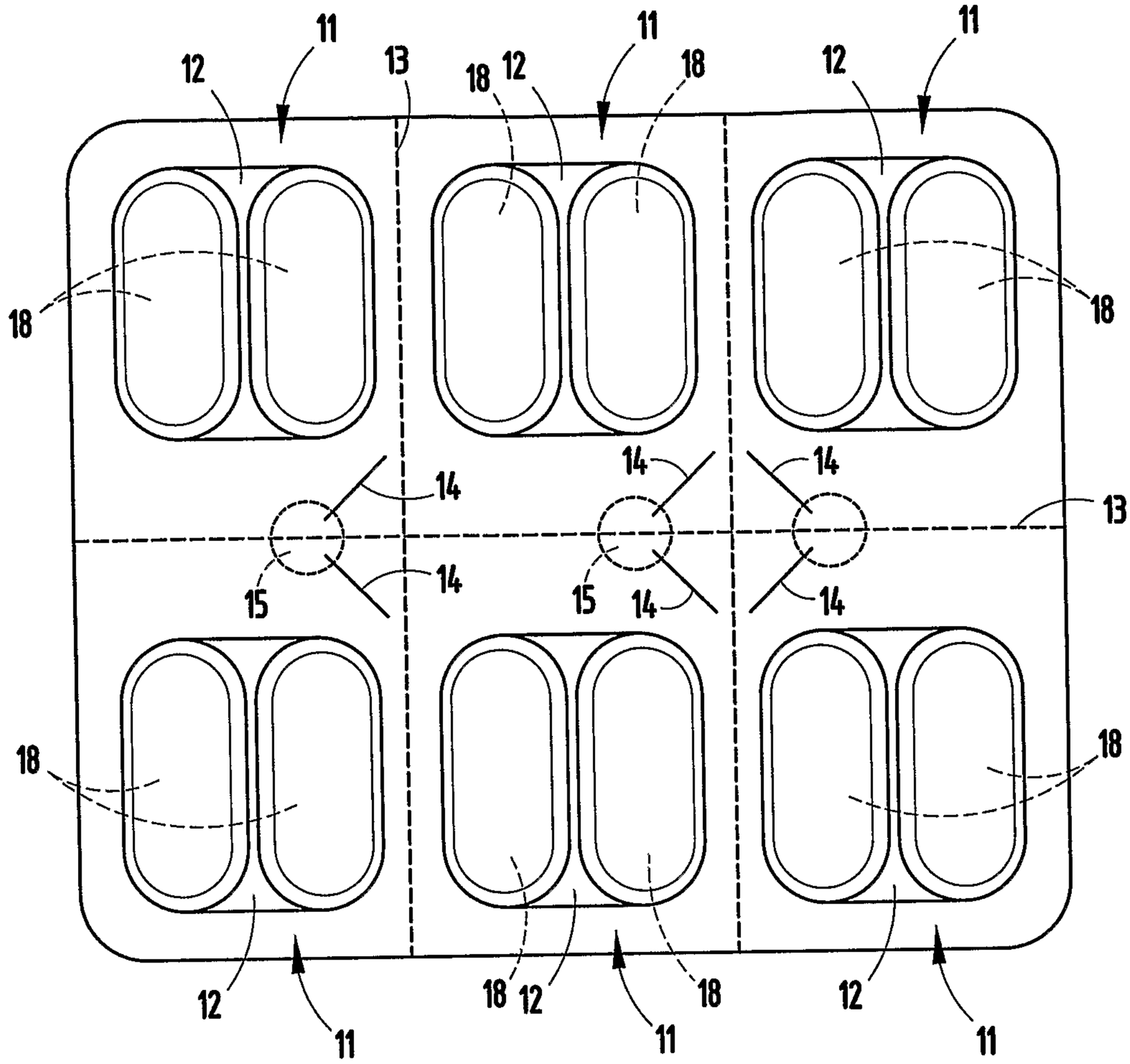


FIG. 1

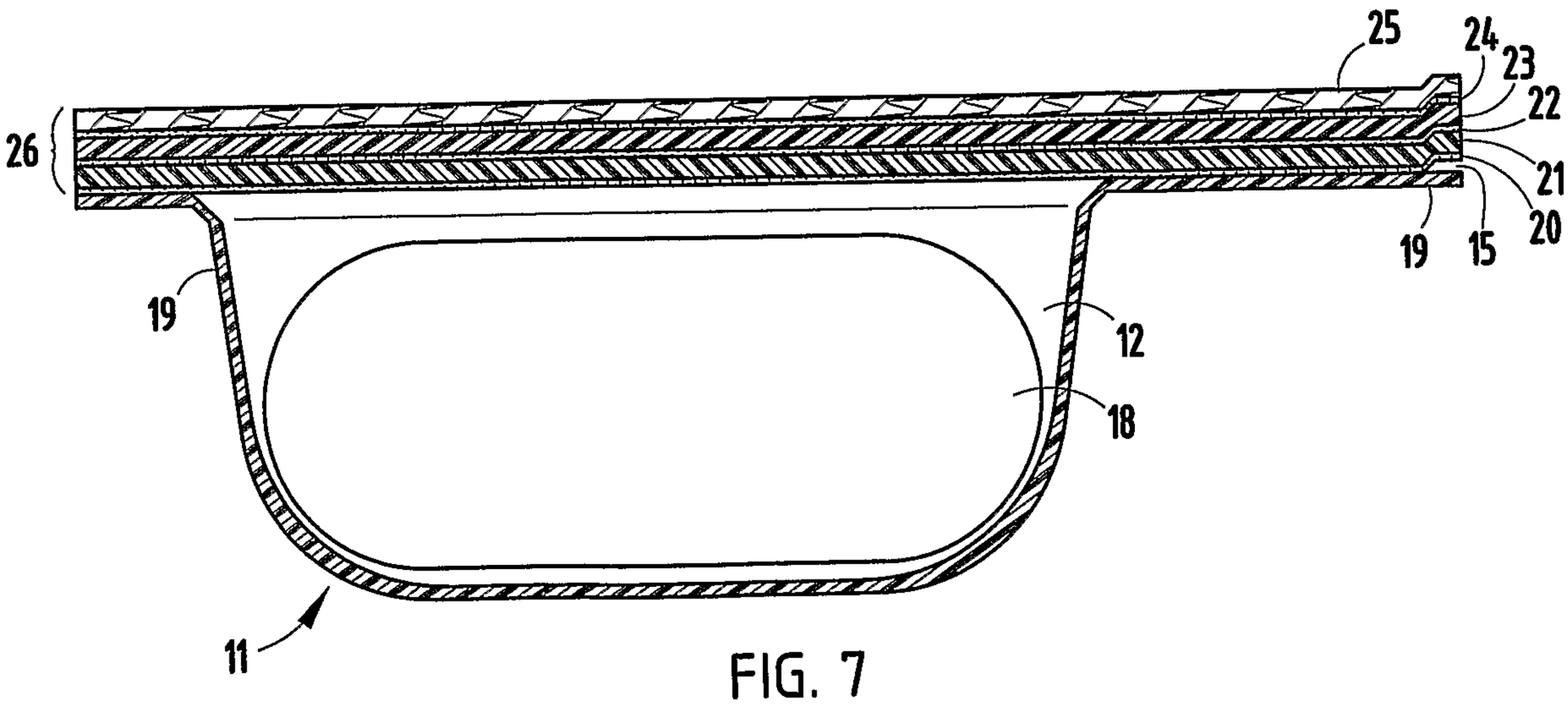


