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(71) Applicant (for all designated States except US): **MEAD-WESTVACO CORPORATION** [US/US]; 11013 West Broad Street, Glen Allen, VA 23060 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FRASER, Anthony, Henry, Joseph** [GB/GB]; The Priory, Ketton, Rutland PE9 3RD (GB). **FARRAR, Peter** [GB/GB]; Glenelg, Low Barn, Burley Lane, Menston, Leeds LS29 6EX (GB).

(74) Agent: **UNWIN, Stephen, Geoffrey**; Fry Heath & Spence LLP, The Gables, Massetts Road, Horley, Surrey RH6 7DQ (GB).

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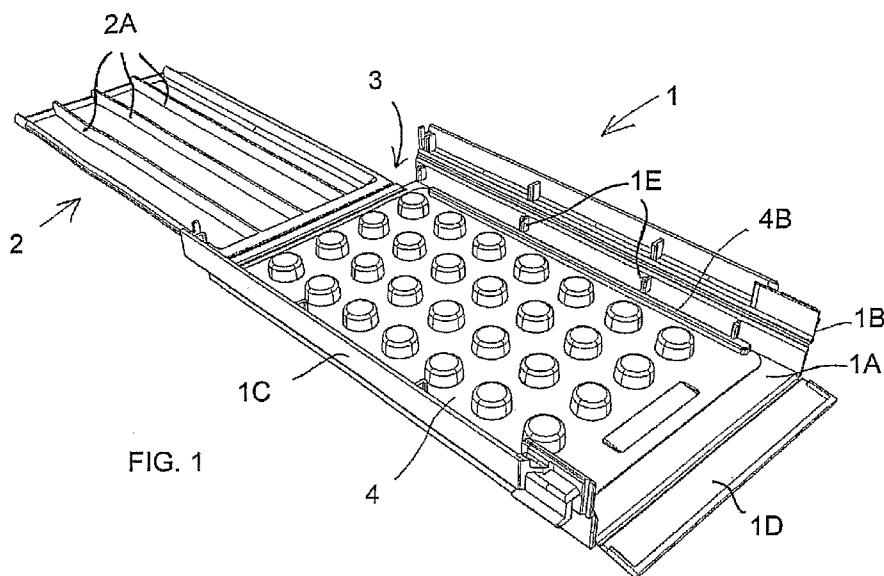


FIG. 1

(57) Abstract: A dispenser for housing at least one blister pack (comprising a generally planar face on one side thereof and one or more blisters on the opposite side thereof), the dispenser comprising a base portion, a lid portion, and a hinge portion connecting the base portion to the lid portion and about which the lid portion and/or base portion are movable between an open configuration and a closed configuration, e.g. in the form of an openable clamshell. The base portion and/or the lid portion has locating means for locating a blister pack within the dispenser and the locating means are adapted to enable sliding of the blister pack relative thereto in a direction substantially parallel to said planar face thereof between a storage position and at least one dispensing position. Preferred embodiments of the dispenser have 'senior-friendly' features and child resistant features.

Dispenser

TECHNICAL FIELD

This invention relates to a dispenser and, more particularly, a dispenser for housing a blister pack and dispensing articles therefrom.

BACKGROUND ART

A wide variety of containers are known for holding blister packs, e.g. containing an array of pills. Commonly, the blister pack is enclosed in a carton, e.g. a cardboard container one end of which opens to enable the blister pack to be inserted therein and removed therefrom.

A blister pack may also be provided in a plastic sleeve which is closed on three sides but open at one end. Examples of such sleeves are described in WO2004/037657, WO2005/030606 and WO2005/049448.

These containers suffer from various disadvantages: they are generally designed to hold only a single blister pack, provisions for the display of compliance information (or other information) and/or the housing of a leaflet or booklet are limited and their manufacture requires the use of a relatively large amount of plastic material.

This invention seeks to provide a new form of dispenser which addresses these disadvantages and also provides for one or more of the following:

- a) enhancement of 'senior-friendly' features so the dispenser is relatively easy for an elderly person to open and operate,
- b) provide effective child-resistant features (by making them difficult for a young child to access the articles to be dispensed), and
- c) be relatively easy and inexpensive to manufacture.

A blister pack generally comprises a generally planar side formed by a foil (typically of aluminium) and a plastic layer having one or more blisters moulded therein. Each blister comprises an enclosure with an open side which is covered by the foil. Articles (such as pills) housed in said blisters can be ejected through the foil by pressing the relevant blister. Perforations may be provided in the foil in the area of each blister to facilitate rupture of a localised area of the foil as an article is ejected from a blister.

SUMMARY OF INVENTION

According to a first aspect of the invention, there is provided a dispenser for housing at least one blister pack (comprising a generally planar face on one side thereof and one or more blisters on the opposite side thereof), the dispenser comprising a base portion, a lid portion, and a hinge portion connecting the base portion to the lid portion and about which the lid portion and/or base portion are movable between an open configuration and a closed configuration, the base portion and/or the lid portion having locating means for locating a blister pack within the dispenser, the locating means being adapted to enable sliding of the blister pack relative thereto in a direction substantially parallel to said planar face thereof between a storage position and at least one dispensing position.

As will be described further below, the dispenser may be in the form of an openable clamshell. A clamshell dispenser provides several advantages over prior art sleeves such as those mentioned above. First, in preferred embodiments, two blister packs can be accommodated: one in the lid portion and one in the base portion. Also, as the dispenser opens, additional surfaces thereof become visible to the user and so can be used for display of compliance information, etc.

Preferred embodiments also provide dispensing means to assist the user (particularly an elderly user) in the dispensing of articles from a

blister pack, additional child-resistant features and/or additional features for holding and/or displaying information leaflets or booklets.

The dispenser is preferably formed from a plastics material and preferably formed as a one piece moulding (although it can be formed of other materials, e.g. cardboard or a combination of plastic and cardboard). It may be folded from a blank cut from a substantially flat sheet or roll of material. It may also be formed by a moulding process, e.g. vacuum moulding or injection moulding. In some cases, such techniques may also be used together, e.g. a pre-form may be made by vacuum moulding or injection moulding technique and then parts of the dispenser folded to create the base portion and/or lid portion thereof.

Such plastic containers can thus be formed in one piece and the amount of plastic material used in their construction can be relatively small.

In a clamshell container, the lid portion and base portion each extend over a major face of the container (rather than a minor face thereof). Both the lid and base portions may be sufficiently deep (in a direction perpendicular to their major face) to house an article (for instance a blister pack or a booklet). Generally, the lid and base portions comprise a substantially rectangular major face with side walls around the periphery thereof (or around at least part of the periphery). In many cases, the lid portion and base portion are of similar depth so the line at which the side walls thereof abut each other is substantially central (although, in some cases, the side walls of the base and lid portions may nest within each and thus overlap). Preferably, the depth of the container is relatively small compared to the length and/or width of the container. Fastening means are preferably provided for releasably fastening the lid and base portions together in the closed configuration.

According to a second aspect of the invention, there is provided a dispenser for housing at least one blister pack comprising a generally

planar face on one side thereof and one or more blisters on the opposite side thereof, the dispenser comprising a base portion, a lid portion, and a hinge portion connecting the base portion to the lid portion and about which the lid portion and/or base portion are movable between an open configuration and a closed configuration, the dispenser comprising one or more openings, or areas which can be opened, through which an article can be dispensed from a blister aligned with said opening.

According to a further aspect of the invention, there is provided a dispenser for housing at least one blister pack comprising a generally planar face on one side thereof and one or more blisters on the opposite side thereof, the dispenser comprising a base portion, a lid portion, and a hinge portion connecting the base portion to the lid portion and about which the lid portion and/or base portion are movable between an open configuration and a closed configuration, the lid and/or base portion defining an opening through which a blister pack can be inserted into the dispenser when the lid and base portions are in the open or closed configuration.

Other preferred and optional features of the invention will be apparent from the following description and from the subsidiary claims.

BRIEF DESCRIPTION OF DRAWINGS

The invention will now be further described, merely by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a first embodiment of a dispenser according to the present invention showing the dispenser opened out and with a blister pack loaded therein;

Figure 2 is a perspective view corresponding to Figure 1 after side parts have been folded inwards to hold the blister pack therein;

Figure 3 is a perspective view corresponding to Figure 2 showing the blister pack slid part way over a lid portion of the dispenser;

Figure 4 is an enlarged perspective view of an open end of the dispenser as shown in Figure 2;

Figure 5 is an enlarged perspective view of part of Figure 1;

Figure 6 is an enlarged perspective view of part of Figure 3 after the blister pack has been slid out as far as possible;

Figure 7 is an enlarged perspective view of the part shown in Figure 6 from a different direction and with a side bar folded inwards;

Figure 8 is a perspective view of the dispenser when closed seen from an opening end thereof;

Figure 9 is a perspective view of the dispenser when closed seen from a hinge end thereof;

Figures 10-12 are perspective views respectively showing: an open end of the dispenser ready to receive a blister pack therein; a blister pack partially inserted therein and when fully inserted therein;

Figure 13 is an enlarged perspective view of part of Figure 12 seen from a different direction;

Figure 14 shows a perspective view of a second embodiment of a dispenser according to the present invention and shows a blister pack ready for mounting therein;

Figure 15 shows the dispenser of Figure 14 with the blister pack mounted therein and sides folded over;

Figure 16 shows the dispenser of Figure 15 with the blister pack slid from being over the base portion to being over the lid portion;

Figure 17 shows the dispenser of Figure 16 after a pill has been ejected from the blister pack and the blister pack slid back over the base portion;

Figure 18 shows the dispenser of Figure 17 in the closed position;

Figure 19 shows a perspective view of a third embodiment of a dispenser shown in a closed position;

Figure 20 shows the dispenser of Figure 19 with the lid partially open;

Figure 21 shows the dispenser after the lid has been opened beyond 180 degrees so it swings around under the base portion;

Figure 22 shows the lid portion adjacent the underside of the base portion after it has been swung through 360 degrees;

Figure 23 illustrates ejection of a pill from the dispenser in the configuration of Figure 22;

Figures 24 A and B are perspective views of a fourth embodiment of a dispenser shown in a closed position (with an outer cover in place in Figure 24A and omitted in Figure 24B to reveal the internal components);

Figure 25 is a sectioned, perspective view to show the movements required to open the dispenser of Figure 24;

Figure 26 is a perspective view of the fourth embodiment in the open configuration;

Figure 27 is a perspective view similar to Figure 26 but showing the blister packs in a first dispensing position;

Figure 28 is a perspective view similar to Figure 26 but showing the blister packs in a final dispensing position;

Figure 29 is a perspective view of a blister pack suitable for use in the fourth embodiment;

Figure 30 is a perspective view of a further form of blister pack for use in a fifth embodiment;

Figure 31 is a plan view of a lid portion of a fifth embodiment of a dispenser shown in an open position with a blister pack installed therein;

Figure 32 is an enlarged plan view of part of the dispenser shown in Figure 31 with the blister pack in a first dispensing position; and

Figure 33 is an enlarged plan view of part of the dispenser shown in Figure 31 with the blister pack in final dispensing position.

DESCRIPTION OF PREFERRED EMBODIMENTS

Figure 1 shows a first embodiment of a dispenser comprising a base portion 1, a lid portion 2 and a hinge portion 3 that connects the base portion 1 to the lid portion 2. A clamshell form of container is thus provided. The base portion comprises a base part 1A, left and right side parts 1B, 1C and an end part 1D, these being shown in an open position in Figure 1. This dispenser may be formed by injection moulding a pre-form. Live hinges are moulded between parts of the pre-form so that it can subsequently be folded to form the dispenser as described below.

Figure 1 shows the left and right side parts 1B, 1C in a position perpendicular to the base part 1A and a blister pack 4 installed on the base part 1A. The blister pack 4 has a generally planar face (on the

underside in the view shown) comprising a rupturable sheet of foil and an array of blisters 4A on the opposite face (the upper face in the views shown) for housing articles, e.g. pills. Such blister packs are well known so will not be described further. The blister pack may be installed in the dispenser at this stage during manufacture of the dispenser or may be inserted at a later stage (as described below in relation to Figures 10-12).

The blister pack is provided with raised rib 4B along each side thereof and, as shown, these are located beneath inwardly extending projections 1E of the side parts 1B, 1C.

Figure 2 shows the dispenser after the top half of each of the side parts 1B, 1C has been folded inwards trapping the ribs 4B of the blister pack 4.

The blister pack 4 is thus located in the base portion 1 by the side ribs 4B fitting within channels formed by the side parts 1B and 1C and is a sliding fit within these channels so the blister pack can be slid relative to the base portion 1 in a direction parallel to these channels.

Figure 3 shows the dispenser in the open position and the blister pack 4 slid across the spine portion 3 and part way across the lid portion 2. The lid portion 2 is provided with ribs 2A which support the underside of the blister pack 4. The rows of blisters 4A are, however, aligned with openings or channels 4B between the rib 2A so, when a blister is pressed from above, the pill therein can be ejected into the channel 4B beneath the blister 4A. The pill can then be accessed either by tilting the dispenser so the pill slides down to an exposed part of the channel 2B or by sliding the blister pack 4 back over the base portion 1 to reveal the pill in the respective channel 2B.

Figure 4 shows an enlarged view of the open end of the base portion showing release catches 5A, 5B on each side thereof for releasably engaging the lid portion 2 in the closed configuration (as shown in Figure

8). Figure 4 also shows end part 1D in an open position. As will be described further below, the blister pack 4 may be slid into the dispenser through this opening.

Figure 5 shows an enlarged view of part of Figure 1 and, in particular, projections 1E on the lower half of the side part 1B and further projection 1F on the upper half of the side part 1B. The projection 1E and 1F are shaped so that when the top half of the side part is folded inwards they snap-fit together to lock the side part 1B in the position shown in Figure 2.

Figure 6 shows an enlarged view of part of the dispenser when the blister pack has been slid to the maximum extent over the lid portion 2. The rib 4B provided along the edge of the blister pack 4 has a step 4C near its end which, in use, engages an end wall 1G of the side part 1B (when the side part is in the folded in position shown in figure 2) to prevent the blister pack being slid further over the lid portion 2. Figure 7 illustrates the blister pack in this position with the side wall in the folded position (the step 4C being concealed thereby). The blister pack 4 is thus trapped in the dispenser and cannot be removed therefrom.

Figure 8 is a perspective view of the clamshell dispenser in the closed position. To open the dispenser, release catches 5A and 5B must be simultaneously pressed so they move outwards to release the lid portion 2. Figure 9 is a perspective view of the dispenser in the closed position from the other end.

Figures 10-12 illustrate loading of the blister pack 4 through an open end of the clamshell dispenser 1. The dispenser is first assembled as described above but with the end part left open as shown in Figure 10 ready to receive the blister pack 4. The blister pack is then slid into the open end by engaging its edges and the ribs 4B in the channels formed by the side parts 1B as shown in Figure 11. Figure 12 shows the blister pack fully inserted into the dispenser prior to closing of the end part 1D.

Figure 13 is an enlarged view of one side of the dispenser in the position shown in Figure 12 and shows that the end of the end part 1D is provided with a step feature 1H which engages with a recess 1J in the side part 1B so as to provide a snap-fit therewith. Thus, once the end part 1D has been closed, it firmly engages the side parts 1B and cannot be re-opened (unless substantial force is applied to overcome or break the snap-fit therebetween).

Being able to load the blister pack 4 into the dispenser through an open end of the dispenser as described above is a significant advantage as such an arrangement is compatible with existing automatic filling lines such as those used for a wide range of products housed in cartons.

In the embodiment described above in relation to Figures 1-13, the lid portion 2 provided two functions. First, it acts as a lid to close the dispenser. Second, once opened and swung through 180 degrees to the position shown in Figures 1-3, it acts as a dispenser or pill-catcher, i.e. a region for receiving pills ejected from the blister pack 4 and for holding the pills ready for removal by the user.

It will also be appreciated that the arrangement described above is space-efficient. When the lid portion 2 is closed, the ribs 2A lie between the rows of blisters 4A on the blister pack 4 and the blisters lie (at least partially) within the channels 2B so the thickness of the dispenser in the closed position (as shown in Figures 8-9) can be minimised. After the lid portion 2 has been opened through 180 degrees and the blister pack 4 slid over the lid portion 4 (as shown in Figure 3), the ribs 2A and channels 2B lie on the other side of the blister pack 4 and provide a space into which pills can be ejected.

