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(54) Closure unit, mold for producing same, and dispenser-container incorporating a closure unit

(57) A closure unit (100) for selectively closing a package (60) of wipes or the like is formed as an integral unit typically in or close to the closed position, and has a flap (120) hinged with respect to a frame (140) defining an opening for enabling dispensing of the wipes or the like therethrough. Break lines between the flap and the frame enable the flap to be torn from the frame at first use, and suitable positive locking means enable the flap to be reclosed with respect to the frame. The structure of the unit is such that no portion of the flap substantially overlaps any portion of the frame when the unit is initially formed, and thus then unit may be formed in or close to the closed position, particularly from sheet material.

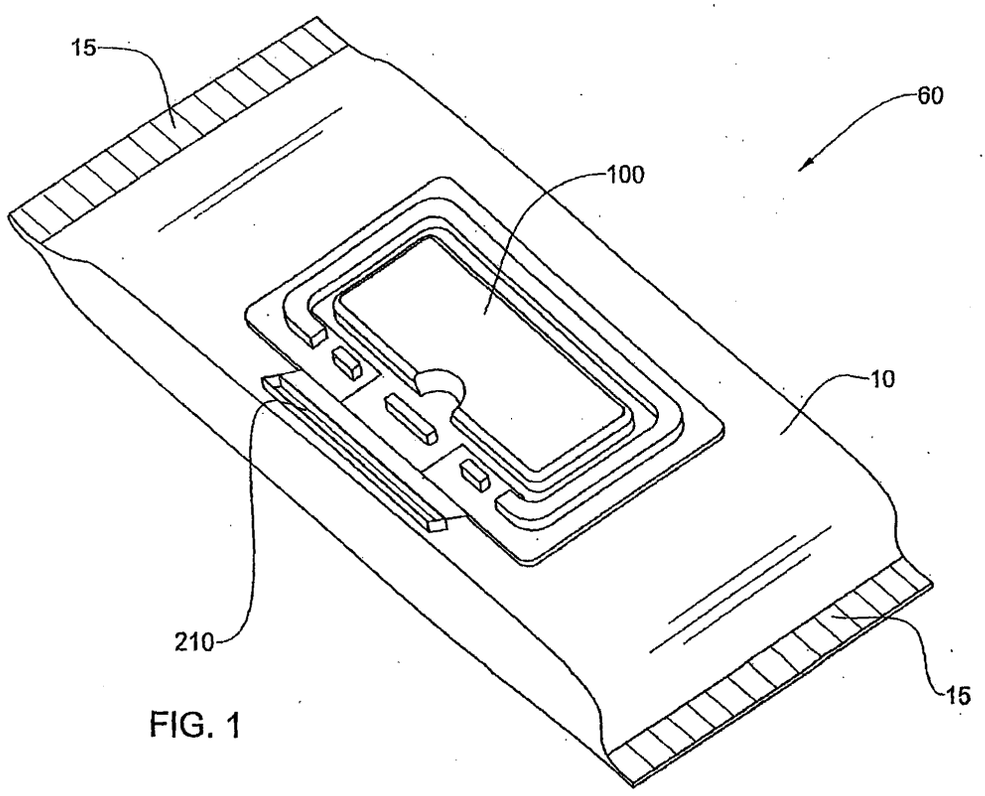

FIG. 1

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Description

FIELD OF THE INVENTION

[0001] This invention relates to a closure unit for use with a dispensing package, in particular such a package that is adapted for containing and dispensing articles, especially tissues or the like.

BACKGROUND OF THE INVENTION

[0002] Packages for articles such as tissues are well known in the art. Such articles may be supplied dry or soaked/impregnated in liquid or lotion e.g. a cleaning agent, a solvent, a skin treating preparation, etc. Most containers for such articles typically are in soft-pack form or in box form, i.e. in the shape of a parallelepiped or cylindrical (e.g. in the case of separably connected tissues in a reel).

[0003] Typically, tissues have a generally rectangular shape and are supplied as separably connected sheets, or interleaved or inter folded discrete sheets stacked in a variety of different configurations, to facilitate the so-called *pop-up* effect, where each tissue has a leading portion that is first to pass through the opening, and a trailing portion that later passes through the opening i. e. a leading tissue removed from a package drags a leading edge of a sequential tissue into a standby position so it extends at a convenient removal position. In other dispensers, the tissues are simply stacked one over the other, and the user has to reach into the package each time to grasp new tissue.

[0004] A common arrangement is to provide a narrow dispensing opening through which the tissues are pulled, one at a time, by the user. While the narrowness of the opening facilitates the sequential dispensing of adjacent tissues, it is often desired for such packages to be reversibly sealable to maintain freshness and moisture in the package when not being used, and to prevent dirt and foreign matter from entering the package at such times.

[0005] According to some arrangements a closure unit comprises a frame defining a narrow dispensing opening is provided by means of two or more flaps projecting towards each other, leaving an interstice therebetween, where the surfaces may be deformed to allow a user to introduce his/her fingers there through, so as to pull the leading edge of the first tissue. This however, is inconvenient and may even result in injury of the users fingers. A flap made from a rigid or semi rigid plastic material reversibly closes with respect to the frame.

[0006] Other arrangements are disclosed in some U. S. patents, for example:

In US 5,791,465, a wipe package uses a known example of a conventional opening- and closing-cover label detachably attached to the main package body. The label is partially peeled away to reveal the opening, enabling the user to take out a tissue, and the label is reattached to the package. An adhesive layer on the label enables reattachment of the label. However, after repeated use, moisture from the tissues, and/or dirt or other foreign matter can adhere to the adhesive surface of the label, and severely reduce the adhesiveness thereof. Moreover, each time the label is attached, the leading tissue has to be fully inserted in the package.

In US 4,848,575 a resealable dispenser-container for wet tissues comprises a container comprising wet tissues, and a tray member, made of a material harder than the container. The container has at a top surface thereof an opening for dispensing the wet tissues therethrough or a weakened line for forming the opening and a flap made of a flexible sheet material which covers the opening or weakened line and which is repeatedly opened and closed. The tray member is disposed within the container between an inner side of the top surface of the container and the wet tissues and having a recessed portion. The recessed portion has an opening formed at a bottom thereof. The tray member is fixed to the inner side of the top surface or side surface of the container.

In WO 02/058524, a storage and dispensing package for wipes comprises a non-rigid container having sides which define a cavity. A collapsible-expandable baffle structure having a width is positioned within the sides of the container and divides the cavity into a storage portion for wipes and a dispensing portion. The baffle structure includes a dispensing orifice through which wipes can pass and communicate with the dispensing portion. A zipper-like resealable mechanism can also be included at an end of the package.

In WO 03/076298, a dispenser for wet wipes has a relatively stiff plastics material body with a peripheral mounting flange for attachment to a pack of wipes, and a tear-open closure is integrally formed with the body. The closure is mounted at an opening in the body across which is stretched a silicone membrane having a circular dispensing opening through which wipes are dispensed from a flow-wrap pack of wipes on which the dispenser is mounted. A portion of the periphery of the closure is tearable away from the body by means of a tab, leaving the closure attached to the body by a hinge. The tab overlies at least a substantial part of the body, requiring difficult and expensive injection molding techniques for its production, if at all available, resulting overall in an expensive dispenser.

SUMMARY OF THE INVENTION

[0007] In accordance with the present invention a closure unit for a dispensing container or package is provided. The dispensing container comprises a flap mem-

ber pivotably connected to a frame member (defining an opening) via hinge arrangement, wherein said closure member is formed having the flap member initially at a forming angle α with respect to the frame member, taken about the hinge arrangement, such that angle α is substantially equal to or greater than 0° and substantially less than 180°.

[0008] In particular, the flap member is initially formed at said forming angle α with respect to said frame member, such that no portion of said flap member substantially overlaps with said frame member, particularly in a direction substantially perpendicular to a plane comprising said frame member. Indeed, the flap member is initially formed at said forming angle α with respect to said frame member, such that no portion of said closure unit substantially overlaps with any other portion of said closure unit in a direction substantially perpendicular to a plane comprising said frame member, taking into account the resilience of the material from which the unit is formed.

[0009] By a lack of overlapping referred to above is meant that, dividing the closure unit into a plurality of imaginary elements along the upper surface of the unit, for example, such that each element, while being dimensionally small with respect to said upper surface, extends through the thickness of the unit up to the lower surface thereof in a preferably vertical direction, no such element will be substantially superposed over another such element. In some embodiments, a limited amount of overlapping in the vertical direction, between parts of the flap and the frame, may be possible due to the resilience of the material from which the closure unit is made. Such a material typically comprises a plastic, which can deform to a limited degree when force is applied. Thus, although the parts of the molds required for the molding of the overlapping portions also overlap, once cooled the closure unit can be removed from the mold by forcing a partial and temporary deformation of the overlapping parts to free these components from the molds.

[0010] Thus when referring herein to one component as not substantially overlapping with respect to another component, this is herein taken to include the plain meaning, wherein there is no actual overlapping, and also to optionally include cases wherein there is a limited amount of actual overlapping, but such as still permits the closure unit to be removed from the mold by making use of the resilience of the material from which the closure unit is made to maneuver the overlapping parts around parts of the molds to enable the closure unit to be freed therefrom.

[0011] Typically, the overlapping portions between the flap and frame may represent a plan area that is between 0-5% of the plan area of the closure unit, more typically less than 1% thereof.

[0012] In some embodiments, steep surfaces which are at an acute but small angle are also considered as not effectively overlapping, since the resilience of the material from which the closure unit is formed enables the same to be removed from the mould, as explained above, *mutatis mutandis.*

[0013] In some embodiments, angle α is substantially 0°, and the unit is initially formed with said flap member in a substantially closed position. The flap member is adapted to be detached from said frame member about a portion of a periphery of said flap member such as to enable said flap member to pivot with respect to said frame member via said hinge arrangement between a closed and an open position.

[0014] Typically, the flap member comprises a box-like structure, having an upper panel and front, side and rear walls extending therefrom to said border strip. The hinge arrangement comprises a movable first hinge portion that is comprised on a mid section of said rear wall, and a static second hinge portion that forms part of mid section of the inner base strip. The first hinge portion pivots with respect to the static second hinge portion via a hinge axis. The flap member comprises at least two projections for maintaining the flap member in the open position: at least one said projection is located at either side of the first hinge portion. The hinge arrangement may comprise any one of an integral hinge, a film hinge, or a non-integral hinge.

[0015] Optionally, the frame member comprises a raised rib structure for mechanically stiffening said unit. The rib structure typically comprises a substantially hollow inverted U-shaped cross-section.

[0016] The flap member is temporarily joined to said frame member via break lines prior to a first use of said closure unit, wherein said break lines are adapted for tearing when said flap member is pulled from said frame member with a predetermined force, and the break lines are typically pre-weakened with respect to the frame member and the flap member. Optionally, the break lines comprise perforations.

[0017] In some of the embodiments, the frame member substantially circumscribes said flap member, and the frame member is formed having a foldable tab projecting from said frame member in a longitudinal direction opposed to said flap member and hinge arrangement, said foldable tab being foldable about a hinge line to a position wherein a portion of said frame member is superposed with respect to said foldable tab.

[0018] In one such embodiment, the foldable tab comprises a locking arrangement, which may comprise at least one first latching member adapted for engagement with a corresponding second latching member comprised in said flap member. The first latching member is typically adapted for being reversibly locked with respect to said second latching member. Optionally, the first latching member comprises a protrusion of increasing cross-section in a direction away from said frame member when in the closed position and wherein said second latching member comprises a recess of increasing cross-section in a direction away from said frame member when in the closed position, at least a portion

of said recess being complementary to a portion of said protrusion. At least one of said portion of said recess and said portion of said protrusion are elastically deformable to permit selective locking of said first latching member with said second latching member.

[0019] The flap further comprises a finger grasping portion, wherein said closure unit is initially formed in a manner such that substantially no part of said finger grasping portion substantially overlaps any part of said frame member in a direction substantially perpendicular to said opening.

[0020] In another embodiment, the dispensing container comprises a flap member pivotably connected to a frame member via hinge arrangement, wherein said frame member comprises an opening adapted for accommodating a pulling tab joined to said flap member. The frame member comprises a break therein adapted for accommodating a bridge joining a tab to said flap member, said tab comprising a locking arrangement, which in turn comprises first locking means for locking said tab member with respect to said bridge, and second locking means for reversibly locking said flap member with respect to said frame member.

[0021] The bridge comprises a fold line for folding said tab member over said bridge to provide locking engagement for said first locking means, and said first locking means comprises suitable first male locking parts comprised on said bridge, and first female locking parts comprised on said tab member.

[0022] The bridge and the tab are each temporarily joined to said frame member via break lines prior to a first use of said closure unit, wherein said break lines are adapted for tearing when said bridge and tab, respectively, are pulled from said frame member with a predetermined force.

[0023] In this embodiment, the frame member is in the form of a "C" and said opening is located between the open ends of said "C". The said hinge arrangement may comprise an integral hinge, or a film hinge, or a non-integral hinge. Optionally, the frame member comprises a raised rib structure joined to an outer base strip and an inner base strip that circumscribe the outer and inner peripheries, respectively, of the rib structure. The rib structure may comprise a substantially solid cross-section, or alternatively a substantially hollow inverted U-shaped cross-section. Preferably, the frame member further comprises extensions at the said open ends thereof; the flap member comprises a border strip that circumscribes the periphery thereof, and the flap member comprises a box-like structure, having an upper panel and front, side and rear walls extending therefrom to said border strip. Preferably, the flap member comprises a finger-grasping portion in the form of a recess on said front wall thereof.

[0024] The hinge arrangement comprises a movable first hinge portion that forms part of the border strip adjacent a mid section of said rear wall, and a static second hinge portion that forms part of mid section of the inner base strip. The first hinge portion pivots with respect to the static second hinge portion via a hinge axis. Preferably, the flap member comprises at least two projections for maintaining the flap member in the open position. At least one said projection is located at either side of the first hinge portion.

[0025] The pulling tab comprises a locking arrangement. In this embodiment, the locking arrangement comprises a tab member joined to said bridge, first locking means for locking said tab member with respect to said bridge, and second locking means for reversibly locking said flap member with respect to said frame member. The bridge comprises a fold line for folding said tab member over said bridge to provide locking engagement for said fist locking means. The first locking means comprises suitable first male locking parts comprised on said bridge, and first female locking parts comprised on said tab member. The first female parts comprise a first recess and said first male locking parts comprise first projections that are adapted for locking engagement with said first recess. The second locking means comprises suitable second male locking parts comprised on each said extension, and second female locking parts comprised on said tab member. The second female parts comprise second recesses and said second male locking parts comprise second projections that are adapted for locking engagement with said second recesses. The second recesses are located at least one thereof on either side of said first recess. Preferably, the first recess and said second recesses are continuously provided in said tab member.

[0026] The flap member is temporarily joined to said frame member via break lines prior to a first use, wherein said break lines are adapted for tearing when said flap member is pulled from said frame member with a predetermined force. The break lines are comprised between said inner base strip and said border strip. The break lines are further comprised between said bridge and said extensions. The break lines are pre-weakened with respect to the frame member and the flap member. The break lines optionally comprise perforations.

[0027] Optionally, the frame member comprises a lower adhesive layer for adhering the unit to a suitable container or the like. Further optionally, the unit comprises a removable protective strip for temporarily covering said adhesive layer.

[0028] Preferably, the closure unit is formed as an integral unit. Optionally, the unit is formed from a sheet material. The sheet material has a thickness that may be substantially uniform, or may vary as desired. Optionally, the unit is formed as a vacuum-formed or heat formed article. Alternatively, the unit is formed by a mold injection process.

[0029] The present invention is also directed to a mold arrangement for producing a closure unit, wherein the closure unit is as defined herein, in particular according to any one of the embodiments described herein. The mold may be adapted for vacuum forming or for heat

forming, or for the injection of plastic material.

[0030] The present invention is also directed to a dispenser-container for dispensing a plurality of tissues or the like sequentially, comprising a container having a dispensing opening for removing said tissues, and further comprising a closure unit according to the present invention, fixed to said container in overlaying relationship with respect to the opening, such that when the closure unit is in the open position the opening is accessible, and when the closure unit is closed the opening is substantially sealed, from an outside of said dispenser-container. By "sealed", "sealingly" and so on, is meant that while a air tight or liquid tight closure is preferred, these terms also refer to any degree of closure between provided by the closure unit, in particular between the flap and the frame member, such that foreign matter is at least by an large prevented from entering the opening of the container, and at the same time, evaporation of fluids from the container is substantially slowed down during a typical life-cycle of a container.

[0031] Typically, the container is a flexible container, and the closure unit is made from a material having greater stiffness than that of the material from which the container is made. Alternatively, the container is a substantially rigid container.

[0032] The present invention is also directed to a closure unit for a dispenser-container, comprising a frame member defining an opening and a flap member for selectively closing said opening, said flap member being initially formed with said frame member in a substantially closed position and adapted to be detached from said frame member about a portion of a periphery of said flap such as to enable said flap to pivot with respect to said frame member via a hinge arrangement between a closed and an open position, wherein said closure unit is initially formed from suitable sheet material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] In order to understand the invention and to see how it may be carried out in practice, some embodiments will now be described, by way of non-limiting examples only, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the first embodiment of the invention, before first use of the dispenser-container;

Fig. 2 illustrates the embodiment of Fig. 1 with the closure unit in a normally closed position;

Fig. 3 illustrates the embodiment of Fig. 1 with the closure unit in a normally opened position;

Fig. 4 illustrates in plan view the closure unit of the embodiment of Fig. 1;

Fig. 5 illustrates in fragmented cross-sectional view some details of the first locking means of the embodiment of Fig. 1;

Fig. 6 illustrates in fragmented cross-sectional view some details of the second locking means of the embodiment of Fig. 1;

Fig. 7 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the second embodiment of the invention, before first use of the dispenser-container;

Fig. 8 illustrates the embodiment of Fig. 7 with the closure unit in a normally closed position;

Fig. 9 illustrates the embodiment of Fig. 7 with the closure unit in a normally opened position;

Fig. 10 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the third embodiment of the invention, before first use of the dispenser-container or in the normally closed position;

Fig. 11 illustrates the embodiment of Fig. 10 with the closure unit in a normally opened position;

Fig. 12 illustrates in plan view the closure unit of the embodiment of Fig. 10;

Fig. 13 illustrates in fragmented cross-sectional view the embodiment of Fig. 12 taken along C-C;

Fig. 14 illustrates in fragmented cross-sectional view the embodiment of Fig. 13, when the closure unit is in the closed position illustrated in Fig. 10;

Fig. 15 illustrates some details of the locking means of the embodiment of Fig. 14;

Fig. 16 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the fourth embodiment of the invention, before first use of the dispenser-container or in the normally closed position;

Fig. 17 illustrates the embodiment of Fig. 16 with the closure unit in a normally opened position;

Fig. 18 illustrates in perspective view the closure unit of the embodiment of Fig. 16;

Fig. 19 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the fifth embodiment of the invention, in a normally opened position;

Fig. 20a illustrates the embodiment of Fig. 19 with the closure unit, before first use of the dispenser-container;

Fig. 20b illustrates the embodiment of Fig. 19 with the closure unit in a normally closed position;

Fig. 21 is a plan view of a closure unit according to the sixth embodiment of the invention, with the closure unit as initially formed in a closed position and prior to folding the tab;

Fig. 22a and **22b** illustrate in cross-sectional view the embodiment of Fig. 21 taken along F-F: Fig. 22a - with the unit as initially formed; Fig. 22b - with the unit ready for mounting, with the tab in the folded position;

Fig. 23 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the embodiment of Fig. 21, with the closure unit in a normally open position;

Fig. 24 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the seventh embodiment of the invention, in the normally open position;

Fig. 25 illustrates in side view the closure unit of the embodiment of Fig. 24 with the closure unit in the injection position;

Fig. 26 illustrates in plan view the closure unit of Fig. 25;

Fig. 27 illustrates in cross sectional view the closure unit of Fig. 26 taken along D-D;

Fig. 28 illustrates in cross sectional view the closure unit of Fig. 27 in the closed position;

Fig. 29 illustrates in cross sectional view the closure unit of Fig. 26 taken along E-E;

Fig. 30 is a perspective view of a tissue dispenser-container fitted with a closure unit according to the eighth embodiment of the invention, in the normally open position;

Fig. 31 illustrates in plan view the closure unit of the embodiment of Fig. 30 with the closure unit in the closed injection position;

Fig. 32 illustrates in cross sectional view the closure unit of Fig. 31 taken along P-P;

Fig. 33 illustrates in cross sectional view the closure unit of Fig. 31 taken along Q-Q;

Fig. 34 illustrates in fragmented cross sectional view a detail of the closure unit of Fig. 33;

Fig. 35 illustrates in cross sectional view the closure unit of Fig. 31 taken along R-R;

Fig. 36 illustrates in fragmented isometric view the flap of the closure unit of Fig. 30 in the open position; and

Fig. 37 illustrates in fragmented plan view the closure unit of Fig. 30 in the closed/injection position.

DETAILED DESCRIPTION OF THE INVENTION

[0034] Herein, the term "tissues" is taken to include, in addition to regular tissues, also wet wipes, towels, napkins, and all manner of similar articles, whether dry or impregnated with a liquid and/or comprising a powder, paste or other substance..

[0035] The tissues may be made, for example, from a fibrous material such as nonwoven fabric, paper, gauze, or foam or any other suitable material formed in a sheet. Where the tissues are impregnated with liquid, the liquid may comprise, for example: liquid cosmetics, such as toilet water or milky lotion; drugs, such as an antiseptic or a medicine; cleaning solution for cleaning skin, including alcohol, moisturing agent, surfactant and so on; or solution for wiping stains in a kitchen, including alcohol, agent, surfactant and so on.

[0036] A typical dispenser-container according to a first embodiment of the present invention is illustrated in Figs. 1 to 3. The dispenser-container, generally designated **60,** comprises a resealable container **10,** which in the present embodiment may be similar to that of the conventionally known portable dispenser-container of a bag type for wet tissues. The container **10** is made from a flexible sheet suitably folded and bonded along a longitudinal join (not shown) and at ends **15** to provide an internal space that is filled with articles to be dispensed, such as tissues and the like.

