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(54) RESEALABLE CLOSURE MECHANISM HAVING A SLIDER DEVICE AND METHODS

WIEDERVERSCHLIESSBARER REISSVERSCHLUSS MIT SCHIEBER UND DEREN VERFAHREN

MECANISME DE FERMETURE LIBERABLE COMPRENANT UN DISPOSITIF DE GLISSIERE ET
PROCEDES ASSOCIES

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US-A- 3 713 923 **US-A- 5 010 627**

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Description

Field of the Invention

[0001] The present invention generally relates to closure arrangements for polymer packages, such as, plastic bags. In particular, the present invention relates to resealable closure mechanisms or zipper-type closures for resealable packages.

Background

[0002] Many packaging applications use resealable containers to store or enclose various types of articles and materials. These packages may be used to store food products, non-food consumer goods, medical supplies, waste materials, and many other articles. Resealable packages are convenient in that they can be closed and resealed after the initial opening to preserve the enclosed contents. The need to locate a storage container for the unused portion of the products in the package is thus avoided. In some instances, providing products in resealable packages appreciably enhances the marketability of those products.

[0003] Some types of resealable packages are opened and closed using a slider device. The slider device typically includes a separator or spreader-type structure at one end that opens a closure mechanism, having profiled elements or closure profiles, when the slider device travels in a first direction along the mechanism. The sidewalls of the slider device are configured so that the sidewalls engage the closure profiles and progressively move them into engagement to close the resealable package when the slider device is moved along the closure mechanism in a direction opposite the first direction.

[0004] One example of a slider device is shown in U. S. Patent No. 3,713,923 to LaGuerre. This slider device includes a housing of two convergent side walls having a central partition therebetween. The partition extends between the profile elements of profiles of the closure mechanism.

[0005] Another example of a slider device is shown in French patent No. 1,299,797. This slider device also includes a central partition that extends between the profile elements of the closure mechanism.

[0006] A further example of a slider device is shown in U.S. Patent No. 5,010,627 to Herrington. This slider device includes a central partition that only extends between the upper flanges of the closure members while not penetrating between an interlocking part thereof.

[0007] Improvements in the design and manufacture of closure mechanisms and slider devices are desirable.

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Summary of the Disclosure

[0009] In one aspect a slider device is disclosed for use with a resealable closure mechanism having a first closure profile and a second closure profile. One preferred slider device includes a top wall; a spreader depending from the top wall, first and second sidewalls, first and second hook constructions; and a guide construction projecting beyond at least one of a first end and a second end of the first sidewall.

[0010] In some embodiments, the guide construction includes first and second fingers, with at least one of: (a) the first finger projecting beyond the first end; and (b) the second finger projecting beyond the second end.

In some embodiments, both: (a) the first finger projects beyond the first end of the first sidewall; and (b) the second finger projects beyond the second end of the first sidewall. In other embodiments, only one of the fingers projects beyond a respective end of the first sidewall.

[0011] Preferably, the slider device further includes first and second standoffs in projection from the first and second sidewalls, respectively.

[0012] The disclosure also concerns a reclosable zipper arrangement. In one embodiment described, the zipper arrangement includes a first closure profile defining a first shoulder and a second closure profile defining a second shoulder. A slider device is provided with a spreader to separate the first and second closure profiles. First and second hook constructions on the slider device slidably engage with the first and second shoulders of the first and second closure profiles, respectively. A guide construction preferably projects beyond at least one of a first and second end of a sidewall of the slider device.

[0013] Flexible packages are provided that comprise a package surrounding wall having first and second side seals and a mouth therebetween. A reclosable zipper is provided along the mouth for selective opening and closing of the mouth. A slider device of the type characterized above is operably mounted on the package. One preferred zipper includes first and second closure profiles defining first and second shoulders, respectively. First and second hook constructions on the slider device are included for sliding along the first and second shoulders, respectively. A guide construction is provided on the slider device.

[0014] Methods of using a resealable package are described. Methods include a step of moving a slider device along a mouth a first direction from a side seal of the resealable package until a projecting finger on the slider device engages a first side seal on the resealable package. Packages and slider devices as described herein may be usable in this method.

Brief Description of the Drawings

[0015]

FIG. 1 is a side elevational, schematic view of a first embodiment of a flexible, resealable package having a slider device, according to principles of this disclosure;

FIG. 2 is a cross-sectional view of a first embodiment of profiled elements usable with the resealable package of FIG. 1, according to principles of this disclosure;

FIG. 3 is an enlarged, top perspective view of the slider device of FIG. 1;

FIG. 4 is an enlarged, bottom perspective view of the slider device of FIGS. 1 and 3;

FIG. 5 is a bottom plan view of the slider device depicted in FIGS. 3 and 4;

FIG. 6 is a cross-sectional view of the slider device depicted in FIG. 5 taken along the line 6-6 of FIG. 5;

FIG. 7 is a cross-sectional view of the slider device depicted in FIG. 5 taken along the line 7-7;

FIG. 8 is an enlarged, side elevational, fragmented, schematic view of the slider device depicted in FIGS. 1, and 3-7 oriented in a closed position of the resealable package of FIG. 1;

FIG. 9 is an enlarged, side elevational, fragmented, schematic view of the slider device of FIGS. 1 and 3-7 and shown in an open position of the resealable package of FIG. 1;

FIG. 10 is a cross-sectional view of a second embodiment of the slider device analogous to the view depicted in FIG. 7, according to principles of this disclosure;

FIG. 11 is an enlarged, cross-sectional view of the slider device of FIG. 10 engaging a second embodiment of profiled elements;

FIG. 12 is a cross-sectional view of a third embodiment of profiled elements usable with the resealable package of FIG. 1 and including color indicators, according to principles of this disclosure;

FIG. 13 is an enlarged, fragmented cross-sectional view of one of the hook constructions shown in FIG. 6;

FIG. 14 is an enlarged, fragmented cross-sectional view of an alternate embodiment of the hook construction shown in FIG. 13;

FIG. 15 is an enlarged, fragmented cross-sectional view of another alternate embodiment of the hook construction shown in FIG. 13;

FIG. 16 is an enlarged, bottom perspective view of another embodiment of a slider device, constructed according to principles of this disclosure;

FIG. 17 is an enlarged, top perspective view of the slider device of FIG. 16;

FIG. 18 is a bottom plan view of the slider device depicted in FIG. 17;

FIG. 19 is a top plan view of the slider device de-

picted in FIG. 17;

FIG. 20 is a cross-sectional view of the slider device depicted in FIG. 19, taken along the line 20-20 of FIG. 19;

FIG. 21 is a cross-sectional view of the slider device depicted in FIG. 19, taken along the line 21-21 of FIG. 19;

FIG. 22 is an enlarged, side elevational, fragmented, schematic view of the slider device of FIGS. 16-21 and shown in an open position of a resealable package; and

FIG. 23 is an enlarged, side elevational, fragmented, schematic view of the slider device depicted in FIGS. 16-21 oriented in a closed position of a resealable package.

Detailed Description

[0016] Attention is directed to FIG. 1. FIG. 1 illustrates an example packaging arrangement in the form of a resealable, flexible package 110, for example, a polymeric package such as a plastic bag, having a resealable closure mechanism 114, for example, interlocking profiled elements, constructed in accordance with the present invention. The flexible package 110 includes first and second opposed panel sections 116, 118, typically made from a flexible, polymeric, plastic film. With some manufacturing applications, the first and second panel sections 116, 118 are heat-sealed together along two side edges 120, 122 and meet at a fold line 123 in order to form a three-edged containment section for a product within an interior 124 of the package 110. In the embodiment shown, the fold line 123 comprises the bottom edge 125 of the package 110. Alternatively, two separate panel sections 116, 118 of plastic film may be used and heat-sealed together along the two side edges 120, 122 and at the bottom edge 125. Access is provided to the interior 124 of the package 110 through a mouth 126 at a top edge 127 of the package. In the particular embodiment shown, the mouth 126 extends the width of the package 110.

[0017] The resealable closure mechanism 114 is illustrated in FIG. 1 at the mouth 126 of the flexible package 110. In the embodiment shown, the resealable closure mechanism 114 extends the width of the mouth 126. Alternatively, the closure mechanism 114 could be positioned on the package 110 at a location different from the mouth 126 of the package 110, depending on the application needs for the package 110. The resealable closure mechanism 114 can be one of a variety of closure mechanisms. In the particular embodiment illustrated in FIG. 2, the resealable closure mechanism 114 is shown in the specific form of a zipper-type closure mechanism. By the term "zipper-type closure mechanism," it is meant a structure having opposite interlocking or mating profiled elements that under the application of pressure will interlock and close the region between the profiles. Preferably, the zipper-type closure

mechanism is not a rolling action type zipper. That is, preferably the closure is not one that closes by movement from a 6 o'clock position to a 12 o'clock position. It is noted, however, that slider devices 150 of the types described herein are usable with rolling action type zippers. Preferred zipper-type closure mechanisms described herein close by movement from a 9 o'clock to a 3 o'clock position.

[0018] In particular, the zipper-type closure mechanism in FIG. 2 is an illustration of one example of a closure mechanism 114. The closure mechanism 114 includes an elongated first closure profile 130 and an elongated second closure profile 131. Typically, the closure profiles 130, 131 are manufactured separately from each other.

[0019] Still in reference to FIG. 2, the preferred first closure profile 130 depicted includes a sealing flange or bonding strip 132, a base strip 133, a first closure member 134, first and second guide posts 136, 137, and an upper flange 139. The closure member 134 extends from the base strip 133 by way of a stem 134a and is generally projecting from the base strip 133. At a free end of the stem 134a (the tip of the closure member 134) is a hook or catch 140. The guide posts 136, 137 also extend from the base strip 133 and are generally projecting from the base strip 133. The guide posts 136, 137 aid in holding the closure mechanism 114 closed and in aligning the first closure profile 130 with the second closure profile 131 for interlocking. The bonding strip 132 depends or extends downward from the second guide post 137 and can be attached to a first panel section, such as the first panel section 116 of the package 110 of FIG. 1 at region 135 (FIG. 1). A first shoulder 138 is defined by the intersection of the base strip 133 and bonding strip 132. In the example illustrated, the bonding strip 132 is spaced a distance laterally from the base strip 133 to define a corner forming the shoulder 138. The upper flange 139 extends upwardly from the base strip 133 and first guide post 136.