Figures 14-18 show a second embodiment of a dispenser according to the present invention. The dispenser comprises a base portion 11 with side parts 11B and a lid portion 12 with side parts 12B joined by a hinge

portion 13. The hinge portion 13 is preferably connected to both the lid and base portion by a live hinge. This embodiment may be formed by a vacuum moulding process to produce the shape shown in Figure 14. Sides 11B, 12B of the base and lid portions 11, 12 are then folded over to form channels in which the edges of a blister pack 14 can be slidably mounted (as shown in Figure 15). The blister pack 14 may be of conventional form or may have ridges along its longitudinal edges which are trapped in the channels formed by the sides 12B when these are folded over. In the position shown in Figure 15, the lid portion 12 (which is substantially flat) lies under the blister pack and thus prevents pills being ejected therefrom.

The base portion 11 is formed with a recess or removal area 11C therein and the blister pack 14 can be slid from the lid portion 12 over the base portion 11, i.e. from the position shown in Figure 15 to that shown in Figure 16. A blister 14A of blister pack can then be pressed to eject a pill into the recess 11C. The blister pack 14 can then be slid back over the lid portion 11 leaving the pill in the recess 11C ready for removal by the user (as shown in Figure 17). When the blister pack 14 is slid over the base portion 11, graphics on the lid portion 12 are revealed, e.g. providing compliance information which relates to the arrangement of pills in the blister pack 14. Finally, the dispenser is folded about the hinge portion 13 to the closed position as shown in Figure 18. The lid portion and base portion are provided with inter-engageable projections 11D and 12C which inter-engage to releasably hold the dispenser in the closed position. The recess 11C thus provides a cover over the blister pack when the dispenser is closed and provides a receiving area into which pills can be ejected when the dispenser is open.

A printed sheet (not shown) may be provided on the dispenser and preferably wraps around it, from the inner surface of the lid portion, around the end thereof and over the underside of the lid and base portions 11, 12, around the end of the base portion and then over the upper surface of the base portion (the sheet may comprise two strips

which adhere to the base portions either side of the recess 11C). The printed sheet is preferably applied before the blister pack 14 is inserted and before the side parts 11B, 12B are folded inwards. In another arrangement, the printed sheet may be attached to the blister pack 14 so it is moved as the blister pack is slid from the lid portion 12 to the base portion 11 (and vice versa). The sheet may be formed as a loop which rotates about the dispenser as the blister pack is moved.

Figures 19-23 illustrate a third embodiment of a clamshell dispenser. This comprises a base portion 21, lid portion 22 and hinge portion 23 with a blister pack 24 located within the base portion 21. This embodiment is suitable for forming by an injection moulding process.

The lid portion 22 has a recess 22A formed in the upper surface thereof as shown in Figure 19. The lid portion 22 is opened as shown in Figure 20 and rotated through more than 180 degrees so as to lie beneath the base portion (Figure 21) until it lies adjacent the underside of the base portion 21 as shown in Figure 22. The recess 22A then lies beneath apertures 21A in the lower surface of the base portion 21.

The blister pack 24 is slidable within the base portion 21 from a first position (shown in Figure 20) in which the blisters 24A are not aligned with the aperture 21A in the base portion to a second position (shown in Figure 23) in which they are aligned with these apertures.

A blister 24A can thus be pressed to eject a pill through a respective aperture into the recess 22A which acts as a pill catcher. The dispenser can then be tilted until the pill slides out of a chute 22B provided at the distal end of the lid portion 22.

The dispenser can then be closed by rotating the lid portion 22 back through 360 degrees to the position shown in Figure 19.

In a preferred arrangement, a mechanism may be provided such that opening of the lid portion 22 moves the blister pack 24 to the second position and closing of the lid portion moves it back to the first position.

In an alternative arrangement (not shown), a member with one or more apertures provided therein may be movable relative to the blister pack so as to be movable from a position in which the apertures are not aligned with any of the blisters of the blister pack to a position in which the apertures are aligned with one or more blisters so as to enable the contents of those blisters to be ejected through said apertures.

Figures 24-28 illustrate a fourth embodiment of a dispenser according to the present invention and Figure 29 illustrates a modified form of blister pack for installing in such a dispenser. This embodiment is capable of housing two blister packs – one in the lid portion and one in the base portion (although in some uses only one blister pack may be installed and some other article or leaflet housed in the other portion). This embodiment is suitable for forming by an injection moulding process.

The fourth embodiment comprises a base portion 31, lid portion 32 and a hinge portion 33 that connects the base portion 31 to the lid portion. Figures 24A and B show the dispenser in the closed configuration (with an outer cover 30 removed in Figure 23B to reveal the internal components). The outer cover would typically be a sheet of card which extends across the major external faces of the lid portion 32, hinge portion 33 and base portion 31 and is adhered or bonded to the plastic injection moulded component shown in Figure 24B.

By forming only the framework of the dispenser of plastic so that the major faces thereof are provided by the outer cover, the amount of plastic material used can be minimised. The outer cover can be securely bonded to the framework so that the security of the container is not compromised. Such an outer cover, may also have information or graphics provided thereon and both faces thereof may be visible. In

contrast, the known plastic sleeves referred to above, use a relatively large amount of plastic material to provide the faces of the sleeve and a label is then affixed to the outer surfaces thereof for the display of information and graphics.

One or more blister packs 34 can be inserted in the dispenser through an opening 40 in one end thereof when the base and lid portions 31, 32 are in the closed configuration. One or more flaps 45 (shown in Figure 24A but omitted in Figure 24B) or some other form of closure may be provided for closing the opening 40 once the blister packs 34 have been installed in the dispenser. In some cases, the closure 45 may be a snap-fit with the aperture so, once this has been closed, it cannot be re-opened.

Whilst blister packs can be inserted through the end slot in the clamshell in the same way as a cardboard carton, it is also possible to slide each of the blister packs into the lid and base portions when in the open configuration through the cut-outs or recesses that form the opening 40 when the dispenser is closed.

To access the blister packs in order to dispense one or more pills, a detachable part 30A of the external cover (see Figure 24A) is removed to reveal dispensing apertures 31 located in a dispensing area at one end of the base or lid portions adjacent one end of the blister packs held therein. The dispenser is then opened by simultaneously pressing two buttons 42A, 42B on the lid portion 32 adjacent the hinge portion 33 (as indicated by arrow (1) in Figure 25), then sliding the lid portion 32 in a direction perpendicular to the length of the hinge portion (as indicated by arrow (2) in Figure 25) to disengage interlocking flanges 31A and 32A which extend along the length of the base and lid portions 31, 32 so that the lid portion is free to swing open by pivoting about the hinge portion (as indicated by arrow (3) in Figure 25). The two buttons 42A, 42B are preferably accessed directly via rectangular apertures 34B provided in the outer cover 30 as shown in Figure 24A.

Figure 26 shows the dispenser in the open configuration with a blister pack 34A housed in the lid portion 32 and a blister pack 34B housed in the base portion 31. As shown in Figure 29, each blister pack has an array of blisters 34C provided thereon and an intermittent rib 34D adjacent the edges of the blister pack. The intermittent rib 34D is formed by a series of spaced projections (but could also comprise a continuous rib of varying height). At the end of each intermittent rib, a further projection 34E is formed to provide a stop feature. The intermittent ribs and stop feature are preferably formed as additional blisters along the sides of the blister pack. A tool for manufacturing standard blister packs can be easily modified to provide the intermittent rib and stop feature on the sides of the blister pack e.g. by cutting extra features in the mould within the existing template for the blister pack.

A channel 43 is formed along the edges of both the lid and base portion 31, 32 to receive the intermittent ribs 34D. Thus, when a blister pack is inserted into the open end of the dispenser, the ribs 34D are located in the respective channels 43 and then slid along the channels to the storage position shown in Figure 26. The channel may be continuous as shown or comprise a series of separate sections which provide the same function.

To dispense one or more pills from a blister pack 34, the blister pack 34 is slid to the position shown in Figure 27 so the first line of blisters is located over the dispensing apertures 41A, 41B. These apertures are provided in a ramp 44 towards one end of the base portion 31 or lid portion 32. A removal area is thus defined beneath each ramp 43 which is in communication with the exterior of the dispenser (once the detachable part 30A of the external cover referred to above has been removed). The use of inclined ramps 44, enables a dispensing space to be created in both the lid and base portions 31, 32 without increasing the overall depth of the dispenser. Once a blister has been aligned with one of the apertures 41, it can be pressed to dispense a pill through the

aperture 41 and into the removal area from where it can fall onto a surface or into a user's hand.

The blister pack 34 is flexed about a line extending across its width into a curved form as it is slid up the ramp 44. This helps ensure that the longitudinal edges of the blister pack 34 remain located beneath the channels 43 as it is then very difficult for the blister pack 34 to be simultaneously bowed or curved about a line extending along its length to withdraw its edges from beneath the channels 43.

After pills have been dispensed from the first line of blisters, the blister pack 34 is slid further along so the second row of blisters is aligned with the dispensing apertures 41 and so on until the last line of blisters is reached as shown in Figure 28.

The intermittent ribs 34D along the sides of the blister pack are preferably arranged to interact with a resilient flap 43A (or other projection) at the end of each channel 43 to provide an indexing mechanism whereby as each projection of the intermittent rib is pulled past the flap 43A, a respective line of blisters is positioned over the dispensing apertures 41 until the stop feature 34E is reached. This is shaped so that it cannot be pulled past the resilient flap 43A (except by application of an excessive force) so that the blister pack 34 is effectively trapped in the dispenser. The stop feature 34E may be hook-shaped so it engages part of the lid/base portion and so prevents the blister pack being separated from the dispenser.

After pills in each line of blisters have been dispensed, the blister pack 34 may be pushed back into the dispenser so it returns to the storage position shown in Figure 26. The projections 34D are shaped so they can slide back past the resilient flap 43A relatively easily. The lid and base portions can then be moved to the closed configuration whereby the blister pack is no longer accessible from outside the dispenser. Alternatively, the blister pack 34 can be left projecting from the dispenser

(or cut off), although this is not preferred as some of the child resistant features may then be circumvented and it may prevent closure of the clamshell dispenser.

In an alternative embodiment, a locking feature, e.g. one or more projections (not shown), may be provided on the lid portion to prevent a blister pack housed in the base portion from being slid out of the dispenser when the dispenser is in the closed position. A user thus has to open the dispenser before either of the blister packs 34 can be slid out of the dispenser.

The embodiment shown in Figures 24-28 is also provided with one or more booklet clips 45 adjacent the hinge portion 33 so that when the dispenser is in the open configuration a booklet housing area 46 is provided in the centre of the dispenser (as best shown in Figure 26). Booklets housed in recessed area 46 would be supported at their edges by flanges 46A, 46B of the lid and base portions 31, 32, respectively, and by the external cover (not shown) which would extend across the underside of the dispenser in the open configuration shown in Figure 26.

The booklet clips 45 are preferably similar to those widely used in DVD containers so will not be described further. A booklet may be pre-loaded into area 46, i.e. before the lid and base portions 31, 32 are moved to the closed configuration. A booklet housed in area 46 does not therefore interfere with the loading or dispensing of the blister packs.

The hinge portion thus comprises a literature receiving area which lies between said first and second locating means when the dispenser is in the open configuration.

As well as providing a separate area lying between the two blister packs 34A, 34B for holding and/or displaying literature and graphics material, sheet material located within area 46 is folded or bent into a

curved shape when the dispenser is moved to the closed configuration. It has been found that such folded or curved sheet material acts as a resilient element which urges the lid and base portions apart, and thus assists in opening the dispenser, once the engagement holding the lid and base portions in the closed configuration is released.

Other resilient means, e.g. a resilient arm extending from the base and/or lid portions may be used in place of, or in addition to, sheet material in area 46 to urge the lid and base portions apart once released.

In the fourth embodiment described above, the hinge portion 33 extends along the long edge of the dispenser and the blister packs are arranged to slide in a direction substantially parallel to the hinge axis about which the lid and base portions rotate. This is the preferred arrangement as, when the dispenser is in the open configuration, it then has an approximately square perimeter. However, it is also possible for the hinge to be provided along a short edge of the dispenser (as it is in the other embodiments described above). In this case, the blister packs may slide out over the hinge portion (particularly if they are inserted into the dispenser through an opening in the edge opposite the hinge portion) although they may also be arranged to slide away from the hinge portion.

It will be appreciated from the above description that each edge of the dispenser provides a separate function: one long edge provides the hinge portion (as well as the booklet clips 45 and release button 42B), the other long edge provides the interlocking flanges 31A, 31B, one short edge provides the opening 40 through which blister packs (and additional literature) can be inserted and the other short edge provides the dispensing apertures 41A, 41B and the removal area defined beneath these apertures. Such an arrangement is thus highly space efficient.

Figure 30 is a perspective view of a further form of blister pack that may be used in a fifth embodiment of a dispenser according to the invention. Figures 31 – 33 are plan views of a lid portion 50 of the fifth

embodiment shown in the open position. The fifth embodiment is similar to the fourth embodiment shown in Figures 24 -28 but has a different form of indexing mechanism for indexing movement of the blister pack between the various dispensing positions and a different form of stop mechanism for preventing complete removal of the blister pack from the dispenser. A similar indexing system (not shown) may be provided in the base portion as well as the lid portion of the dispenser.

The blister pack 54 shown in Figure 30 has a series of cut-outs or notches 51A formed in each of the longitudinal edges thereof and a final cut-out 51B that forms a hook-shape 51C adjacent one end of the blister pack 54. Such cut-outs 51A, 51B can be easily formed during the die-cutting of the blister pack 54.

The dispenser is provided with a resilient member or projection 52 at each side thereof position to engage the cut-outs 51A as the blister pack is slid from its storage position (shown in Figure 31) to a first dispensing position (shown in Figure 32) and subsequent dispensing positions (not shown) until they engage the final cut-outs 51B (as shown in Figure 33) to prevent the blister pack being slid any further out of the dispenser.

The projection 52 and cut-outs 51A are shaped so that the projection can slide into cut-out 51A as the blister pack is slid to a dispensing position to releasably hold the blister pack in each of the dispensing positions in which blisters 54A are aligned with the dispensing apertures 50A in the lid portion 50. Application of a slightly increased sliding force disengages the projection 52 from one cut-out 51A so the blister pack can be slid further until the projection engages in the next cut-out 51A.

Preferably, the projections 52 are provided on resilient arms 52A extending from the sides of the dispenser, eg from the channels 53 as shown. However, other forms of projections may be used which

successively engage the cut-outs in the blister pack and ride over the protrusions between the cut-outs.

The projections 52 and the final cut-out 51B are shaped to engage each other so as to prevent the blister pack 54 being slid further out of the dispenser (although they do not prevent the blister pack from being slid back into the dispenser). For example, they may each be hook-shaped as shown in Figure 33.

Each of the embodiments described above has locating means for locating one or more blister packs in a dispenser and is adapted to enable sliding of the or each blister pack within the dispenser. The embodiments illustrate a variety of mechanisms for achieving this. Other mechanisms may also be used.

A slot may, for example, be provided in the blister pack which is located over a post or rib provided in the dispenser such that the blister pack can be slid out of the container until the post or rib reaches the end of the slot which then prevents the blister pack being removed from the dispenser. Such a sliding mechanism is disclosed in WO2004/037657 so will not be described further here.

As indicated, the direction of sliding may be towards or away from the hinge portion or may be in a direction parallel to the hinge portion.

Preferably, the dispenser is provided with indexing means for locating a blister pack in a series of dispensing position. In preferred embodiments the indexing mechanism helps align each of the blisters with the dispensing area as the blister pack is slid out of the dispenser. The fourth embodiment has an indexing mechanism which comprises a series of projections (e.g. the intermittent rib 34D) extending out of the plane of the blister pack which are moved past a resilient member (e.g. the resilient flap 43A). In the fifth embodiment one or both longitudinal edges of the blister pack are shaped, e.g. by providing cut-outs therein, so as to

form a series of protrusions which extend laterally (i.e. within the plane of the blister pack) therefrom and a post or resilient arm is provided in the dispenser over which the protrusions ride as the blister pack is slid to successive dispensing positions. In such an arrangement, there is no longer a need to provide the ribs 34D along the edges of the blister pack 34. The channels 43 thus merely need to be shaped so as to prevent the blister pack 34 from being lifted out of the dispenser.

Other forms of indexing mechanisms may also be provided.