[0037] The flexible sheet constituting the container **10** may comprise, for example, synthetic resins such as polyethylene, polypropylene, polyamide, polyester, and polyvinyl chloride in the form of a film, and the film may be a single layer or a laminated layer. The film may be a laminated layer of the above-mentioned film and an aluminum foil or paper, and the container **10** is in any case deformable.

[0038] The sheet constituting a container **10** may be gas impervious or liquid impervious depending on the kind of the liquid impregnated in tissues, i.e., fibrous materials impregnated with liquid cosmetics or a medicine, contained in the container **10.** For example, it may be preferred to use a sheet which is impervious to both gas and liquid, when perfumes which are very volatile are contained in the liquid.

[0039] Optionally, tissues may be separate tissues arranged in a interleaved manner or in a zig-zagging pattern separately connected to one another about a perforated tear line, or bonded one to another along overlapping trailing edges and leading edges, respectively, or separately disposed on a stack. The container **10** comprises a dispensing opening **20** through which the tissues are dispensed from the internal space. Optionally, a removable adhesive strip is provided over the opening **20** to cover the same until first use thereof. Alternatively, the opening **20** may be temporarily covered prior to first use by an integrally formed cover having a perforated or otherwise weakened periphery that is tearable to expose said opening **20.**

[0040] The opening **20** is preferably sized for dispensing one tissue at a time while separating a duty tissue from a successive tissue. The arrangement with such tissues is preferably such that upon pulling a leading edge of a standby tissue (by using the term *"standby tissue "* is referred to a first tissue in a pack of tissues which is to be removed from the container), the standby tissue is withdrawn through the opening **20** whilst it detaches from the sequential tissue, which becomes in turn a duty tissue with its leading edge now projecting from the opening **20.**

[0041] Alternatively, the dispenser-container may comprise a rigid container, made for example of plastic material fitted typically at a top or bottom thereof with an openable cover for introducing a pack of tissues for dispensing, the cover or box having a dispensing opening through which the tissues are dispensed from the inside of the box.

[0042] According to the first embodiment of the present invention, the container comprises a closure unit **100** for reversibly and sealably closing the dispensing aperture **20.** The closure unit **100** is made from a

suitable material, typically having greater stiffness than that of the flexible sheet from which the container **10** is made. The closure unit **100** comprises a flap **120** pivotably connected to a frame **140** via hinge arrangement **130.**

[0043] Preferably, the hinge arrangement **130** comprises a so-called 'integral hinge', allowing the flap **120** to deform and/or rotate about the hinge. Alternatively, a 'film hinge' is provided at **130,** in which case the thickness of material at the film hinge, particularly at the pivoting axis **139,** is a little less than that of the frame **140,** and thus enables the cover flap **120** to preferentially pivot about this hinge. According to another embodiment (not shown), the hinge may be a non-integral hinge, e. g. formed from one or more thin strips of material suitably bonded to the frame **140** and the flap **120.**

[0044] The frame **140** in this embodiment is in the form of a "C", comprising a raised rib structure **145** joined to an outer base strip **144** and an inner base strip **142** that circumscribes the outer and inner peripheries, respectively, of the rib structure, as illustrated particularly in Fig. 4. The rib structure **145** is optional, and may be of solid, substantially rectangular cross-section, but is preferably hollow and of inverted U cross-section, and provides mechanical strength and rigidity to the unit **100,** even when made from thin material. A gap is left between the facing ends or jaws **147** of the C-shaped rib structure **145.** Preferably, the facing ends of strip **144** are extended via extensions **148,** such that a gap **152** is left between the two extensions **148,** as best seen in Fig. 3.

[0045] The flap **120** is typically rectangular, and comprises an open box-like structure, having an upper panel **121** and front wall **122,** side walls **123** and rear wall **124** joined to the panel **121.** In the illustrated embodiment, the front wall **122** and the rear wall **124** are each longer than each of the side walls **123.** A border strip **128** circumscribes the outer periphery of the flap **120,** and is substantially co-planar with inner base strip **142.** The flap **120** comprises a finger-grasping portion in the form of a semi-cylindrical recess **125** formed on the front wall **122.** The box-like structure of the flap **120** allows for the leading edge of a tissue to remain protruding from the opening **20** when the flap is closed, enabling the duty tissue to be easily pulled next time the flap is opened.

[0046] The hinge arrangement **130** comprises a movable first hinge portion **135** that forms part of the border strip **128** adjacent a mid section **136** of rear wall **124,** and a static second hinge portion **133** that forms part of mid section **134** of the inner base strip **142.** The first hinge portion **135** thus pivots with respect to the static second hinge portion **133** via a fold line or hinge axis **139.**

[0047] The flap **120** comprises projections **129,** one at either side of the hinge portion **133,** for maintaining the flap in the open position. The projections extend in a rearwards direction from the rear wall **124** beyond the hinge line **139.** Thus, as the flap **120** is rotated to the open position, the projections **129** also rotate and are displaced to a position which is now in-board of the hinge line **139,** as illustrated in Fig. 3. Thus, the flap **120** cannot by itself flop down to the closed position, since the projections act as a stop. This effect is enhanced by the portion **11** of the container material that is within the frame **140,** which is held taut by the presence of the frame **140** itself. The portion **11** acts as a spring and pushes the projections **129** in a direction away from the portion **11,** since in this position the projections **129** are pressurizing the portion **11** into the unit **10.** Since the projections **129** are now inboard of the hinge line **139,** as illustrated in Fig. 3, this force urges the flap **120** in the open position. When a reasonable closing force is applied to the flap, the resistance between the projections and the material of the container **10** in the vicinity thereof is overcome, and the flap may be fully rotated to the closed position.

[0048] The closure unit **100** further comprises a pulling tab in the form of a locking arrangement **200** for reversibly locking the flap **120** with respect to the frame **140** in a substantially sealing manner. The locking arrangement **200** comprises a locking tab **210** joined to a portion **215** of the border strip **128** that is adjacent the midsection of the front wall **122** via a bridge **230.**

[0049] The locking arrangement **200** according to this embodiment comprises two locking means. The first locking means is provided for locking the tab **210** with respect to the bridge **230,** preferably permanently. The first locking means comprises a male part in the form of one or more snaps **272** comprised on the inner base strip **142,** and a female part in the form of a recess **274** formed on the tab **210.** Referring particularly to Fig. 5, the snap **272** comprises a head **271** and neck section **273,** which is joined to the bridge **230.** The width of the head **271** is such as to provide a tight fit with respect to the recess **274,** which has a narrowing mouth **275** which engages the neck section **273** when the first locking means is locked. Optionally, the head may be formed with a substantially flat shoulder **276** facing the bridge portion, and similarly the recess may comprise a complementary seat **277** just inside of the mouth **275,** so that when the snap **272** is inserted into the recess, the shoulder is engages with the seat, and the snap **272** cannot be removed from the recess **274,** except with extraordinary force or by damaging the same. A fold line **216** (shown dotted in Fig. 4) separates the locking tab **210** from the bridge **230,** and enables the tab **210** to be folded over the bridge **230** and locked in place with respect thereto, wherein the locking snap **272** is tightly accommodated with respect to recess **274,** which is now in registry with the snap **272,** as illustrated in Fig. 2.

[0050] The second locking means is provided for reversibly locking the tab **210** with respect to the frame **140** via extensions **148.** Referring to Fig. 6, the second locking means comprises a male part in the form of one or more snaps **262** comprised on each of the extensions **148,** and a female part in the form of corresponding re-

cesses **264** formed on the tab **210.** As illustrated in Fig. 4, the recesses **264** may be formed continuously with recess **274,** in the form of a channel having an appropriate cross-section, which may vary along its transverse length according to the shape of the snaps **262** and **272.** Each snap **262** preferably comprises a head **261** and neck section **263,** which is joined to the corresponding extension **148.** The width of the head **261** is such as to provide a reasonably tight fit with respect to the recess **264,** which has a narrowing mouth **265** which engages the neck section **263** when the second locking means is locked. When the locking tab **210** is folded over and locked with the bridge **230,** the snaps **262** are in registry with the recesses **264.** At the same time, the fit between the snaps **262** and recesses **264** is insufficient to prevent the second locking means from unlocking and opening up when a reasonable separating force is applied between the tab **210** and the frame **140.**

[0051] The structure of the closure unit **100** is such that it may be advantageously formed as an integral unit, preferably of uniform thickness throughout, and formed in a configuration wherein the flap **120** is at an angle substantially zero with respect to the frame **140.** In other words, the flap **120** is pivotably connected to the frame **140** via the hinge arrangement, and the closure unit **100** is formed having the flap **120** initially at a forming angle with respect to the frame **140** taken about the hinge arrangement, such that the forming angle is about 0°, and thus substantially less than 180°.

[0052] In the initially formed configuration, as illustrated in Fig 4, for example, no portion of the flap or indeed any other part of the closure member overlaps with any other part of the closure member **100,** taken in a direction substantially perpendicular to the plane of the frame **140.** Thus, the closure unit **100** may be manufactured by vacuum forming or any other suitable method that uses a suitable sheet material, typically a plastics material, such as for example polystyrene, polyester or PVC. This affords the possibility of reducing the manufacturing costs thereof, both in terms of materials and the process, substantially reducing the per-item cost of the container, as compared with prior art containers having a sealable closure unit, particularly of containers in the form of flexible tissue packages.

[0053] Alternatively, the closure unit **100** may also be manufactured using molding and injection methods, as known in the art, in the configuration illustrated in Fig. 4.

[0054] Another advantage of the closure unit of the present invention is that since it can be manufactured in a substantially "closed" position, which is possible because, in plan view, none of the components overlap, there is no need to then close the flap over the frame to seal the opening **20.** Accordingly, if manufactured using molding and injection methods, the molds therefore are considerably smaller, typically up to 50% smaller, than if the closure unit were to be manufactured in the open position, thereby reducing costs.

[0055] While for the first embodiment of the invention, the tab **210** is folded over the bridge **230,** this step may optionally be performed by the customer before opening the package, and in any case does not affect the closure of the opening **20** by the unit **100** prior thereto.

[0056] When formed as an integral unit, the flap **120,** bridge **230** and tab **210** are joined to the frame **140** via two fracturable or otherwise separable break lines **300,** each in the form of an "S". Each break line **250** thus extends from one or the other end of the pivot line **139** between the inner base strip **142** and the border strip **128,** between the extensions **148** and the border strip **128,** between the extensions **148** and the bridge **230,** and finally between the extensions **148** and the tab **210.** Optionally, the areas between extensions **148** and the tab **210** may be separated, and thus the break lines **250** do not need to extend to these areas. The break lines **250** may be perforated, or pre-weakened, or formed with substantially less material than the surrounding parts of the flap **120** or frame **140,** and thus tear or break when a predetermined lifting force is applied to the flap **120** with respect to the frame **140.** Optimally, such a lifting force is set to be within the range of forces that can normally be applied by an average adult without over-exertion, while not being so low that simple mishandling of the dispenser-container **60** would cause the break lines **250** to tear.

[0057] The outer base strip **144,** inner base strip **142** and the extensions **148** comprise an adhesive layer which enable these parts of the unit **100** to be adhered to the container **10** such as to circumscribe the opening **20,** as illustrated in Fig. 3. Alternatively, these parts may be otherwise bonded to the container **10,** for example by heat welding.

[0058] The dispenser-container **60** including the closure unit **100** may be used as follows. Referring to Fig. 1, an unused dispenser-container **60** is provided with a integrally formed closure unit **100,** bonded to the container **10** via base strip **144,** inner base strip **142** and the extensions **148.** The tab **210** is somewhat separated from the container **10** and is graspable. The user grasps the tab **210** and folds this about fold line **216** and engaged with respect to the bridge **230,** as illustrated in Fig. 2. Alternatively, this step may be performed at the factory or at any other point before reaching the consumer. For example, the engagement of tab **210** with the bridge **230** may be preformed when the unit **100** is manufactured, and before bonding the same to the container **10;** alternatively the tab **210** may be engaged with the bridge **230** after the unit **100** is bonded to the container **10.** When the tab **210** is engaged with the bridge **230** at factory, a permanent glue or the like may be used to permanently bond the two components together, and thus it is not so necessary for the snap **272** to be shaped such as to be permanently engaged in recess **274** by virtue solely of the shape thereof.

[0059] The user can then pull the tab **210** away from the frame **140,** typically by grasping the underside of bridge **230** with a thumb and the recess **125** with another

finger, thereby tearing away the break lines **250,** and separating the joined components comprising the tab **210,** bridge **230** and flap **120** from the frame **140** up to but not including the hinge line **139.** The flap can then assume the open position illustrated in Fig. 3, wherein the projections **129** maintain the flap in the open position. The flap **120** may be closed by rotating the flap back to its original position, and engaging the snaps **262** with recesses **264.** Thereafter, the flap **210** may be opened and closed as often as required to access tissues from the container **10.**

[0060] Alternatively, the user pulls the tab **210** away from the frame **140,** thereby tearing away the break lines **250,** and separating the joined components comprising the tab **210,** bridge **230** and flap **120** from the frame **140** up to but not including the hinge line **139.** Then, the tab **210** is folded about fold line **216** and engaged with respect to the bridge **230.** Thereafter, the flap **210** may be opened or closed via engagement of the snaps **262** with recesses **264** as often as required to access tissues from the container **10.**

[0061] Thus, the break lines **250** also serve as a factory seal and tamper proof evidence that the container-dispenser **60** has not been opened.

[0062] Optionally, the closure unit **100** is provided as a stand-alone unit, that is adapted as a retrofit device for any suitable container, or indeed as a general purpose closure device for an opening. Such a closure unit is thus as described above with respect to the first embodiment, *mutatis mutandis,* but instead of being bonded to the container **10** directly from the factory, it is provided separately as a stand-alone closure unit. This closure unit thus preferably comprises an adhesive coating on base strip **144,** inner base strip **142** and the extensions **148,** and these portions are covered with a temporary protective strip. Alternatively, the user may provide an adhesive coating or the like. When required, a user can remove the protective the strip, align the device with an opening that it is wished to cover, and then adheres the device thereto. Opening the device for the first time, and subsequent operation thereof is as described for the closure unit **100,** *mutatis mutandis.*

[0063] A second embodiment of the invention, illustrated in Figs. 7 to 9, comprises a closure unit **300,** which is substantially similar in form and operation to the closure unit **100** described herein particularly with reference to the first embodiment, *mutatis mutandis.* The major difference between the first embodiment and the second embodiment is that in the latter embodiment, the front wall **322** and rear wall **324** of the lid **320** are each substantially shorter than the side walls **323** thereof, and similarly the surrounding structure, such as for example the frame **340,** accommodates the difference in aspect ratios between the lids **120** and **320.** As with the first embodiment, the closure unit of the second embodiment may also be provided as a stand-alone unit, in a similar manner as described with respect to the first embodiment, *mutatis mutandis.*

[0064] A typical dispenser-container according to a third embodiment of the present invention is illustrated in Figs. 10 to 15, and comprises all the elements and features of the first embodiment, *mutatis mutandis,* with the differences that will become apparent in the description that follows. The dispenser-container, generally designated **460,** comprises a resealable container **10,** as already described for the first embodiment, *mutatis mutandis,* having an internal space that is filled with articles to be dispensed, such as tissues and the like via opening **20.** According to the third embodiment, the container comprises a closure unit **400** for reversibly sealably closing the dispensing aperture **20.** Thus, the closure unit **400** comprises a cover, cap or flap **420** pivotably connected to a frame **440** via hinge arrangement **430.**

[0065] In contrast to the first embodiment, the frame **440** is in a form that substantially fully circumscribes the periphery of the lid **420,** rather than being in the form of an open "C". Optionally, though, the frame may comprise a C-shaped raised rib structure (not shown) similar to that of the first embodiment, *mutatis mutandis,* or indeed a rib structure that also circumscribes the flap **420.** The frame **440** is thus substantially rectangular, having a front strip **446** and a rear strip **442** each joined to two side strips **444** at the transverse ends thereof.

[0066] The flap **420** is typically rectangular and may be substantially similar to that of the first embodiment, and thus comprises an open box-like structure, having an upper panel **421** and front wall **422,** side walls **423** and rear wall **424** joined to the panel **421.** In the illustrated embodiment, the front wall **422** and the rear wall **424** are each longer than each of the side walls **423.** Furthermore, the flap **420** may optionally comprise substantially rounded corner portions **427.** A border strip **428** circumscribes the outer periphery of the flap **420,** and is substantially co-planar with the frame **440.** The flap **420** comprises a finger-grasping portion, which in the illustrated embodiment in the form of a cylindrical dimple or recess **425** formed on the upper panel **421.**

[0067] The hinge arrangement **430** is similar in form and function to that of the first embodiment, *mutatis mutandis,* and similarly, the flap **420** comprises projections **429,** one at either side of the hinge arrangement **430,** for maintaining the flap in the open position.

[0068] Optionally, and advantageously, a stiffening rib **470** may be provided on the front strip **446.**

[0069] In contrast to the first embodiment, rather than a pulling tab, the closure unit **400** of the third embodiment comprises a different form of a locking arrangement **480** for reversibly locking the flap **420** with respect to the frame **440** in a substantially sealing manner. The locking arrangement **480** according to this embodiment comprises two tooth-like locking latches **410** carried on a tab **435,** although in other embodiments more than two or less than two latches may be provided. The latches **410** are provided for reversibly locking the flap **420** with respect to the frame **440.**

[0070] A fold line **416** separates the tab **430** from the front strip **446,** and enables the tab **435** to be folded under the front strip **446** and locked in place with respect thereto by any suitable means, for example by bonding or heat welding the tab **430** to the front strip **446.** The latches **410** are located on the tab **435** in a position such that when the tab **435** is folded under the front strip **446,** the latches are protruding in a direction slightly towards the inside of the cap **420** (when in the closed position), typically at an angle γ taken from the vertical **499** (orthogonal to the plane of the front strip **446**) of between about 2 to about 7 degrees, though angle γ may be greater than 7 degrees or less than 2 degrees, typically depending on the resiliency of the material from which the unit **400** is made, and in particular engage the inside faces of the front wall **422** and/or side walls **423.**

[0071] Referring particularly to Figs. 13 to 15, the latches **410** are each in the form of a protrusion comprised on the tab **435,** and comprises a forward face **411** that is slanting slightly in the forward direction, i.e., away from the hinge arrangement **430** when the tab **435** is folded as described above. The flap **420** comprises a complementarily slanting contact face **429** that engages with face **411,** and thus maintains the flap **420** in a closed position with respect to the frame **440.** Essentially, the front wall **422** and/or side walls **423,** or at least the said contact faces **429,** have a narrowing edge **465** which is hooked over the free end of the protrusion and is seated with respect to the slanting forward face **411.** At the same time, the fit between the faces **411** and **429** is insufficient to prevent latches **410** from unlocking and opening up with respect to the flap **420** when a reasonable separating force is applied between the flap **420** and the frame **440.**

[0072] Alternatively, the closure unit **400** may be manufactured using molding and injection methods, as known in the art.

[0073] As with the first embodiment, the structure of the closure unit **400** is such that it may be advantageously formed as an integral unit of uniform thickness throughout, and may be manufactured by vacuum forming or any other suitable method that uses a suitable sheet material, typically a plastics material. In other words, the flap **420** is pivotably connected to the frame **440** via the hinge arrangement, and the closure unit **400** is formed having the flap **420** initially at a forming angle with respect to the frame **440** taken about the hinge arrangement, such that the forming angle is about 0°, and thus substantially less than 180°.

[0074] While the faces **411** and **429** are sloping at acute angles with respect to the surrounding frame **440,** these angles with respect to a vertical datum are indeed very small, and thus the natural elasticity of the material from which the unit **400** is formed is sufficient to remove such a part when formed over suitable molds. Thus, by non-overlapping it is meant also to include embodiments such as the third embodiment, in which at least some parts may be disposed at an acute angle with respect to the frame, for example.

[0075] When formed as an integral unit, the flap **420** is joined to the frame **440** via a fracturable or otherwise separable break line **450,** in the form of a "C", excluding the hinge means **430.** The break line **450** thus extends from one end of the pivot line of the hinge means **430,** between the frame **440** and the border strip **428,** and to the other end of the pivot line of the hinge means **430.** The break line **450** may be perforated, or pre-weakened, or formed with substantially less material than the surrounding parts of the flap **420** or frame **440,** and thus tear or break when a predetermined lifting force is applied to the flap **420** with respect to the frame **440** for the first time. Optimally, such a lifting force is set to be within the range of forces that can normally be applied by an average adult without over-exertion, while not being so low that simple mishandling of the dispenser-container **60** would cause the break lines **450** to tear. Alternatively, the unit **400** may be provided with a break line **450** that is already fully perforated.

[0076] The exposed part underside of the frame **440** and the underside of the tab **435,** when this is bonded to the frame, comprise an adhesive layer which enables these parts of the unit **400** to be adhered to the container **10** such as to circumscribe the opening **20,** as illustrated in Fig. 11. Alternatively, these parts may be otherwise bonded to the container **10,** for example by heat welding.

[0077] The closure unit **400** according to this embodiment is typically provided with the tab **435** already folded under and bonded or otherwise joined to the front strip **446.** The closure unit **400** is also bonded in this configuration to the container **10** before it reaches the customer. Alternatively, the closure unit **400** may be provided as a separate unit, to be mounted to the container **10** by the customer.

[0078] (In any case, the closure unit **400** is typically manufactured in the form illustrated in Fig. 12. The tab **435** is then rotated and folded back about line **416,** and glued, bonded, welded or otherwise joined to the underside of the frame **440,** particularly the front strip **446,** as illustrated in Figs 13 and 14.)

[0079] The dispenser-container **460** including the closure unit **400** may be used as follows. Referring to Fig. 10, an unused dispenser-container **460** is provided with an integrally formed closure unit **400,** bonded to the container **10** via the underside of tab **435** and part of the underside of frame **440.**

[0080] To open the closure unit **400,** the user can then push the flap **420** slightly forwards and upwards to disengage the flap **420** from the latches **410.** The forward movement is permitted by the hinge arrangement **430,** which preferably comprises a hemi-cylindrical configuration which is deformable to provide the required play. The flap can then assume the open position illustrated in Fig. 11, wherein the projections **429** maintain the flap in the open position. The flap **420** may be closed by rotating the flap back to its original position, and engaging

the faces **429** of the flap **420** with latches **411.**

[0081] Optionally, for the first use of the unit **400,** the user pulls the flap **420** away from the frame **440,** thereby tearing away the break lines **450,** and separating the flap **420** from the frame **440** up to but not including the hinge line of the hinge means **430.** In such a case, the break lines **450** also serve as a factory seal and tamper proof evidence that the container-dispenser **460** has not been opened.