FIG. 7

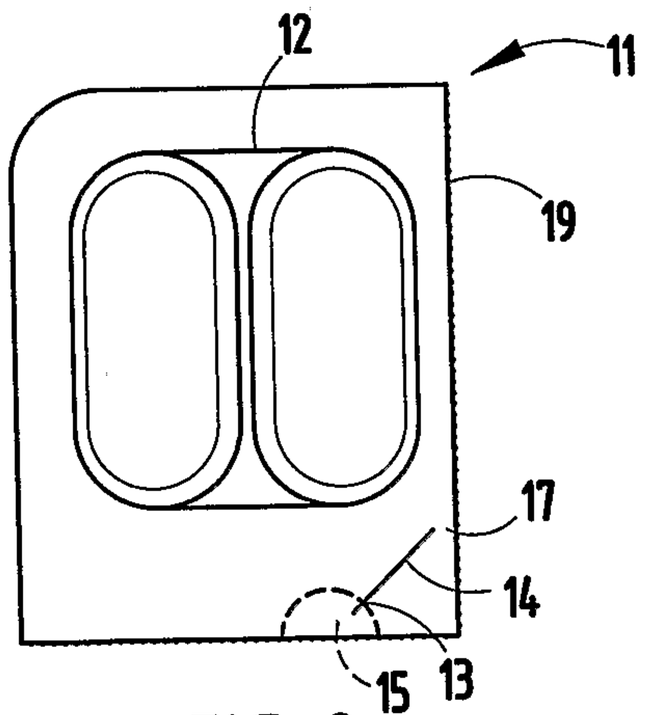


FIG. 2