For a blister pack comprising a slot which is fitted over a post (as mentioned above), the slot may have narrow and wide portions and the post be of a size such that it fits in the wide portion but has to be pulled through the narrow portion so as to provide an indexing system.

A further form of indexing system is described in WO2004/037657.

Similarly, other forms of stop-feature may be used in place of those described above in relation to the fourth and fifth embodiments to prevent the blister pack being removed from the dispenser.

Graphics are preferably provided in the dispenser which are gradually revealed as the blister pack is slid out. Typically, such graphics would indicate time intervals appropriate to the medication housed in the blister pack, e.g. the days of the week and/or the time of day (morning, afternoon, evening, night).

As described above, in some of the embodiments, the lid and base portion of the dispenser define an aperture or slot in the closed configuration through which one or more blister packs (and, optionally, compliance literature) can be inserted into the dispenser. The ability to load blister packs into a dispenser in this manner provides significant advantages, as the dispenser can then be filled in a conventional filling line, e.g. as used to load blister packs into conventional cardboard cartons

or plastic sleeves. Closure means may be provided for closing the aperture or slot after a blister pack has been inserted into the dispenser. The closure means may be a snap-fit with the dispenser or may be hingedly attached to the lid and/or the base portion.

Thus, it will be appreciated that, in the preferred embodiments, the blister pack(s) can be both slid into the dispenser and slid out of the dispenser as articles are dispensed. The blister packs may be slid into one end of the dispenser and slid out of the opposite end. However, other embodiments which employ only some of these features are possible. For instance, a dispenser may be provided in which one or more blister packs can be slid into the dispenser via an aperture or slot in the closed configuration but which do not slide out over a dispensing feature. In the latter case, the dispenser may (for example) comprise an array of apertures with which the blisters are aligned, these apertures being gradually revealed/opened by movement or removal of a component which covers the apertures (e.g. similar to the arrangement described in relation to Figure 21). Similarly, a dispenser may be provided in which the blister pack is installed in the dispenser is in the open configuration (e.g. when a slot in the blister pack is located over a post in the base portion) and then slid out over the dispensing feature in the manner described above.

In the embodiments in which the blister pack can be slid out of the dispenser for dispensing pills, it is desirable that the blister pack be mechanically attached to the dispenser in some way so that it cannot be withdrawn completely or separated therefrom, otherwise the child resistant features may no longer be operative. Also, as indicated above, in embodiments in which the blister pack can be slid out of the dispenser, it is desirable that this only be possible when the dispenser is in the open configuration. As the user has to open the clamshell in order to slide out the blister pack, this helps ensure that the user sees information provided on the internal surfaces of the dispenser.

Each of the embodiments described is also advantageous in that they can house standard blister packs or blister packs which require only minor modification (such as a row of blisters providing an intermittent rib along an edge thereof) rather than requiring custom blister packs to be made.

Dispensing features are preferably provided to make the dispenser more "senior-friendly". As described, the dispenser may comprise one or more openings through which an article can be dispensed. The opening may be provided between support members which define a space into which an article can be dispensed or the opening may comprise an aperture with which a blister can be moved into alignment or may be provided in a ramp over which the blister pack is arranged to slide. A receiving area for receiving an article dispensed through said opening or aperture may also be provided.

The dispensing areas described above comprise an opening or aperture over which a blister can be located and which supports the blister pack adjacent the blister as the article is pushed from the blister through the foil layer of the blister pack. Other forms of dispensing area may be provided. In some forms of blister pack, portions of the foil layer can be peeled away to open a blister. In this case, the dispensing area need only provide access to part of the blister pack to enable the user to do this. In some cases, the articles may be dispensed from a blister which is moved to a position beyond an edge of the dispenser, e.g. in cases in which the blister pack is slid parallel to the hinge portion or away from the hinge portion.

The dispensers described have releasable fastening means that are preferably designed to be child resistant whilst also being senior friendly. First, in a preferred arrangement, the dispenser can only be opened by pressing two buttons (generally requiring two hands) and then a sliding movement in a different direction to release interlocking features. Once the dispenser has been opened, the flat, rupturable face of the blister

pack lies against the lid or base portion so cannot be directly accessed. The blister pack has to be slid to a dispensing position before a pill can be ejected from a blister and/or a detachable portion of the outer cover has to be removed before the ejected pill can be accessed.

A series of steps and actions is thus required which significantly reduces the chance that a young child will either accidentally (or intentionally) gain access to the pills. The features of the dispenser and the movements required are, however, such that the majority of elderly people should be able to operate the dispenser without difficulty. It will be seen that the use of an openable container increases the options available for enhancing the child-resistant features.

As described above, the dispenser can be fabricated in a variety of ways. It may, for example, be formed from a substantially flat sheet of material by a press moulding or vacuum moulding process and/or by folding or it may be formed by an injection moulding process.

The embodiments described above provide a wide variety of features. Many of these features can be inter-changed between embodiments. Further embodiments are thus envisaged which use a selection of the features from those described above. The invention thus extends to cover dispensers having other combinations of the features described.

CLAIMS

1. A dispenser for housing at least one blister pack (comprising a generally planar face on one side thereof and one or more blisters on the opposite side thereof), the dispenser comprising a base portion, a lid portion, and a hinge portion connecting the base portion to the lid portion and about which the lid portion and/or base portion are movable between an open configuration and a closed configuration, the base portion and/or the lid portion having locating means for locating a blister pack within the dispenser, the locating means being adapted to enable sliding of the blister pack relative thereto in a direction substantially parallel to said planar face thereof between a storage position and at least one dispensing position.
2. A dispenser as claimed in claim 1 comprising one or more openings, or areas which can be opened, through which an article can be dispensed from a blister aligned with said opening.
3. A dispenser as claimed in claim 1 or 2 in which the lid and/or base portion define an opening through which a blister pack can be inserted into the dispenser when the lid and base portions are in the open or closed configuration.
4. A dispenser as claimed in claim 1, 2 or 3 in which said locating means is arranged to locate a blister pack in directions perpendicular to said direction of sliding.
5. A dispenser as claimed in claim 4 in which said locating means comprise channels for receiving the edges of a blister pack.
6. A dispenser as claimed in claim 4 or 5 in which said locating means is shaped to receive a rib, or intermittent rib, extending along a blister pack.

7. A dispenser as claimed in any preceding claim having indexing means for locating a blister pack in a series of dispensing positions.

8. A dispenser as claimed in claim 7 in which the indexing means comprises a projection or resilient member arranged to interact with a series of projections extending out of the plane of the blister pack.

9. A dispenser as claimed in claim 7 in which the indexing means comprises a resilient member of projection arranged to interact with protrusions and/or cut-outs along one or more edges of a blister pack.

10. A dispenser as claimed in any preceding claims in which the direction of sliding is substantially parallel to a hinge axis about which the lid and base portions are rotatable.

11. A dispenser as claimed in any preceding claims having means for preventing a blister pack from being detached therefrom in the direction of sliding.

12. A dispenser as claimed in any of claims 1 to 9 in which the lid portion, once moved to an open position, is arranged to provide a receiving area for receiving an article dispensed from the blister pack.

13. A dispenser as claimed in claim 3, or any claim dependent thereon, having closure means for closing said opening after a blister pack has been inserted into the dispenser.

14. A dispenser as claimed in claim 14 in which the closure means is a snap-fit therewith.

15. A dispenser as claimed in claim 13 or 14 in which said closure means is hingedly attached to the lid and/or the base portion.

16. A dispenser as claimed in any of claims 13 to 15 in which said opening is provided at one end of the dispenser and a blister pack is arranged to slide in a direction away from said opening and out of an opposite end of the dispenser.

17. A dispenser as claimed in any preceding claim having fastening means for releasably fastening the lid and base portions together in the closed configuration.

18. A dispenser as claimed in claim 24 in which the fastening means comprises at least two release means that need to be pressed and/or require forces to be applied thereto in at least two directions in order to release the fastening between the lid and base portions.

19. A dispenser as claimed in any preceding claim having first locating means in the lid portion for receiving a first blister pack and second locating means in the base portion for receiving a second blister pack.

20. A dispenser as claimed in any preceding claim, formed from a substantially flat sheet of material by a press moulding or vacuum moulding process and/or by folding.

21. A dispenser as claimed in any of claims 1 to 19 formed in one part by an injection moulding process.

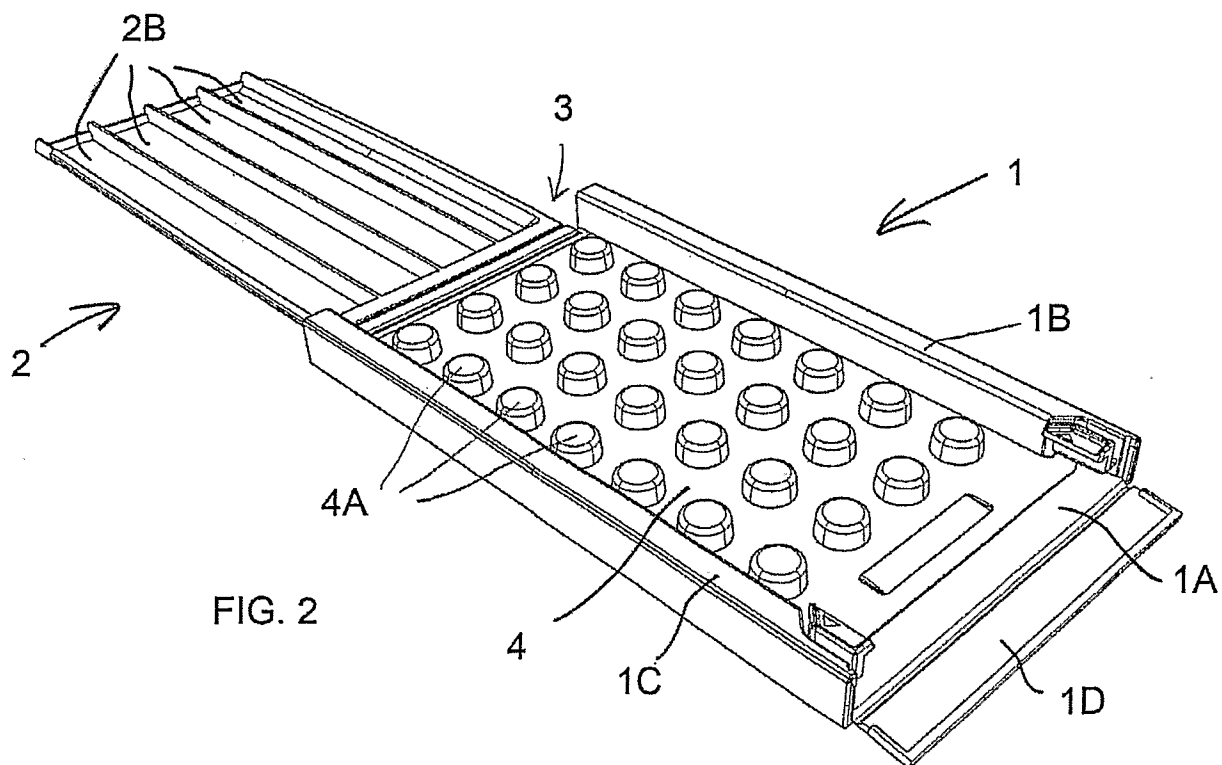
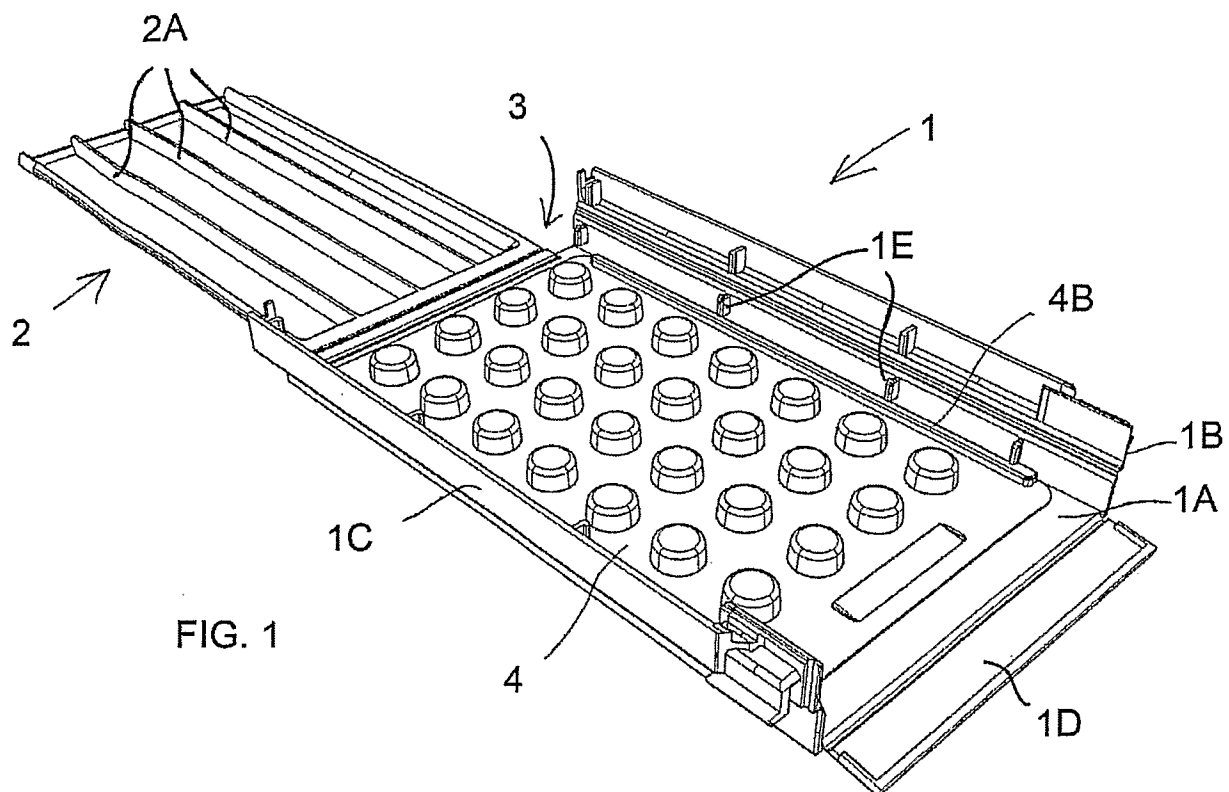
22. A dispenser as claimed in any preceding claim having one or more blister packs installed therein.