[0082] As with the first embodiment, *mutatis mutandis,* the closure unit **400** may optionally be provided as a stand-alone unit, that is adapted as a retrofit device for any suitable container, or indeed as a general purpose closure device for an opening.

[0083] A fourth embodiment of the invention, illustrated in Figs. 16 to 18, comprises a closure unit **500,** which is substantially similar in form and operation to the closure unit **400** described herein particularly with reference to the third embodiment, *mutatis mutandis.* The major difference between the third embodiment and the fourth embodiment is that in the latter embodiment, the front wall **522** and rear wall **524** of the lid **520** are each substantially shorter than the side walls **523** thereof, and similarly the surrounding structure, such as for example the frame **540,** accommodates the difference in aspect ratios between the lids or flaps **420** and **520.** Optionally, the finger-grasping portion may be in the form of a cylindrical tab **525** which is formed on the front wall **522** of the flap **520.** The fold line **516** is separated by the tab **525,** and thus part of the tab protrudes forwardly when the tab **535** that is joined to the frame **540** via line **516,** is folded under the frame, as illustrated in Fig. 17. This arrangement for the tab **525** provides for easier grasping of the flap **520,** and facilitates tearing away the flap **520** with respect to the break line **550** at first use of the closure unit. Closure of the flap is via latches **510,** which are similar to those described for the third embodiment, *mutatis mutandis.*

[0084] As with the third embodiment, the closure unit of the fourth embodiment may also be provided as a stand-alone unit, in a similar manner as described with respect to the third embodiment, *mutatis mutandis.*

[0085] A typical dispenser-container according to a fifth embodiment of the present invention is illustrated in Figs. 19 to 21, and comprises all the elements and features of the third embodiment, *mutatis mutandis,* with the differences that will become apparent in the description that follows. The dispenser-container, generally designated **660,** comprises a resealable container **10,** as already described for the first embodiment, *mutatis mutandis,* having an internal space that is filled with articles to be dispensed, such as tissues and the like via opening **20.** According to the fifth embodiment, the container comprises a closure unit **600** for reversibly sealably closing the dispensing aperture **20.** Thus, the closure unit **600** comprises a cover, cap or flap **620** pivotably connected to a frame **640** via hinge arrangement **630.**

[0086] As with the third embodiment, the frame **640** is in a form that substantially fully circumscribes the periphery of the lid **620,** and may optionally comprise a C-shaped raised rib structure (not shown) similar to that of the first embodiment, *mutatis mutandis,* or any suitable rib structure. The frame **640** is thus substantially rectangular, having a front strip **646** and a rear strip **642** each joined to two side strips **644** at the transverse ends thereof. Similarly, the flap **620** is typically rectangular, and thus comprises an open box-like structure, having an upper panel **621** and front wall **622,** which is optionally curved as illustrated in the Figures, side walls **623** and rear wall **624** joined to the panel **621.** In the illustrated embodiment, the front wall **622** and the rear wall **624** are each shorter than each of the side walls **623,** though in other embodiments the front and rear walls may be longer than the side walls. The flap **620** comprises a finger-grasping portion, which in the illustrated embodiment in the form of a disc-like tab **625** joined to a lower part of the front wall **622** via neck portion **626.** Thus, the front strip **646** of the frame **640** comprises a circular aperture **645** and a neck portion **647** complementary to the outer peripheries of the tab **625** and neck portion **626,** respectively. Optionally, a border strip (not shown) circumscribes the outer lower periphery **628** of the flap **620,** including the lower periphery of the tab **625** and neck **626,** which is substantially co-planar with the frame **640.**

[0087] The hinge arrangement **630** is similar to that described for the third embodiment, *mutatis mutandis,* and in particular comprises a hemi-cylindrical configuration which is deformable to enable the flap **620** to be displaced in the forwards direction with respect to the frame **640,** as will become clearer hereinbelow.

[0088] The major difference between this embodiment and the third embodiment lies in that the fifth embodiment does not comprise an additional tab joined to the front strip **646** via fold line. While the fifth embodiment comprises two locking latches **610,** these are formed on the upper side of the frame member **640,** in particular the front strip **646,** and advantageously situated one on either side of the neck portion **647** of the frame. In other embodiments more than two or less than two latches may be provided.

[0089] As with the third embodiment, the latches **610** are provided for reversibly locking the flap **620** with respect to the frame **640.** Operation of the locking arrangement, though, is by pulling the flap **620** in the forwards direction, while still slightly open with respect to the frame **640,** so that the front wall **622** overshoots the position of the latches **610,** and this forward movement is permitted by the hemi-cylindrical configuration of the hinge arrangement **630** which is deformable to provide the required play, and/or by the resilience of the material from which the unit **600** is made. The flap **620** can then be lowered towards the frame **640,** wherein the latches are now inside the flap **620,** as illustrated in **Fig. 20b.**

[0090] The latches **610** are now in a position such that

they are protruding in a direction towards the inside of the cap **620** (that is, when this in the closed position), and in particular engage the inside faces of the front wall **622** in a similar manner to that described for the third embodiment, *mutatis mutandis.*

[0091] Thus, in the closed position, the resiliency of the hinge arrangement **630** provides a rearwards pulling force to the flap **620,** pressing the front wall **622** thereof against the latches **610.** At the same time, the fit between the latches **610** and the front wall **622** is insufficient to prevent latches **610** from unlocking and opening up with respect to the flap **620** when a reasonable separating or opening force is applied between the flap **620** and the frame **640.**

[0092] As with the third embodiment, the structure of the closure unit **600** is such that it may be advantageously formed as an integral unit of uniform thickness throughout, and may be manufactured by vacuum forming or any other suitable method that uses a suitable sheet material, typically a plastics material. In other words, the flap **620** is pivotably connected to the frame **640** via the hinge arrangement, and the closure unit **600** is formed having the flap **620** initially at a forming angle with respect to the frame **640** taken about the hinge arrangement, such that the forming angle is about 0°, and thus substantially less than 180°. Alternatively, the closure unit **600** may be manufactured using molding and injection methods, as known in the art.

[0093] When formed as an integral unit, the flap **620** is preferably joined to the frame **640** via a fracturable or otherwise separable break line **650,** that extends around the periphery **628** up to but not including the hinge arrangement **630,** and may similar to that described for the third embodiment, *mutatis mutandis.*

[0094] The underside of the frame **640** comprises an adhesive layer which enables the unit **600** to be adhered to the container **10** such as to circumscribe the opening **20,** as illustrated in Fig. 19. Alternatively, the frame may be otherwise bonded to the container **10**, for example by heat welding.

[0095] The dispenser-container **660** including the closure unit **600** may be used as follows. Referring to Fig. 20a, an unused dispenser-container **660** is provided with an integrally formed closure unit **600,** bonded to the container **10.** In the unused and thus unopened configuration, the flap **620** is accommodated within the frame **640,** wherein the tab **625** and neck portion **626** are in registry with the aperture **645** and the neck portion **647,** respectively.

[0096] At the first use, and referring to Fig. 19, in order to first open the unit **600** the user detaches the flap **620** from the frame **640,** tearing any connection that there may be in the break line **650.** In such a case, the fracturable break lines **650** also serve as a factory seal and tamper proof evidence that the container-dispenser **660** has not been opened. The flap **620** may then be fully opened, and the flap may be retained in the open position by means of the projections **629,** in a similar manner to the previously described embodiments.

[0097] Referring to **Fig. 20b,** in order to close the closure unit **600,** the flap **620** is brought into close proximity to the frame **640** and at the same time pulled in the forward direction until the front wall **622** overshoots the latches **610,** whereupon, the flap can be fully lowered onto the frame **640.** By means of the resilience of the hinge arrangement **630,** the flap **620** is pulled back towards the hinge arrangement **630,** enabling the latches to engage with the inside surface of the front wall **622,** and this maintains the flap **620** in the closed position.

[0098] To open the closure unit **600,** after it has been opened for the first time, and then subsequently closed as described above, the user can then pull the flap **620** slightly forwards and upwards by means of the tab **625** to disengage the flap **620** from the latches **610.** The closure unit **600** may then be alternately opened as closed when desired.

[0099] As with the aforementioned embodiments, *mutatis mutandis,* the closure unit **600** may optionally be provided as a stand-alone unit, that is adapted as a retrofit device for any suitable container, or indeed as a general purpose closure device for an opening.

[0100] A typical dispenser-container according to a sixth embodiment of the present invention is illustrated in Figs. 21 to 23 and comprises all the elements and features of the third embodiment, *mutatis mutandis,* with the differences that will become apparent in the description that follows. The dispenser-container, generally designated **960,** comprises a resealable container **10,** as already described for the first embodiment, *mutatis mutandis,* having an internal space that is filled with articles to be dispensed, such as tissues and the like via opening **20.** According to the sixth embodiment, the container comprises a closure unit **900** for reversibly sealably closing the dispensing aperture **20.** Thus, the closure unit **900** comprises a cover, cap or flap **920** pivotably connected to a frame **940** via hinge arrangement **930.** The frame **940** defines an opening **949,** created when the flap **920** is pivoted away from the frame **940,**

[0101] The frame **940** is in a form that substantially fully circumscribes the periphery of the lid **920.** Optionally, and preferably, the frame **940** comprises a C-shaped raised rib structure **970,** that also circumscribes a portion of the flap **920.** The frame **940** typically follows the plan shape of the flap, and in the illustrated embodiment is substantially rectangular, having a front strip **946** and a rear strip **942** each joined to two side strips **944** at the transverse ends thereof. Similarly, the flap **920** is also typically rectangular and may be substantially similar to that of the third embodiment, and thus comprises an open box-like structure, having an upper panel **921,** front wall **922,** side walls **923,** rear wall **924** and rounded corner portions **927.** Optionally, text, a logo, symbols and so on may be embossed on the panel **921,** comprising, for example, the manufacturer's name and/or a trademark used in conjunction with the unit, the dispenser **960** or the wipes comprised therein. In the il-

lustrated embodiment, the front wall **922** and the rear wall **924** are each longer than each of the side walls **923,** but the reverse may be the case, or alternatively the flap member **920** may comprise any suitable shape, for example elliptical. Optionally, a border strip (not shown) circumscribes the outer periphery of the flap **920,** and is substantially co-planar with the frame **940.** Alternatively, the flap **920** meets the frame **940** at an angle, for example 90°. The flap **920** comprises a finger-grasping portion, which in the illustrated embodiment in the form of a button **990** located in a recess **925** formed on the upper panel **921,** and also includes a tab **953.**

[0102] The hinge arrangement **930** is similar in form and function to that of the third embodiment, *mutatis mutandis,* and similarly, the flap **920** comprises projections **929,** one at either side of the hinge arrangement **930,** for maintaining the flap in the open position.

[0103] A fold line **916** separates the tab **935** from the front strip **946,** and enables the tab **935** to be folded under the front strip **946** and locked in place with respect thereto by any suitable means, for example by bonding or heat welding the tab **935** to the front strip **946.**

[0104] The closure unit **900** of the sixth embodiment comprises a locking arrangement **980,** similar in some respects to the locking arrangement of the third embodiment, for reversibly locking the flap **920** with respect to the frame **940** in a substantially sealing manner. The locking arrangement **980** according to this embodiment comprises one projecting tooth-like locking latch **910** carried on a tab **935,** although in other embodiments more than one latch may be provided, *mutatis mutandis.* The latch **910** is provided for reversibly locking the flap **920** with respect to the frame **940,** and for this purpose is aligned and selectively engages with the inside of the button **990,** which also acts as a complementary latch member.

[0105] Thus, the latch **910** is located on the tab **935** in a position such that when the tab **935** is folded under the front strip **946,** the latch is protruding in an outwards direction substantially orthogonal to the plane of the frame **940,** and aligned with the button **990.** In the illustrated embodiment, the latch **910** has a shape such that the cross-section thereof increases slightly with distance away from the tab **935.** For example, at least the front and rear walls **912** of the latch **910** (when the tab is in the folded position) are inclined slightly away from the vertical. Typically this inclination may comprise an angle γ taken from the vertical **999** (orthogonal to the plane of the front strip **946)** of, for example between about 2 to about 7 degrees, though angle γ may be greater than 7 degrees or less than 2 degrees, typically depending on the resiliency of the material from which the unit **900** is made, and in particular engages the inner complementary faces **992** of the button **990,** as illustrated in particular in Figs. 22a and 22b.

[0106] In particular, this arrangement allows the latch **910** to be selectively and reversibly positively locked with respect to the button **990,** and the latch **990** may thus comprise at least one protrusion of increasing cross-section in a direction away from said frame member when in the closed position. At the same time, the button, which acts as a second, complementary latching member, comprises a recess of increasing cross-section in a direction away from said frame member when in the closed position, at least a portion of said recess being complementary to a portion of said protrusion. Typically, at least one of said portion of said recess and said portion of said protrusion are elastically deformable to permit selective locking of said first latching member with said second latching member.

[0107] Thus, the button **990** is engaged by the latch **910,** and this maintains and locks the flap **920** in a closed position with respect to the frame **940.** At the same time, the fit between the faces **992** and **912** is insufficient to prevent latch **910** from unlocking and opening up with respect to the flap **920** when a reasonable separating force is applied by the user between the flap **920** and the frame **940.**

[0108] As with the third embodiment, the structure of the closure unit **900** is such that it may be advantageously formed as an integral unit of uniform thickness throughout, or alternatively of varying thicknesses, and may be manufactured by vacuum forming, heat forming, or any other suitable method that uses a suitable sheet material, typically a plastics material, which may be of constant thickness or varying thickness, as required. In other words, the flap **920** is pivotably connected to the frame **940** via the hinge arrangement, and the closure unit **900** is formed having the flap **920** initially at a forming angle with respect to the frame **940** taken about the hinge arrangement, such that the forming angle is less than 180°, typically about 0°. Alternatively, the closure unit **900** may be manufactured using molding and injection methods, as known in the art.

[0109] It is also clear that the closure unit **900** is initially formed, i.e., with the flap **920** still connected to the frame **940,** and with the tab **935** still unfolded, in a manner such that substantially no part of said flap **920** substantially overlaps any part of the frame **940** in a direction substantially perpendicular to the opening **949** formed in the frame **940.**

[0110] While the faces **912** and **992** are sloping at acute angles with respect to the surrounding frame **940,** these angles with respect to a vertical datum are typically small, and thus the natural elasticity of the material from which the unit **900** is formed is sufficient to remove the button **990** and the latch **910** when formed over suitable molds, which thus do not require to be dismantled in any way in order to retrieve the unit **900.**

[0111] When formed as an integral unit, the flap **920** is joined to the frame **940** via a fracturable or otherwise separable break line **950,** in the form of a "C", excluding the hinge means **930.** The break line **950** thus extends from one end of the pivot line of the hinge means **930,** between the frame **940** and the border strip **928,** and to the other end of the pivot line of the hinge means **930.**

The break line **950** may be perforated, or pre-weakened, or formed with substantially less material than the surrounding parts of the flap **920** or frame **940,** and thus tear or break when a predetermined lifting force is applied to the flap **920** with respect to the frame **940** for the first time. Optimally, such a lifting force is set to be within the range of forces that can normally be applied by an average adult without over-exertion, while not being so low that simple mishandling of the dispenser-container **90** would generally cause the break lines **950** to tear. Alternatively, the unit **900** may be provided with a break line **950** that is already fully perforated.

[0112] In this embodiment, the break line **950** at the front part of the flap **920** extends beyond the fold line **910,** and thus, when the tab **935** is folded, a front part **952** of the break line is torn, exposing a narrow pulling tab **953.** The tab **935** is thus folded about two portions of the fold line **910,** one on each side of the puling tab **953.** The pulling tab **953** projects forward of the frame **940,** after the tab **935** has been folded, and provides a finger grasping portion that enables the flap **920** to be torn away from the frame at the remaining portions of the break lines **950,** and for subsequently re-opening the flap. When the unit **900** is initially formed, i.e., prior to tab **935** being folded under said frame **940,** no part of the pulling tab **953** overlaps any part of the frame **940.**

[0113] The exposed part underside of the frame **940** and the underside of the tab **935,** when this is bonded to the frame **940,** optionally comprise an adhesive layer which enables these parts of the unit **900** to be adhered to the container **10** such as to circumscribe the opening **20,** as illustrated in Fig. 23. Alternatively, these parts may be otherwise bonded to the container **10,** for example by heat welding.

[0114] Although the closure unit **900** according to this embodiment is initially formed with the tab **935** extending away from the flap in the position illustrated in Fig. 21 it is typically provided to consumers with the tab **935** already folded under and bonded or otherwise joined to the front strip **946.** The closure unit **900** is also typically bonded in this configuration to the container **10** before it reaches the customer. Alternatively, the closure unit **900** may be provided as a separate unit, to be mounted to the container **10** by the customer.

[0115] In any case, the closure unit **900** is typically manufactured initially in the form illustrated in Fig. 21, i. e., with the tab unfolded, and the flap **920** connected to the frame **940** along lines **950.** The tab **935** is then rotated and folded back about line **916,** and glued, bonded, welded or otherwise joined to the underside of the frame **940,** particularly the front strip **946,** as illustrated in Figs. 22a and 22b.

[0116] The dispenser-container **960** including the closure unit **900** may be used as follows. Referring to Fig. 21, an unused dispenser-container **960** is provided with an integrally formed closure unit **900,** bonded to the container **10** via the underside of tab **935** and part of the underside of frame **940.**

[0117] To open the closure unit **900,** the user can then pull the button **990** free of the latch **910** to disengage the flap **920** from the latch **910** and from the frame **940.** This disengagement is permitted by the elasticity of the button **990** and/or the latch **910.** The flap **940** can then assume the open position illustrated in Fig. 23, wherein the projections **929** maintain the flap in the open position. The flap **920** may be closed by rotating the flap back to its original position, and engaging the faces **929** of the flap **920** with latch **910.**

[0118] The break lines **950** also serve as a factory seal and tamper proof evidence that the container-dispenser **960** has not been opened, since, for the first use of the unit **900,** the user pulls the flap **920** away from the frame **940,** thereby tearing away the break lines **950,** and separating the flap **920** from the frame **940** up to but not including the hinge line of the hinge means **930.** Alternatively, though less preferable, it is also possible to provide the unit **900** to the consumer with the flap **920** already separated from the frame **940.**

[0119] As with the third embodiment, *mutatis mutandis,* the closure unit **900** may optionally be provided as a stand-alone unit, that is adapted as a retrofit device for any suitable container, or indeed as a general purpose closure device for an opening. In such a case, the closure unit **900** is optionally provided with a layer of adhesive, preferably covered with a peelable cover (not shown).

[0120] While the first through sixth embodiments have been described as having a substantially rectangularly-shaped cover or flap, and correspondingly shaped frame, it is clear that the flap may have any other shape, including polygonal, circular, elliptical, irregular, sinusoidal and so on, *mutatis mutandis.*

[0121] A dispenser-container **760** according to a seventh embodiment is illustrated in Figs. 24 to 29, and comprises a resealable container **10,** substantially as already described for the first embodiment, *mutatis mutandis,* having an opening **20,** and a closure unit **700** for reversibly sealably closing the dispensing aperture **20.** The closure unit is similar to those described above, *mutatis mutandis,* but with differences as described below, and thus comprises a flap **720,** frame **740** and hinge arrangement **730.** The flap **720** comprises panel **721,** wall **723,** wall **724,** corner portions **727,** lower tab **725** and recess **722,** and defines a major axis **790.** The frame **740** may comprise a raised rib-like structure **750,** including curved portion **752** and a planar section **754,** circumscribing the inner edge **744** of the frame **740.** The locking arrangement **780** comprises the free leading edge **728** of the tab **725** which selectively cooperates with a complementary rearwardly projecting lip **785** comprised on the front part of the rib structure **750.**

[0122] The closure unit **700** may be manufactured using mold injection techniques, with the advantage that this may be done using molds that are substantially smaller than those of the prior art, and the closure unit **700** may be injection molded in an ajar position, as il-

lustrated in Figs 25, 27 and 29, wherein the lid is at a forming angle α, herein also referred to as the "injection position angle", with respect to the frame **740.** According to this embodiment, angle α is greater than 0° and less than 180°. Typically, α is between about 5° and about 90°, or between about 10° and about 80°, and optionally about 15°. Angle α is such that the internal surfaces of the frame **740** and the flap **720** are presented as concavities within a mold, with all such surfaces being at an angle not greater than 90° to the horizontal. Furthermore, angle α is such that no portion of the frame **740** overlaps with the flap **720** or vice versa in the vertical direction. In fact, angle α is such that no portion of the unit **700** overlaps with the any other portion of the unit **700** in the vertical direction. Alternatively, the closure unit **700** may be formed as an integral unit of uniform thickness throughout, and may also be manufactured by vacuum forming or any other suitable method that uses a suitable sheet material, typically a plastics material, as described for the first embodiment, *mutatis mutandis.* Operation and use of the dispenser-container **760** is similar to that described for the first embodiment, *mutatis mutandis.*

[0123] A dispenser-container **860** according to an eighth embodiment is illustrated in Figs. 30 to 37 and is similar to the seventh embodiment as described above, *mutatis mutandis* with some differences. Thus, the dispenser-container **860** comprises container **10** having opening **20;** a closure unit **800** comprising a flap **820** (with panel **821,** wall **823,** rear wall **824;** major axis **890;** corner portions **827;** a hood-shaped portion **825** comprising finger-tip recess **822**); frame **840** (optionally having a raised rib-like structure **850** including portion **852**); hinge arrangement **830;** and locking arrangement **880** (having a pair of tabs **885**). As best seen in Figs. 34, 36, 37, in the closed position of the flap **820** with respect to the frame **840,** the tabs **885** underlie corresponding portions **887** of the rib structure **850,** and each tab **885** comprises one, two, or more projections **886,** and prior to first use, the projections **885** are integrally joined to the underside of the rib structure **850,** and these may serve as guarantee point. To use the closure unit for the first time the user urges the flap **820** towards the container **10,** and thus away from the frame **840,** severing the connection between the projections **886** and the rib structure **840.** When it is desired to open the closure unit **800,** the flap is pulled upwards by means of the portion **825,** and the resilience of the tabs **885** and flap **820** enables these to temporarily deform as the tabs **885** maneuver around the rib structure in contact therewith. When it is desired to close the flap **820,** this is rotated about the hinge arrangement **830,** until the tabs **885** are snapped into position below the rib structure **850.** When it is desired to open the closure unit **800,** the user presses the portion **825** upwards, or first in a direction towards the hinge arrangement **830.** The resilience of the closure unit **800,** and/or the play allowed for in the hinge arrangement **830,** allows the tabs **885** to be disengaged from the rib structure **850,** and thus the flap **820** may be opened.