[0020] The preferred second closure profile 131 depicted includes a bonding strip 142, a base strip 143, a first closure member 144, a guide post 146, and an upper flange 147. The closure member 144 extends from the base strip 143 by way of a stem 144a and is generally projecting from the base strip 143. At a free end of the stem 144a (or tip of the closure member 144) is a hook or catch 149. The guide post 146 also extends from the base strip 143 and is generally projecting from the base strip 143. The guide post 146 aids in holding the closure mechanism 114 closed and aids in aligning the second closure profile 131 with the first closure profile 130 for interlocking. The bonding strip 142 depends or extends downward from the guide post 146 and can be attached to a second panel section, such as the second panel section 118 of the package 110 of FIG. 1. A shoulder 148, analogous to the shoulder 138, is formed at the corner of the bonding strip 142 and guide post 146.

[0021] The first and second closure profiles 130, 131

are designed to engage with one another to form the resealable closure mechanism 114. The closure member 134 of the first closure profile 130 extends from the base strip 133 a first distance. The closure member 144 of the second closure profile 131 also extends from the base strip 143 a first distance. These first distances that the closure members 134, 144 extend are sufficient to allow mechanical engagement, or interlocking, between the first closure member 134 of the first closure profile 130 and the first closure member 144 of the second closure profile 131. In particular, the catches 140, 149 hook or engage each other. Furthermore, the closure profiles 130, 131 are sealed together at their ends, such as regions 196, 198 of FIG. 1, to further aid in aligning the closure profiles 130, 131 for interlocking through processes such as ultrasonic crushing. Pressure is applied to the closure profiles 130, 131 as they engage to form the openable sealed closure mechanism 114. Pulling the first closure profile 130 and the second closure profile 131 away from each other causes the two closure profiles 130, 131 to disengage, opening the package 110 of FIG. 1. This provides access to the contents of the package 110 through the mouth 126 (FIG. 1).

[0022] In some applications, the closure profiles 130, 131 are formed by two separate extrusions or through two separate openings of a common extrusion. Typically, the resealable closure mechanism 114 is made of conventional materials, such as a polymeric, plastic material, for example, polyethylene or polypropylene. In one example embodiment, the closure arrangement illustrated in FIG. 2 is manufactured using conventional extrusion and heat sealing techniques.

[0023] Attention is again directed to FIG. 1. In FIG. 1, note that there is a cutout or notch 128 formed in the upper flanges 139, 147 (FIG. 2) of the resealable closure mechanism 114. The preferred notch 128 shown includes two straight edges or sides 129a, 129b, generally perpendicular to each other, and a side 129c that extends at, in a preferred embodiment, an oblique angle relative to side 129b. By "oblique angle", it is meant an angle that is not substantially perpendicular or straight. The side 129a preferably is generally parallel to side edge 120, while the side 129b preferably is generally parallel to the bottom edge 125. The side 129c can extend at an angle relative to side 129b of at least 30 degrees, typically between about 100-150 degrees, typically no greater than about 160 degrees, and in the preferred embodiment about 135 degrees. As to be explained in further detail below, the notch 128 serves as a "parking place" for a slider device 150 and also facilitates mounting the slider device 150 onto the resealable package 110 during initial assembly. In addition, the edge 129a closest to the side seal 120 helps to create a stop member for the slider device 150. Further, the angle that the side 129c extends helps to reduce friction between the slider device 150 and the resealable closure mechanism 114, when the slider device 150 is being moved from the notch 128 to open the closure mechanism.

anism 114. This contributes to an easier opening, more convenient package 110.

[0024] Still referring to FIG. 1, the slider device 150 is provided to open and close the resealable closure mechanism 114. Attention is directed to FIGS. 3 and 4. One preferred slider device 150 is illustrated in FIGS. 3 and 4 in perspective view and preferably comprises a one-piece unitary, molded plastic member with no moveable parts that are moveable with respect to one another. In general, the slider device 150 includes a housing 152 for slidably engaging the closure mechanism 114. The housing 152 is movable between a closed position of the resealable package 110 when the housing 152 is adjacent the side edge 120 and an open position of the resealable package 110 when the housing 152 is adjacent the side edge 122. FIG. 1 illustrates the resealable package 110 in an open position. The housing 152 slides over the resealable closure mechanism 114 relative to the top edge 127 of the resealable package 110 to open and close the mouth 126.

[0025] The housing 152 is preferably a multi-sided container configured for engaging or locking onto or over the resealable closure mechanism 114. In the particular embodiment illustrated in FIGS. 3 and 4, the housing 152 includes a top wall 154. By the term "top", it is meant that in the orientation of the slider device 150 shown in FIG. 1, the wall 154 is oriented above the remaining portions of the housing 152. It should be understood, of course, that if the housing 152 is moved from the orientation shown in FIG. 1, the top wall 154 will not be in a top orientation. The top wall 154 defines a first end 155 and an opposite second end 156. The top wall 154 also defines an open aperture 158. The open aperture 158 divides the top wall 154 between a first portion 160 and a second portion 161. The first portion 160 generally comprises a flat, planar portion in extension from a periphery of the open aperture 158 to the edge defined by the first end 155. Similarly, the second portion 161 generally comprises a flat, planar portion in extension from a periphery of the open aperture 158 to the edge defined by the second end 156. Each of the first and second portions 160, 161 defines a groove 163, 164 respectively. The aperture 158 and grooves 163, 164 aid in providing a structure that may be more easily injection molded.

[0026] The housing 152 includes a separation structure for separating the first and second closure profiles 130, 131. That is, when the resealable closure mechanism 114 is in a closed state such that the closure members 134, 144 are interlocked, the separation structure will apply a force to wedge open and pull the closure members 134, 144 apart from each other. In the embodiment illustrated, the housing 152 includes a spreader 166 operating as a separation structure. The spreader 166, in the preferred embodiment shown, extends or depends from the top wall 154. Preferably, the spreader 166 comprises first and second angled wedges 168, 169 separated by a gap 170 (FIG. 5) therebetween.

[0027] Attention is directed to FIG. 5. In FIG. 5, it can be seen that the first and second wedges 168, 169 are angled toward each other, from the first end 155 of the slider device 150 to an opposite end of the wedges 168, 169, to form an overall triangle shaped spreader 166, in plan view, with an apex of the triangle pointing toward the second end 156 of the housing 152. The gap 170 between the first wedge 168 and second wedge 169 helps to contribute to convenient use of the slider device 150. Preferably, the spreader 166 only extends partially in the resealable closure mechanism 114. More preferably, the spreader 166 only extends between the open flanges 139, 147 and does not penetrate the closure members 134, 144. This helps to reduce likelihood of leaks in the closure mechanism 114. In the preferred embodiment shown, the spreader 166 preferably extends about 0.125 inches from the first portion 160 of the top wall 154.

[0028] In reference again to FIGS. 3 and 4, the preferred housing 152 shown also includes first and second sidewalls 172, 174. Preferably, each of the first and second sidewalls 172, 174 extends from and is cantilevered from the top wall 154 to form a slide channel 177 therebetween. In preferred embodiments, the first and second sidewalls 172, 174 are injection molded with the remaining parts of the housing 152. In other words, preferably the housing 152 comprises a single, unitary, integral piece of material with no additional materials welded, fastened, or bolted together. As can be viewed in FIGS. 3 and 4, the sidewalls 172, 174 can include texturization, such as ribs, 173, 175 to help improve gripping and handling by the user. In FIG. 5, note that the sidewalls 172, 174 diverge away from each other at the first end 155 in the first portion 160; form convex portions in a middle section; and are generally parallel in the second portion 161. These features also facilitate gripping and handling by the user.

[0029] Preferably, the housing 152 includes a system for permitting the housing 152 to slide along the resealable closure mechanism 114 without becoming disengaged from the resealable package 110. In the embodiment illustrated, the system of the slider housing 152 engages or interlocks with certain structure of the resealable closure mechanism 114. In particular, the housing 152 has a first and a second hook construction 176, 178. The first hook construction 176 preferably extends from the first sidewall 172 in a portion of the housing 152 that is under the open aperture 158.

[0030] In reference now to FIG. 6 and 13, the first hook construction 176 preferably includes a flange 180 in lateral extension from the first sidewall 172. Extending or projecting from flange 180 is a tip 182 oriented toward the top wall 154. As such, the tip 182, in combination with the flange 180, forms a hook or catch for slidable engagement with the shoulder 148 of the second closure profile 131.

[0031] Analogously, the second hook construction 178 preferably includes a flange 184 in extension from

the second sidewall 174 and in a region of the housing 152 below the open aperture 158. A tip 186 projects or extends from flange 184 in a direction oriented toward the top wall 154. As such, the flange 184 and tip 186 cooperate to form a hook or catch for engaging in a slidable manner with the shoulder 138 of the first closure profile 130. As can be seen in FIG. 6, the first hook construction 176 is located closer to the top wall 154 than the second hook construction 178. This is generally because, in the embodiment shown, the second sidewall 174 is longer than the first sidewall 172.

[0032] Attention is directed to FIGS. 14 and 15, FIGS. 14 and 15 depict alternate embodiments for hook constructions 176, 178 at 176' and 176". In FIG. 14, the tip 182' has a smooth, rounded corner 182a. In FIG. 15, the tip 182" has a bevel or chamfered corner 182a". It has been found that in certain applications, the alternate tips 182', 182" reduce friction and drag of the slider device 150 across the closure mechanism 114.

[0033] Attention is again directed to FIGS. 4 and 5. The first and second hook constructions 176, 178 each has circular, partial cavities 187, 188, respectively, formed therein. These cavities 187, 188 help facilitate convenient manufacturing techniques, such as injection molding.

[0034] The slider device 150 preferably includes a system for guiding the slider device 150 between the side edges 120, 122 (FIG. 1) and for preventing the slider device 150 from sliding off the edge of the package 110 (FIG. 1). In the embodiment illustrated, the system includes a guide construction 190 (FIG. 4). The guide construction 190 shown is designed to project beyond the first and second ends 155, 156 of the top wall 154. This ensures that the guide construction 190 detects the regions of ultrasonic crushing 196, 198 before any other structure on the housing 152 engages the sides 120, 122 of the package 110. Preferably, the guide construction 190 depends from the top wall 154, but could depend from other portions of the housing 152 in other embodiments.