23. A dispenser as claimed in claim 22 in which the or each blister pack comprises an array of blisters thereon.

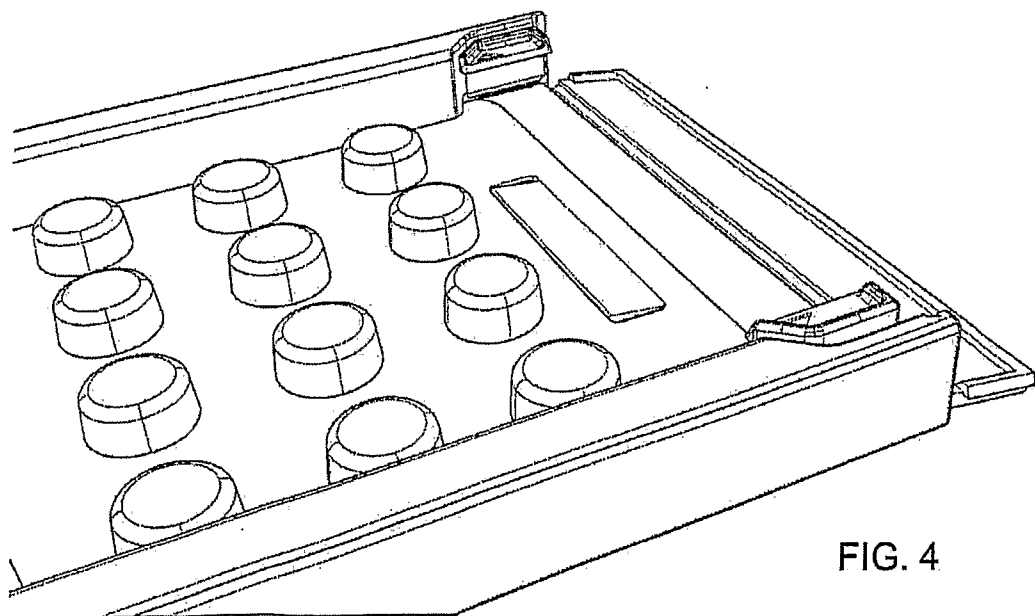
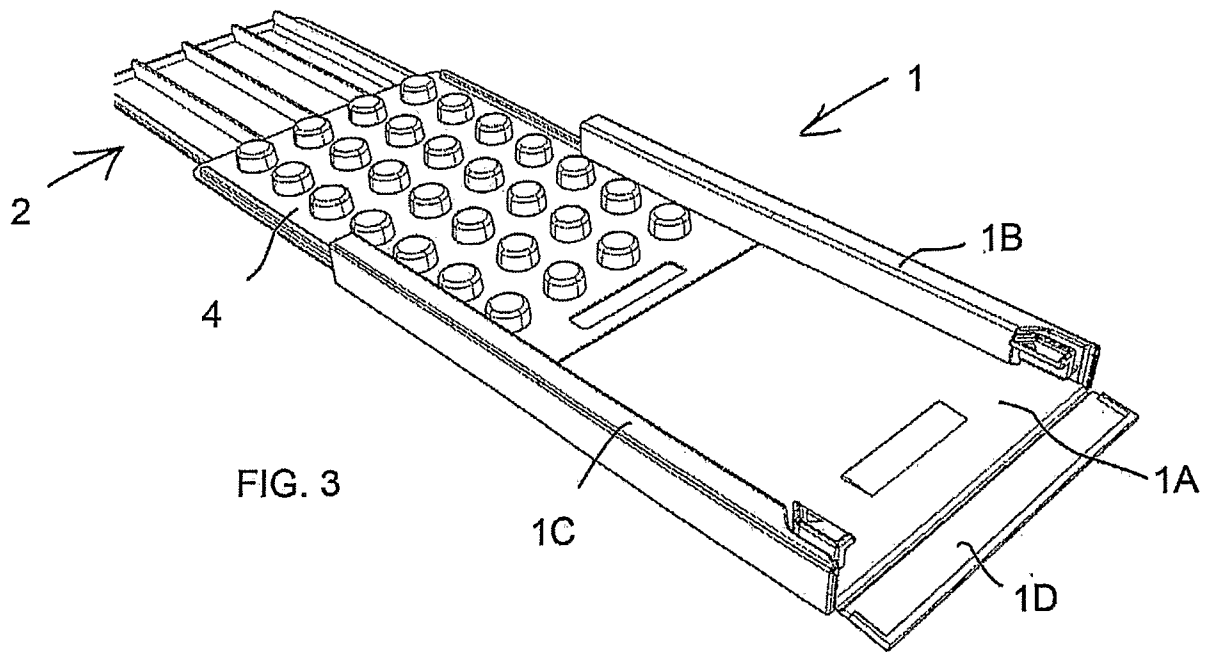
24. A dispenser as claimed in claim 22 or 23 in which the or each blister pack comprises a rib, or intermittent rib, along the edges thereof.

25. A dispenser as claimed in claims 22 or 23 in which the or each blister pack has cut-outs along one or more edges thereof.

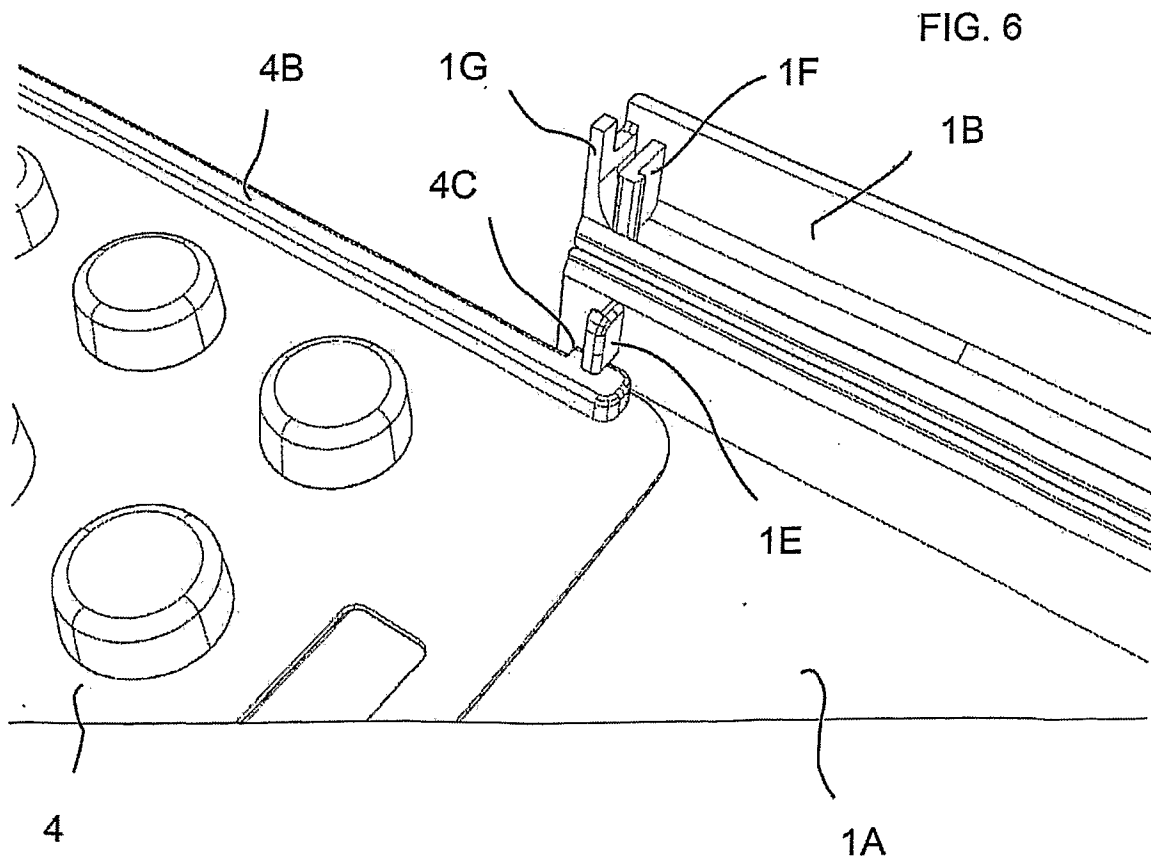
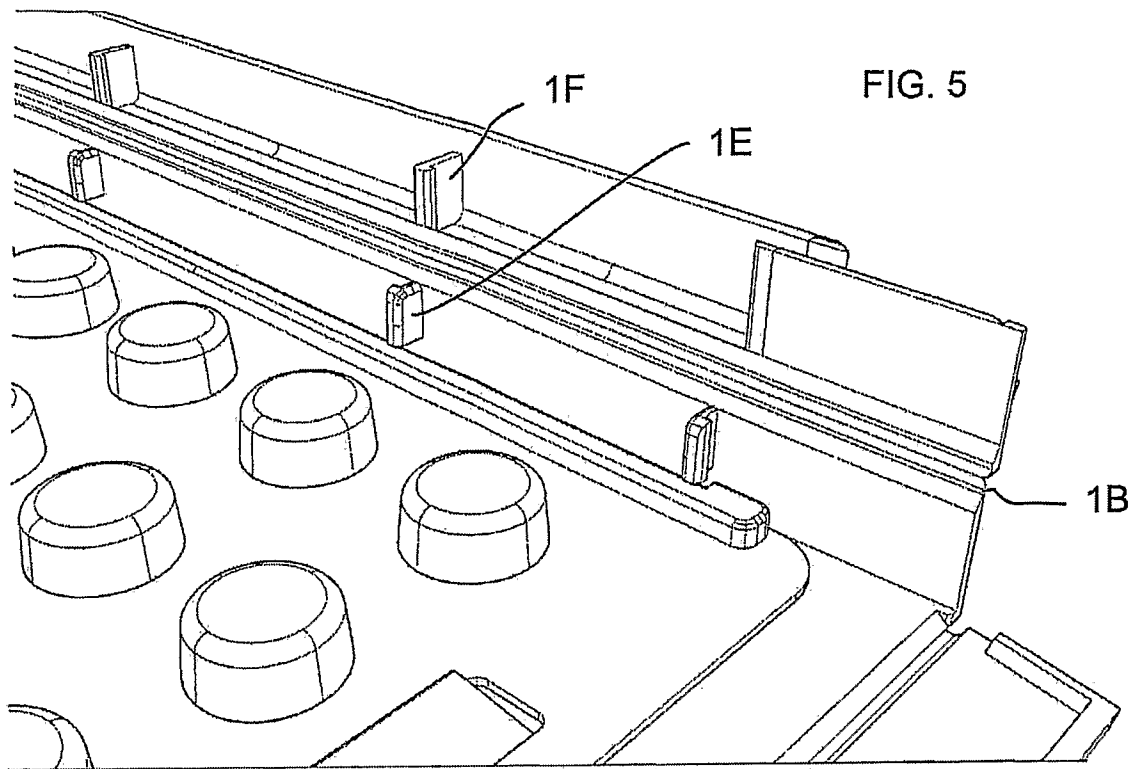
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FIG. 7

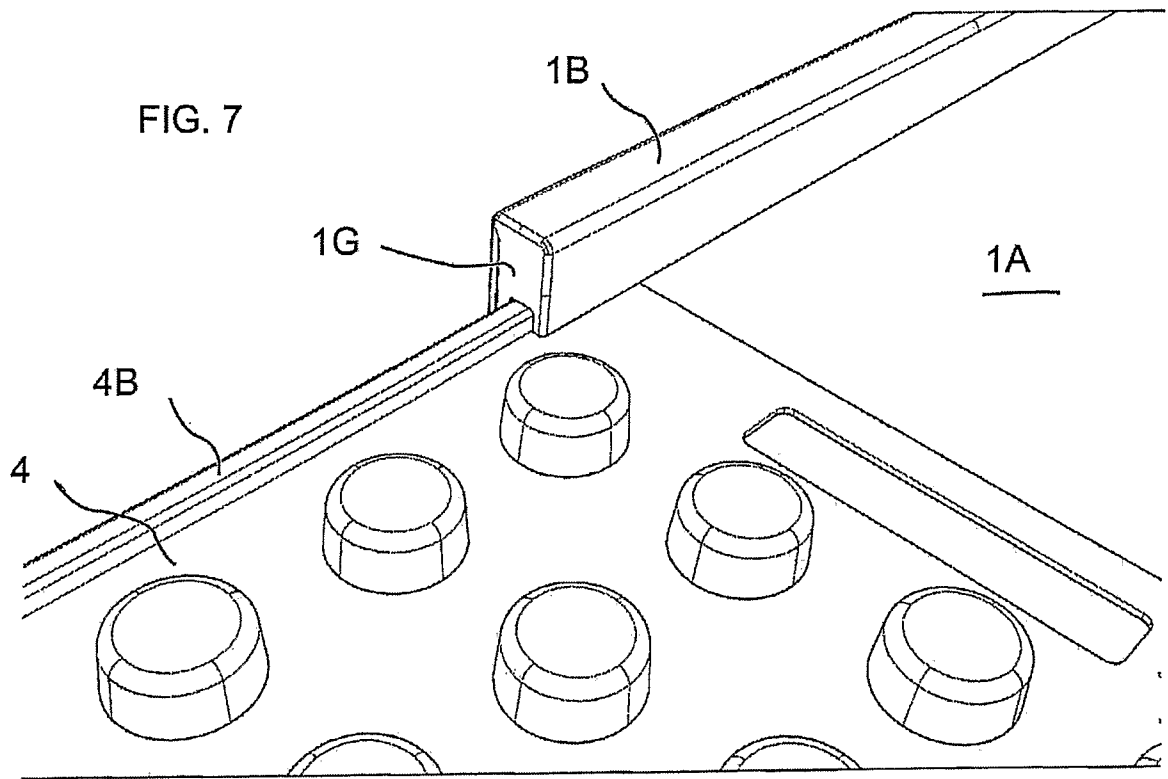
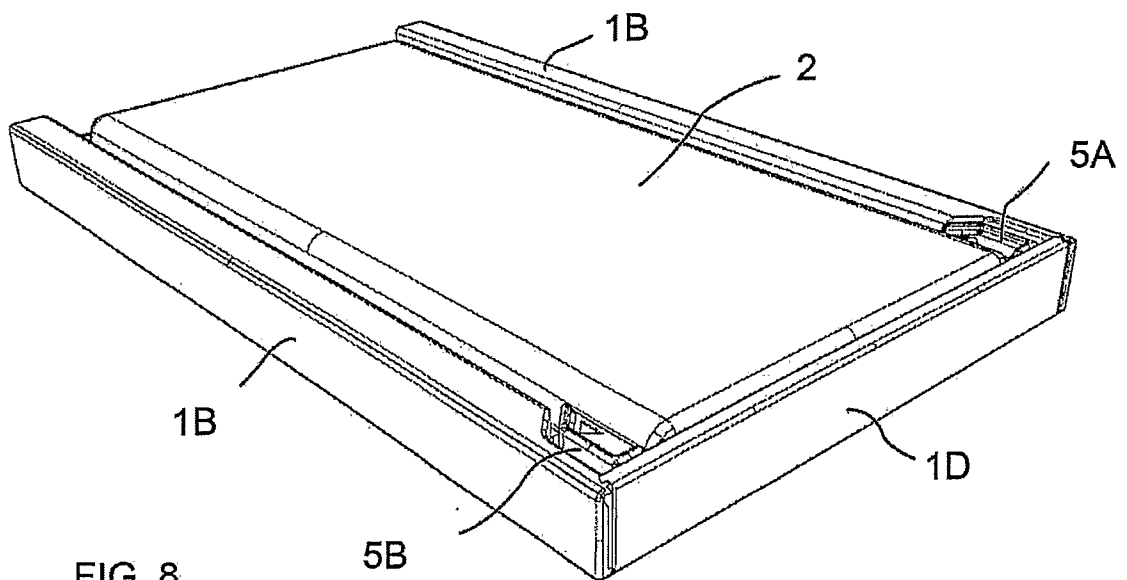
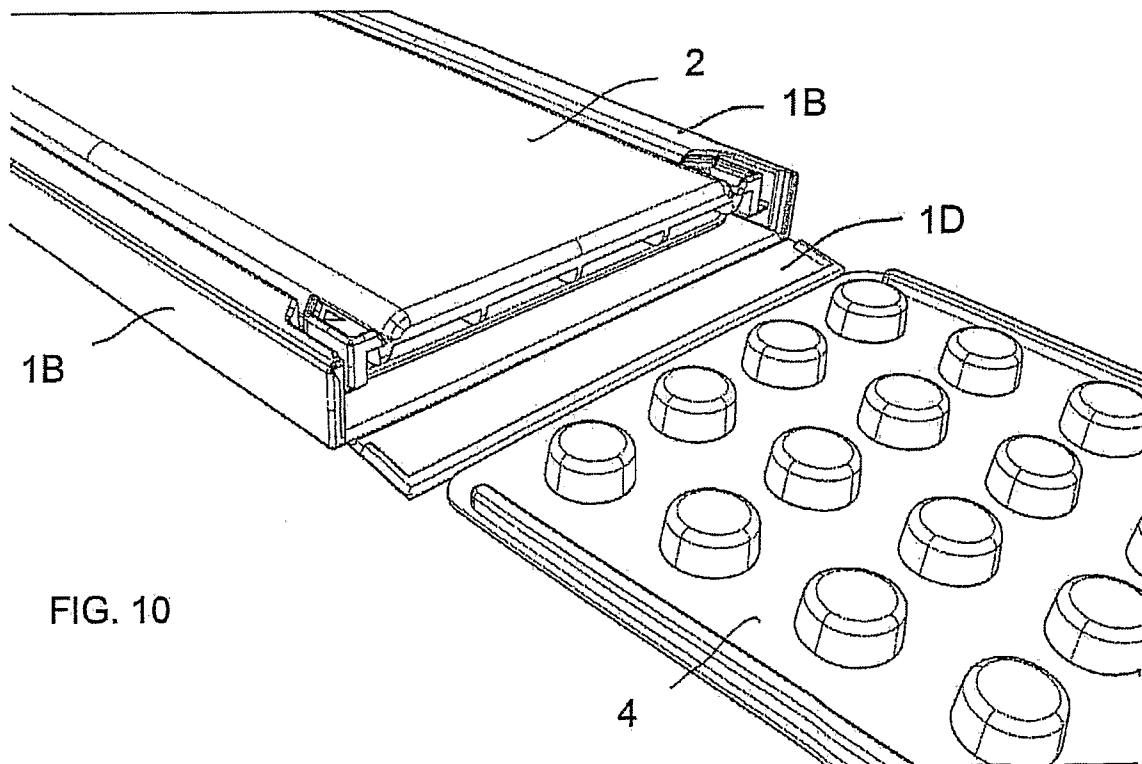
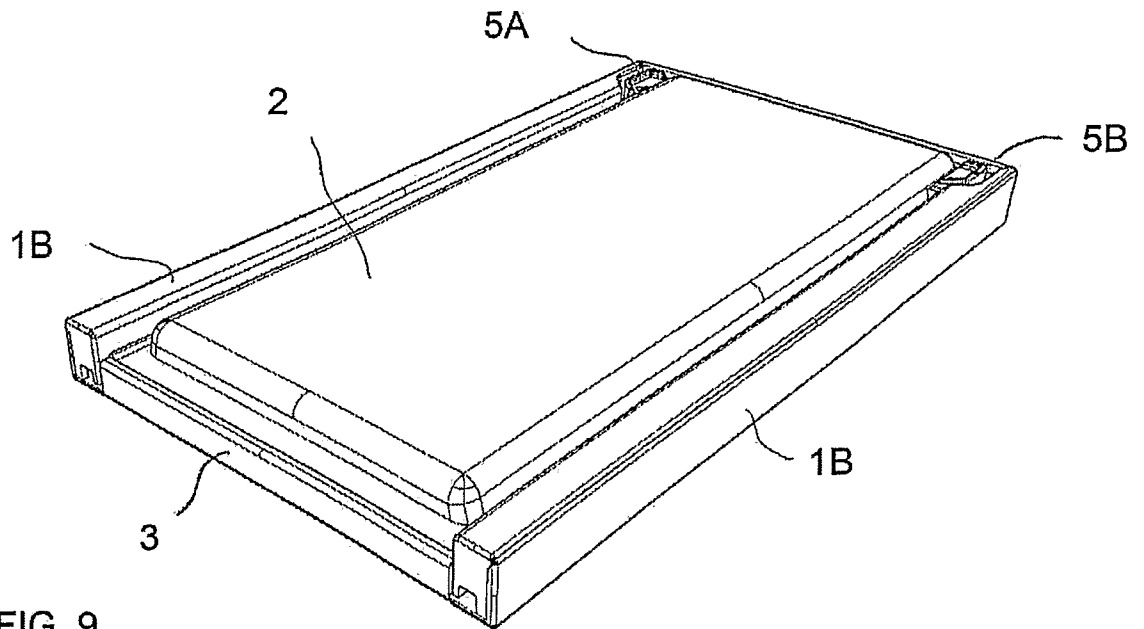