[0124] The closure unit **800** may be manufactured in a similar manner to that described for the seventh embodiment, *mutatis mutandis,* with the main difference that the closure unit **800** may be injected molded in a substantially closed position, as illustrated in Figs. 31 and 34, wherein the lid is temporarily joined to the rib structure **850** via projections **886.** Except for part of the tabs **885,** no portion of the frame **840** overlaps with respect to the flap **820** or vice versa in the vertical direction, and a gap **889** is formed between the periphery of the flap **820** and the rib structure **850.** This is possible due to the resilience of the material from which the closure unit **800** is made. Such a material typically comprises a plastic, such as for example polypropylene or polyethylene, which can deform to a limited degree when force is applied. Thus, although the parts of the molds required for the molding of the tabs **885** and the corresponding engaging portion **887** also overlap, once cooled the closure unit **800** can be removed from the mold by forcing a partial and temporary deformation of the tabs **885** and/or the corresponding engaging portion **887** to free these components from the molds. As with the seventh embodiment, the closure unit **800** may also be made from sheet material in a similar manner as described with respect thereto, *mutatis mutandis.*

[0125] Thus when referring herein to one component as not substantially overlapping with respect to another component, this is herein taken to include the plain meaning, wherein there is no actual overlapping, and also to optionally include cases wherein there is a limited amount of actual overlapping, but such as still permits the closure unit to be removed from the mold by making use of the resilience of the material from which the closure unit is made to maneuver the overlapping parts around parts of the molds to enable the closure unit to be freed therefrom.

[0126] The present invention also relates to a mold for producing said closure unit of the present invention. The mold may be adapted for vacuum forming the closure unit from sheet material, typically thin plastic material. Alternatively, the mold may be adapted for forming the closure unit by the injection of a suitable molten plastic or other suitable material.

[0127] It should be noted that the word "comprising" as used throughout the appended claims is to be interpreted to mean "including but not limited to".

[0128] While there has been shown and disclosed exemplary embodiments in accordance with the invention, it will be appreciated that many changes may be made therein without departing from the spirit of the invention.

Claims

1. A closure unit for a dispenser-container, comprising a frame member defining an opening and a flap

member pivotably connected to said frame member about a hinge arrangement for selectively closing said opening, wherein said closure unit is initially formed having the flap member at a forming angle α with respect to the frame member taken about the hinge arrangement, such that angle α is substantially less than 180°, and wherein said closure unit is initially formed in a manner such that substantially no part of said flap member substantially overlaps any part of said frame member in a direction substantially perpendicular to said opening.

2. A closure unit according to claim 1, wherein said angle α is substantially 0°.

3. A closure unit according to claim 1, wherein said unit is initially formed with said flap member in a substantially closed position, and said flap member is adapted to be detached from said frame member about a portion of a periphery of said flap member such as to enable said flap member to pivot with respect to said frame member via said hinge arrangement between a closed and an open position.

4. A closure unit according to claim 3, wherein said flap member comprises a box-like structure, having an upper panel and front, side and rear walls extending therefrom to said border strip.

5. A closure unit according to claim 4, wherein said hinge arrangement comprises a movable first hinge portion that is comprised on a mid section of said rear wall, and a static second hinge portion that forms part of mid section of the inner base strip.

6. A closure unit according to claim 5, wherein said flap member comprises at least two projections for maintaining the flap member in the open position.

7. A closure unit according to claim 1, wherein said hinge arrangement comprises any one of an integral hinge, a film hinge, or a non-integral hinge.

8. A closure unit according to claim 1, wherein said frame member comprises a raised rib structure for mechanically stiffening said unit.

9. A closure unit according to claim 8, wherein said rib structure comprises a substantially hollow inverted U-shaped cross-section.

10. A closure unit according to claim 3, wherein said flap member is temporarily joined to said frame member via break lines prior to a first use of said closure unit, wherein said break lines are adapted for tearing when said flap member is pulled from said frame member with a predetermined force.

11. A closure unit according to claim 10, wherein said break lines are pre-weakened with respect to the frame member and the flap member.

12. A closure unit according to claim 3, wherein said frame member substantially circumscribes said flap member.

13. A closure unit according to claim 12, wherein said frame member is formed having a foldable tab projecting from said frame member in a longitudinal direction opposed to said flap member and hinge arrangement, said foldable tab being foldable about a hinge line to a position wherein a portion of said frame member is superposed with respect to said foldable tab.

14. A closure unit according to claim 13, wherein said foldable tab comprises a locking arrangement.

15. A closure unit according to claim 14, wherein said locking arrangement comprises at least one first latching member adapted for engagement with a corresponding second latching member comprised in said flap member.

16. A closure unit according to claim 15, wherein said first latching member is adapted for being reversibly locked with respect to said second latching member.

17. A closure unit according to claim 16, wherein said first latching member comprises a protrusion of increasing cross-section in a direction away from said frame member when in the closed position and wherein said second latching member comprises a recess of increasing cross-section in a direction away from said frame member when in the closed position, at least a portion of said recess being complementary to a portion of said protrusion.

18. A closure unit according to claim 17, wherein at least one of said portion of said recess and said portion of said protrusion are elastically deformable to permit selective locking of said first latching member with said second latching member.

19. A closure unit according to claim 3, wherein:

(a) said frame member comprises a break therein adapted for accommodating a bridge joining a tab to said flap member, said tab comprising a locking arrangement;
(b) said locking arrangement comprises first locking means for locking said tab member with respect to said bridge, and second locking means for reversibly locking said flap member with respect to said frame member;

(c) said bridge comprises a fold line for folding said tab member over said bridge to provide locking engagement for said first locking means, and said first locking means comprises suitable first male locking parts comprised on said bridge, and first female locking parts comprised on said tab member;

(d) said bridge is temporarily joined to said frame member via break lines prior to a first use of said closure unit, wherein said break lines are adapted for tearing when said tab is pulled from said frame member with a predetermined force; and

(e) wherein said tab is temporarily joined to said frame member via break lines prior to a first use of said closure unit, wherein said break lines are adapted for tearing when said tab is pulled from said frame member with a predetermined force.

20. A closure unit according to claim 1, wherein said flap further comprises a finger grasping portion, wherein said closure unit is initially formed in a manner such that substantially no part of said finger grasping portion substantially overlaps any part of said frame member in a direction substantially perpendicular to said opening.

21. A closure unit according to claim 1, wherein said unit is formed as an integral unit.

22. A closure unit according to claim 1, wherein said unit is formed from sheet material.

23. A closure unit according to claim 22, wherein said sheet material has a thickness that is substantially uniform.

24. A closure unit according to claim 23, wherein said unit is formed as a vacuum-formed or heat-formed article.

25. A closure unit for a dispenser-container, comprising a frame member defining an opening and a flap member for selectively closing said opening, said flap member being initially formed with said frame member in a substantially closed position and adapted to be detached from said frame member about a portion of a periphery of said flap such as to enable said flap to pivot with respect to said frame member via a hinge arrangement between a closed and an open position, wherein said closure unit is initially formed from suitable sheet material.

26. A dispenser-container for dispensing a plurality of tissues or the like sequentially, comprising a container having a dispensing opening for removing said tissues, and further comprising a closure unit according to any one of claims 1 to 25 fixed to said container in overlying relationship with respect to said opening such that when the closure unit is in the open position the opening is accessible and when the closure unit is in the closed position, the opening is substantially closed.

27. A mold for producing a closure unit, wherein said closure unit is as defined in any one of claims 1 to 25.

28. A mold according to claim 27, wherein the mold is adapted for vacuum forming said closure unit from suitable sheet material.