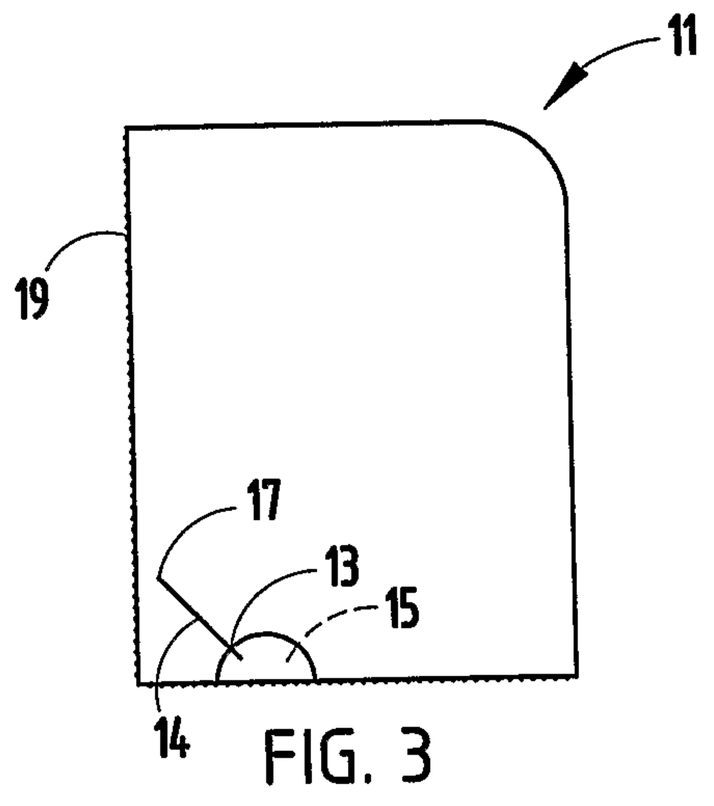


FIG. 3

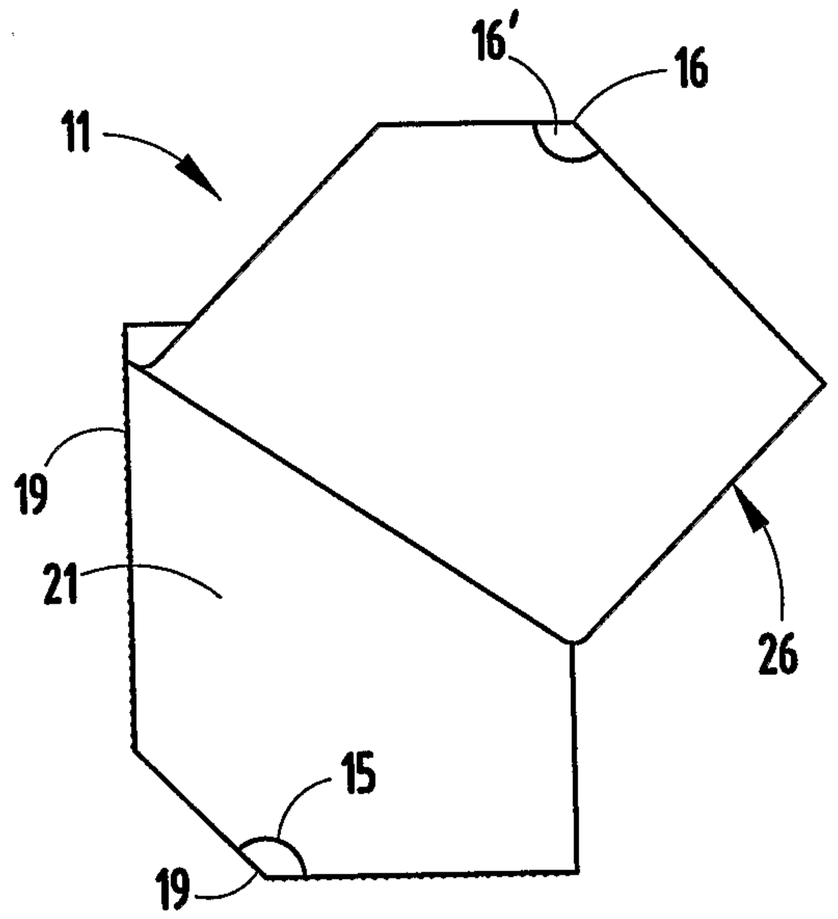