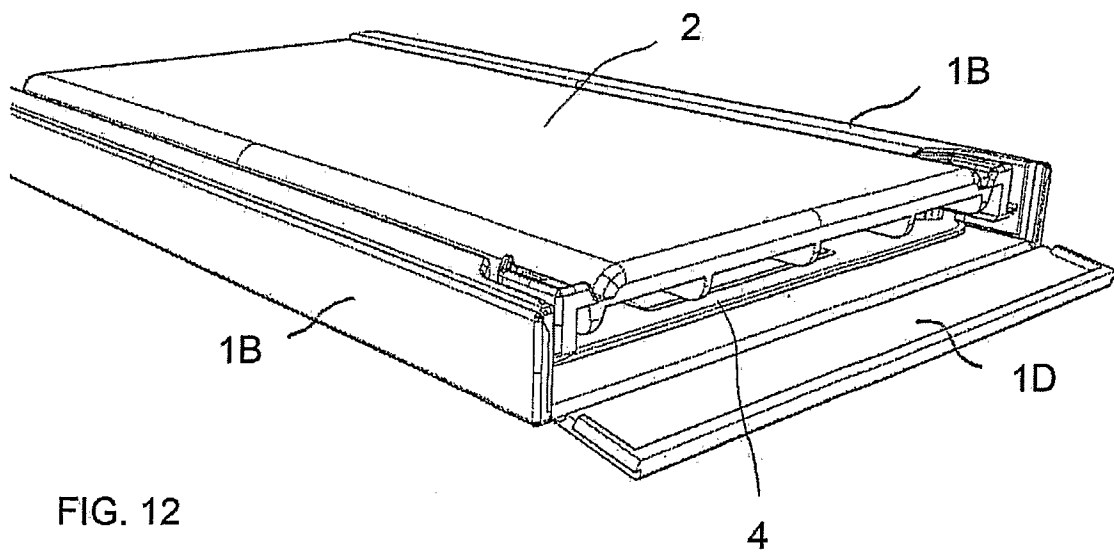
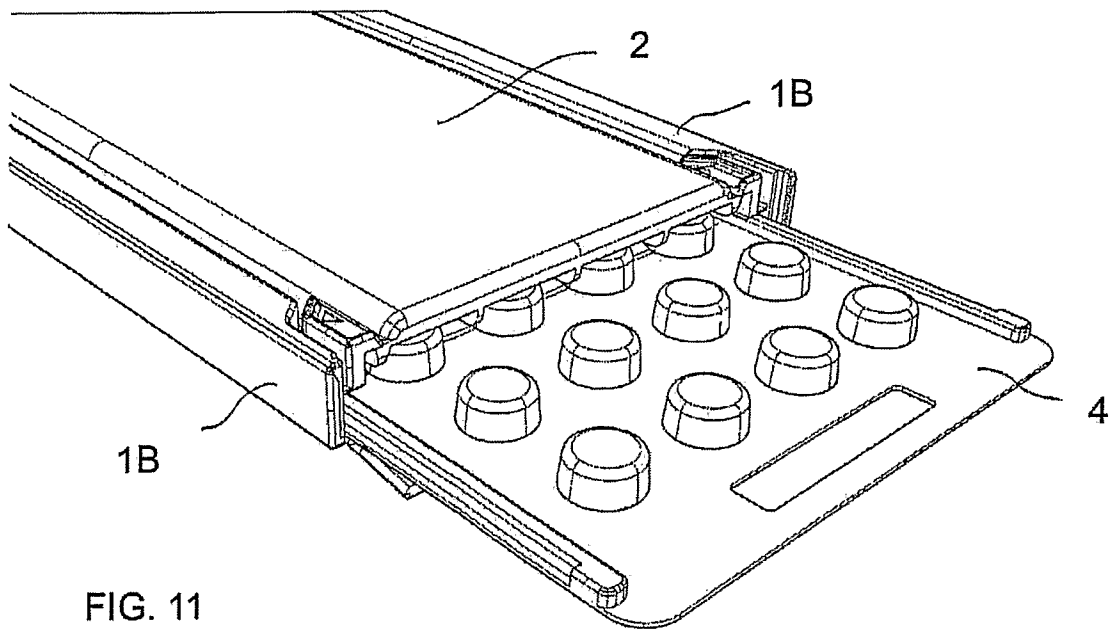
FIG. 8



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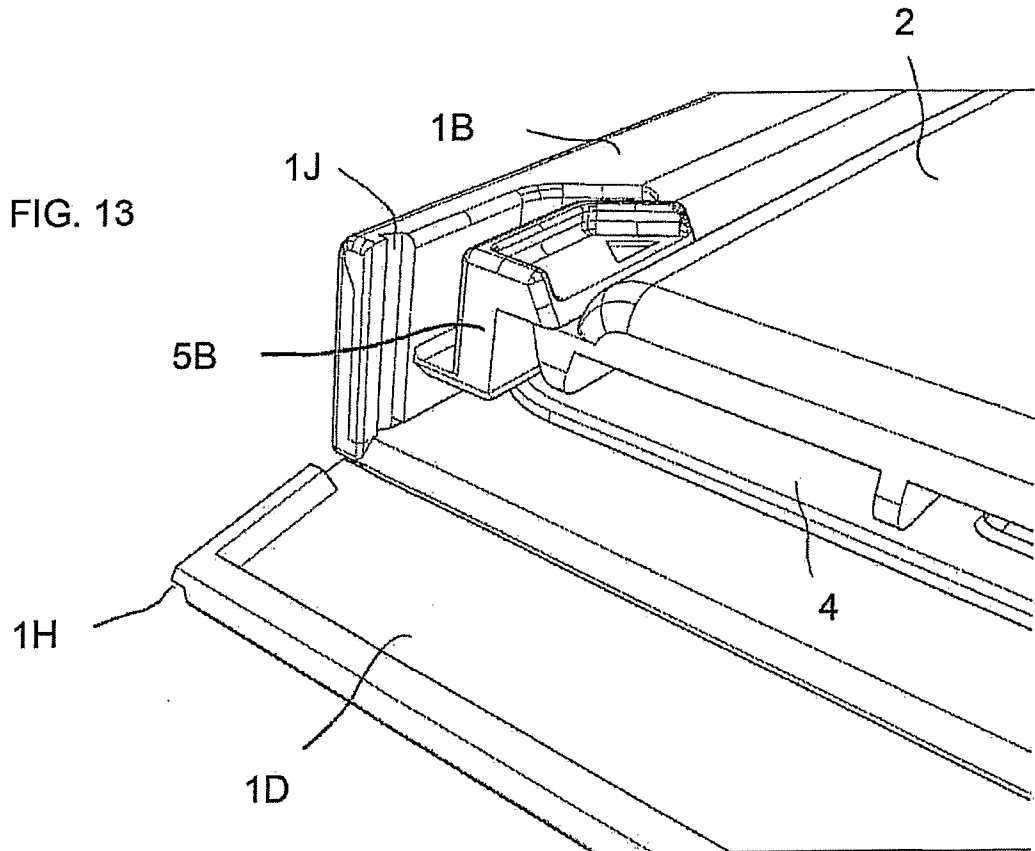


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FIG. 13



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FIG. 14

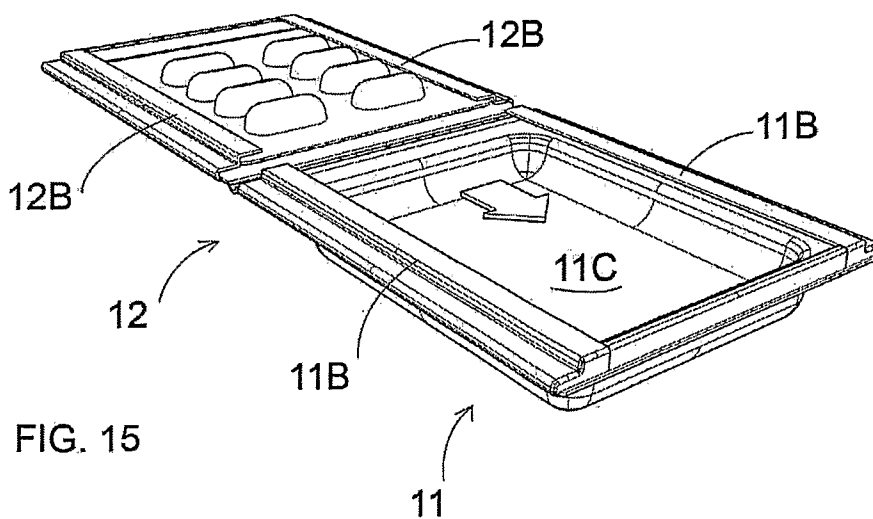
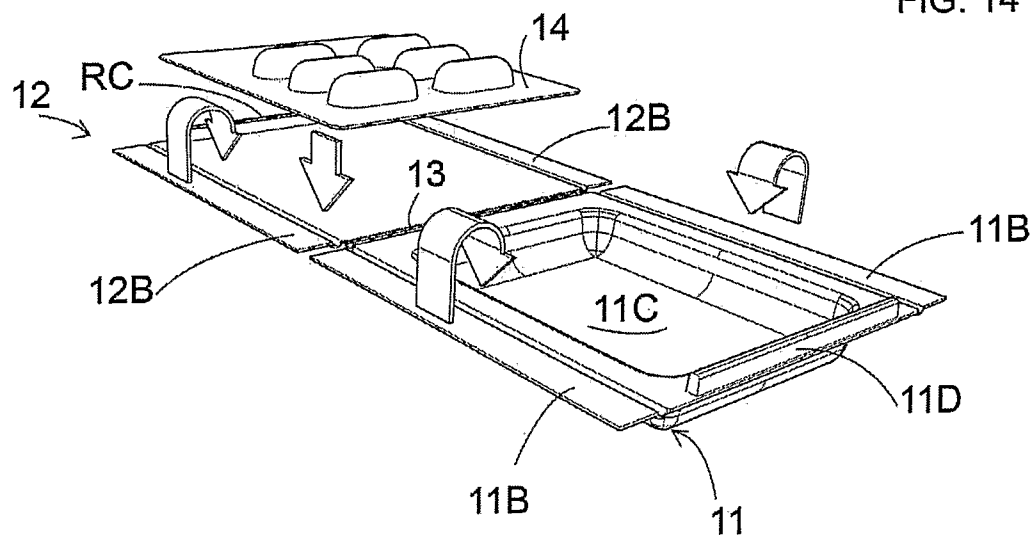
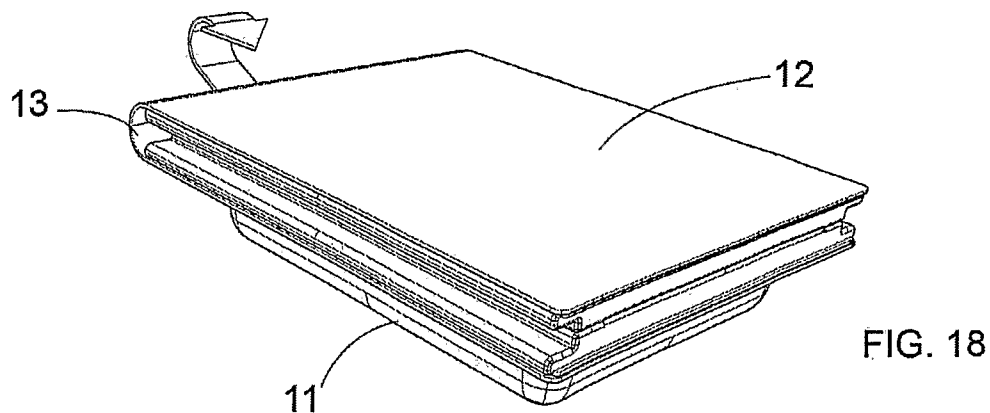
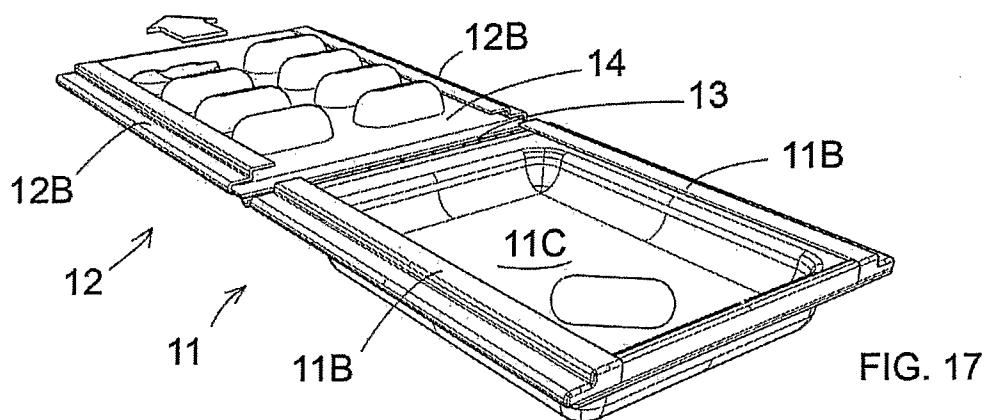
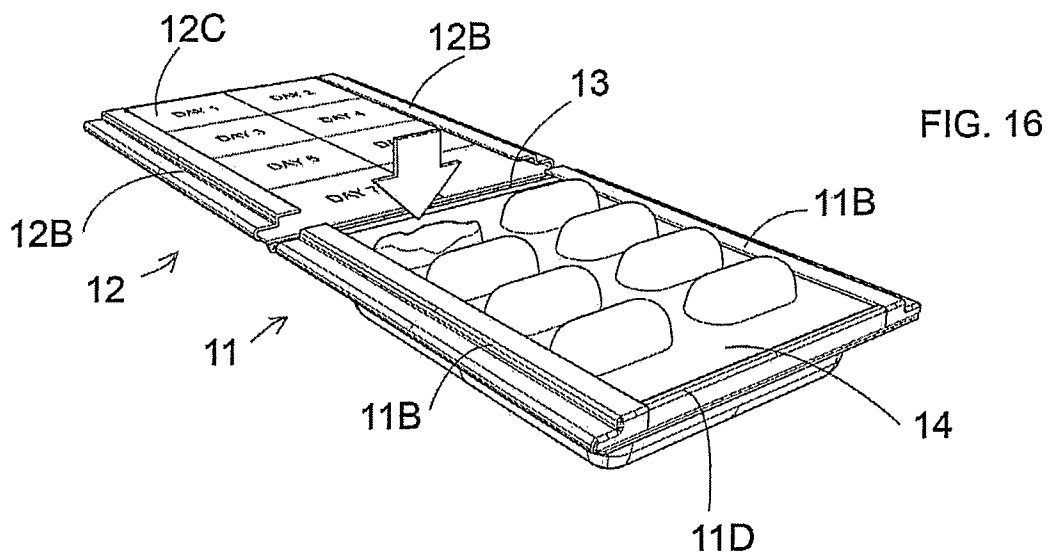
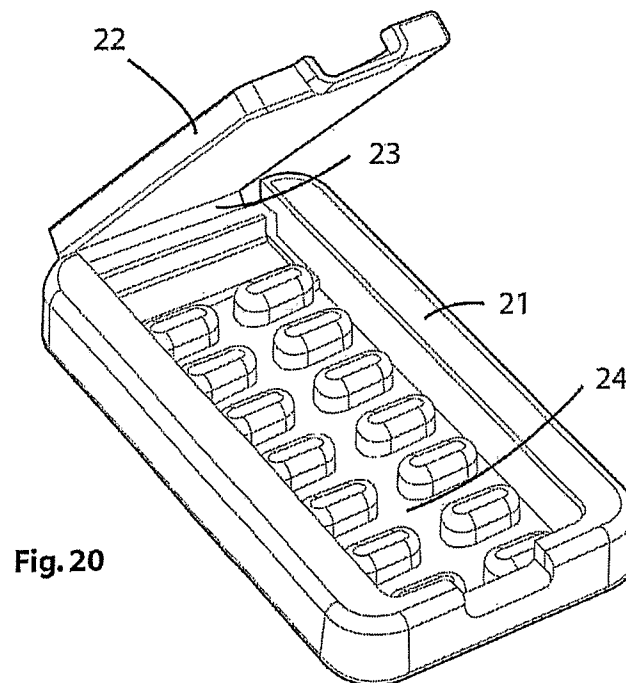
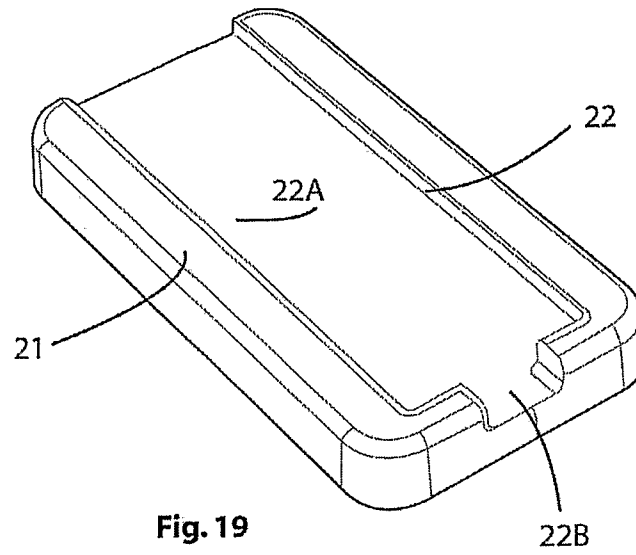