[0035] While a variety of structures are contemplated, in the particular embodiment illustrated in the drawings, the guide construction 190 comprises first and second bumpers or elongate fingers 192, 194. The first bumper or finger 192 preferably is molded as part of the housing 152 to extend a distance of at least about 0.06 inches (1.5 mm) beyond the first end 155 of the first portion 160. The second bumper or finger 194 likewise is preferably molded as part of the housing 152 to extend a distance of at least 0.06 inches (1.5 mm) beyond the second end 156 of the second portion 161.

[0036] In operation, the first finger 192 will abut or engage side edge 129a and the region 196 to inhibit the housing 152 from sliding off of the resealable package 110. Analogously, the second finger 194 will abut or engage the region 198 to inhibit the housing 152 from sliding off of the resealable package 110. Thus, the guide construction 190 helps to keep the housing 152 within

the boundaries or periphery defined by the side edges 120 and 122. Further detail regarding this is explained in conjunction with FIGS. 8 and 9.

[0037] In FIG. 8, the slider housing 152 is shown in a position where the resealable closure mechanism 114 is closed. The first finger 192 is shown engaged with the side edge 129a of the notch 128. In usual operation, the first finger 192 will stop when it engages the side edge 129a of the notch 128. In some circumstances, however, the first finger 192 may abut and engage the region 196 of ultrasonic crushing, depending on the configuration of the region 196 and the force used by the operator of the slider 150. In FIG. 9, the housing 152 is shown in a position where the reclosable closure mechanism 114 is in an open position. The second finger 194 of the guide construction 190 (FIG. 5) is illustrated as abutting the region 198 of ultrasonic crushing. Note that the abutment or engagement occurs either below the top edge 127 or even with the top edge 127.

[0038] Attention is again directed to FIGS. 4, 5, and 7. In the preferred embodiment, the housing 152 includes a system for reducing drag. That is, the housing 152 is designed such that the surface area contact between the housing 152 and the resealable closure mechanism 114 is minimal. In the embodiment illustrated, the system includes first and second standoffs 201, 202. The first standoff 201 preferably projects or extends from the first sidewall 172 in the form of a first pin or rod 203. Likewise, the second standoff 202 projects or extends from the second sidewall 174 in the form of a second pin or rod 204. In the preferred embodiment illustrated, the first and second rods 203, 204 project at least about 0.0085 inches (0.22 mm) from their respective sidewalls 172, 174. Preferably, the first rod 203 extends the entire length between the bottom of the first sidewall 172 and the top wall 154. Likewise, preferably the second rod 204 extends the entire length between the top wall 154 and the bottom edge of the second sidewall 174.

[0039] In operation, the standoffs 201, 202 slidably communicate with the first and second closure profiles 130, 131, respectively. Because of the projection and extension of the standoffs 201, 202 relative to the remaining portions of the housing 152, the amount of surface area contact or material inducing friction between the housing 152 and the resealable closure mechanism 114 is reduced relative to a housing construction that does not have standoffs 201, 202. This permits easier manipulation of the slider device 150 by the user.

[0040] As indicated previously, one preferred technique for manufacturing the slider housing 152 is injection molding. While other methods are possible, injection molding is convenient and preferred. In addition, injection molding allows for ornamental features to be molded as part of the housing 152. As such, the resulting housing 152 illustrated in FIGS. 3 and 4 is distinctive, eye-catching, and attractive.

[0041] To construct the flexible resealable package

110 with a slider device 150, the package 110 can be formed by either a blown extrusion process or by using a pre-formed roll of film. The film is folded in the form shown in FIG. 1. The resealable closure mechanism 114 can be applied to the film panel sections 116, 117 by heat sealing the bonding strips 132, 142 to the film sections. The notch 128 can be cut into the upper flanges 139, 147. Next, the side seals including the regions 196, 198 of ultrasonic crushing can be formed. The housing 152 can then be mounted over the resealable closure mechanism 114 by sliding it onto the notch 128. Preferably, the notch 128 is formed twice as long as the length of the spreader 166. This is because when the slider housing 152 is moved into the closed position (FIG. 8), the widest part of the spreader 166 will be situated in the open area represented by the notch 128. As a result, the spreader 166 will not spread the walls of the closure mechanism 114 at this location. This ensures that when the slider housing 152 is moved all the way to the closed position, as shown in FIG. 8, the closure mechanism 114 will be completely closed and, even in the part of the closure mechanism 114 located under the separator 166, will not be spread or biased open.

[0042] The housing 152 is pressed onto the receivable closure mechanism 114 until the first and second hook constructions 176, 178 snap over the shoulders 138, 148, respectively, of the closure profiles 130, 131, respectively.

[0043] To operate, the slider device 150 is slid relative to the resealable closure mechanism 114 from the closed position of FIG. 8 to the open position of FIG. 9. As the housing 152 is moved from the closed position to the open position, the spreader 166 forces the closure members 134, 144 apart from each other. The spreader 166 is spaced between the upper flanges 139, 147 of the profile members 130, 131 and opens the mouth 126 as the slider housing 152 is moved along the resealable package 110 in the direction toward where the triangle of spreader 166 "points." The opening happens because the triangular shape of the spreader 166 operates as a cam to force the profile members 130, 131 apart, and thus to disengage the interlocking members 134, 144. To close the resealable closure mechanism 114, the slider housing 152 is moved relative to the resealable closure mechanism 114 from the position of FIG. 9 to the position of FIG. 8. The closing happens because the slide channel 177 between the sidewalls 172, 174 is narrower at end 156 (the end away or remote from the spreader 166) and is wider at the end 155 (the end near or adjacent to the spreader 166). The spreader 166 does not depend very far downwardly into the closure mechanism 114, and it never actually passes between the interlocking members 134, 144. Thus, this helps to prevent leaks in the closure mechanism 114, when the slider device 150 is in the closed position. The slider device housing 152 may be moved until the first finger 192 abuts the side seal or region of ultrasonic crushing 196 or, in some embodiments, the edge 129a of the notch

128. The slider housing 152 is moved to the open position until the finger 194 abuts and engages the region 198 of ultrasonic crushing to stop the housing 152 from further sliding movement. Note that no extra tools are needed for operation.

[0044] FIGS. 10 and 11 are an alternate embodiment of a slider device 150' usable with a modified resealable closure mechanism 114' to result in a closure arrangement that provides tactile or audible feedback to the operator of the closure. While a variety of embodiments are contemplated herein, in the specific embodiment illustrated, the housing 152' includes ribs or ridges 210 on at least one, and preferably both, of the hook constructions 176', 178'. The ridges 210 on the first and second hook constructions 176', 178', engage or interact with or rub against corresponding ribs or ridges 212 formed on the bonding strips 132', 142' of the first and second closure profiles 130', 131', respectively. As the slider housing 152' is moved between open and closed positions, the ridges 210 engage the ridges 212 to provide a tactile indication or tactile feedback to the user.

[0045] In the embodiment shown in FIGS. 10 and 11, the ridges 210 are on the outer surface of the hook constructions 176', 178'. Other embodiments, however, are contemplated. For example, the structure described in U.S. Patent No. 5,722,128 to Toney et al., hereby incorporated by reference, is one possible embodiment. It is contemplated that other structure for a slider device 150' may be used, analogous to that structure shown for the embodiment of FIGS. 1-9. For example, slider device 150' can include standoffs 202', a spreader with a pair of wedges including wedge 169', and a guide structure including first and second fingers 192', 194'.

[0046] A second alternative embodiment of a resealable closure mechanism usable with slider devices described herein is shown in FIG. 12 at 114". The resealable closure mechanism 114" includes a system for providing a color change between conditions when the profiles 130" and 131" are locked and when they are unlocked. In the example illustrated, each of the profiles 130", 131" are colored a certain color, except for a transparent region 220. The catch 149" of the closure member 144" is colored a different color. In this manner, when the closure members 134" and 144" engage, the colored catch 149" is visible or viewable through the region 220 of transparent material. This provides an indication of locking. When the catch 149" is not viewable through the region 220, it is indicative that the closure members 134", 144" are not engaged. Other systems of color change may also include those as described in U.S. Patent No. 5,248,201 to Kettner et al., hereby incorporated by reference and U.S. Patent No. 4,829,641 to Williams, hereby incorporated by reference.

An Example Embodiment

[0047] It will be understood that a wide variety of specific configurations and applications are feasible, using

techniques described herein. In this section, a particular slider device is described.

[0048] The slider housing 152 has an overall length from the end tip of the finger 192 to the end tip of the finger 194 of at least about 0.5 inches (about 13 mm), no greater than about 2 inches (about 51 mm), typically about 0.65-0.75 inches (about 16-19 mm), and in a preferred embodiment about 0.695 inches (about 18 mm).

[0049] The finger 192 extends from the end 155 of the slider housing 152 at least about 0.03 inches (about 0.8 mm), no greater than about 0.25 inches (about 6 mm), typically about 0.055-0.065 inches (about 1.4-1.7 mm), and in a preferred embodiment about 0.06 inches (about 1.5 mm). The finger 194 extends from end 156 at least about 0.02 inches (about 0.5 mm), no greater than about 0.25 inches (about 6 mm), typically about 0.035-0.045 inches (about 0.9-1.1 mm), and in a preferred embodiment about 0.040 inches (about 1.0 mm).

[0050] Each of the fingers 192, 194 has a width of at least about 0.02 inches (about 0.5 mm), no greater than about 0.2 inches (about 5 mm), typically about 0.04-0.07 inches (about 1-1.8 mm), and in preferred embodiments about 0.05-0.06 inches (about 1.3-1.5 mm).

[0051] Each wedge 168, 169 is spaced from its respective sidewall 172, 174 by a distance of at least about 0.01 inches (about 0.3 mm), no greater than about 0.1 inches (about 3 mm), typically about 0.020-0.035 inches (about 0.5-0.9 mm), and in preferred embodiments about 0.022-0.029 inches (about 0.6-0.7 mm).

[0052] The rods 203, 204 are spaced a distance apart of at least about 0.05 inches (about 1.3 mm), no greater than about 0.25 inches (about 6.4 mm), typically about 0.1-0.12 inches (about 2.5-3.1 mm), and in preferred embodiments about 0.108 inches (about 2.7 mm).