FIG. 5

FIG. 4

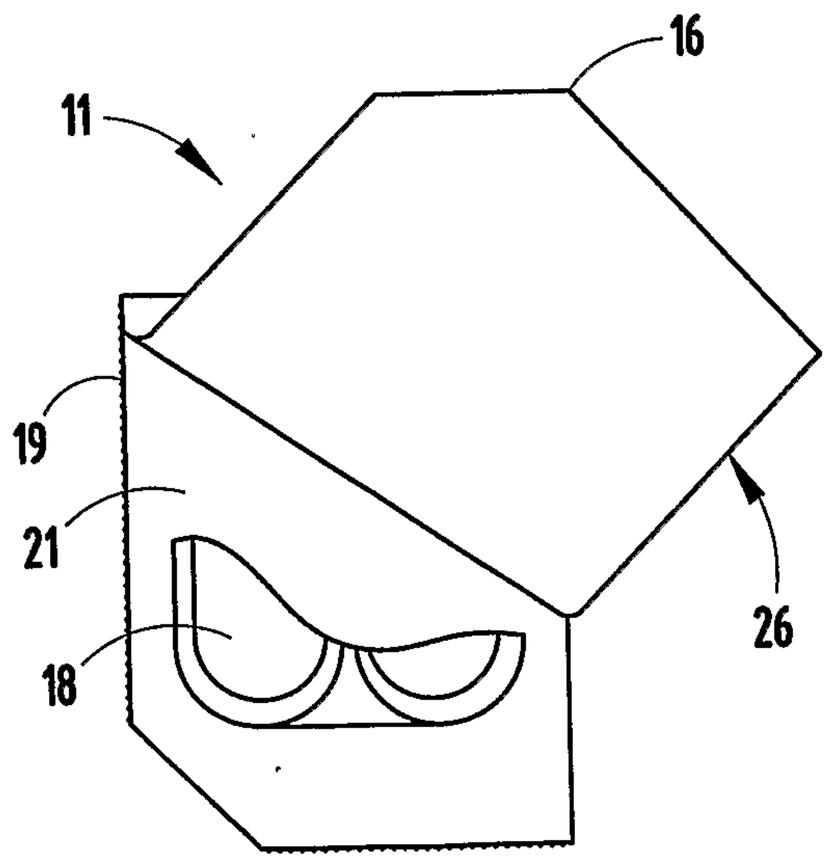
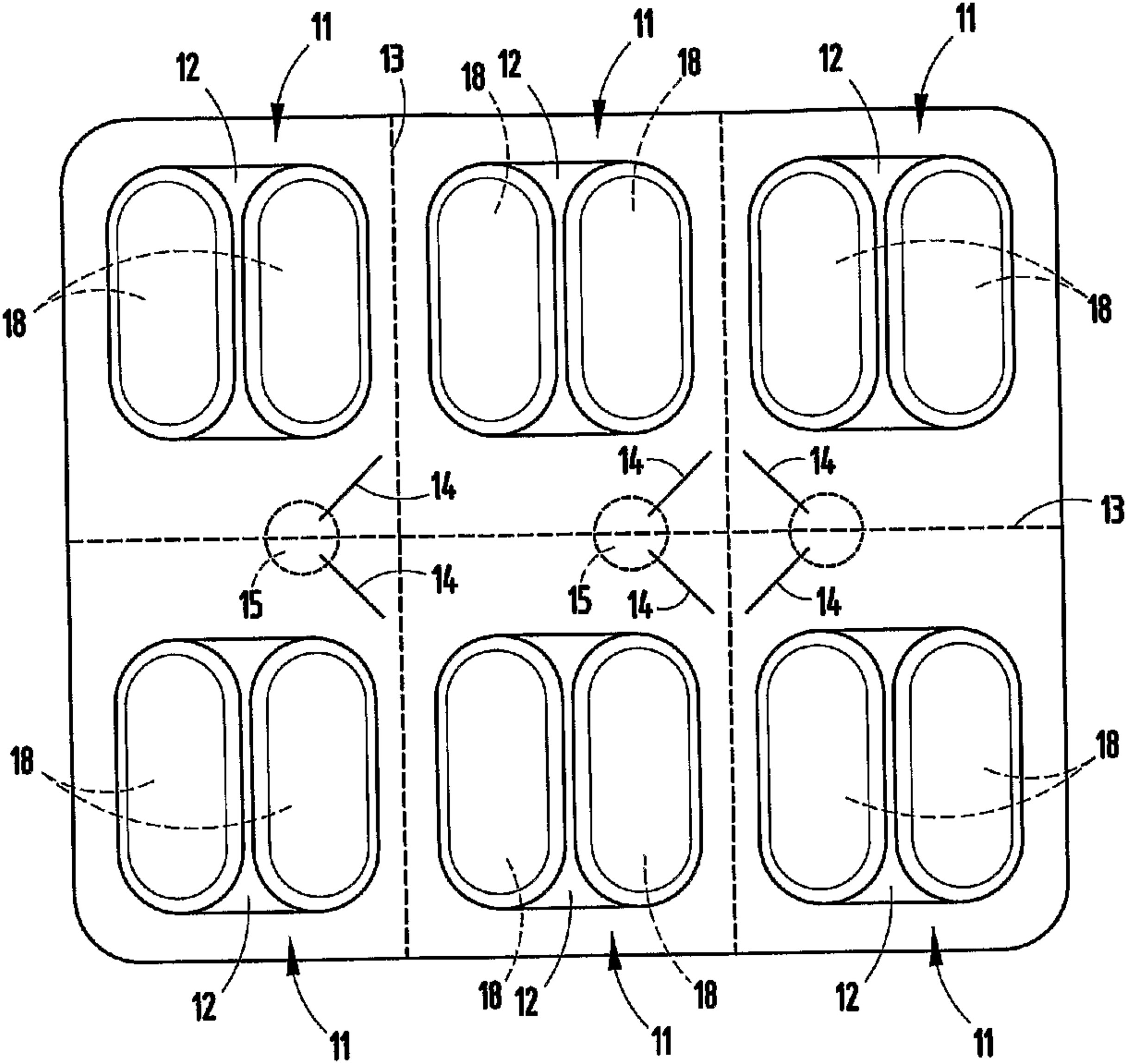


FIG. 6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