FIG. 15

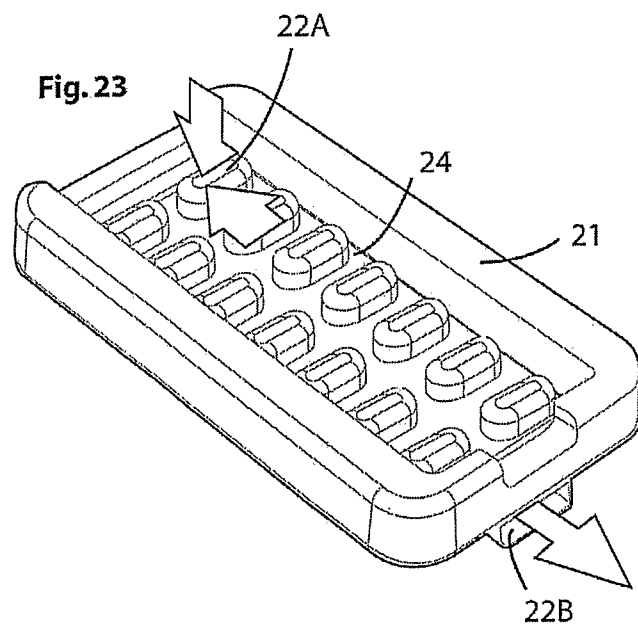
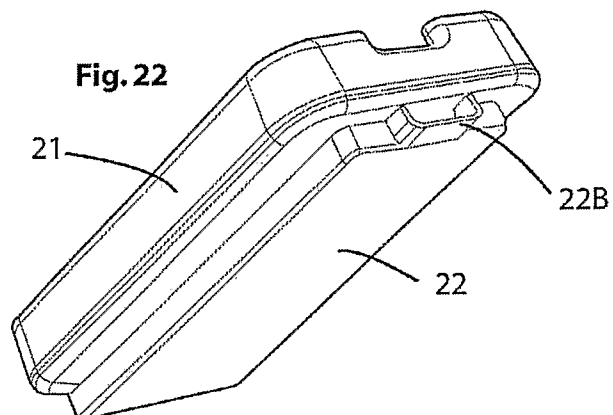
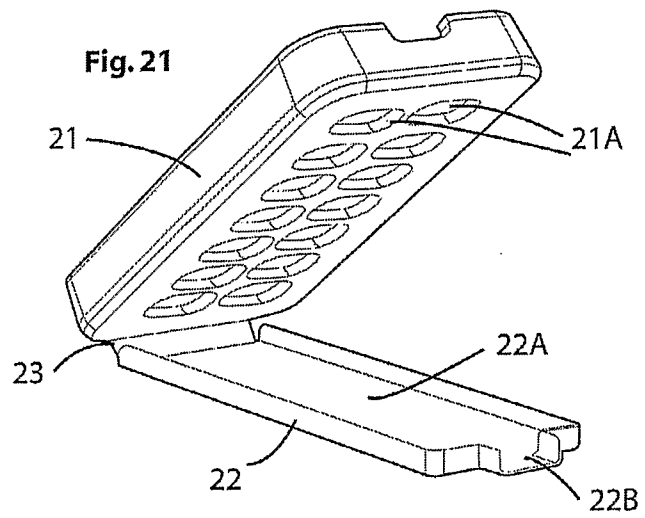
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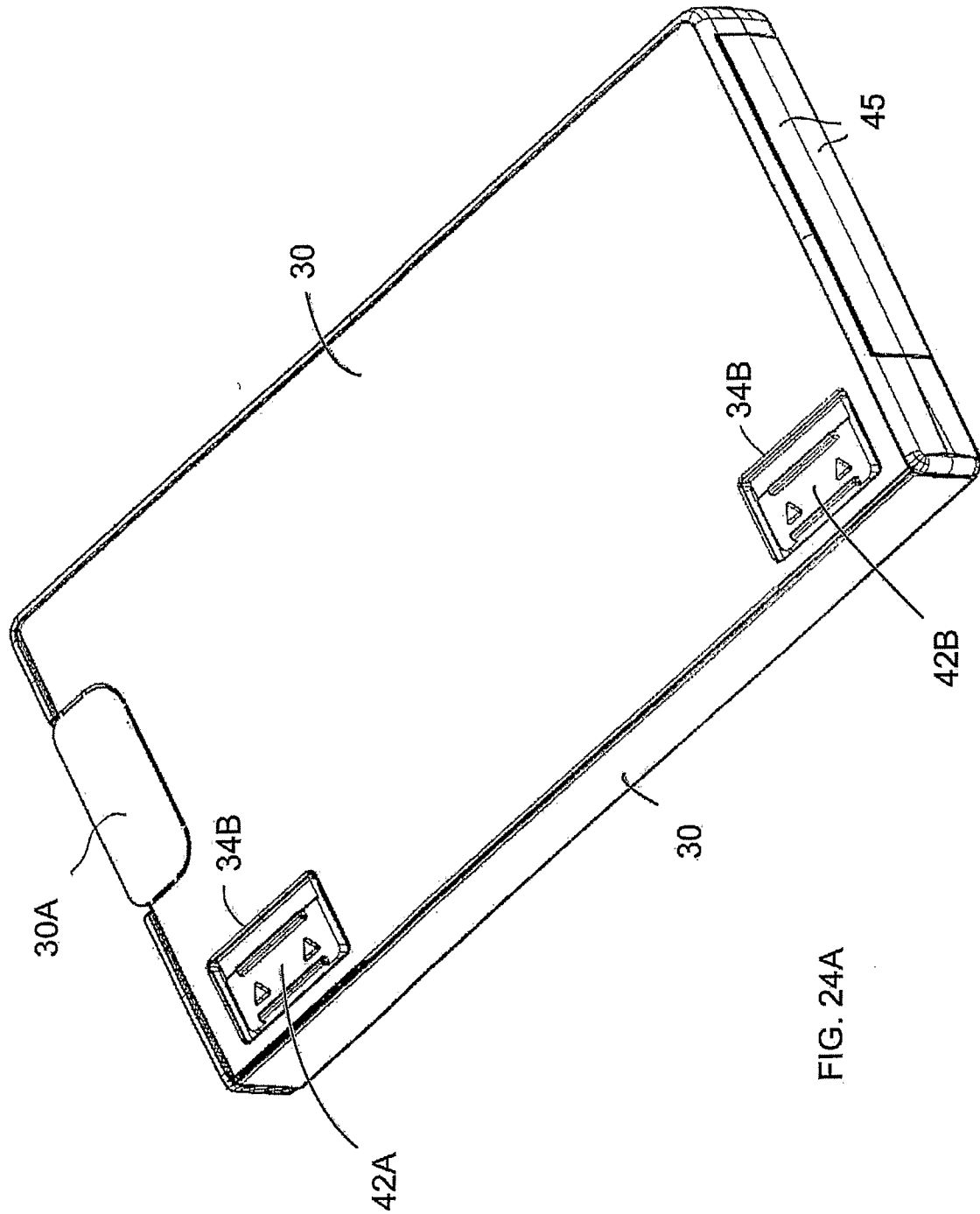
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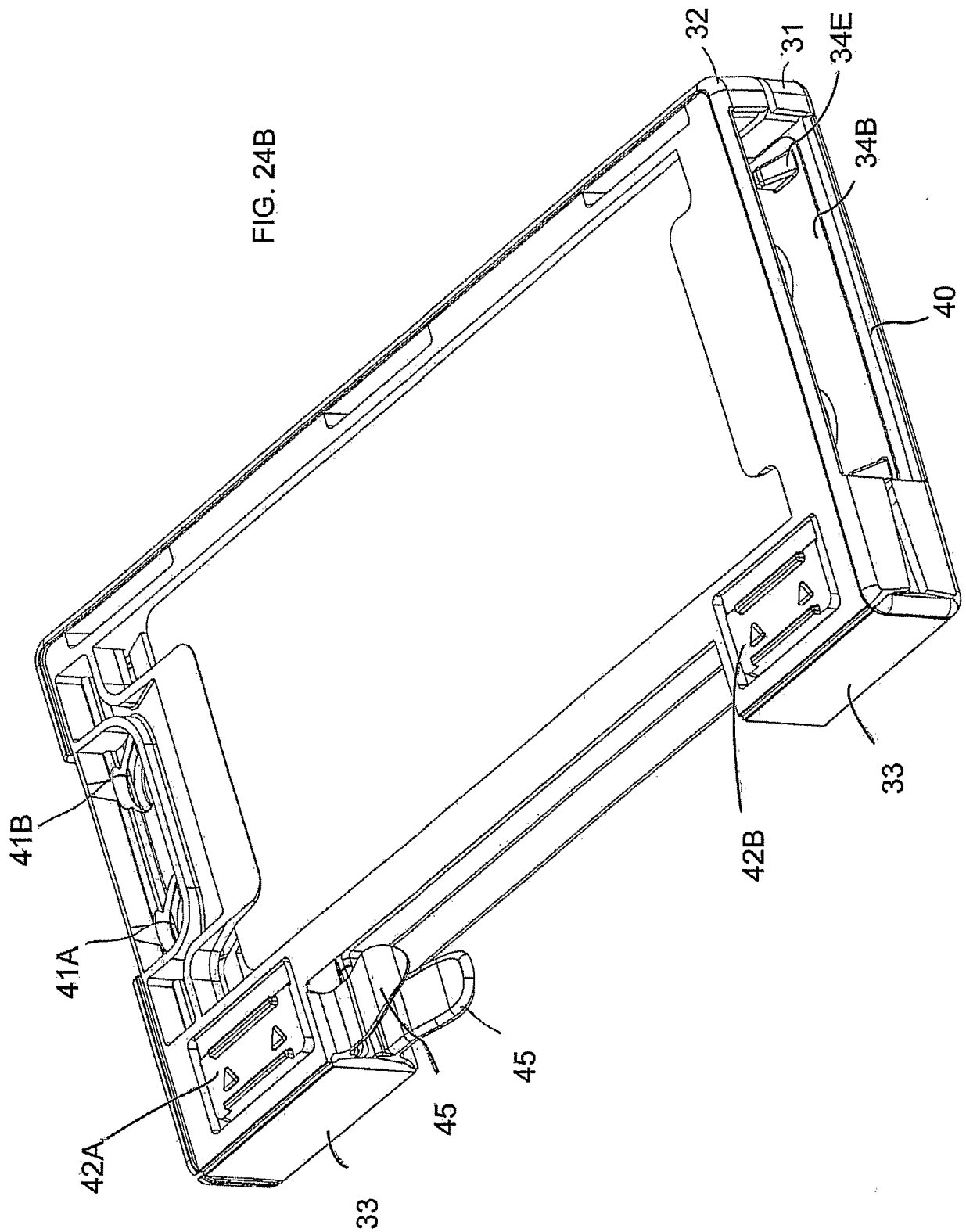
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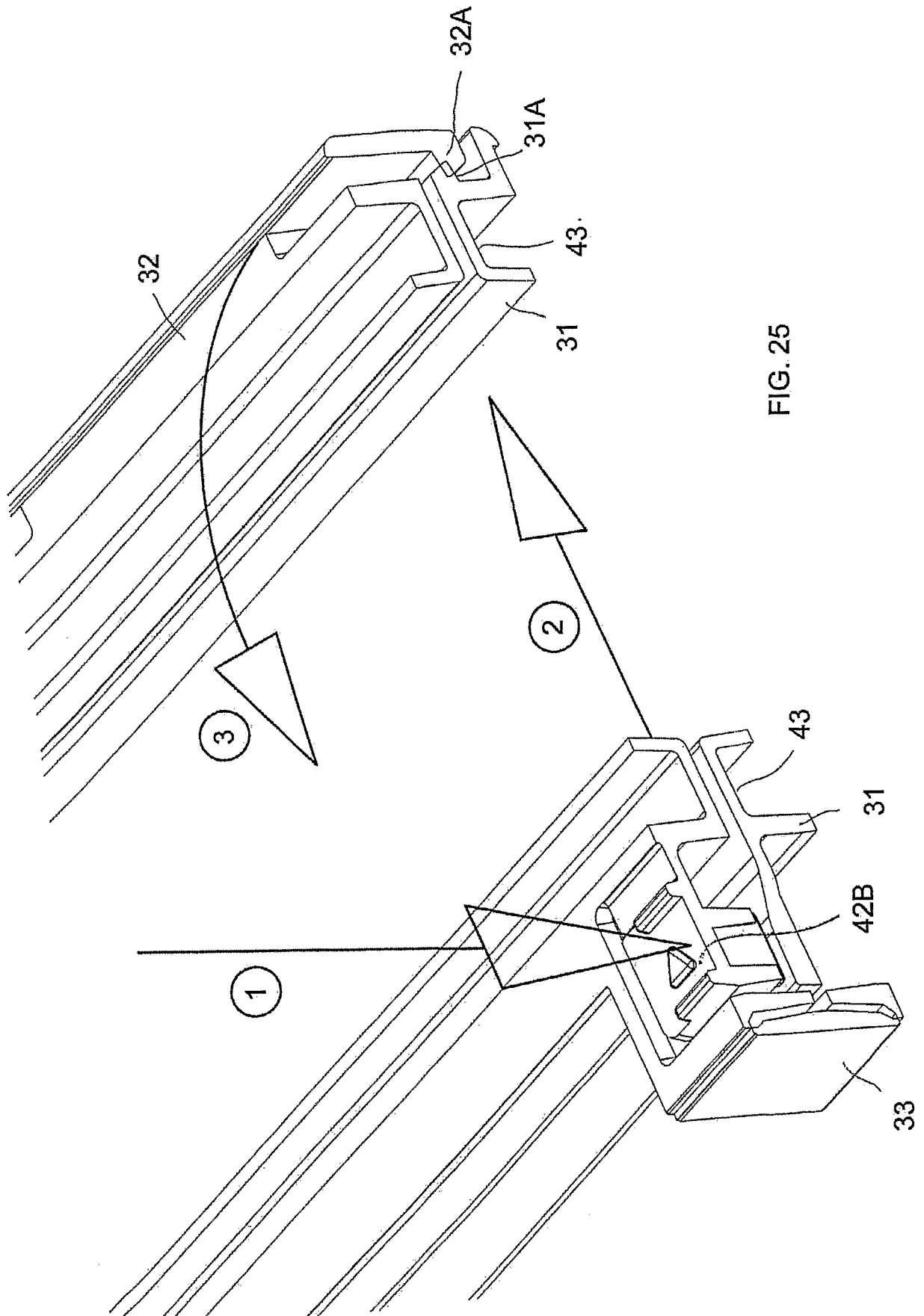
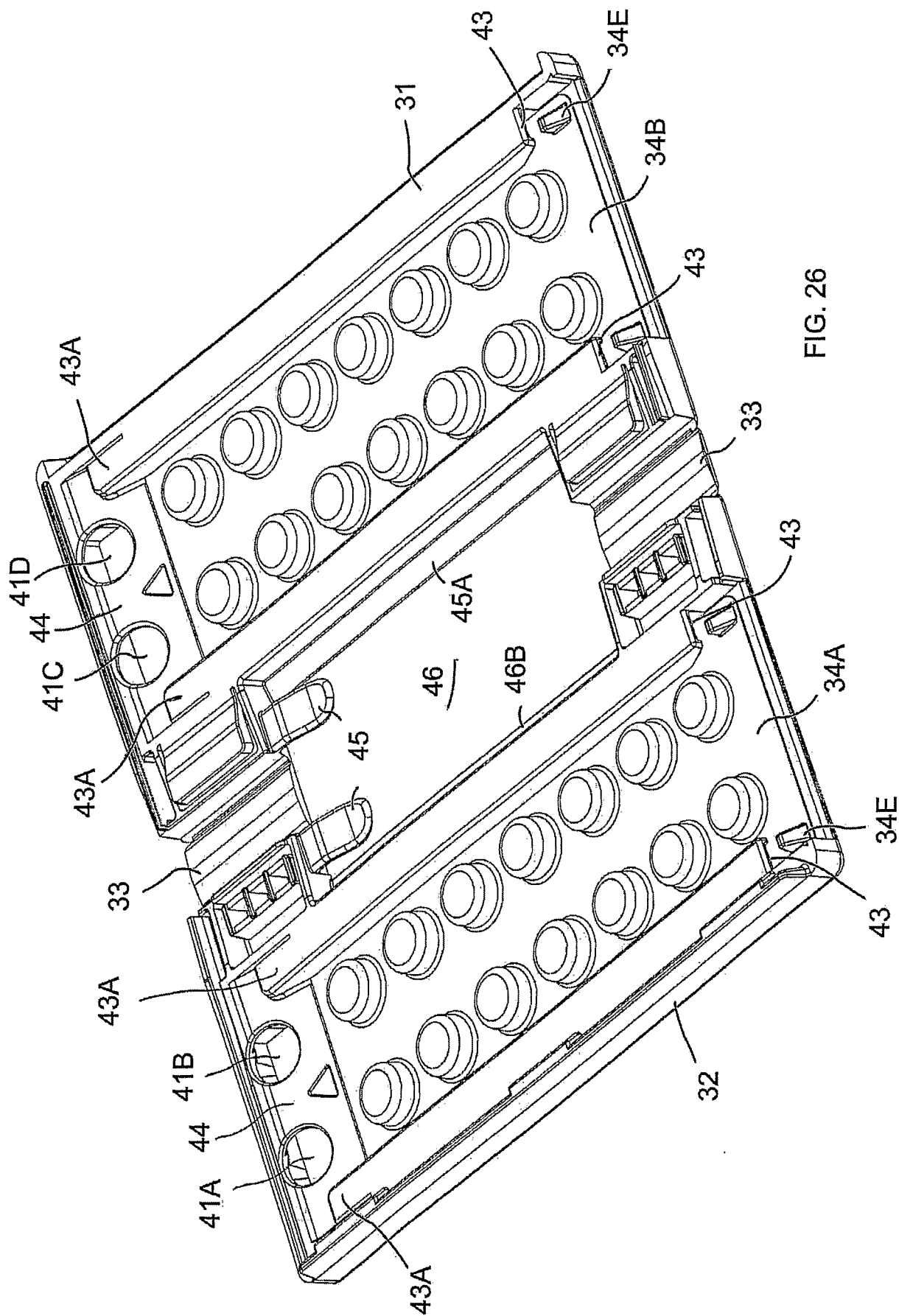