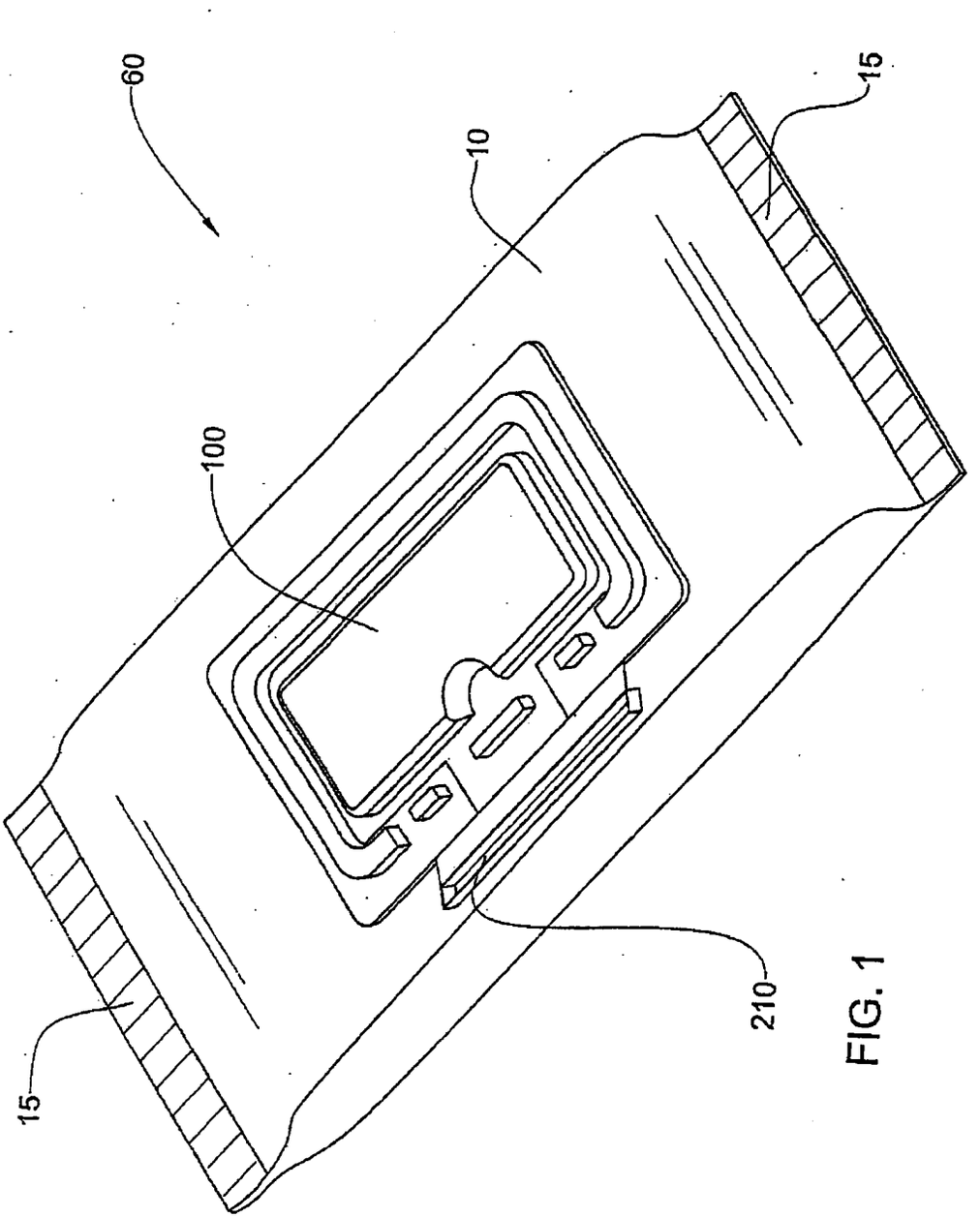

FIG. 1

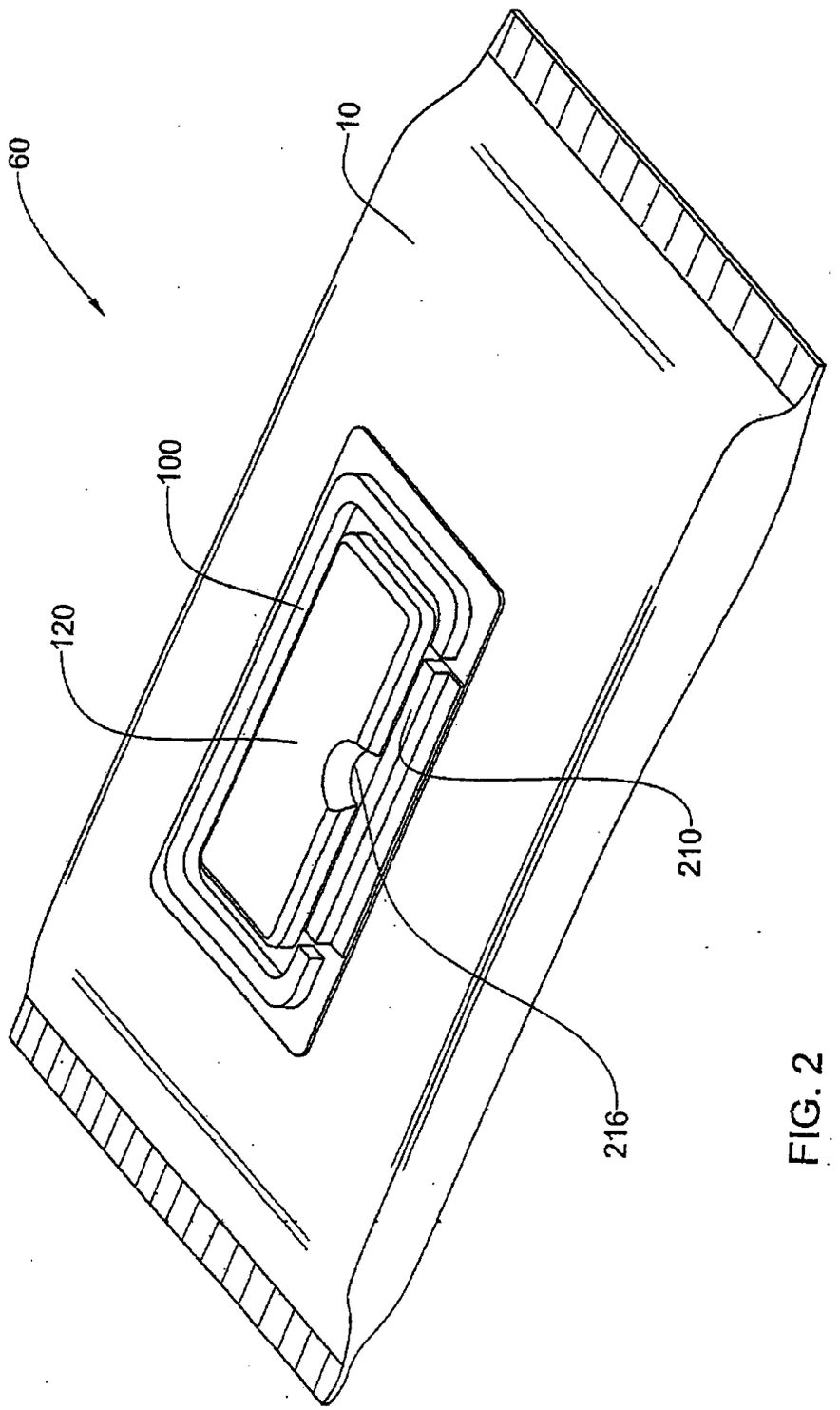

FIG. 2

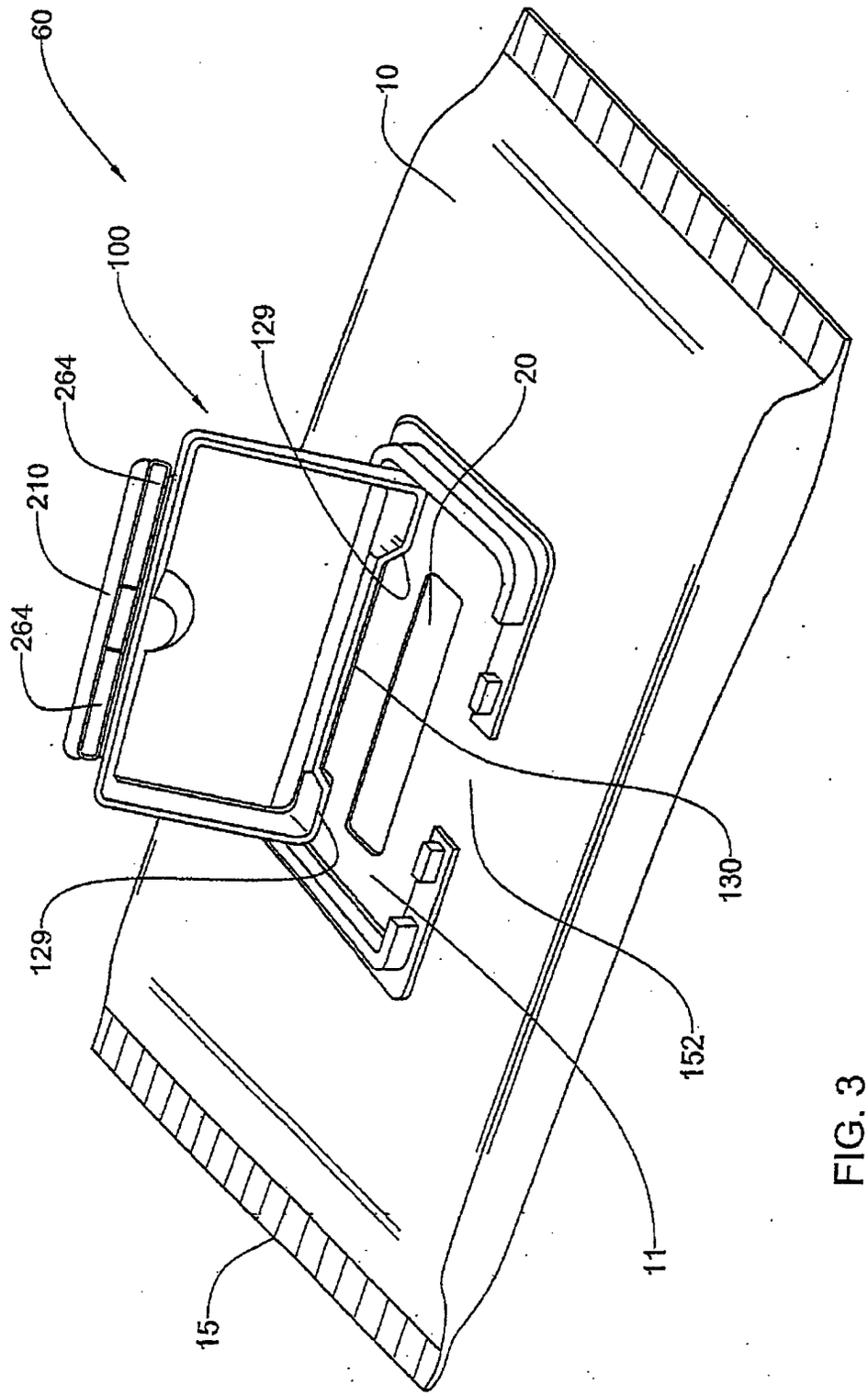

FIG. 3

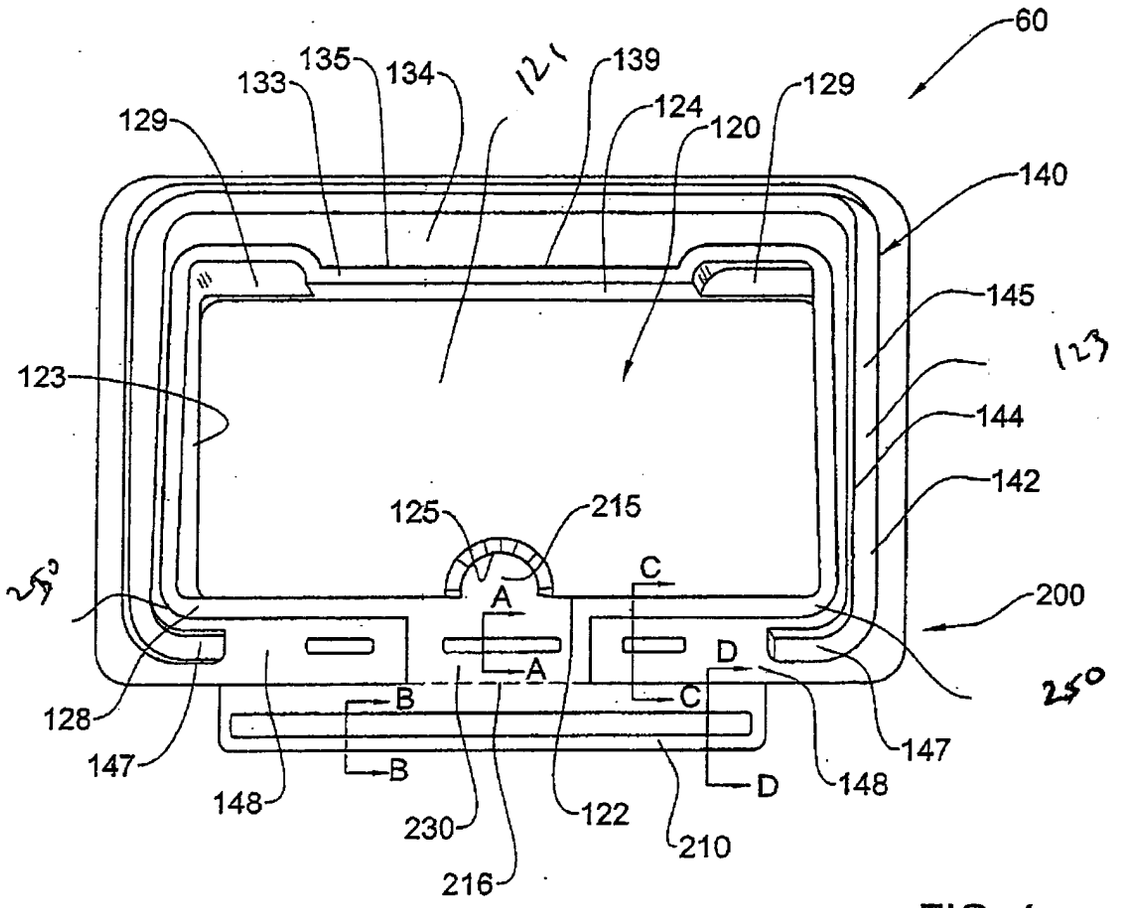

FIG. 4

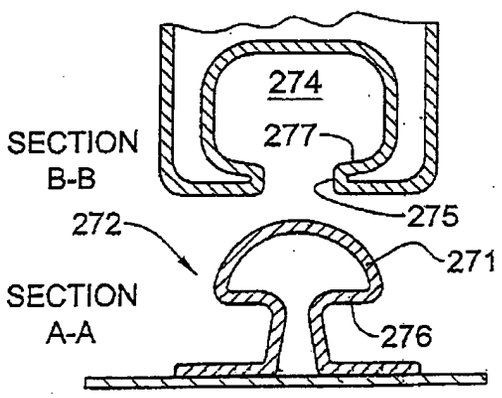

FIG. 5

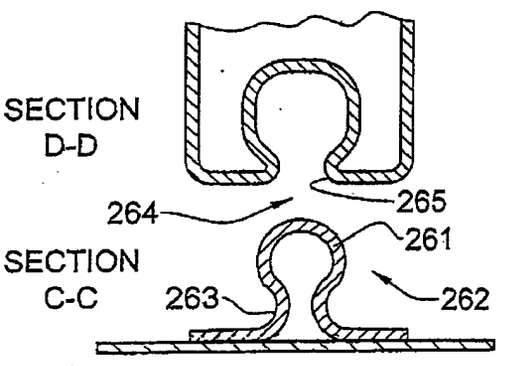

FIG. 6

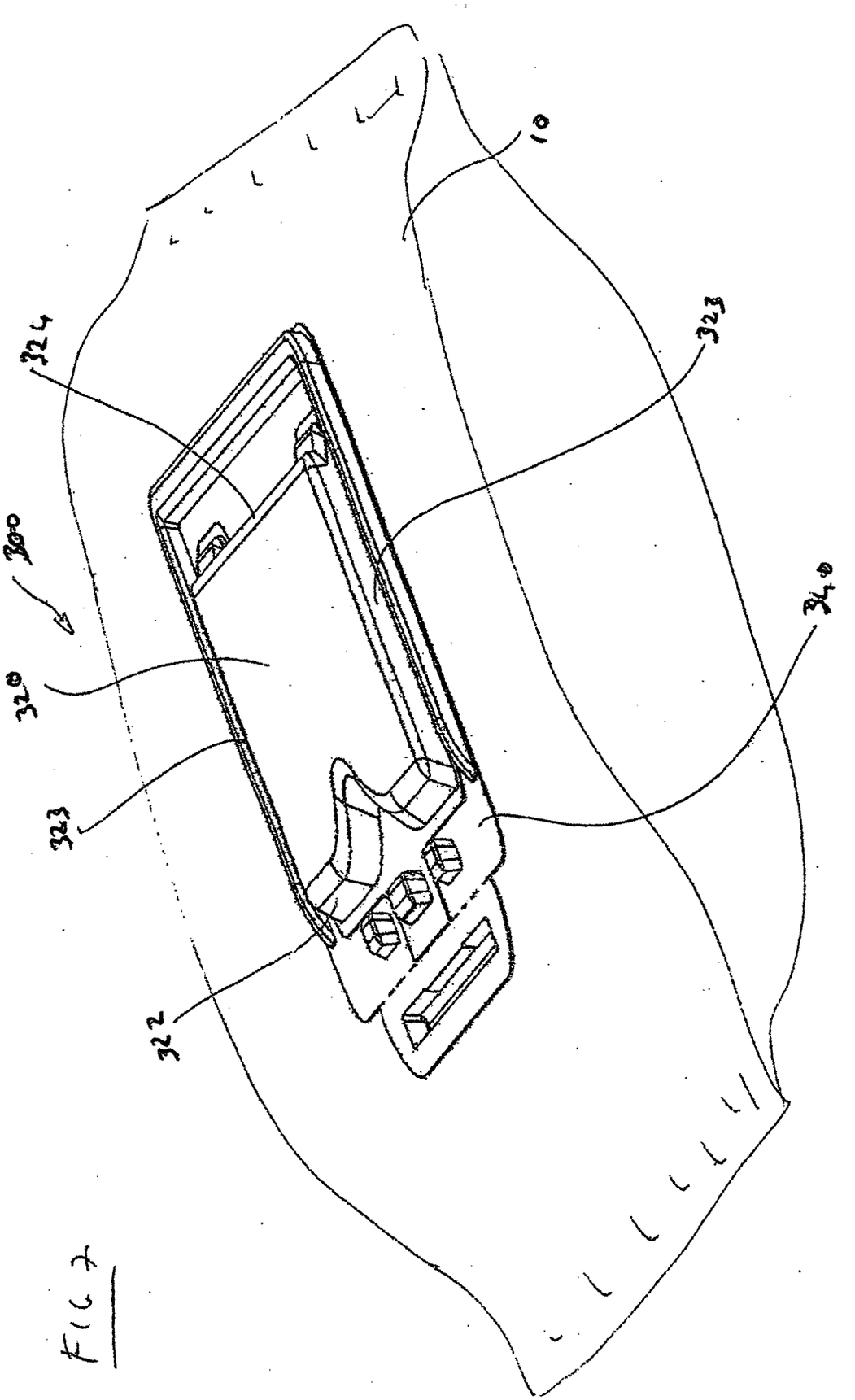

FIG 7

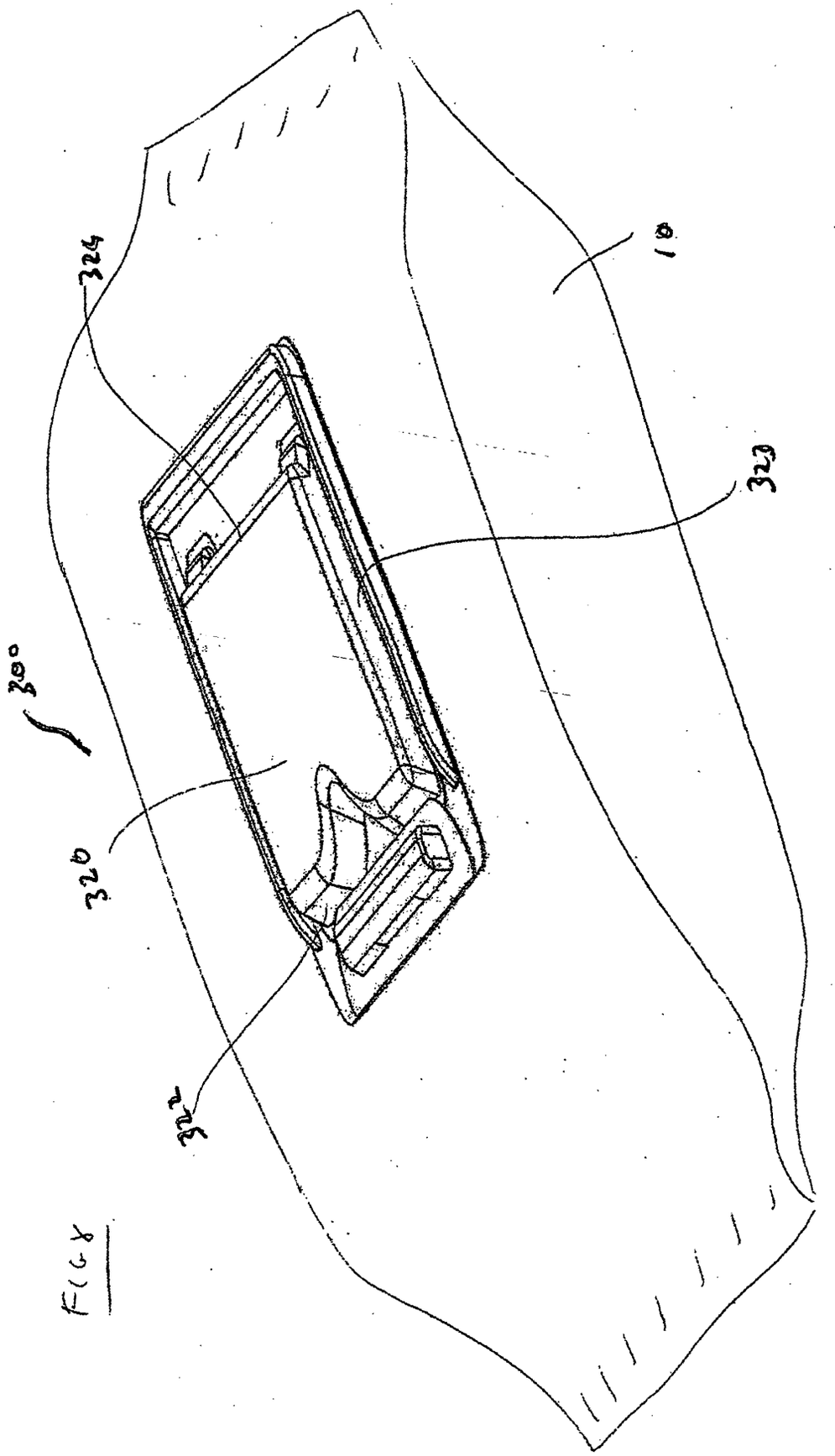

FIG 8

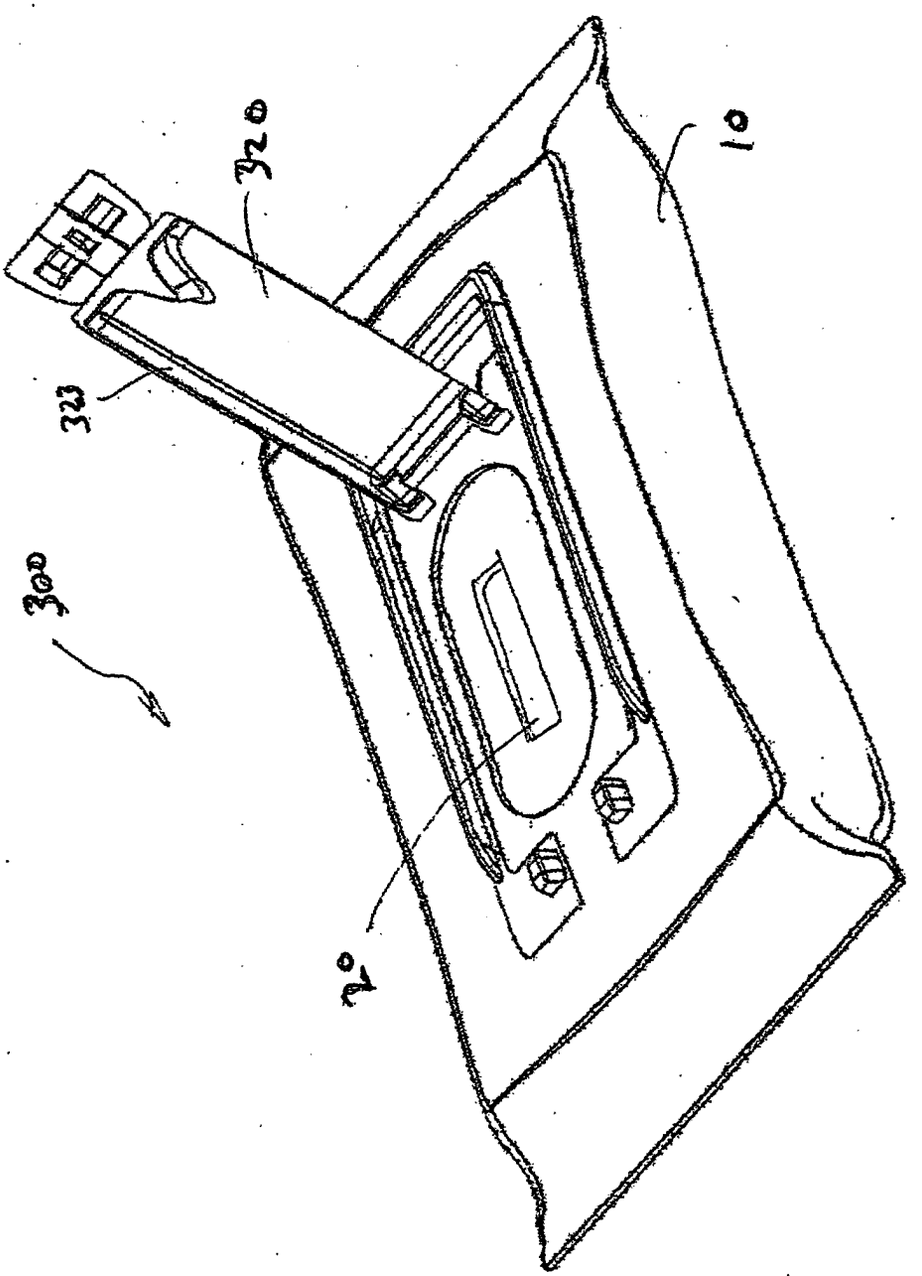

FIG. 6

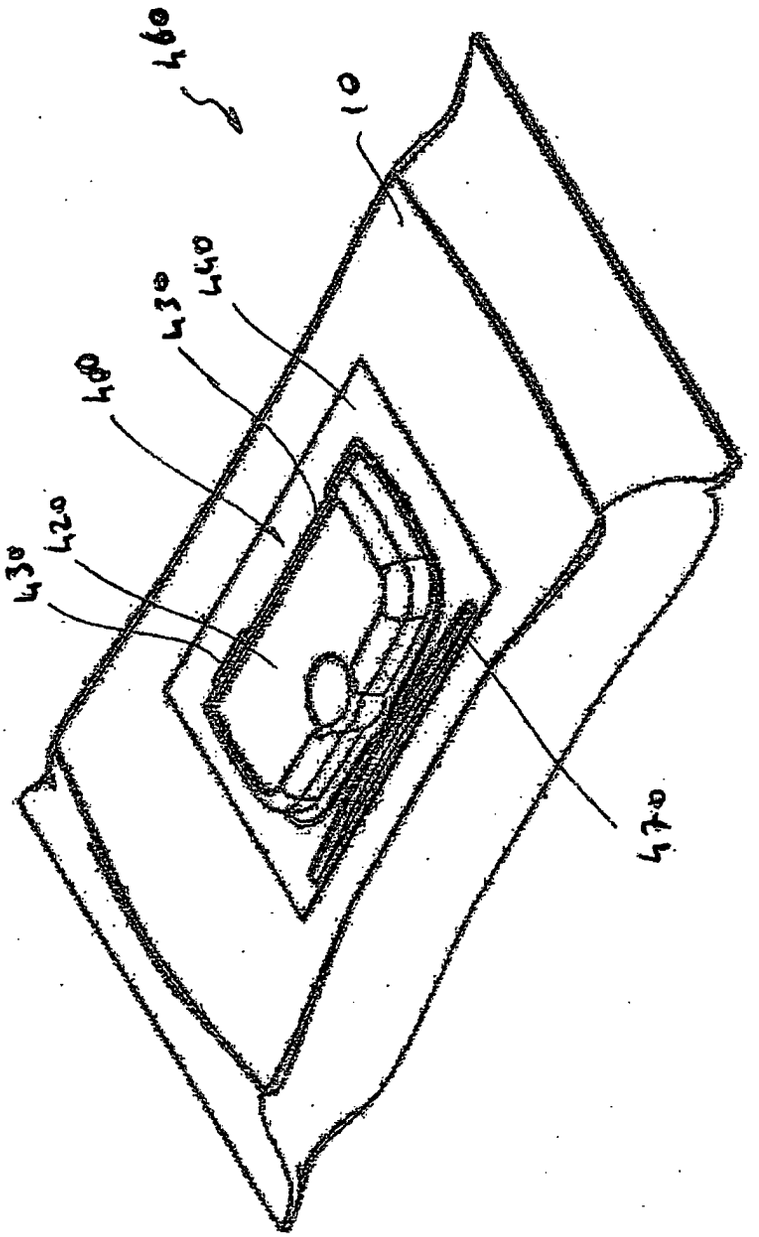

FIG 10

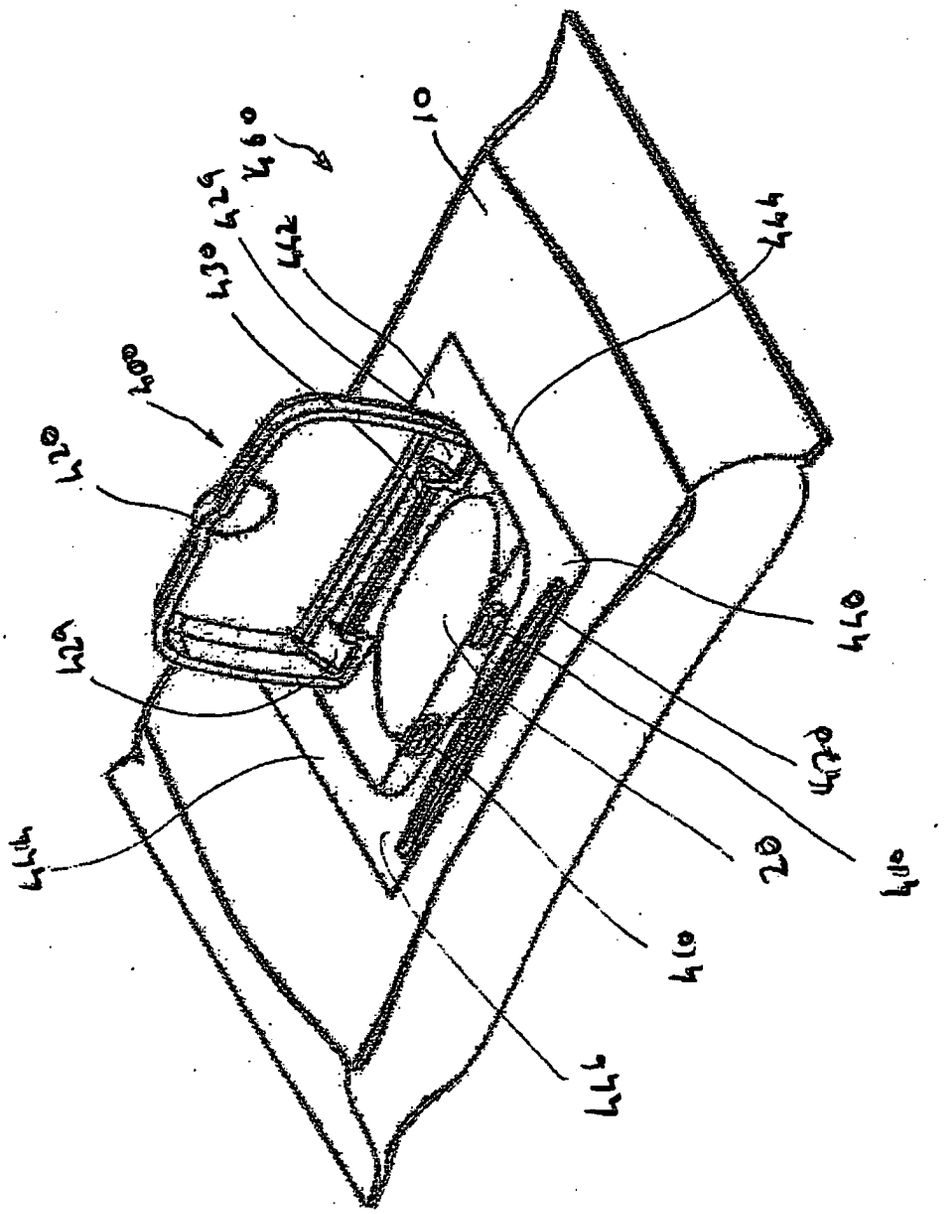

FIG 11

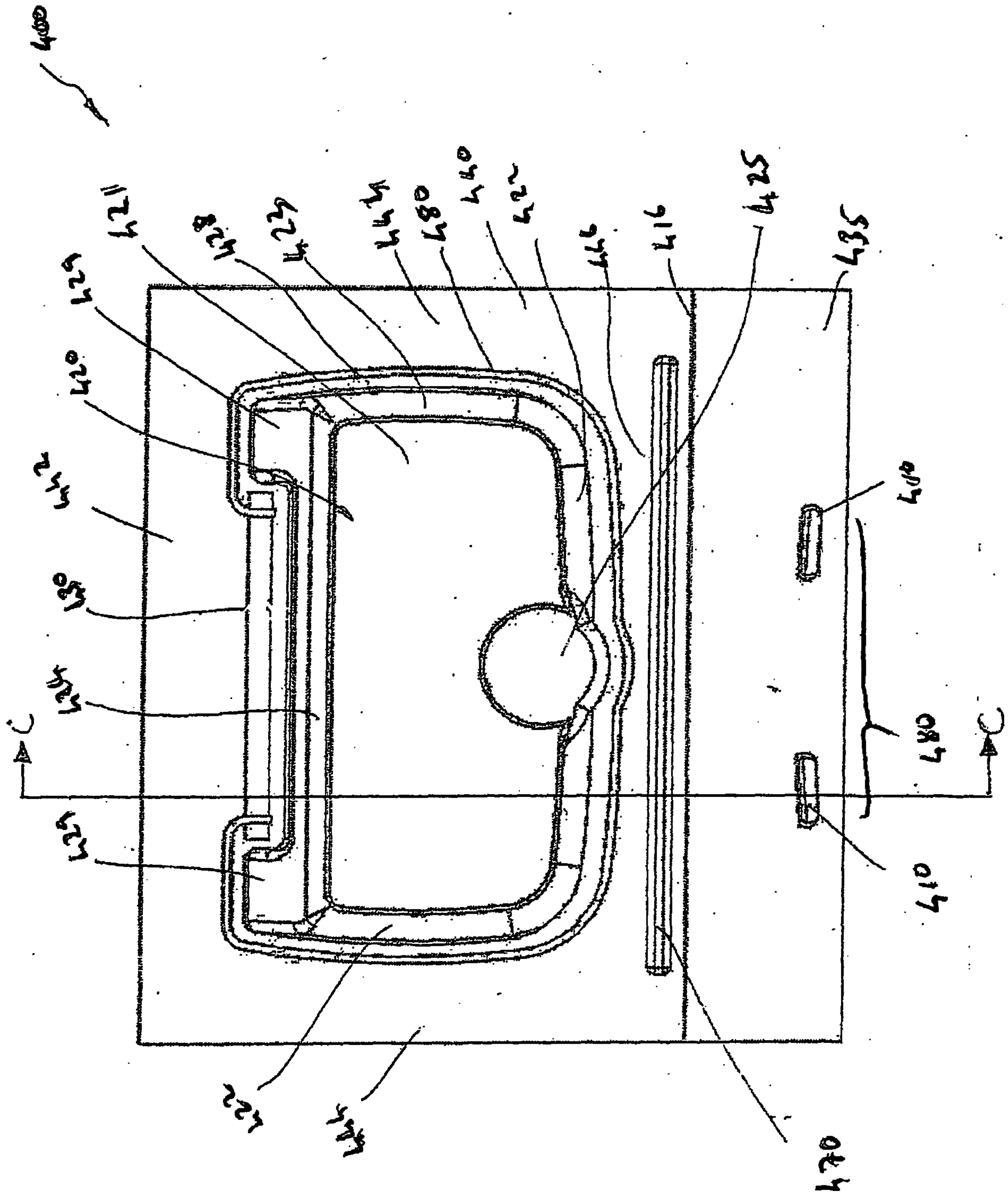