[0053] At the second end 156, the width of the slider housing 152 as defined by the distance between the outer part of the sidewalls 172, 174 is at least about 0.1 inches (about 3 mm), no greater than about 0.5 inches (about 13 mm), typically about 0.2-0.25 inches (about 5.1-6.4 mm), and in preferred embodiments about 0.23-0.24 inches (about 5.8-6.1 mm).

[0054] The spreader 166 has a length at the base of its triangle portion of at least about 0.05 inches (about 1.3 mm), no greater than about 0.25 inches (about 6.4 mm), typically about 0.11-0.150 inches (about 2.8-3.8 mm), and in preferred embodiments about 0.12-0.14 inches (about 3.0-3.6 mm).

[0055] The length of the sidewall 174 is at least about 0.25 inches (about 6.4 mm), no greater than about 1 inch (about 25 mm), typically about 0.34-0.4 inches (about 8.6-10.2 mm), and in preferred embodiments about 0.35-0.395 inches (about 8.9-10.0 mm). The length of the sidewall 172 is at least about 50 percent of the length of the sidewall 174, no greater than about 100 percent, and typically about 85-95 percent. This would be typically about 0.30-0.38 inches (about 7.6-9.7 mm), and in preferred embodiments about 0.31-0.36 inches (about 7.9-9.1 mm).

[0056] The overall distance between the tip 182 and the tip 186 is at least about 0.02 inches (about 0.5 mm), no greater than about 0.1 inches (about 2.5 mm), typically about 0.04-0.05 inches (about 1-1.3 mm), and in preferred embodiments about 0.045 inches (about 1.2 mm).

[0057] The depth of the spreader 166 from the top wall 154 is at least about 0.05 inches (about 1.3 mm), no greater than about 0.5 inches (about 13 mm), typically about 0.11-0.2 inches (about 2.8-5.1 mm), and in preferred embodiments about 0.11-0.13 inches (about 2.8-3.3 mm).

An Additional Embodiment

[0058] Attention is directed to FIGS. 16-23 that show an additional embodiment of a slider device constructed according to principles of this disclosure. FIGS. 16 and 17 show a slider device 350 in perspective views. The slider device 350 is generally constructed analogously to the embodiment of FIGS. 3-9, but with some modifications, to be discussed below. As with the embodiment of FIGS. 3-9, the slider device 350 has a housing 352, which includes a top wall 354 having a first end 355 and a second end 356. The top wall 354 has an open aperture 358, which divides the top wall 354 into a first portion 360 and a second portion 361. Note that the first portion 360 and second portion 361 of the top wall 354 are smooth and planar. Note the absence of grooves in top wall 354.

[0059] As with the embodiment with FIGS. 3-9, the slider device 350 includes a plow 366. Attention is directed to FIG. 18. The plow 366 includes a first wedge 368 and a second wedge 369. Between the first wedge 368 and the second wedge 369 is a gap 370.

[0060] The housing 352 also includes a first sidewall 372 with a texturized surface to enhance gripping, for example ribs 373. The housing 352 also has a second sidewall 374 with ribs 375. The first sidewall 372 has a first end 372a that is adjacent to the plow 366 and an opposite, second end 372b. Similarly, the second sidewall 374 has a first end 374a adjacent to the plow 366 and a second, opposite end 374b.

[0061] As with the embodiment of FIGS. 3-9, the slider 350 includes the first hook construction 376 and a second hook construction 378. In reference now to FIG. 21, the first hook construction 376 includes a flange 380 in extension from the first sidewall 372. Note that in this embodiment, there are no tips or projections extending from the flange 380. Similar to the first hook construction 376, the second hook construction 378 has a flange 384 extending from the second sidewall 374. There is no tip or any other extension projecting from the flange 384.

[0062] Again, analogous to the embodiment of FIGS. 3-9, the slider device 350 includes a system for guiding the slider device 350 between the side edges 420, 422 (FIG. 23) and for preventing the slider device 350 from sliding off of the edge of the package 410 (FIG. 23). In

the embodiment illustrated, the system includes a guide construction 390 (FIG. 18). The guide construction 390 of this embodiment differs somewhat from the embodiment of FIGS. 3-9. The guide construction 390 shown is constructed and arranged to detect regions of ultrasonic crushing 396, 398 (FIGS. 22 and 23) before any other structure on the housing 352 engages sides 420, 422 (FIGS. 22 and 23) of package 410. In this embodiment, the guide construction 390 depends or extends from the top wall 354, but could depend from other portions of the housing 352 in other embodiments.

[0063] The guide construction 390 comprises first and second bumpers or elongate fingers 392, 394 (FIGS. 18 and 19). The first finger 392 preferably is molded as part of the housing 352. In this embodiment, the first finger 392 extends or projects a distance beyond a recessed portion 397 (FIG. 19) of the top wall 354, but is otherwise even with the first end 355 of the top wall 354. This construction is preferred because, among other reasons, during the assembly process, the slider housings 352 do not jam or stack on top of each other. As can be seen in FIG. 18, the first finger 392 extends or projects a distance beyond the first end 372a of the first sidewall 372. Likewise, the first finger 392 extends or projects beyond the first end 374a of the second sidewall 374.

[0064] The first finger 392 is constructed and arranged to extend or dig into the region of ultrasonic crushing 396, if the slider housing 352 is moved past a notch 428 (FIG. 22). Note that the notch 428 of FIG. 22 is constructed analogously to the notch 128 of FIG. 1, including notch side edges 429a, 429b, and angled side edge 429c. Side edge 429c is angled at least about 10°, typically about 20-70°, and preferably about 45° from a line parallel to a top edge 427 of package 410. Alternatively stated, the angled side edge 429c extends at an angle of at least about 10°, typically about 20-70°, and preferably about 45° from a line parallel to the side edge 420. In FIG. 22, it can also be seen that side edge 429b is angled slightly from the horizontal.

[0065] Normally, the inside edges 368a and 369a (FIG. 18) of the first and second wedges 368, 369 will engage the side edges 429c of the notch 428. This will act as a stop member and provide a tactile indication that the housing 352 is "parked" or in a closed position. If, however, the slider housing 352 is forcibly moved toward the side edge 420, then the first finger 392 will engage or bump into the region of ultrasonic crushing 396. The shape of the first finger 392 allows the first finger 392 to engage the region of ultrasonic crushing 396 without having other portions of the slider housing 352 from engaging the region of ultrasonic crushing 396. This also stops the slider housing 352 from being pushed off the end of the package 410.

[0066] In particular, and in reference now to FIG. 20, the first finger 392, in cross section has a first portion 412 that extends from the top wall 354, and preferably, is normal to the top wall 354. As can be seen in FIG. 20, the preferred embodiment has the first portion 412 being

straight and generally parallel to the first end 374a of the second sidewall 374. Extending from the first portion 412 is an angled edge 413. In preferred embodiments, the angle between the first portion 412 and the angled edge 413 is at least about 90°, typically about 120-170°, and in preferred embodiments about 150°. Immediately adjacent to the angled edge 413 and intersecting the angled edge 413 is an edge 414. Edge 414, in preferred constructions, is generally parallel to the top wall 354. As such, the angled edge 413 and edge 414 cooperate to form a nose 415 of the first finger 392. The nose 415 is the structure that will, in preferred embodiments, engage the region of ultrasonic crushing 396, if the slider housing 352 is forced all of the way it can be toward the side edge 420 and into the region of ultrasonic crushing 396. The angle between edge 413 and edge 414 to form nose 415 is at least about 15°, typically about 30-80°, and in preferred embodiments about 60°.

[0067] Still referring to FIG. 20, the second finger 394 is illustrated in cross section. Note that the second finger 394, in preferred arrangements, at its outermost portion or nose 416 extends about even with the second ends 372b and 374b (FIG. 18). The nose 416 also extends about even with the second 356 of the top wall 354.

[0068] The second finger 394 does extend or project beyond the recessed region 417 of the top wall 354. This construction is preferred because, among other reasons, during the assembly process, the slider housings 352 do not jam or stack on top of each other. While a variety of embodiments for the second finger 394 are contemplated, in the particular embodiment shown in FIG. 20, the second finger 394 has a first portion 424 extending perpendicularly or normal to the top wall 354. An angled edge 425 is adjacent to and angled from the first portion 424. In typical embodiments, the angle between the first portion 424 and angled edge 425 will be between at least about 90°, typically about 120-170°, and preferably about 150°. Immediately adjacent to and intersecting the angled edge 425 is edge 426. The edge 426 preferably is generally parallel to the top wall 354. The edge 426 and the angled edge 425 intersect to form the nose 416. The angle between edge 425 and edge 426 is at least about 15°, typically about 30-80°, and in preferred embodiments about 60°.

[0069] Note that the first and second sidewalls 372, 374 include sloped or beveled edges 418, 419, respectively. As can be seen in FIG. 20, the nose 416 extends or projects beyond the beveled edge 419. Analogously, the nose 416 also extends beyond the beveled edge 418, although not illustrated in FIG. 20.

[0070] The nose 416 acts to engage or bump into the second region of ultrasonic crushing 398. This engagement between the nose 416 and the second region of ultrasonic crushing 398 prevents someone from forcibly sliding the slider housing 352 off of the end of the package 410.

[0071] Referring again to FIGS. 16, 18, and 20, the slider housing 352 includes first and second standoffs

401, 402. Standoffs 401, 402 are constructed and function analogously to standoffs 201, 202 described previously. The first standoff 401, in the illustrated embodiment, includes a rod 403 extending or projecting from the first sidewall 372. Similarly, the second standoff 402 includes a rod 404 extending or projecting from the second sidewall 374.

[0072] The slider device 350 is operated in a similar manner as described above for slider device 352.

[0073] The above specification and examples are believed to provide a complete description of the manufacture and use of particular embodiments of the invention. Many embodiments of the invention can be made without departing from the scope of the invention, as defined by the claims.