FIG. 25

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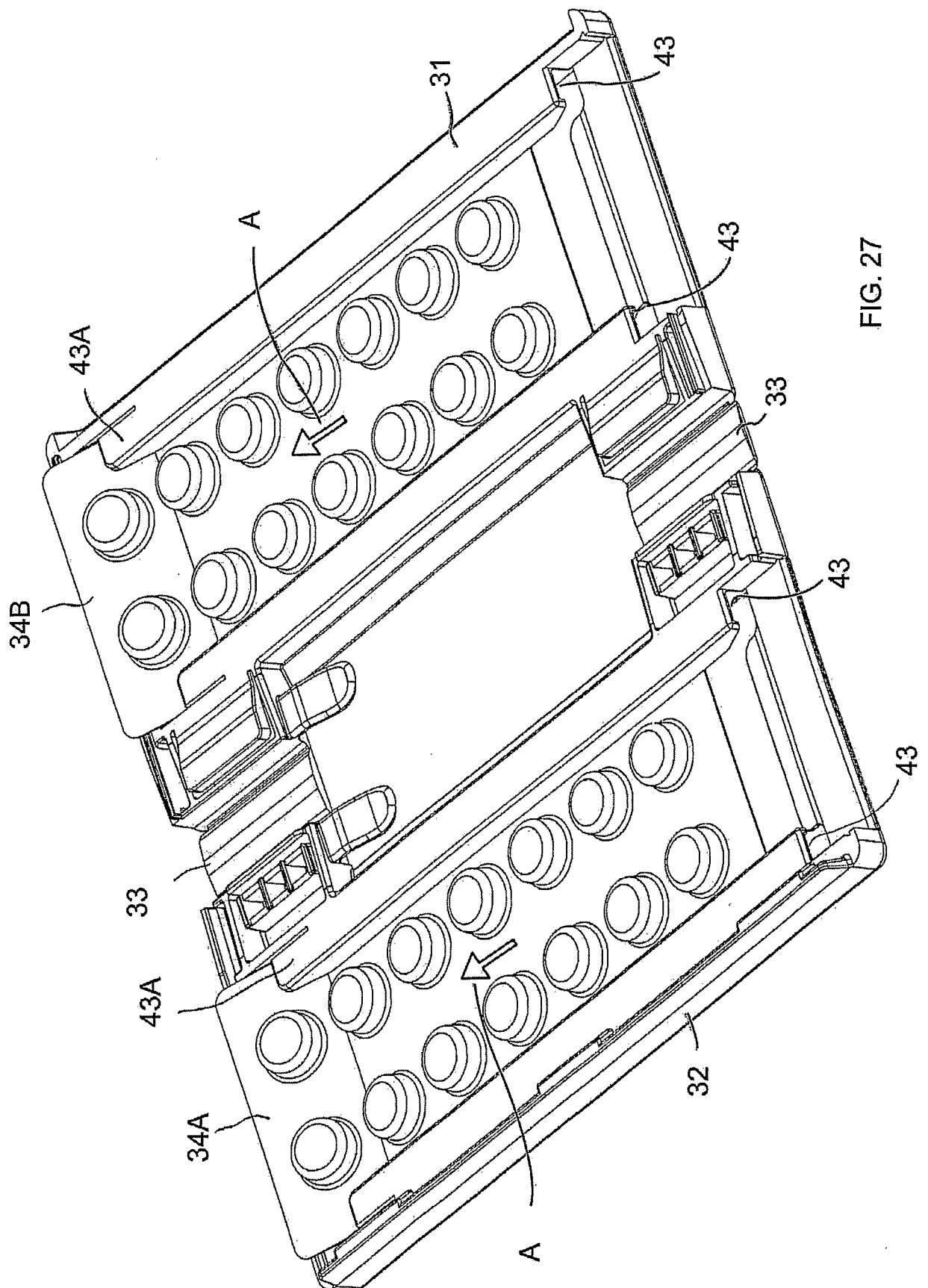
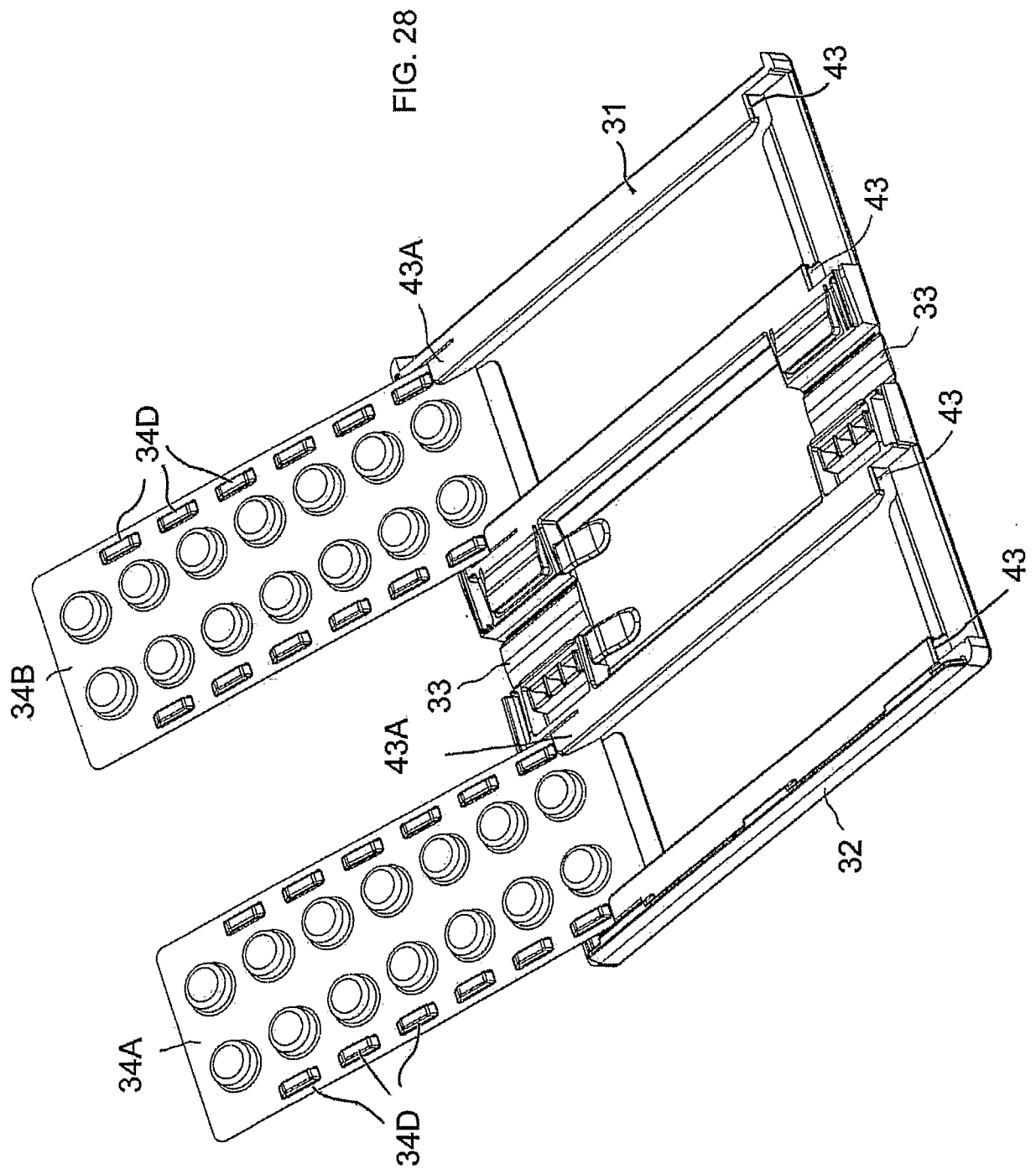


FIG. 27

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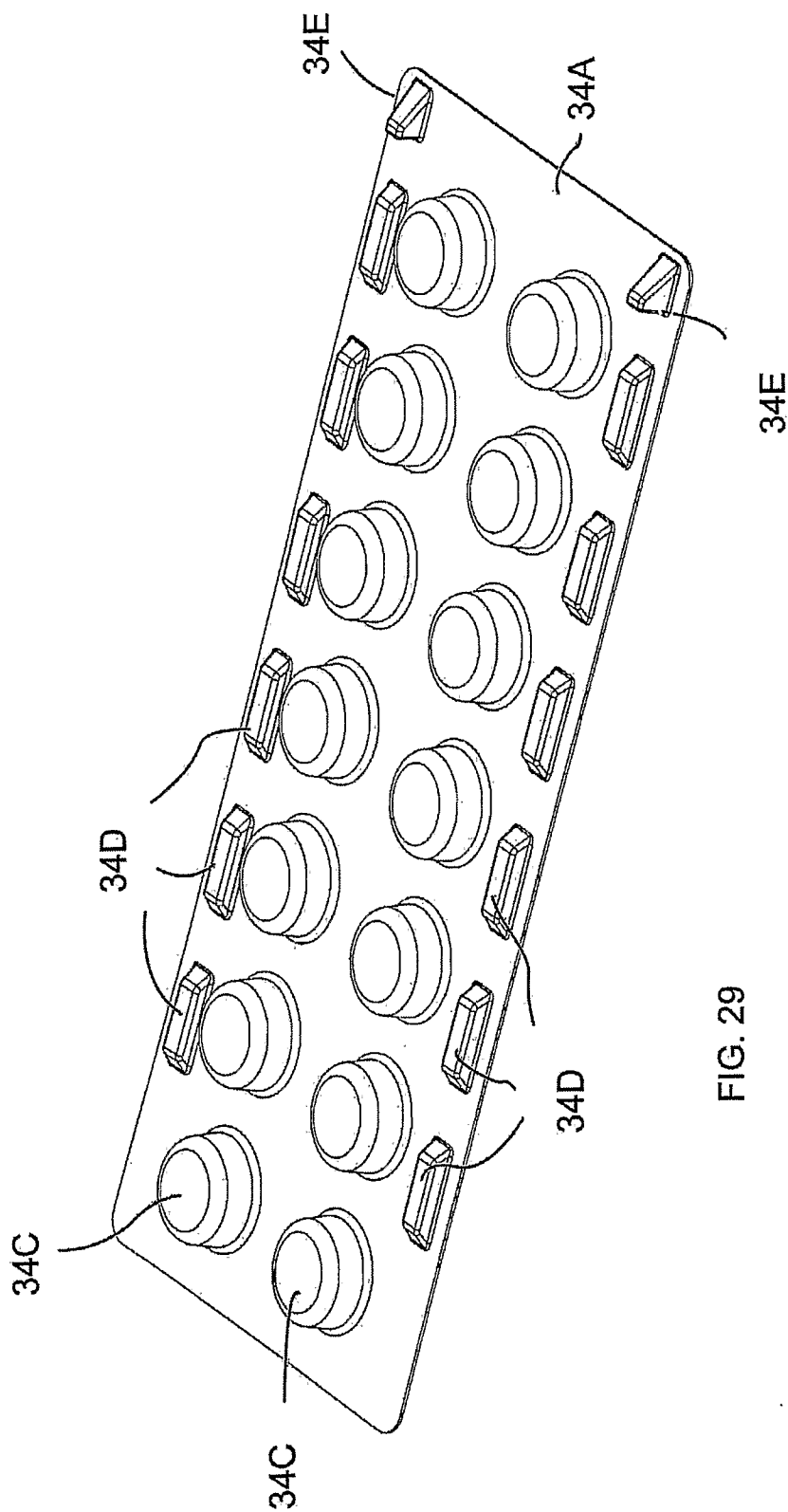