FIG 12

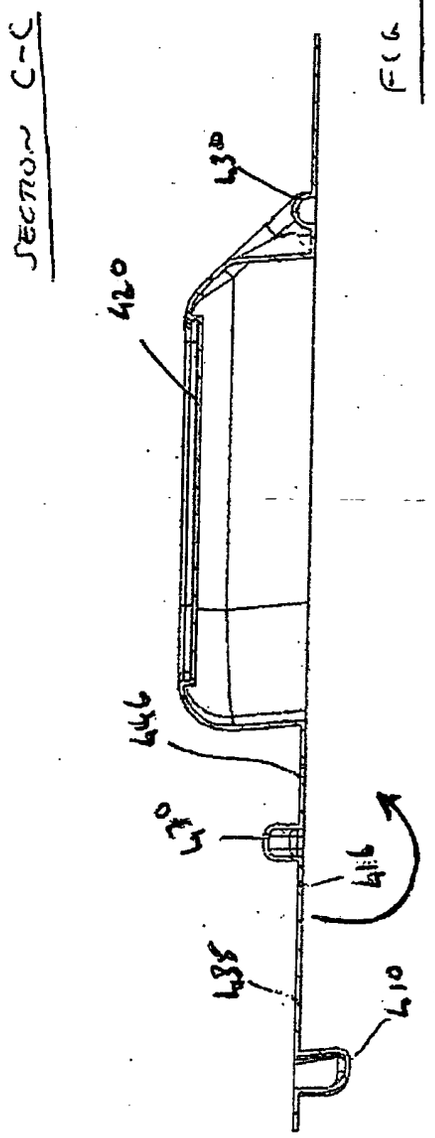

FIG 13

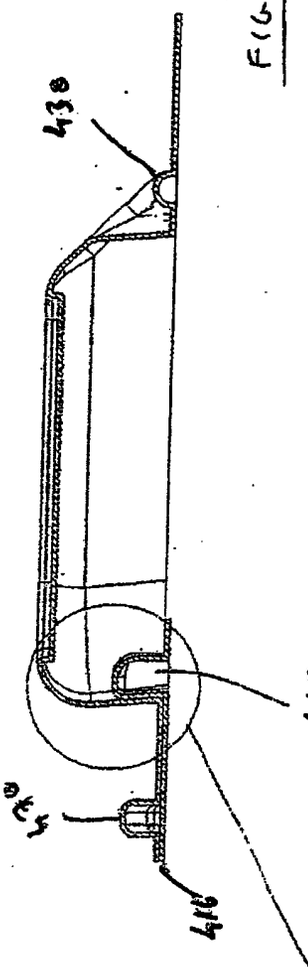

FIG 14

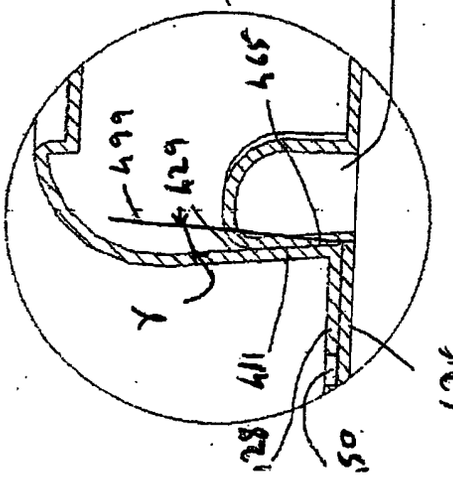

FIG 15

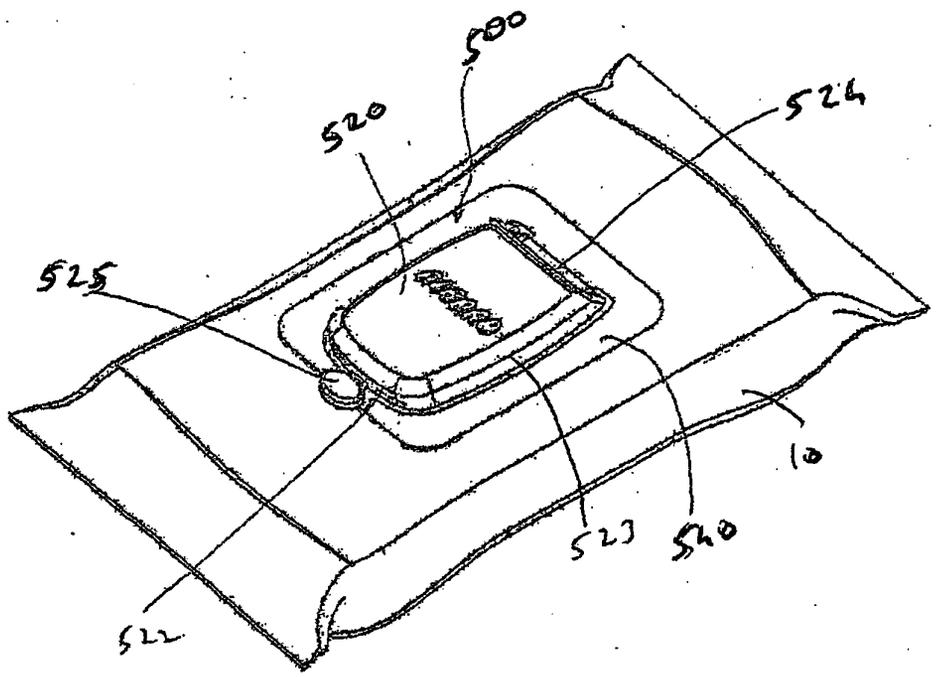
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FIG 16

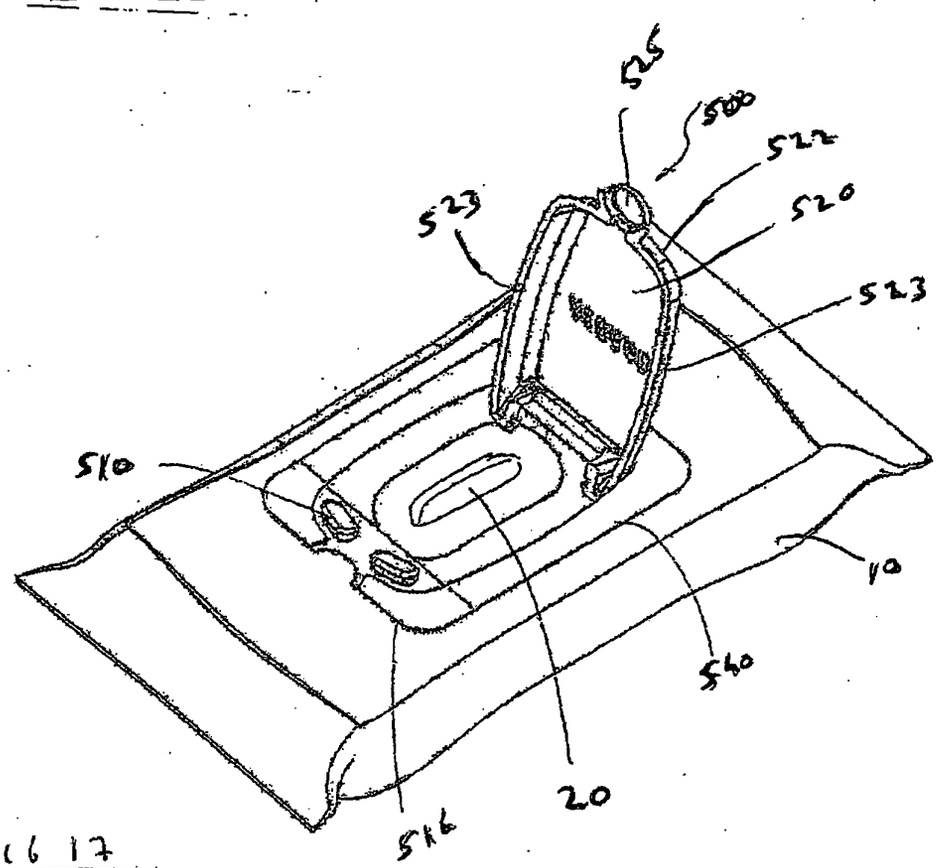
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FIG 17

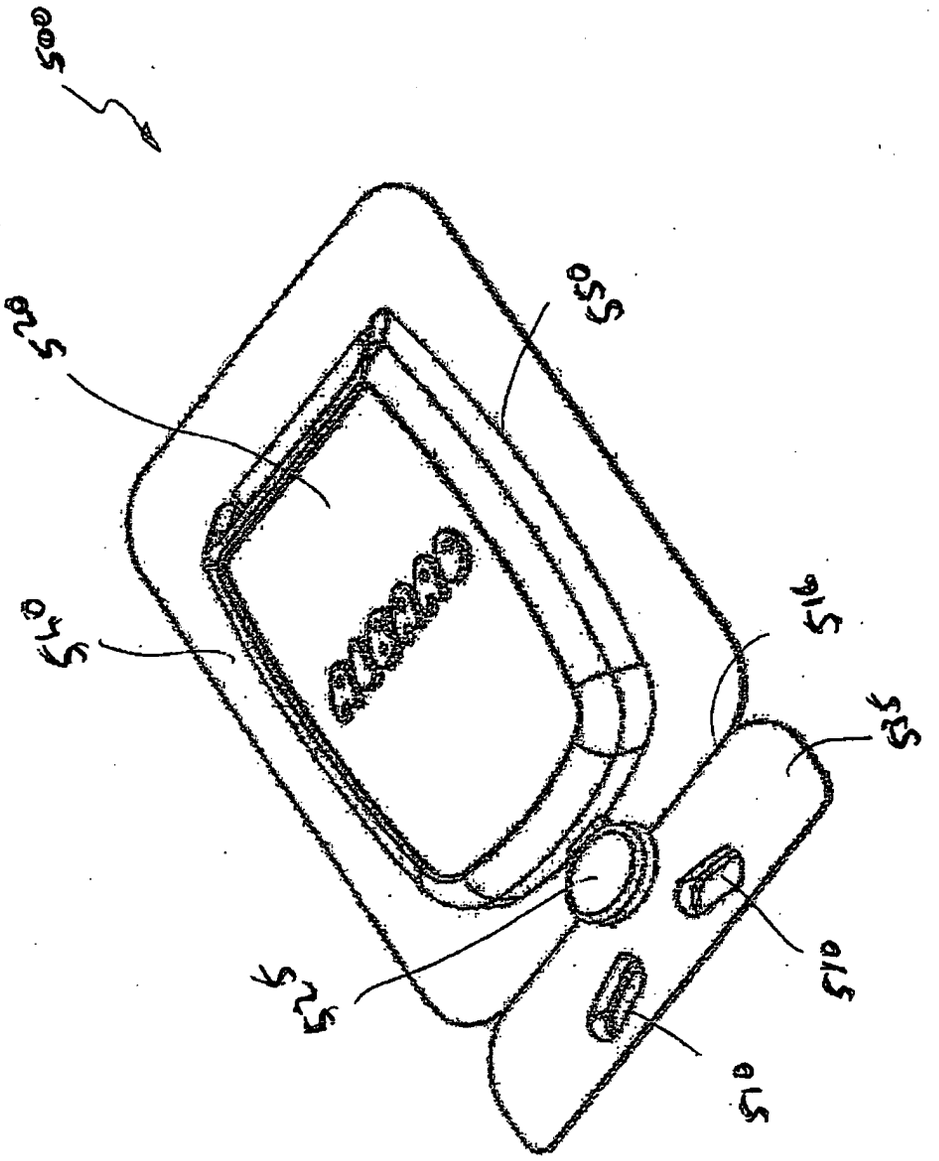

FIG 17

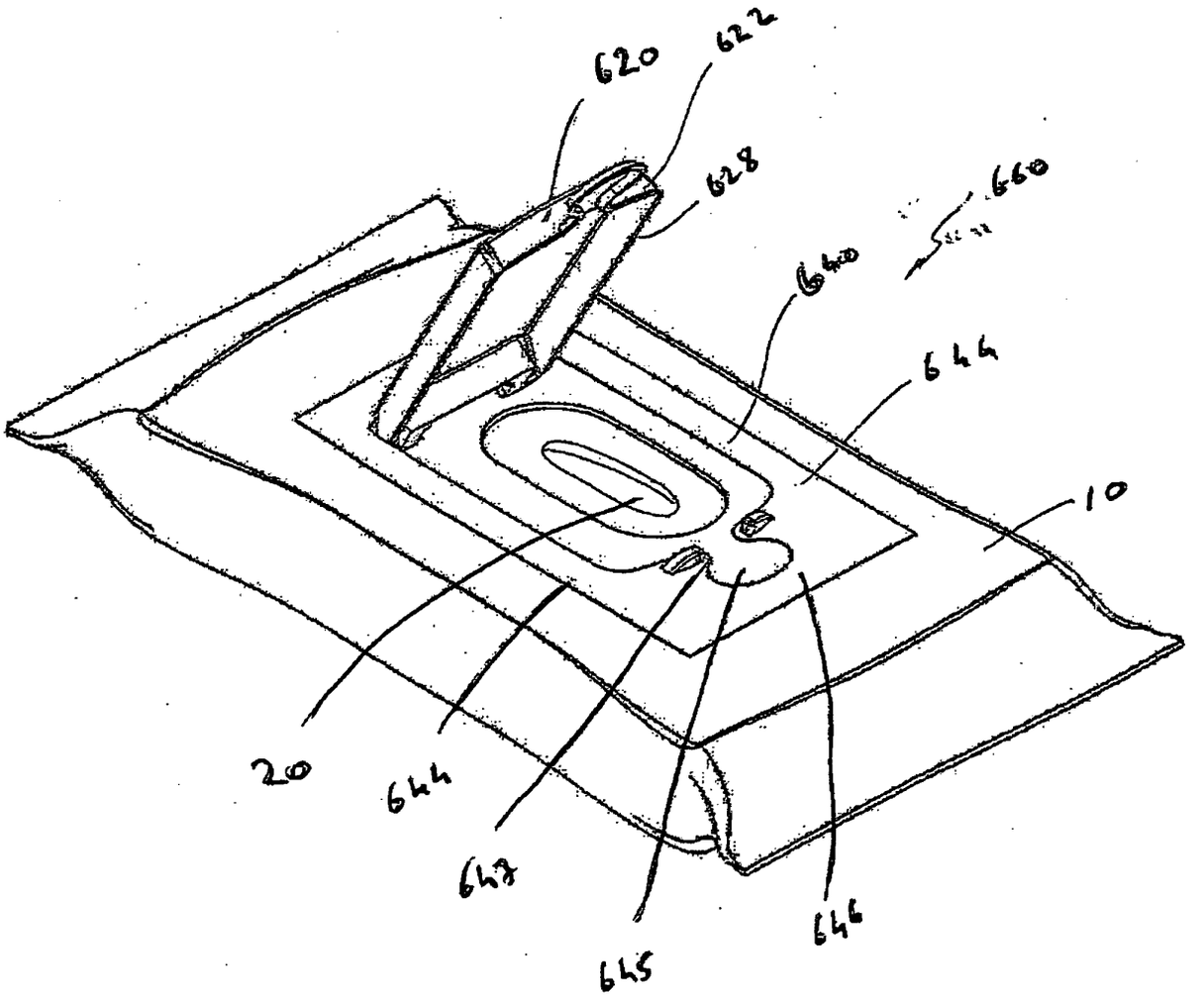

FIG 19

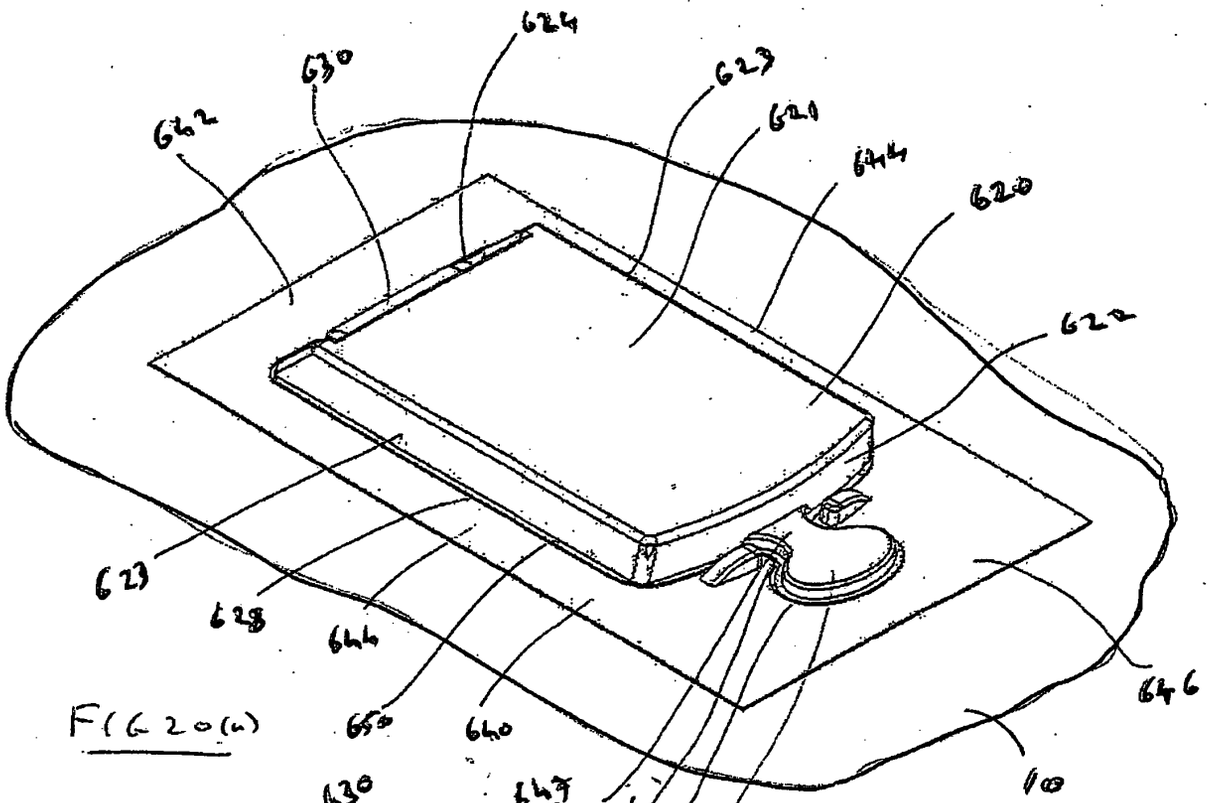

FIG 20(a)

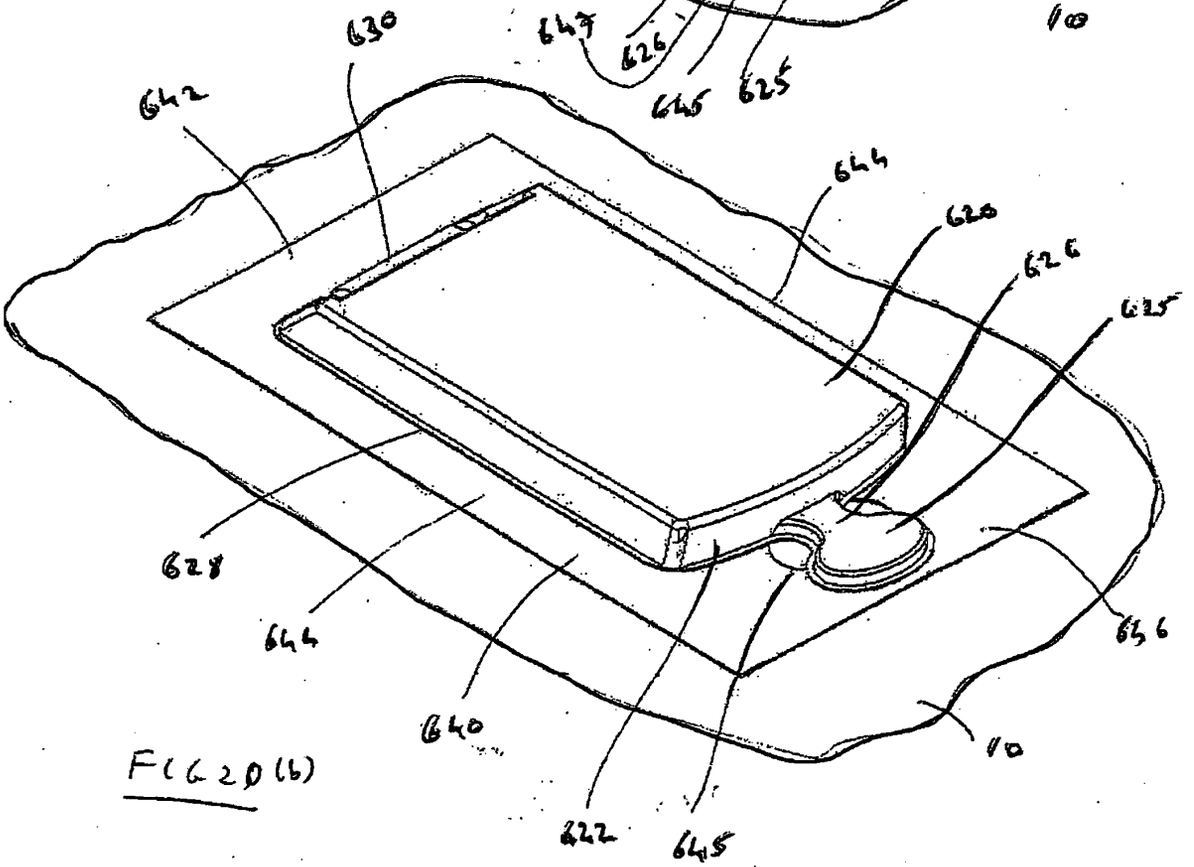

FIG 20(b)