Claims

1. A recloseable zipper arrangement (114, 114', 114") comprising a first closure profile (130) having a first closure member (134) and a first shoulder (138); a second closure profile (131) having a second closure member (144) and a second shoulder (148); said first and second closure members being constructed and arranged to interlock; said first and second closure profiles being sealed together at first and second end regions (196, 396, 198, 398); a slider device (150, 150', 350) operably mounted on said first and second closure profiles; said slider device including: a top wall; a spreader (166, 366) preferably depending from said top wall (154, 354) to separate said first and second closure profiles; a first hook construction (176, 376) to slidably cover said first shoulder of said first closure profile; a second hook construction (178, 378) to slidably cover said second shoulder of said second closure profile; a first sidewall (172, 372) preferably depending from said top wall; said first sidewall having first (372a) and second (372b) opposite ends; a second sidewall (174, 374) preferably depending from said top wall; said spreader, said top wall, said first sidewall, and said second sidewall preferably being an integral construction; said first closure profile (130) defines a first upper flange (139); said second closure profile (131) defines a second upper flange (147); the recloseable zipper arrangement being **characterized in that:**

- (a) said spreader (166, 366) extends only between said first and second upper flanges (139, 147) and does not penetrate between said first and second closure members (134, 144);
- (b) said slider device (150, 150', 350) includes a guide construction (190, 390) projecting beyond at least one of said first end (372a) and said second end (372b) of said first sidewall (172, 372) in a direction away from remaining

portions of said slider device, maintaining said spreader (166, 366) in a position spaced from each of said first and second end regions (196, 396, 198, 398).

2. A recloseable zipper arrangement according to claim 1 wherein:

- (a) said guide construction extends past said first end and not past said second end.

3. A recloseable zipper arrangement according to any one of claims 1 and 2 wherein:

- (a) said guide construction depends from said top wall.

4. A recloseable zipper arrangement according to any one of claims 1-3 wherein:

- (a) said guide construction includes first and second fingers (192, 194, 392, 394); said first finger (192, 392) projecting beyond said first end.

5. A recloseable zipper arrangement according to any one of claims 1-4 wherein:

- (a) said slider device further includes a first standoff (201, 401) in projection from said first sidewall; and a second standoff (202, 402) in projection from said second sidewall;

- (i) said first standoff being in slidable communication with said first profile; and
- (ii) said second standoff being in slidable communication with said second profile.

6. A recloseable zipper arrangement according to claim 5 wherein:

- (a) said first standoff extends a distance of at least about 0.22 mm from said first sidewall; and
- (b) said second standoff extends a distance of at least about 0.22 mm from said second sidewall.

7. A recloseable zipper arrangement according to any one of claims 5 and 6 wherein:

- (a) said first standoff extends along said first sidewall between said top wall and a bottom edge of said first sidewall; and
- (b) said second standoff extends along said second sidewall between said top wall and a bottom edge of said second sidewall.

8. A recloseable zipper arrangement according to claim 4 wherein:

(a) said top wall of said slider device defines an open aperture (158, 358);

(i) a first portion (160, 360) of said top wall extending between said first end and said open aperture; said first finger depending from said first portion; and

(ii) a second portion (161, 361) of said top wall extending between said second end and said open aperture; said second finger depending from said second portion.

9. A recloseable zipper arrangement according to claim 8 wherein:

(a) said first hook construction is oriented along a portion of said first sidewall under said open aperture in said top wall; and

(b) said second hook construction is oriented along a portion of said second sidewall under said open aperture in said top wall.

10. A recloseable zipper arrangement according to any one of claims 8 and 9 wherein:

(a) said spreader comprises first and second angled wedges (168, 368, 169, 369) defining a gap (170, 370) therebetween; said first and second angled wedges depending from said first portion of said top wall.

11. A recloseable zipper arrangement according to any one of claims 4 and 8-10 wherein:

(a) said first finger extends at least 1.5 mm past said first end.

12. A recloseable zipper arrangement according to any one of claims 1-11 wherein:

(a) said first hook construction comprises a first flange (180, 384) in lateral extension from said first sidewall; and

(b) said second hook construction comprises a second flange in lateral extension from said second sidewall.

13. A recloseable zipper arrangement (114') according to any one of claims 1-12 wherein:

(a) at least one of said first and second hook constructions (176', 178') defines a plurality of ridges (210) to provide tactile feedback.

14. A recloseable zipper arrangement according to any

one of claims 1-13 wherein:

(a) said first profile includes: a first guidepost (136); a second guidepost (137); and a first sealing flange (132);

(i) said first shoulder (138) being between said second guidepost (137) and said first sealing flange (132); and

(b) said second profile includes: a third guidepost (146); and a second sealing flange (142);

(i) said second shoulder (148) being between said third guidepost (146) and said second sealing flange (142).

15. A recloseable zipper arrangement (114'') according to any one of claims 1-14 wherein:

(a) said first and second profiles (130'', 131'') are constructed and arranged to provide a color change between when said first and second profiles are interlocked and when said first and second profiles are not interlocked.

16. A flexible package (110, 410) comprising a recloseable zipper arrangement according to any one of claims 1-15; the flexible package comprising:

(a) a package surrounding wall (116, 118) having first and second side seals (120, 420, 122, 422) and a mouth (126) therebetween; said mouth providing access to a package interior (124);

(b) a zipper including said first and second closure profiles being oriented along said mouth for selective opening and closing of said mouth; and

(c) the slider device being operably mounted on said first and second closure profiles for selectively opening and closing said zipper.

17. A flexible package according to claim 16 wherein:

(a) said guide construction is constructed and arranged to engage at least one of said first and second end regions, when the slider device is selectively moved along the mouth adjacent to one of the first and second side seals.

18. A flexible package according to any one of claims 16 and 17 wherein:

(a) each of said first and second upper flanges defines a notch (128) adjacent to said first side seal;

(i) each of said notches having a length greater than a length of said spreader.

19. A method of using a resealable package comprising steps of:

(a) providing a package (110, 410) having a surrounding wall (116, 118), a resealable mouth (126), and a recloseable zipper arrangement (114, 114', 114'') with a slider device (150, 150', 350) thereover for opening and reclosing the mouth; the slider device including a spreader (166, 366) for separating the zipper arrangement, the recloseable zipper arrangement including at least first and second selectively interlocking closure members (134, 144) and first and second upper flanges (139, 147); the first and second closure profiles being sealed together at first and second end regions (196, 396, 198, 398); and
(b) moving the slider device (150, 150', 350) along the mouth (126) a first direction from the second end region (198, 398'); wherein the step of moving the slider device includes moving the spreader between the first and second upper flanges (139, 147) while not penetrating between the first and second interlocking closure members (134, 144), **characterized in that** the slider device (150, 150' 350) is moved until a first projecting finger (192, 392), which projects beyond at least one end of a sidewall of the slider device, engages the first end region (196, 396) in such way that the spreader remains spaced from said first end region.

20. A method according to 19 wherein the step of providing a package having a slider device includes the slider device further including a second projecting finger; and further including a step of:

(a) moving the slider device along the mouth a second direction from the first end region until the second projecting finger engages the second end region.

21. A method according to any one of claims 19 and 20 wherein:

(a) said step of providing includes providing a package wherein the first and second end regions comprise regions of ultrasonic crushing.

22. A slider device for use with a resealable package having interlocking closure members, the slider device including: a top wall; a spreader (166, 366) depending from said top wall (154, 354); a first sidewall (172, 372) depending from said top wall; said first sidewall having first (372a) and second (372b)

opposite ends; a second sidewall (174, 374) depending from said top wall; said spreader, said top wall, said first sidewall, and said second sidewall are an integral construction; said first and second sidewalls defining a slide channel for receipt of interlocking closure members, when the slider device is operably mounted on the resealable package with interlocking closure members; a first hook construction (176, 376) extending from and integral with said first sidewall; a second hook construction (178, 378) extending from and integral with said second sidewall; the slider device **characterized by:**

(a) a guide construction (190, 390) extending past at least one of said first end and said second end of said first sidewall in a direction away from remaining portions of the slider device.

23. A slider device according to claim 22 wherein:

(a) said guide construction extends past said first end and not past said second end.

24. A slider device according to any one of claims 22 and 23 wherein:

(a) said guide construction depends from said top wall.

25. A slider device according to any one of claims 22-24 wherein:

(a) said guide construction includes first and second fingers; said first finger projecting beyond said first end.

26. A slider device according to any one of claims 22-25 further including:

(a) a first standoff in projection from said first sidewall; and
(b) a second standoff in projection from said second sidewall.

27. A slider device according to claim 26 wherein:

(a) said first standoff extends along said first sidewall between said top wall and a bottom edge of said first sidewall; and
(b) said second standoff extends along said second sidewall between said top wall and a bottom edge of said second sidewall.

28. A slider device according to any one of claims 22-27 wherein:

(a) said spreader comprises first and second

angled wedges defining a gap therebetween.

dem zweiten Endbereich (196, 396, 198, 398) beabstandet ist.

Patentansprüche

1. Wiederverschließbare Reißverschußanordnung (114, 114', 114''), die folgendes aufweist: ein erstes Verschußprofil (130), das ein erstes Verschußelement (134) und eine erste Schulter (138) hat; ein zweites Verschußprofil (131), das ein zweites Verschußelement (144) und eine zweite Schulter (148) hat; wobei das erste und das zweite Verschußelement so ausgebildet und angeordnet sind, daß sie ineinandergreifen; wobei das erste und das zweite Verschußprofil an einem ersten und einem zweiten Endbereich (196, 396, 198, 398) miteinander dicht verschweißt sind; eine Schiebereinrichtung (150, 150', 350), die an dem ersten und zweiten Verschußprofil betätigbar angebracht ist; wobei die Schiebereinrichtung folgendes aufweist: eine obere Wand; ein Spreizelement (166, 366), das bevorzugt von der oberen Wand (154, 354) nach unten verläuft, um das erste und das zweite Verschußprofil zu trennen; eine erste Hakenkonstruktion (176, 376), um die erste Schulter des ersten Verschußprofils gleitbar zu bedecken; eine zweite Hakenkonstruktion (178, 378), um die zweite Schulter des zweiten Verschußprofils gleitbar zu bedecken; eine erste Seitenwand (172, 372), die bevorzugt von der oberen Wand nach unten verläuft; wobei die erste Seitenwand ein erstes (372a) und ein zweites (372b) Ende hat, die einander gegenüberliegen; eine zweite Seitenwand (174, 374), die bevorzugt von der oberen Wand nach unten verläuft; wobei das Spreizelement, die obere Wand, die erste Seitenwand und die zweite Seitenwand bevorzugt eine integrale Konstruktion sind; wobei das erste Verschußprofil (130) einen ersten oberen Flansch (139) definiert; wobei das zweite Verschußprofil (131) einen zweiten oberen Flansch (147) definiert; wobei die wiederverschließbare Reißverschußanordnung **dadurch gekennzeichnet ist, daß**

(a) sich das Spreizelement (166, 366) nur zwischen dem ersten und dem zweiten oberen Flansch (139, 147) erstreckt und nicht zwischen das erste und das zweite Verschußelement (134, 144) eindringt;
(b) die Schiebereinrichtung (150, 150', 350) eine Führungskonstruktion (190, 390) aufweist, die über mindestens eines von dem ersten Ende (372a) und dem zweiten Ende (372b) der ersten Seitenwand (172, 372) hinaus in einer Richtung weg von übrigen Bereichen der Schiebereinrichtung vorspringt, wobei das Spreizelement (166, 366) in einer Position gehalten wird, die von jedem von dem ersten und

2. Wiederverschließbare Reißverschußanordnung nach Anspruch 1, wobei:

(a) sich die Führungskonstruktion an dem ersten Ende vorbei und nicht an dem zweiten Ende vorbei erstreckt.