FIG. 29

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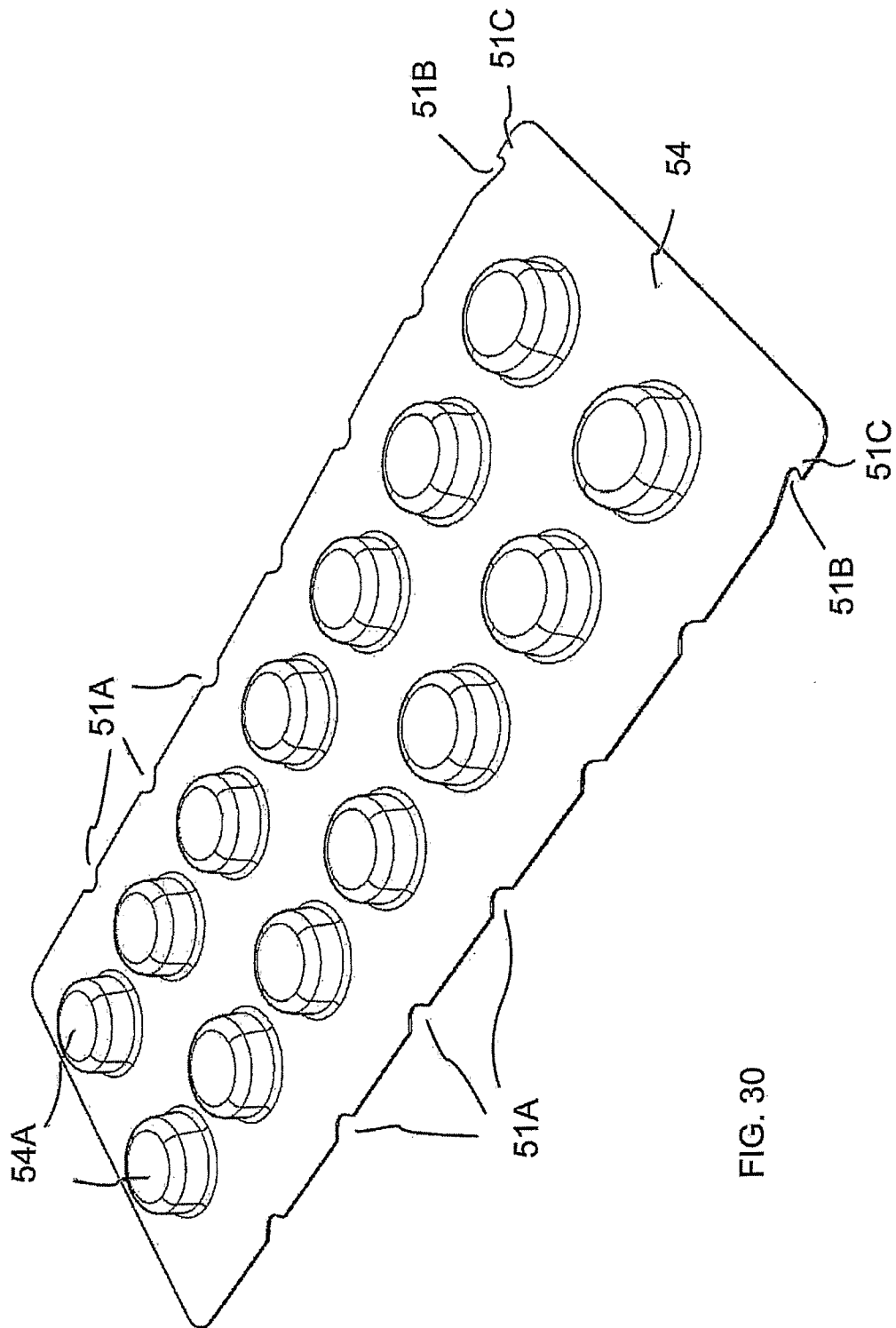


FIG. 30

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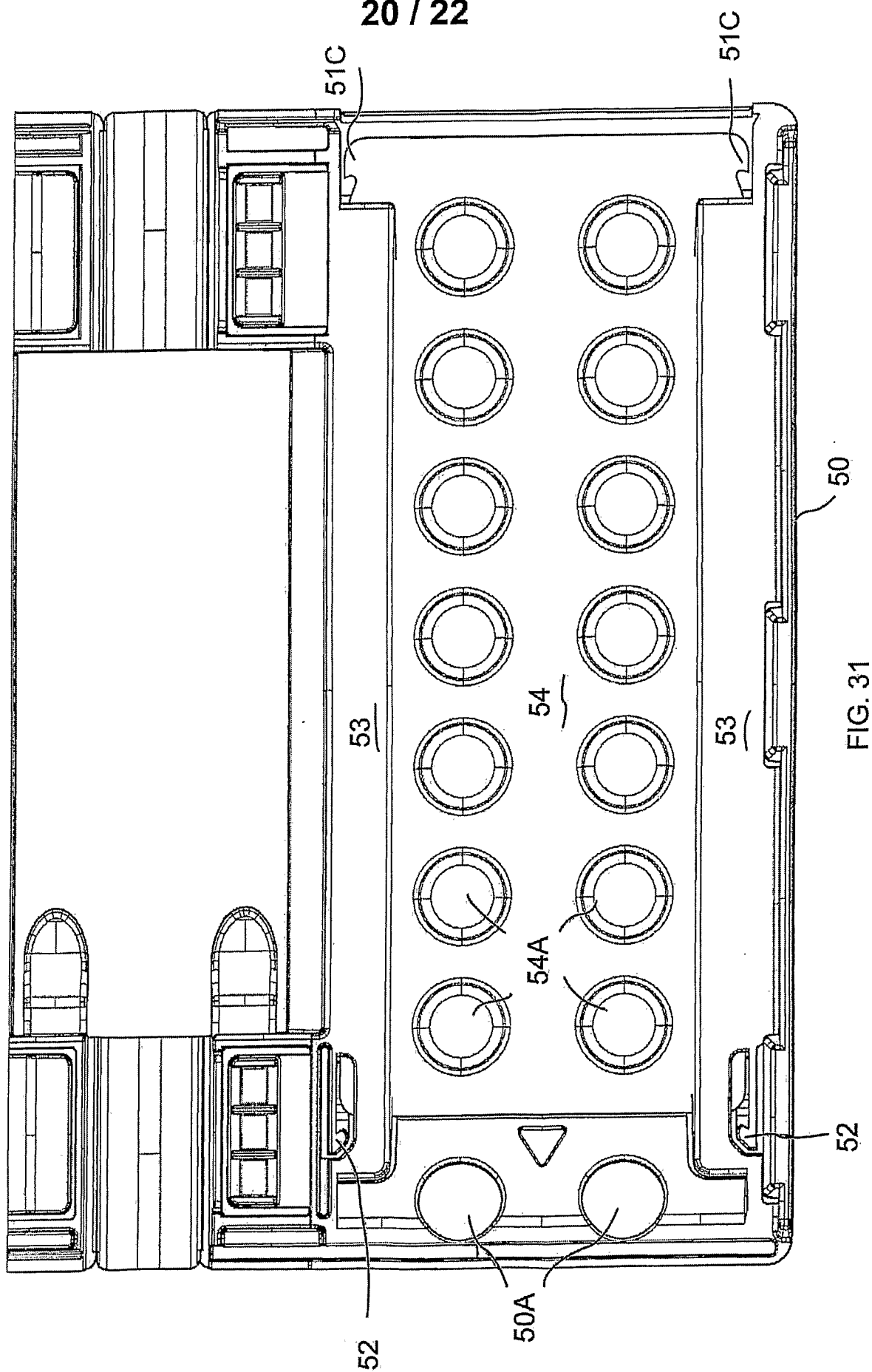
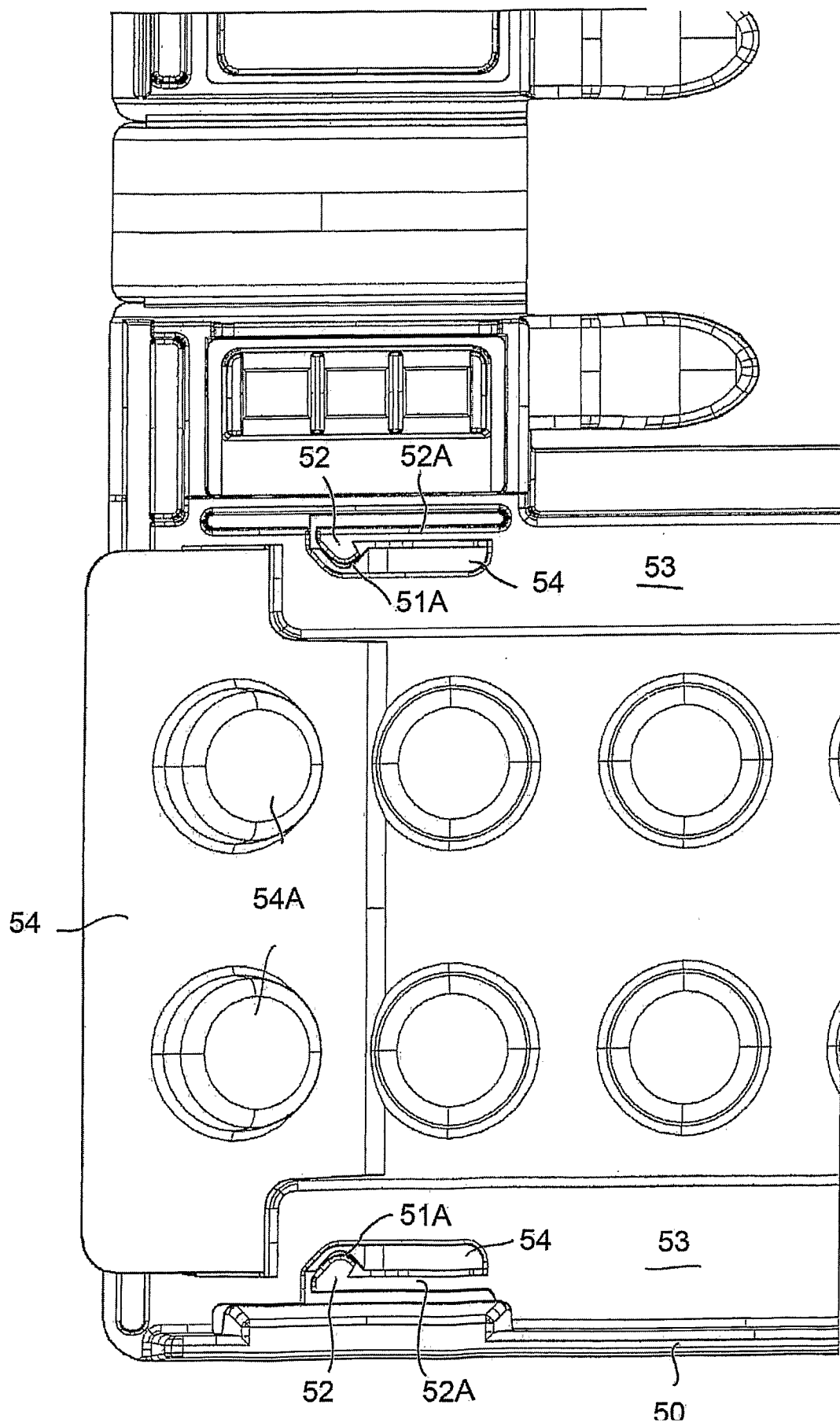


FIG. 31



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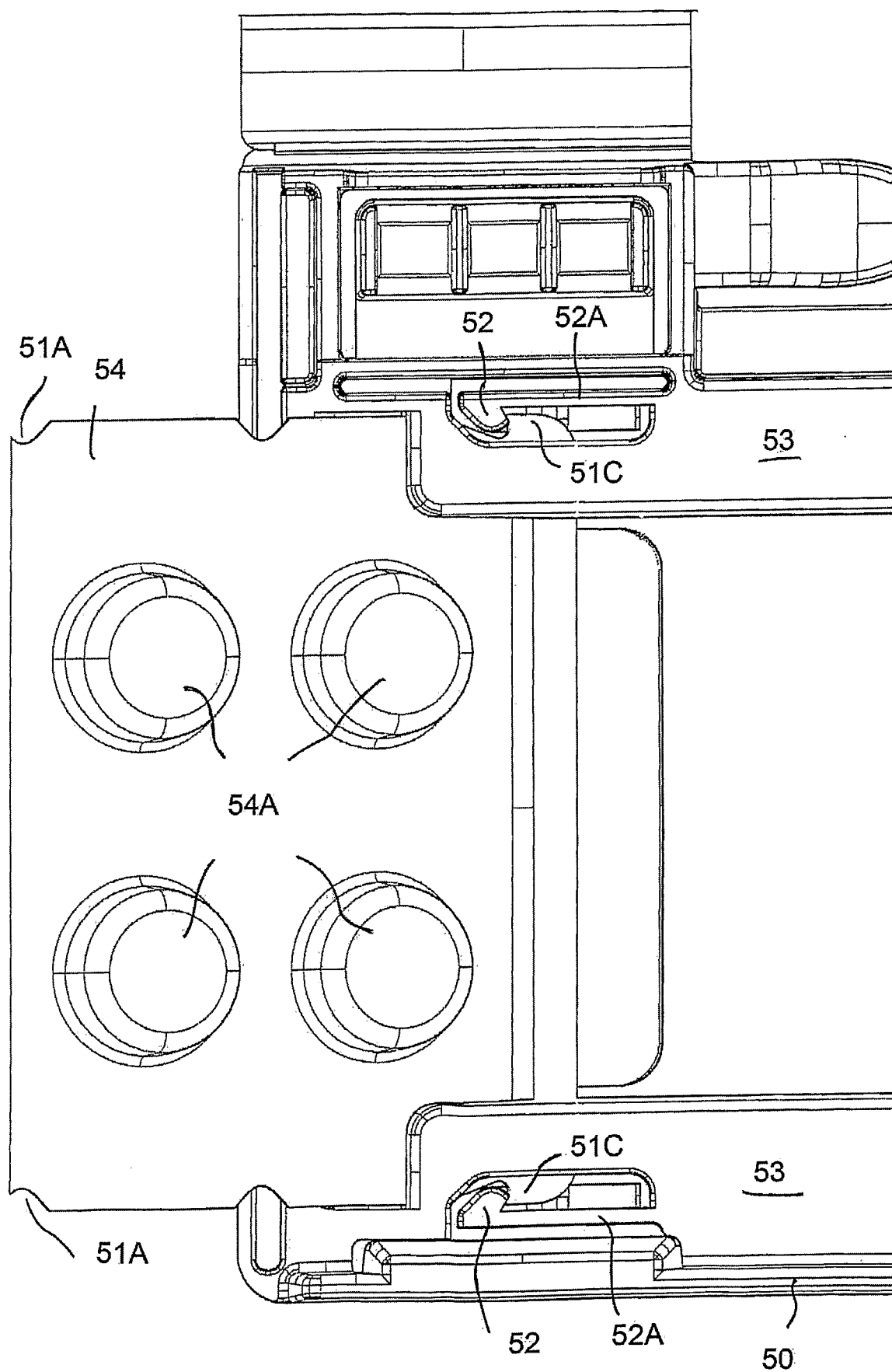


FIG. 33

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/002476

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D83/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/035421 A (GRUENENTHAL GMBH [DE]; DROUGHT NICHOLAS ANDREW MURRAY [GB]; BLATCHER S) 29 April 2004 (2004-04-29)	1-11, 13-25
A	the whole document	12
A	EP 1 762 508 A (MANREX LTD [CA]) 14 March 2007 (2007-03-14) the whole document	1



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

10 October 2008

Date of mailing of the international search report

17/10/2008

Name and mailing address of the ISA/

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NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Ngo Si Xuyen, G

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/002476

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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