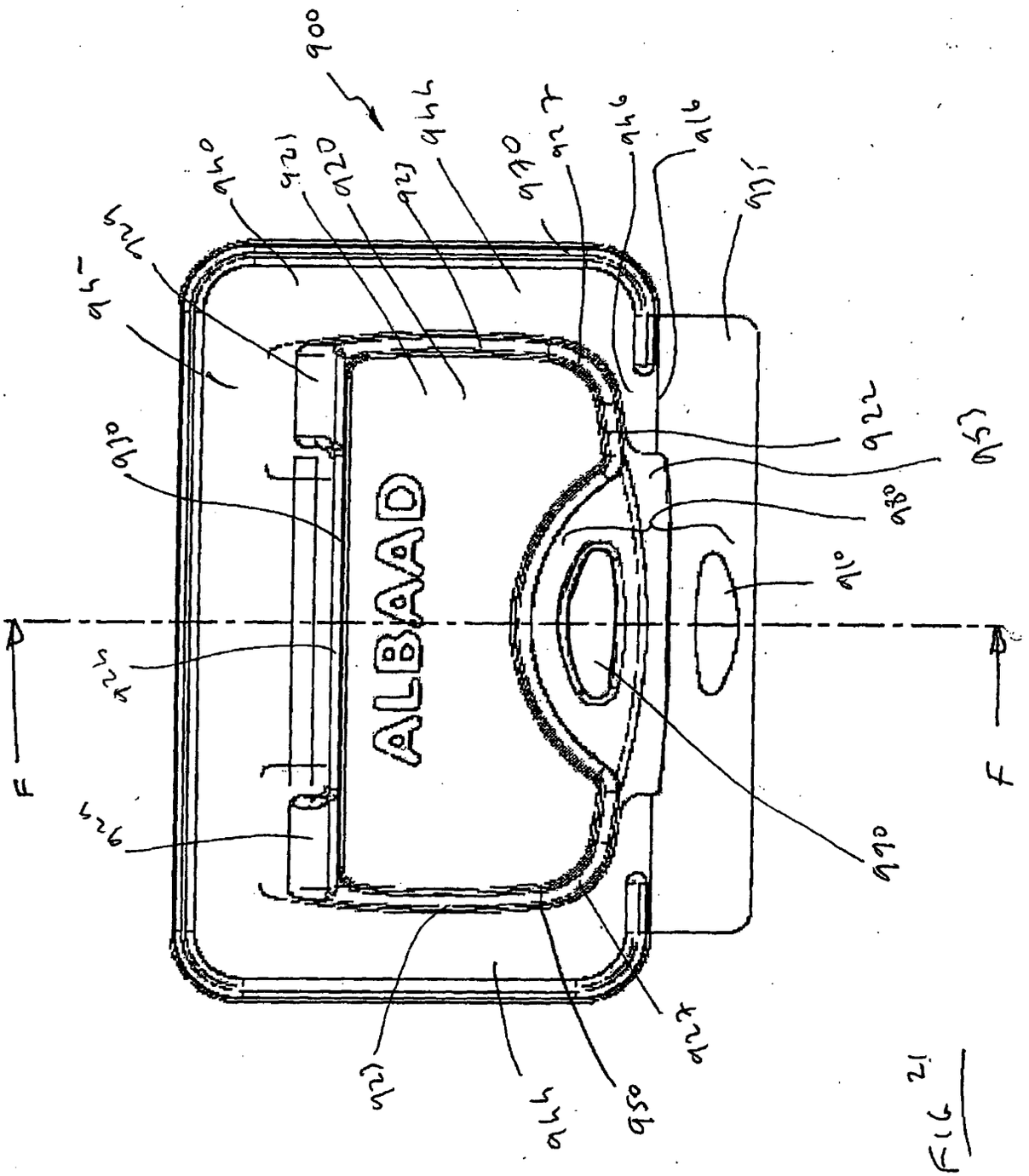

Fig. 12

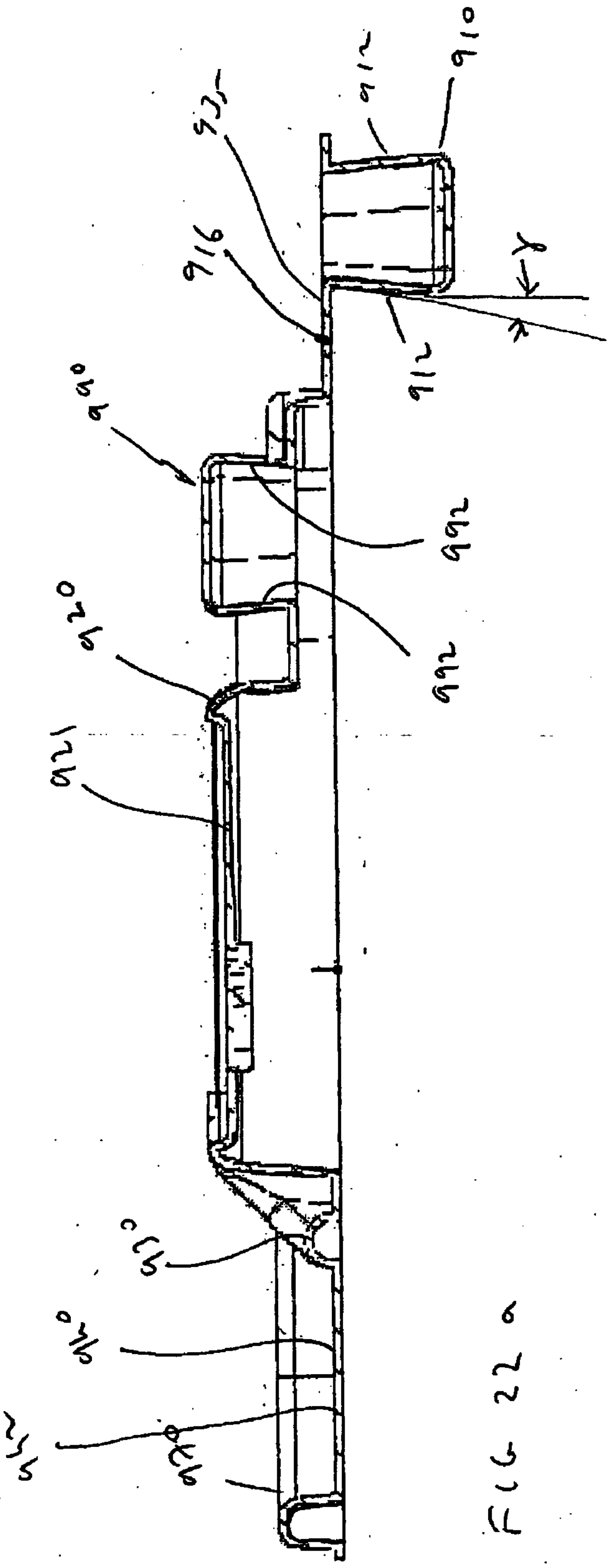

FIG 22a

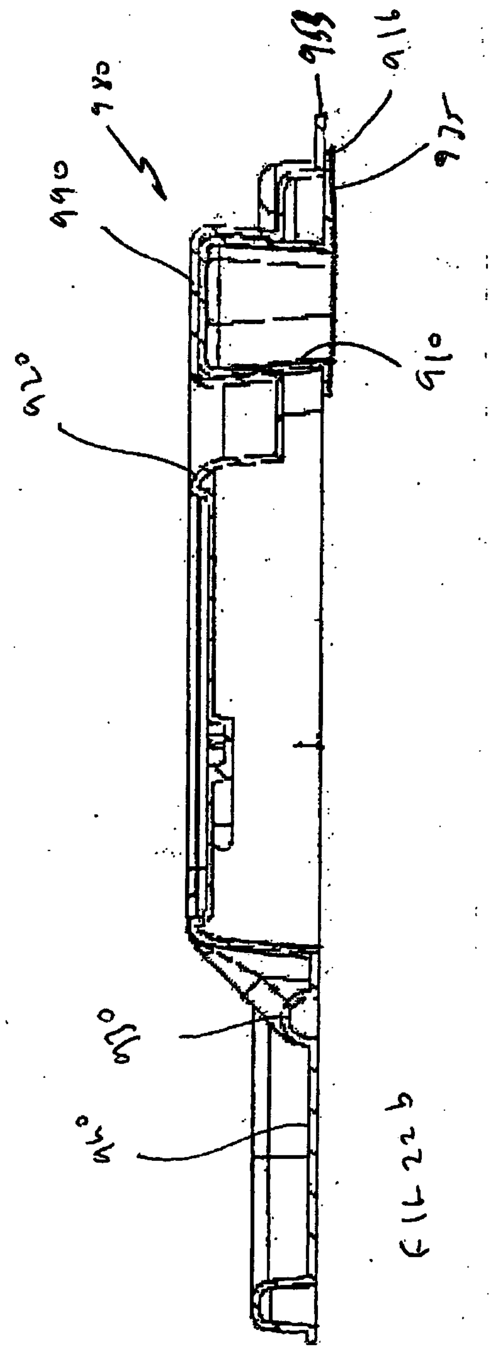

FIG 22b

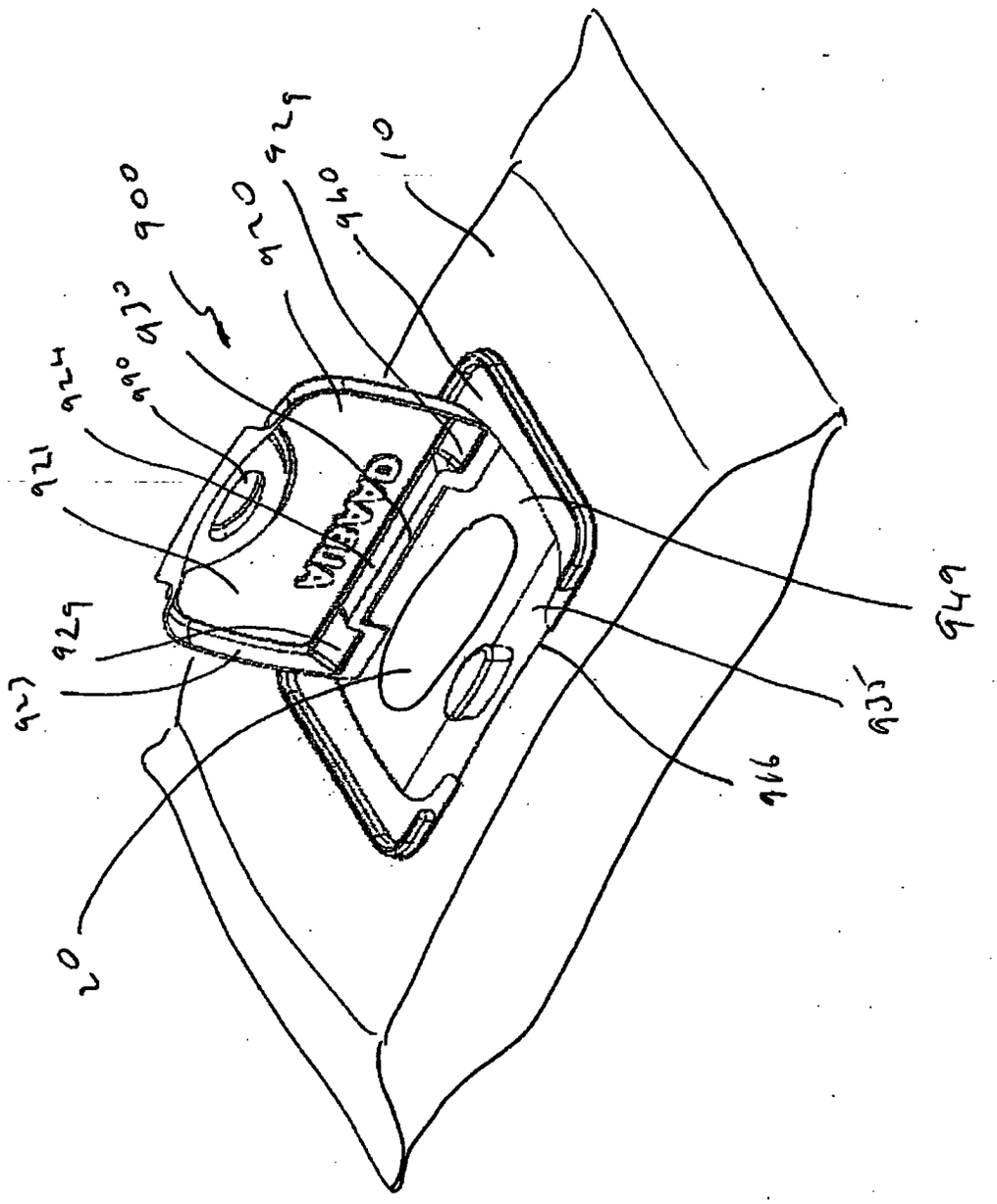

FIG 23

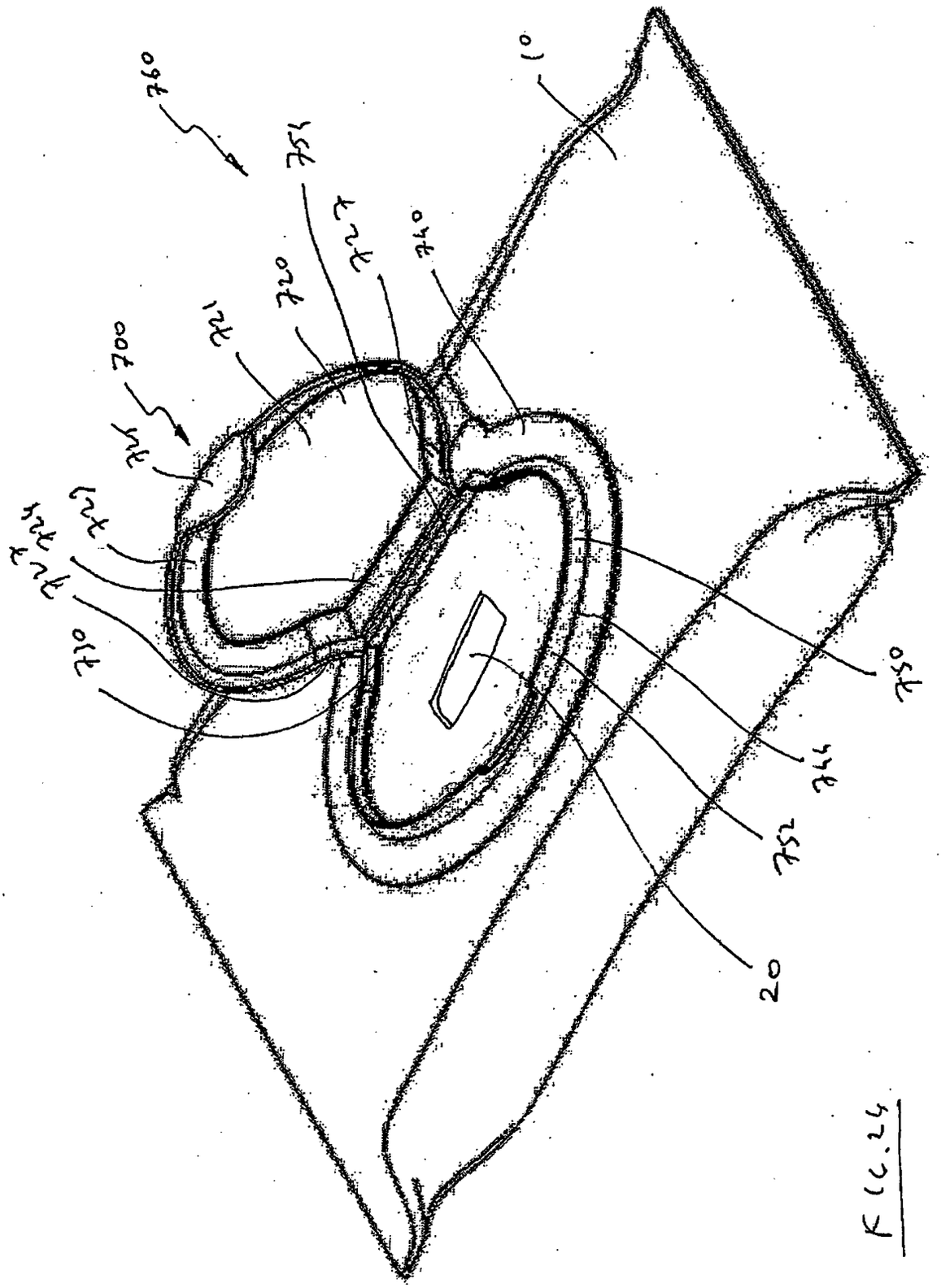

FIG. 24

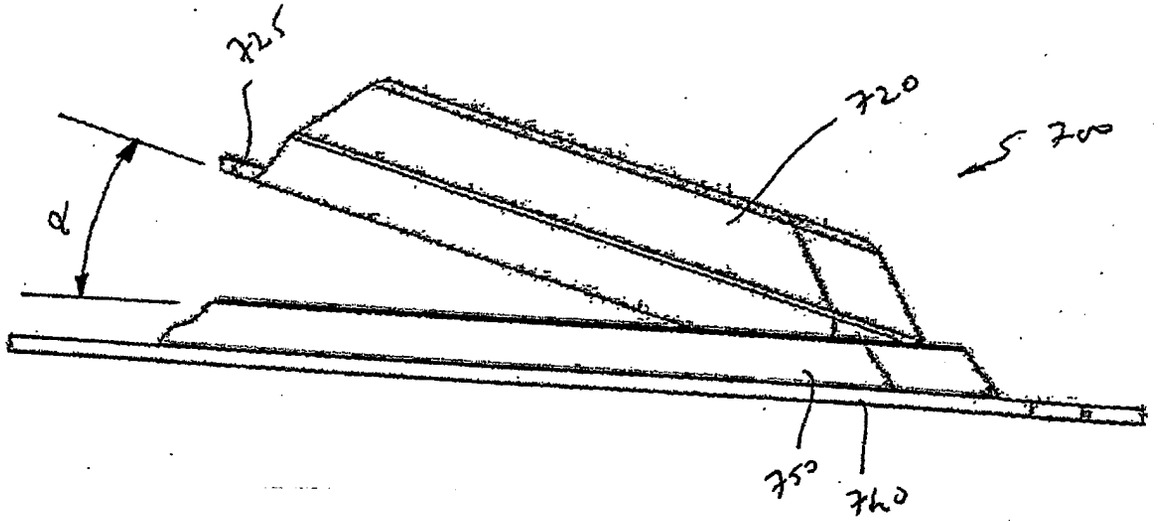

FIG. 25

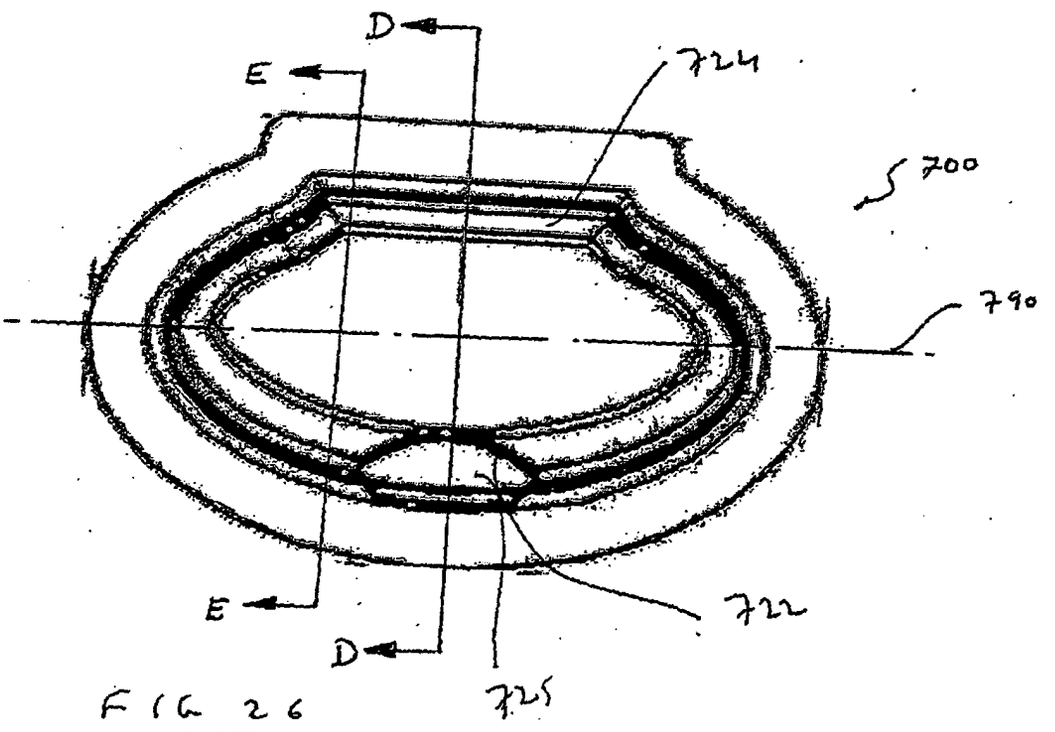

FIG 26

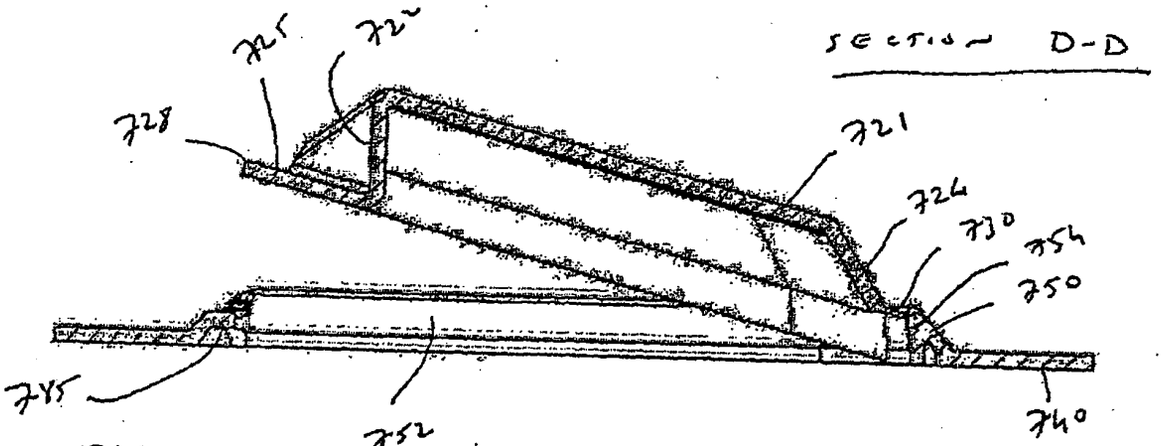

FIG. 27

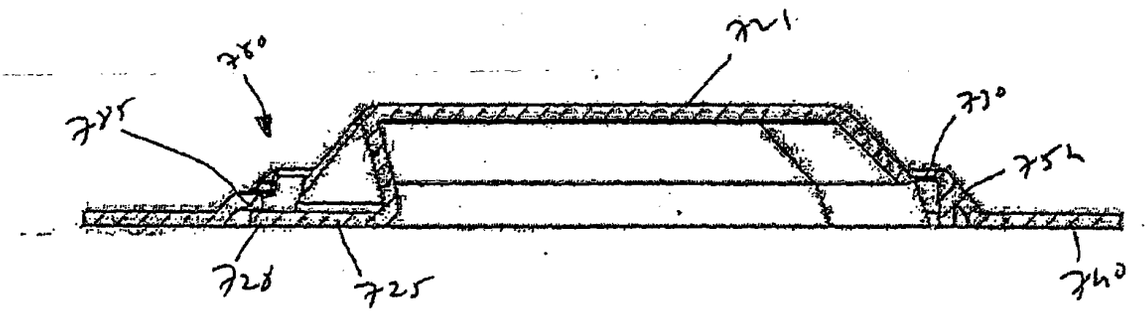

FIG. 28

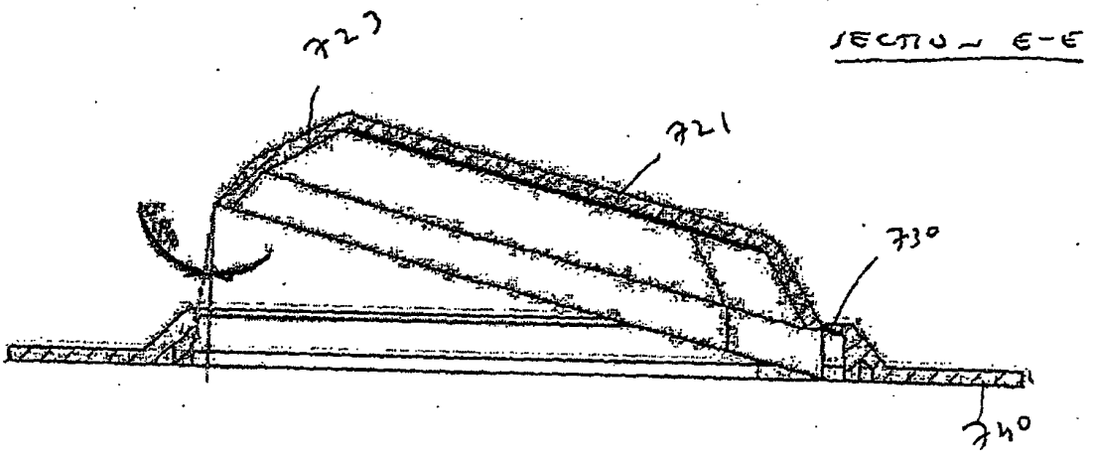

FIG. 29

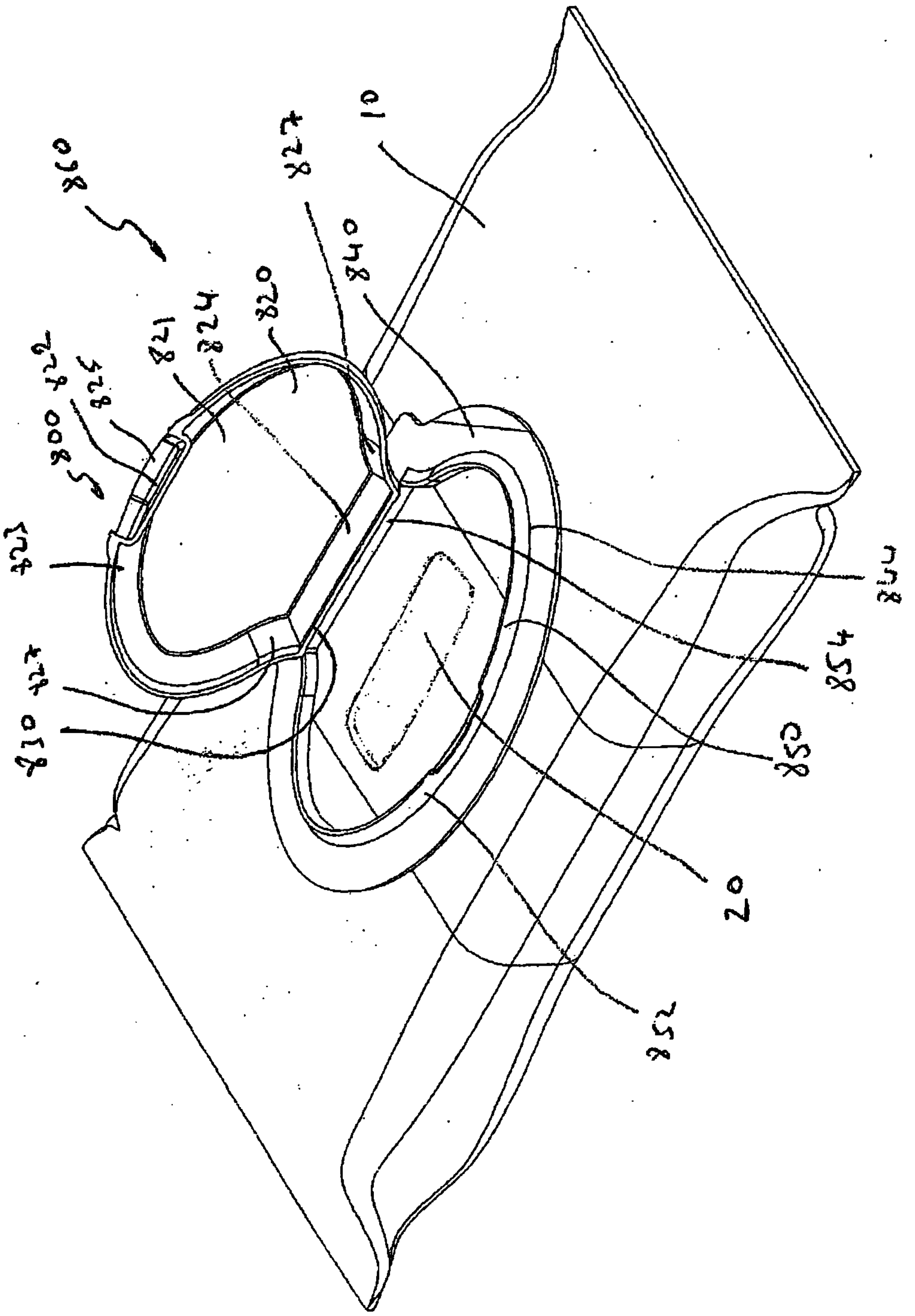
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FIG. 30

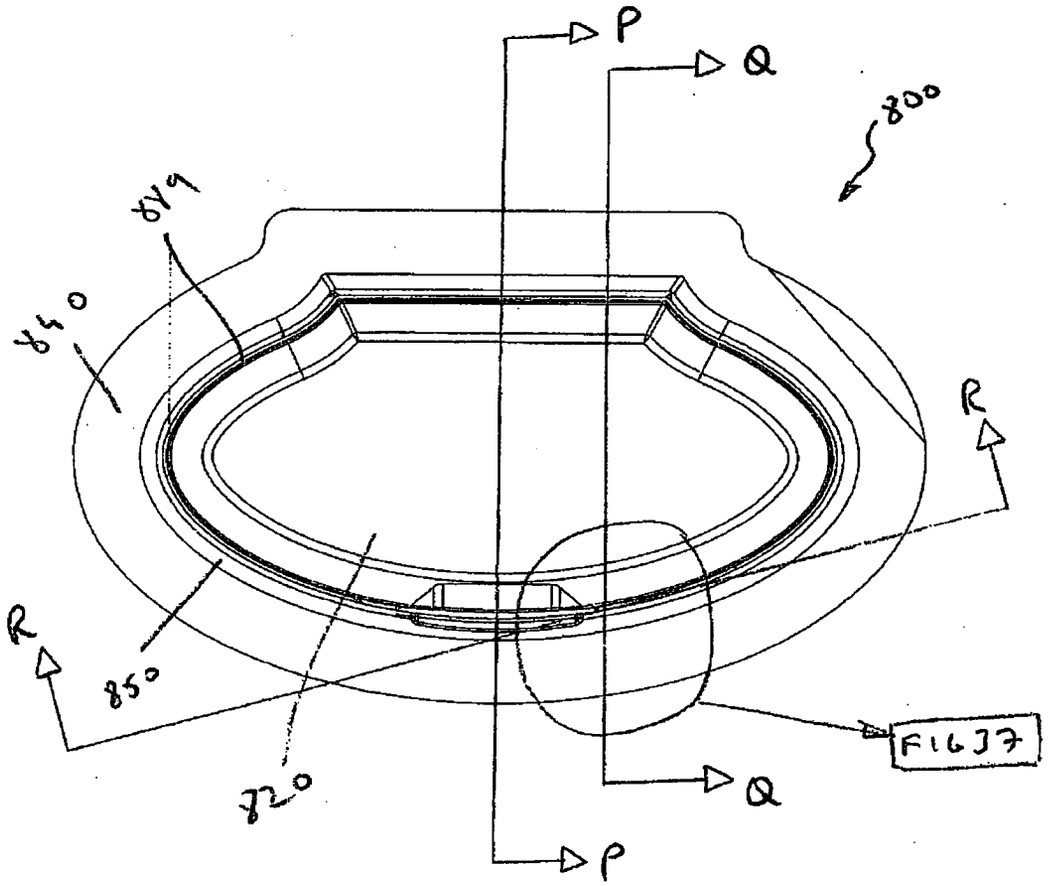

FIG.11

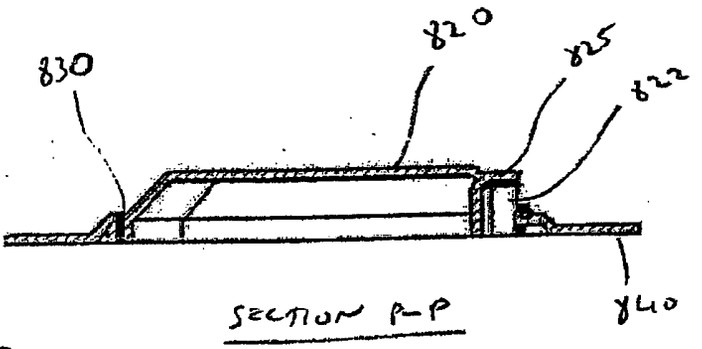

FIG. 32

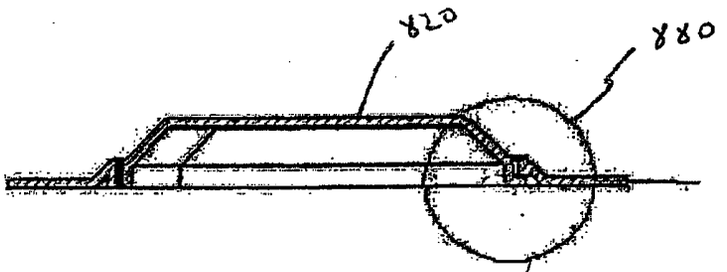

FIG 33

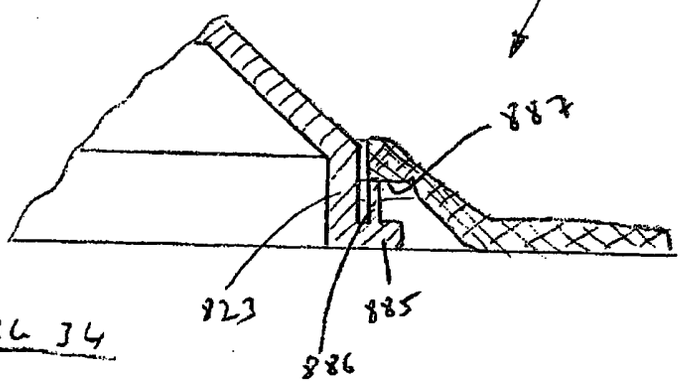

FIG 34

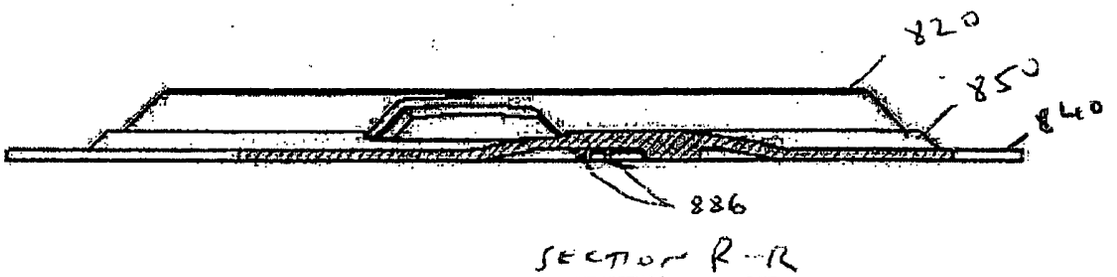

FIG 35

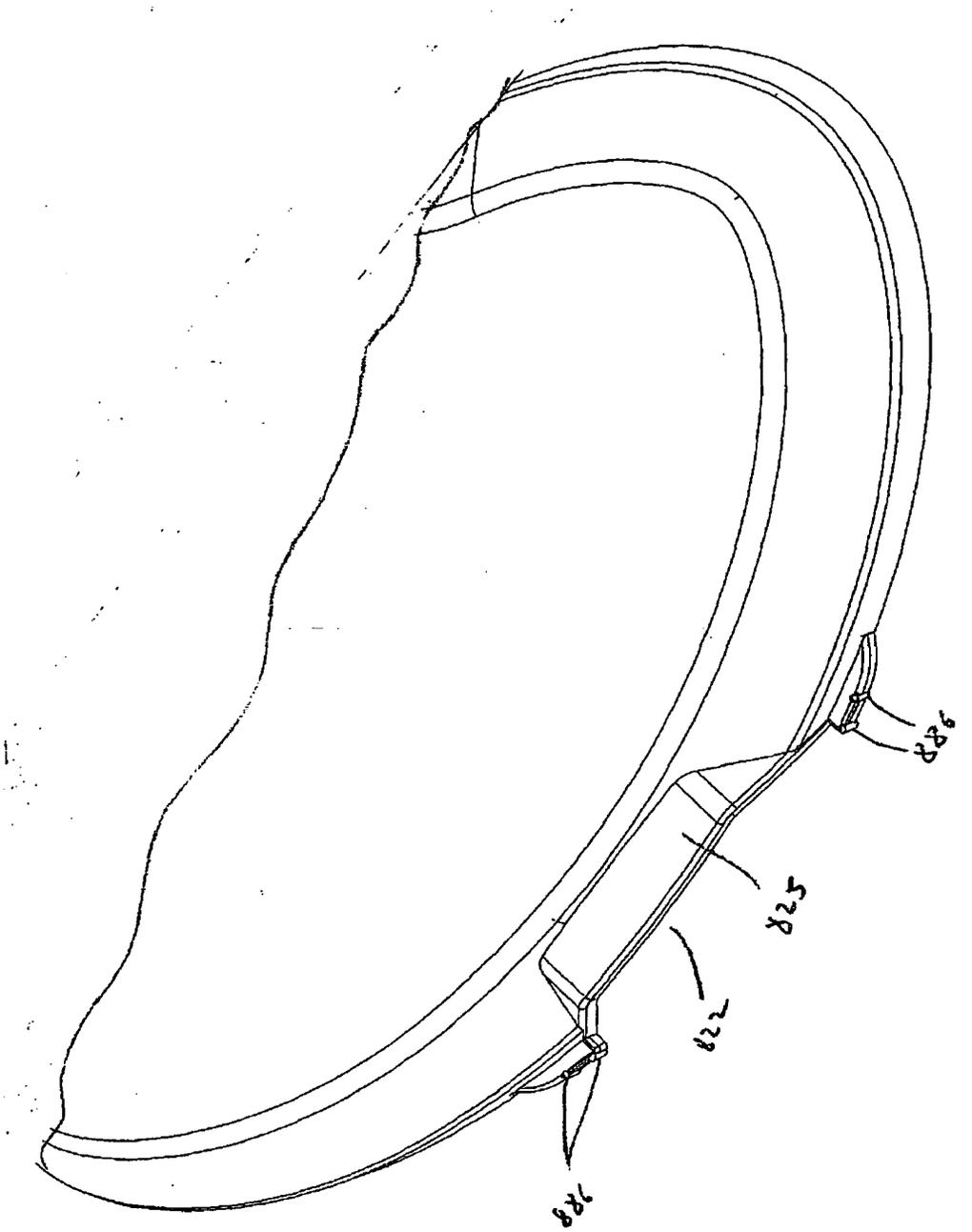

FIG. 16