3. Wiederverschließbare Reißverschußanordnung nach einem der Ansprüche 1 und 2, wobei:

(a) die Führungskonstruktion von der oberen Wand nach unten verläuft.

4. Wiederverschließbare Reißverschußanordnung nach einem der Ansprüche 1 bis 3, wobei:

(a) die Führungskonstruktion einen ersten und einen zweiten Finger (192, 194, 392, 394) aufweist; wobei der erste Finger (192, 392) über das erste Ende hinaus vorspringt.

5. Wiederverschließbare Reißverschußanordnung nach einem der Ansprüche 1 bis 4, wobei:

(a) die Schiebereinrichtung ferner aufweist: ein erstes Abstandselement (201, 401), das von der ersten Seitenwand vorspringt; und ein zweites Abstandselement (202, 402), das von der zweiten Seitenwand vorspringt;

(i) wobei das erste Abstandselement mit dem ersten Profil in gleitbarer Verbindung ist; und

(ii) das zweite Abstandselement mit dem zweiten Profil in gleitbarer Verbindung ist.

6. Wiederverschließbare Reißverschußanordnung nach Anspruch 5, wobei:

(a) sich das erste Abstandselement um eine Distanz von mindestens ungefähr 0,22 mm von der ersten Seitenwand erstreckt; und
(b) sich das zweite Abstandselement um eine Distanz von mindestens ungefähr 0,22 mm von der zweiten Seitenwand erstreckt.

7. Wiederverschließbare Reißverschußanordnung nach einem der Ansprüche 5 und 6, wobei:

(a) sich das erste Abstandselement entlang der ersten Seitenwand zwischen der oberen Wand und einem unteren Rand der ersten Seitenwand erstreckt; und

(b) sich das zweite Abstandselement entlang der zweiten Seitenwand zwischen der oberen

Wand und einem unteren Rand der zweiten Seitenwand erstreckt.

8. Wiederverschließbare Reißverschlußanordnung nach Anspruch 4, wobei:

(a) die obere Wand der Schiebereinrichtung eine offene Öffnung (158, 358) definiert;

(i) wobei sich ein erster Bereich (160, 360) der oberen Wand zwischen dem ersten Ende und der offenen Öffnung erstreckt; wobei der erste Finger von dem ersten Bereich nach unten verläuft; und

(ii) wobei sich ein zweiter Bereich (161, 361) der oberen Wand zwischen dem zweiten Ende und der offenen Öffnung erstreckt; wobei der zweite Finger von dem zweiten Bereich nach unten verläuft.

9. Wiederverschließbare Reißverschlußanordnung nach Anspruch 8, wobei:

(a) die erste Hakenkonstruktion entlang einem Bereich der ersten Seitenwand unter der offenen Öffnung in der oberen Wand orientiert ist; (b) die zweite Hakenkonstruktion entlang einem Bereich der zweiten Seitenwand unter der offenen Öffnung in der oberen Wand orientiert ist.

10. Wiederverschließbare Reißverschlußanordnung nach einem der Ansprüche 8 und 9, wobei:

(a) das Spreizelement einen ersten und einen zweiten abgewinkelten Keil (168, 368, 169, 369) aufweist, die einen Zwischenraum (170, 370) zwischen sich definieren; wobei der erste und der zweite abgewinkelte Keil von dem ersten Bereich der oberen Wand nach unten verlaufen.

11. Wiederverschließbare Reißverschlußanordnung nach einem der Ansprüche 4 und 8 bis 10, wobei:

(a) sich der erste Finger um mindestens 1,5 mm an dem ersten Ende vorbei erstreckt.

12. Wiederverschließbare Reißverschlußanordnung nach einem der Ansprüche 1 bis 11, wobei:

(a) die erste Hakenkonstruktion einen ersten Flansch (180, 384) in seitlicher Erstreckung von der ersten Seitenwand aufweist; und

(b) die zweite Hakenkonstruktion einen zweiten Flansch in seitlicher Erstreckung von der zweiten Seitenwand aufweist.

13. Wiederverschließbare Reißverschlußanordnung (114') nach einem der Ansprüche 1 bis 12, wobei:

(a) mindestens eine von der ersten und der zweiten Hakenkonstruktion (176', 178') eine Vielzahl von Rippen (210) definiert, um eine tastbare Rückführung zu ermöglichen.

14. Wiederverschließbare Reißverschlußanordnung nach einem der Ansprüche 1 bis 13, wobei:

(a) das erste Profil folgendes aufweist: einen ersten Führungsstift (136); einen zweiten Führungsstift (137); und einen ersten Abdichtflansch (132);

(i) wobei die erste Schulter (138) sich zwischen dem zweiten Führungsstift (137) und dem ersten Abdichtflansch (132) befindet; und

(b) das zweite Profil folgendes aufweist: einen dritten Führungsstift (146); und einen zweiten Abdichtflansch (142);

(i) wobei die zweite Schulter (148) sich zwischen dem dritten Führungsstift (146) und dem zweiten Abdichtflansch (142) befindet.

15. Wiederverschließbare Reißverschlußanordnung (114'') nach einem der Ansprüche 1 bis 14, wobei:

(a) das erste und das zweite Profil (130'', 131'') so ausgebildet und angeordnet sind, daß sie eine Farbänderung zwischen dem Zustand, in dem das erste und das zweite Profil ineinandergreifen, und dem Zustand, in dem das erste und das zweite Profil nicht ineinandergreifen, ergeben.

16. Flexible Verpackung (110, 410), die eine wiederverschließbare Reißverschlußanordnung nach einem der Ansprüche 1 bis 15 aufweist, wobei die flexible Verpackung folgendes aufweist:

(a) eine die Verpackung umgebende Wand (116, 118), die eine erste und eine zweite Seitenabdichtung (120, 420, 122, 422) und eine Öffnung (126) dazwischen hat; wobei die Öffnung Zugang zu einem Innenraum (124) der Verpackung ermöglicht;

(b) einen Reißverschluß, der ein erstes und ein zweites Verschlußprofil aufweist, die entlang der Öffnung zum selektiven Öffnen und Schließen der Öffnung orientiert sind; und

(c) die Schiebereinrichtung, die an dem ersten und zweiten Verschlußprofil betätigbar ange-

bracht ist, um den Reißverschluß selektiv zu öffnen und zu schließen.

17. Flexible Verpackung nach Anspruch 16, wobei:

(a) die Führungskonstruktion so ausgebildet und angeordnet ist, daß sie mit mindestens einem von dem ersten und zweiten Endbereich in Eingriff gelangt, wenn die Schiebereinrichtung selektiv entlang der Öffnung einer von der ersten und der zweiten Seitenabdichtung benachbart bewegt wird.

18. Flexible Verpackung nach einem der Ansprüche 16 und 17, wobei:

(a) jeder von dem ersten und dem zweiten oberen Flansch eine Kerbe (128) der ersten Seitenabdichtung benachbart definiert;

(i) wobei jede Kerbe eine Länge hat, die größer als eine Länge des Spreizelements ist.

19. Verfahren zur Verwendung einer wieder abdichtbaren Verpackung, das die folgenden Schritte aufweist:

(a) Bereitstellen einer Verpackung (110, 410), die folgendes hat: eine Umgebungswand (116, 118), eine wieder abdichtbare Öffnung (126) und eine wiederverschließbare Reißverschlußanordnung (114, 114' 114'') mit einer Schiebereinrichtung (150, 150', 350) darüber zum Öffnen und Wiederverschließen der Öffnung; wobei die Schiebereinrichtung ein Spreizelement (166, 366) zum Trennen der Reißverschlußanordnung aufweist und wobei die wiederverschließbare Reißverschlußanordnung mindestens ein erstes und ein zweites Verschlußselement (134, 144), die selektiv ineinandergreifen, und einen ersten und einen zweiten oberen Flansch (139, 147) aufweist; wobei das erste und das zweite Verschlußprofil an einem ersten und einem zweiten Endbereich (196, 396, 198, 398) miteinander dicht verschweißt sind; und

(b) Bewegen der Schiebereinrichtung (150, 150', 350) entlang der Öffnung (126) in einer ersten Richtung ausgehend von dem zweiten Endbereich (198, 398'); wobei der Schritt des Bewegens der Schiebereinrichtung das Bewegen des Spreizelements zwischen dem ersten und dem zweiten oberen Flansch (139, 147) aufweist, wobei dieses jedoch nicht zwischen das erste und zweite Verschlußselement (134, 144), die ineinandergreifen, eindringt, **dadurch gekennzeichnet, daß** die Schiebereinrichtung

(150, 150', 350) bewegt wird, bis ein erster vorspringender Finger (192, 392), der über mindestens ein Ende einer Seitenwand der Schiebereinrichtung hinaus vorspringt, mit dem ersten Endbereich (196, 396) derart in Eingriff gelangt, daß das Spreizelement von dem ersten Endbereich beabstandet bleibt.

20. Verfahren nach Anspruch 19, wobei der Schritt des Bereitstellens einer Verpackung, die eine Schiebereinrichtung aufweist, die Schiebereinrichtung beinhaltet, die ferner einen zweiten vorspringenden Finger aufweist; und ferner den folgenden Schritt beinhaltet:

(a) Bewegen der Schiebereinrichtung entlang der Öffnung in einer zweiten Richtung ausgehend von dem ersten Endbereich, bis der zweite vorspringende Finger mit dem zweiten Endbereich in Eingriff gelangt.

21. Verfahren nach einem der Ansprüche 19 und 20, wobei:

(a) der Schritt des Bereitstellens das Bereitstellen einer Verpackung aufweist, wobei der erste und der zweite Endbereich Ultraschallstauchbereiche (ultrasonic crushing) aufweisen.

22. Schiebereinrichtung zum Gebrauch mit einer wieder abdichtbaren Verpackung, die ineinandergreifende Verschlußelemente hat, wobei die Schiebereinrichtung folgendes aufweist: eine obere Wand; ein Spreizelement (166, 366), das von der oberen Wand (154, 354) nach unten verläuft; eine erste Seitenwand (172, 372), die von der oberen Wand nach unten verläuft; wobei die erste Seitenwand ein erstes (372a) und ein zweites (372b) Ende hat, die einander gegenüberliegen; eine zweite Seitenwand (174, 374), die von der oberen Wand nach unten verläuft; wobei das Spreizelement, die obere Wand, die erste Seitenwand und die zweite Seitenwand eine integrale Konstruktion sind; wobei die erste und die zweite Seitenwand einen Gleitkanal zur Aufnahme von ineinandergreifenden Verschlußelementen definieren, wenn die Schiebereinrichtung an der wieder abdichtbaren Verpackung mit ineinandergreifenden Verschlußelementen betätigbar angebracht ist; eine erste Hakenkonstruktion (176, 376), die sich von der und integral mit der ersten Seitenwand erstreckt; eine zweite Hakenkonstruktion (178, 378), die sich von der und integral mit der zweiten Seitenwand erstreckt; wobei die Schiebereinrichtung **gekennzeichnet ist durch:**

(a) eine Führungskonstruktion (190, 390), die sich an mindestens einem von dem ersten Ende und dem zweiten Ende der ersten Seiten-

wand in einer Richtung weg von übrigen Bereichen der Schiebereinrichtung erstreckt.

23. Schiebereinrichtung nach Anspruch 22, wobei:

(a) sich die Führungskonstruktion an dem ersten Ende vorbei und nicht an dem zweiten Ende vorbei erstreckt.

24. Schiebereinrichtung nach einem der Ansprüche 22 und 23, wobei:

(a) die Führungskonstruktion von der oberen Wand nach unten verläuft.

25. Schiebereinrichtung nach einem der Ansprüche 22 bis 24, wobei:

(a) die Führungskonstruktion einen ersten und einen zweiten Finger aufweist; wobei der erste Finger über das erste Ende hinaus vorspringt.

26. Schiebereinrichtung nach einem der Ansprüche 22 bis 25, die ferner folgendes aufweist:

(a) ein erstes Abstandselement, das von der ersten Seitenwand vorspringt; und
(b) ein zweites Abstandselement, das von der zweiten Seitenwand vorspringt.

27. Schiebereinrichtung nach Anspruch 26, wobei:

(a) sich das erste Abstandselement entlang der ersten Seitenwand zwischen der oberen Wand und einem unteren Rand der ersten Seitenwand erstreckt; und
(b) sich das zweite Abstandselement entlang der zweiten Seitenwand zwischen der oberen Wand und einem unteren Rand der zweiten Seitenwand erstreckt.

28. Schiebereinrichtung nach einem der Ansprüche 22 bis 27, wobei:

(a) das Spreizelement einen ersten und einen zweiten abgewinkelten Keil aufweist, die einen Zwischenraum zwischen sich definieren.

Revendications

1. Dispositif de fermeture libérable (114, 114', 114'') comprenant un premier profil de fermeture (130) muni d'un premier élément de fermeture (134) et d'un premier épaulement (138); un second profil de fermeture (131) muni d'un second élément de fermeture (144) et un second épaulement (148); lesdits premier et second éléments de fermeture étant

construits et disposés afin de s'enclencher; lesdits premier et second profils de fermeture étant scellés ensemble dans les régions de la première et de la seconde extrémité (196, 396, 198, 398); un dispositif de glissière (150, 150', 150'') monté de façon fonctionnelle sur lesdits premier et second profils de fermeture; ledit dispositif de glissière comprenant: une paroi supérieure, une entretoise (166, 366) dépendant de préférence de ladite paroi supérieure (154, 354) afin de séparer lesdits premier et second profils de fermeture; une première construction de crochet (176, 376) afin de couvrir de manière coulissante ledit premier épaulement dudit premier profil de fermeture; une seconde construction de crochet (178, 378) afin de couvrir de manière coulissante ledit second épaulement dudit second profil de fermeture; une première paroi latérale (172, 372) dépendant de préférence de ladite paroi supérieure, ladite première paroi latérale étant munie d'une première (372a) et d'une seconde (372b) extrémité opposée, une seconde paroi latérale (174, 374) dépendant de préférence de ladite paroi supérieure; ladite entretoise, ladite paroi supérieure, ladite première paroi latérale et ladite seconde paroi latérale étant de préférence une construction solidaire;

ledit premier profil de fermeture (130) définit une première bride supérieure (139); ledit second profil de fermeture (131) définit une seconde bride supérieure (147); le dispositif de fermeture libérable étant **caractérisé en ce que**:

(a) ladite entretoise (166, 366) s'étend uniquement entre lesdites première et seconde brides (139, 147) et ne pénètre pas entre lesdits premier et second éléments de fermeture (134, 144);
(b) ledit dispositif de glissière (150, 150', 350) comprend une construction de guidage (190, 390) dépassant au moins une de ladite première extrémité (372a) et ladite seconde extrémité (372b) de ladite première paroi latérale (172, 372) dans une direction éloignée des parties restantes dudit dispositif de glissière, maintenant ladite entretoise (166, 366) dans une position espacée de chacune desdites première et seconde régions d'extrémité (19, 396, 198, 398).

2. Dispositif de fermeture libérable selon la revendication 1, dans lequel:

(a) ladite construction de guidage s'étend après ladite première extrémité et non pas après ladite seconde extrémité.

3. Dispositif de fermeture libérable selon l'une quelconque des revendications 1 et 2, dans lequel:

- (a) ladite construction de guidage dépend de ladite paroi supérieure.
4. Dispositif de fermeture libérable selon l'une quelconque des revendications 1 à 3, dans lequel : 5
- (a) ladite construction de guidage comprend un premier et un second doigt (192, 194, 392, 394) ; ledit premier doigt (192, 392) dépassant ladite première extrémité. 10
5. Dispositif de fermeture libérable selon l'une quelconque des revendications 1 à 4, dans lequel :
- (a) ledit dispositif de glissière comprend en outre une première borne (201, 401) dépassant de ladite première paroi latérale ; et une seconde borne (202, 402) dépassant de ladite seconde paroi latérale ; 15
- (i) ladite première borne étant en communication coulissante avec ledit premier profil ; et 20
- (ii) ladite seconde borne étant en communication coulissante avec ledit second profil. 25
6. Dispositif de fermeture libérable selon la revendication 5, dans lequel : 30
- (a) ladite première borne s'étend sur une distance d'au moins environ 0,22 mm de ladite première paroi latérale ; et
- (b) ladite seconde borne s'étend sur une distance d'au moins environ 0,22 mm de ladite seconde paroi latérale. 35
7. Dispositif de fermeture libérable selon l'une quelconque des revendications 5 et 6, dans lequel : 40
- (a) ladite première borne s'étend le long de ladite première paroi latérale entre ladite paroi supérieure et un bord inférieur de ladite première paroi latérale ; et
- (b) ladite seconde borne s'étend le long de ladite seconde paroi latérale entre ladite paroi supérieure et un bord inférieur de ladite seconde paroi latérale. 45
8. Dispositif de fermeture libérable selon la revendication 4, dans lequel : 50
- (a) ladite paroi supérieure dudit dispositif de glissière définit un orifice ouvert (158, 358) ; 55
- (i) une première partie (160, 360) de ladite paroi supérieure s'étendant entre ladite première extrémité et ledit orifice ouvert ;
- ledit premier doigt dépendant de ladite première partie ; et
- (ii) une seconde partie (161, 361) de ladite paroi supérieure s'étendant entre ladite seconde extrémité et ledit orifice ouvert ; ledit second doigt dépendant de ladite seconde partie.
9. Dispositif de fermeture libérable selon la revendication 8, dans lequel :
- (a) la première construction de crochet est orientée le long d'une partie de ladite première paroi latérale sous ledit orifice ouvert dans ladite paroi supérieure ; et
- (b) ladite seconde construction de crochet est orientée le long d'une partie de ladite seconde paroi latérale sous ledit orifice ouvert dans ladite paroi supérieure.
10. Dispositif de fermeture libérable selon l'une quelconque des revendications 8 et 9, dans lequel :
- (a) ladite entretoise comprend un premier et un second coin en biais (168, 368, 169, 369) définissant entre eux un écartement (170, 370) ; lesdits premier et second coins en biais dépendant de ladite première partie de ladite paroi supérieure.
11. Dispositif de fermeture libérable selon l'une quelconque des revendications 4 et 8 à 10, dans lequel :
- (a) ledit premier doigt s'étend au moins 1, 5 mm après ladite première extrémité.
12. Dispositif de fermeture libérable selon l'une quelconque des revendications 1 à 11, dans lequel :
- (a) ladite première construction de crochet comprend une première bride (180, 334) en extension latérale à partir de ladite première paroi latérale ; et
- (b) ladite seconde construction de crochet comprend une seconde bride en extension latérale à partir de ladite seconde paroi latérale.
13. Dispositif de fermeture libérable (114') selon l'une quelconque des revendications 1 à 12, dans lequel :
- (a) au moins une desdites première et seconde constructions de crochet (176', 178') définit une pluralité de saillies (210) afin de fournir une réaction tactile.
14. Dispositif de fermeture libérable selon l'une quelconque des revendications 1 à 13, dans lequel :