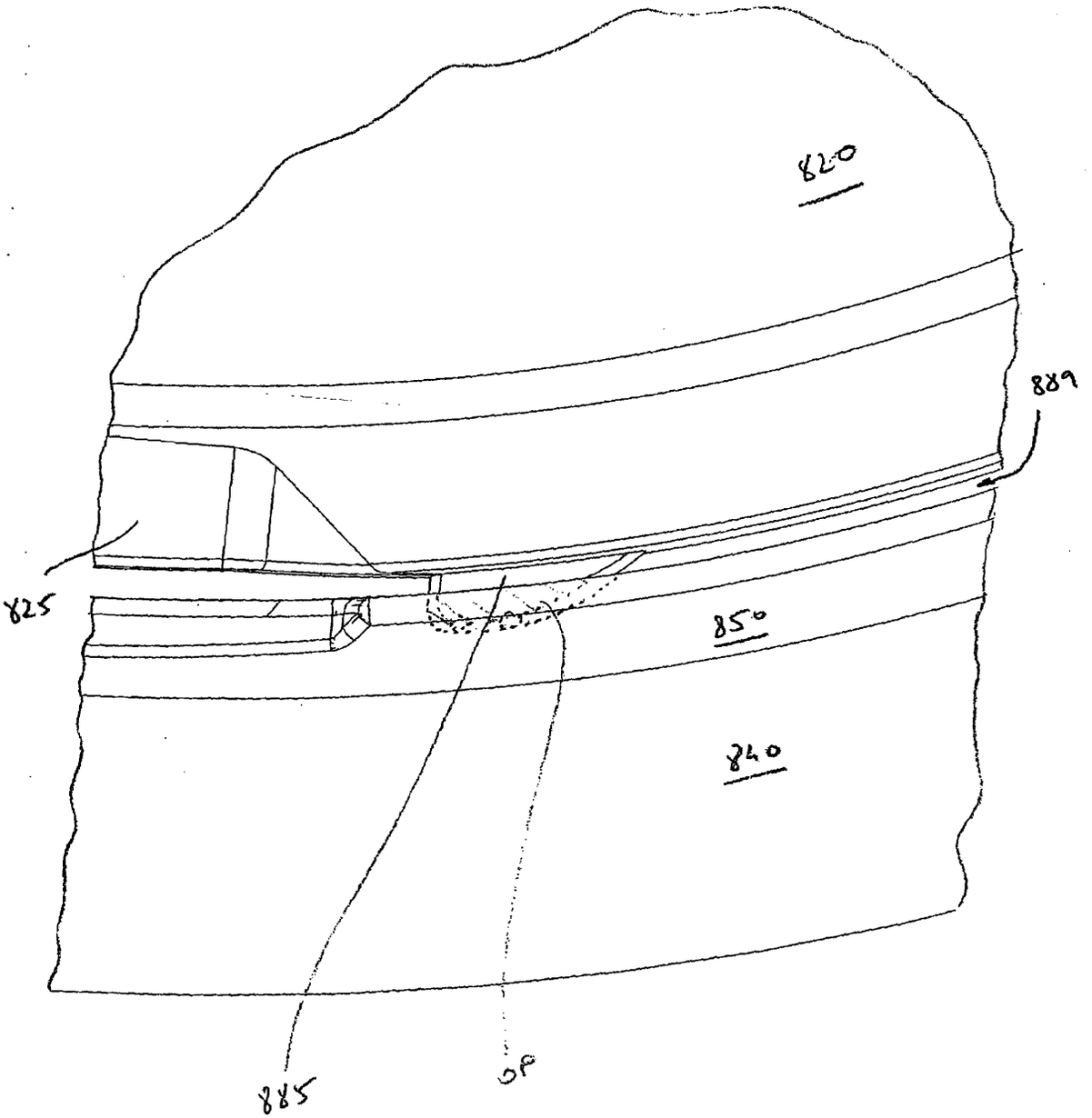

FIG. 17

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 39 4004

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DE 203 04 113 U1 (OIMO INDUSTRIAL COMPANY LTD., TAIPEH/T'AI-PEI) 15 May 2003 (2003-05-15) * the whole document *	1,25,27	B65D83/08 B65D75/58
A	WO 03/076298 A (EDMAK LIMITED; MCCLOSKEY, EDWARD; HOOD, OLIVER) 18 September 2003 (2003-09-18) * page 6, line 17 - page 7, line 13 * * page 8, line 31 - page 9, line 24; claims 1,2; figures 1-15 *	1,25,27	
A	US 2003/024919 A1 (JULIUS ROBERT P) 6 February 2003 (2003-02-06) * paragraph [0061] - paragraph [0063]; figures 3a-5 *	1,25,27	
A	EP 0 832 823 A (BEIERSDORF AKTIENGESELLSCHAFT) 1 April 1998 (1998-04-01) * column 2, line 50 - column 3, line 29; claims 1,2 *	1,25,27	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 April 2005	Janosch, J

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