- (a) ledit premier profil comprend une première colonne de guidage (136) ; une deuxième colonne de guidage (137) ; et une première bride de fermeture (132) ;
- (i) ledit premier épaulement (138) étant entre ladite deuxième colonne de guidage (137) et ladite première bride de fermeture (132) ; et
- (b) ledit second profil comprend une troisième colonne de guidage (146) ; et une seconde bride de fermeture (142) ;
- (i) ledit second profil (148) étant entre ladite troisième colonne de guidage (146) et ladite seconde bride de fermeture (142).
- 15.** Dispositif de fermeture libérable (114") selon l'une quelconque des revendications 1 à 14, dans lequel :
- (a) lesdits premier et second profils (130", 131") sont construits et disposés afin de fournir un changement de couleur lorsque lesdits premier et second profils sont enclenchés et lorsque lesdits premier et second profils ne sont pas enclenchés.
- 16.** Conditionnement flexible (110, 140) comprenant un dispositif de fermeture libérable selon l'une quelconque des revendications 1 à 15 ; le conditionnement flexible comprenant :
- (a) une paroi périphérique du conditionnement (116, 118) munie d'un premier et d'un second dispositifs d'étanchéité latéraux (120, 420, 122, 422) et entre eux une bouche (126) ; ladite bouche permettant d'accéder à l'intérieur du conditionnement (124) ;
- (b) une fermeture comprenant lesdits premier et second profils de fermeture orientés le long de ladite bouche pour une ouverture et une fermeture sélectives de ladite bouche ; et
- (c) le dispositif de glissière étant monté de façon fonctionnelle sur lesdits premier et second profils de fermeture afin de d'ouvrir et de fermer sélectivement ladite fermeture.
- 17.** Conditionnement flexible selon la revendication 16, dans lequel :
- (a) ladite construction de guidage est construite et disposée afin de mettre en prise au moins une desdites première et seconde régions d'extrémité, lorsque le dispositif de glissière est déplacé de manière sélective le long de la bouche adjacente à un premier et second dispositifs d'étanchéité latéraux.
- 18.** Conditionnement flexible selon l'une quelconque des revendications 16 et 17, dans lequel :
- (a) chacune desdites première et seconde brides supérieures définit une encoche (128) adjacente au dit premier dispositif d'étanchéité latéral ;
- (i) chacune desdites encoches ayant une longueur supérieure à une longueur de ladite entretoise.
- 19.** Procédé d'utilisation d'un conditionnement libérable comprenant les étapes consistant à :
- (a) fournir un conditionnement (110, 410) ayant une paroi périphérique (116, 118), une bouche refermable (126) et un dispositif de fermeture libérable (114, 114', 114") avec un dispositif de glissière (150, 150', 350) au-dessus afin d'ouvrir et de refermer la bouche ; le dispositif de glissière comprenant une entretoise (166, 366) afin de séparer le dispositif de fermeture, le dispositif de fermeture libérable comprenant au moins un premier et un second élément de fermeture par enclenchement sélectif (134, 144) et une première et une seconde bride supérieure (139, 147) ; les premier second profils de fermeture étant joints ensemble sur la première et la seconde région d'extrémité (196, 396, 198, 398) ; et
- (b) déplaçant le dispositif de glissière (150, 150', 350) le long de la bouche (126) dans une première direction à partir de la région de la seconde extrémité (198, 398) ; dans lequel l'étape de déplacement du dispositif de glissière comprend le déplacement de l'entretoise entre la première et la seconde bride supérieure (139, 147) tout en ne pénétrant pas entre le premier et le second élément de fermeture par enclenchement (134, 144), **caractérisé en ce que** le dispositif de glissière (150, 150', 350) est déplacé jusqu'à un premier doigt dépassant (192, 392) qui dépasse sur au moins une extrémité d'une paroi latérale du dispositif de glissière, met en prise la région de la première extrémité (196, 396) de telle manière que l'entretoise demeure espacée de ladite région de la première extrémité.
- 20.** Procédé selon la revendication 19, dans lequel l'étape de fournir le conditionnement muni d'un dispositif de glissière comprend le dispositif de glissière comprenant en outre un second doigt dépassant, et comprenant en outre l'étape consistant à :
- (a) déplacer le dispositif de glissière le long de la bouche dans une seconde direction à partir

de la région de première extrémité jusqu'à ce que le second doigt dépassant engage la région de seconde extrémité.

21. Procédé selon l'une quelconque des revendications 19 et 20, dans lequel :

(a) ladite étape de fourniture comprend la fourniture d'un conditionnement dans lequel les première et seconde régions d'extrémité comprennent des régions de broyage à ultrasons.

22. Dispositif de glissière pour utilisation avec un conditionnement refermable muni d'éléments de fermeture par enclenchement, le dispositif de glissière comprenant : une paroi supérieure, une entretoise (166, 366) dépendant de ladite paroi supérieure (154, 354) ; une première paroi latérale (172, 372) dépendant de ladite paroi supérieure ; ladite première paroi latérale étant munie d'une première (372a) et d'une seconde (372b) extrémité opposée ; une seconde paroi latérale (174, 374) dépendant de ladite paroi supérieure, ladite entretoise, ladite paroi supérieure, ladite première paroi latérale et ladite seconde paroi latérale étant une construction solidaire ; lesdites première et seconde parois latérales définissant un canal coulissant afin de recevoir des éléments de fermeture par enclenchement ; lorsque le dispositif de glissière est monté de façon fonctionnelle sur le conditionnement refermable avec des éléments de fermeture par enclenchement, une première construction de crochet (176, 376) s'étendant à partir de et étant solidaire de ladite première paroi latérale, une seconde construction de crochet (178, 378) s'étendant à partir de et solidaire de ladite seconde paroi latérale, le dispositif de glissière étant **caractérisé en ce que** :

(a) une construction de guidage (190, 390) s'étendant après au moins une desdites première et seconde extrémités de ladite première paroi latérale dans une direction éloignée des parties restantes du dispositif de glissière.

23. Dispositif de glissière selon la revendication 22, dans lequel :

(a) ladite construction de guidage s'étend après ladite première extrémité et non après ladite seconde extrémité.

24. Dispositif de glissière selon l'une quelconque des revendications 22 et 23, dans lequel :

(a) ladite construction de guidage dépend de ladite paroi supérieure.

25. Dispositif de glissière selon l'une quelconque des revendications 22 à 24, dans lequel :

(a) ladite construction de guidage comprend un premier et un second doigt, ledit premier doigt débordant sur la première extrémité.

26. Dispositif de glissière selon l'une quelconque des revendications 22 à 25, comprenant en outre :

(a) une première borne en projection à partir de ladite première paroi latérale ; et
(b) une seconde borne en projection à partir de ladite seconde paroi latérale.

27. Dispositif de glissière selon la revendication 26, dans lequel :

(a) une première borne s'étend le long de ladite première paroi latérale entre ladite paroi supérieure et le bord inférieur de ladite première paroi latérale ; et
(b.) ladite seconde borne s'étend le long de ladite seconde paroi latérale entre ladite paroi supérieure et un bord inférieur de ladite seconde paroi latérale.

28. Dispositif de glissière selon l'une quelconque des revendications 22 à 27, dans lequel :

(a) ladite entretoise comprend un premier et un second angle en biais définissant un écartement entre eux.

FIG. 1

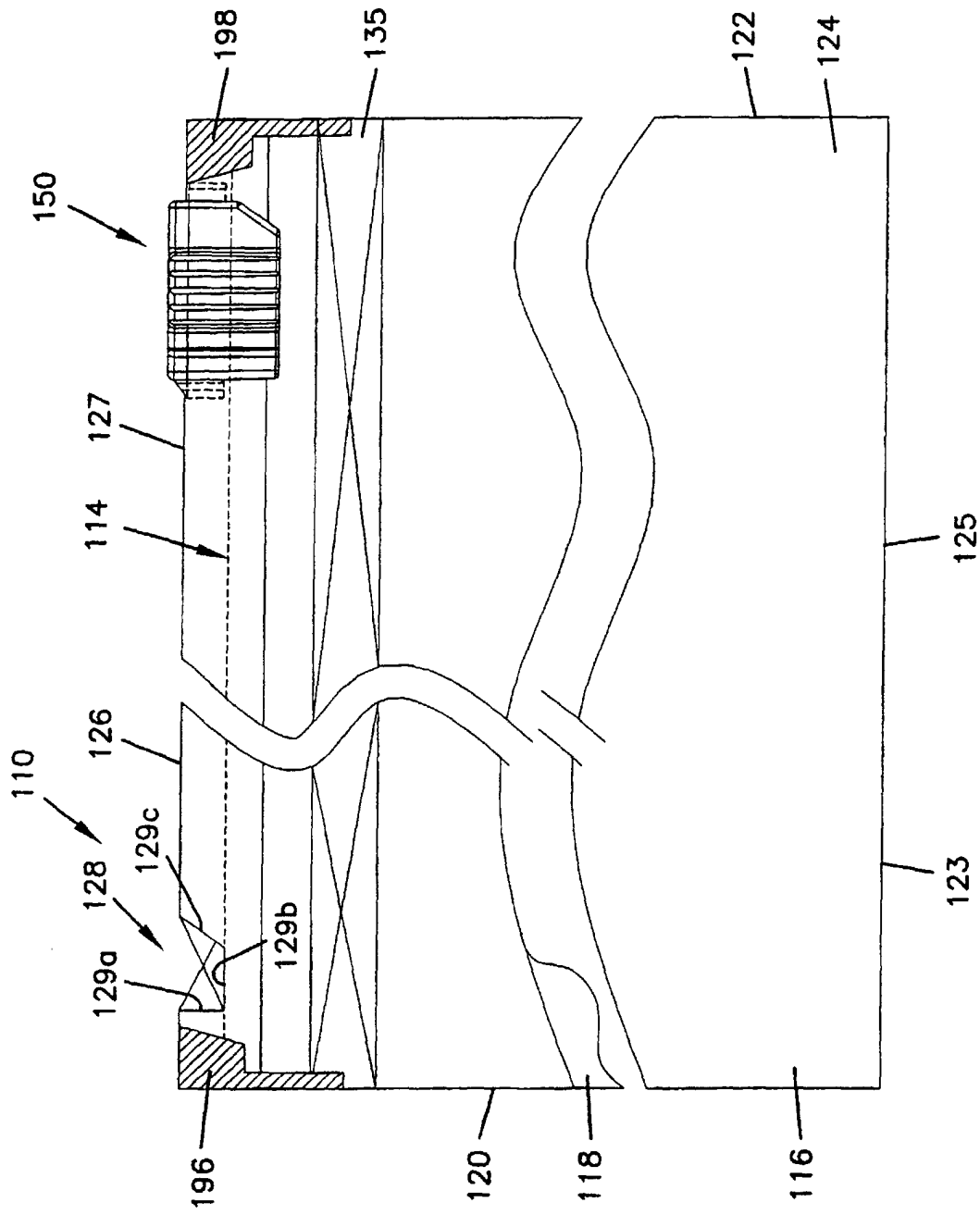


FIG. 2

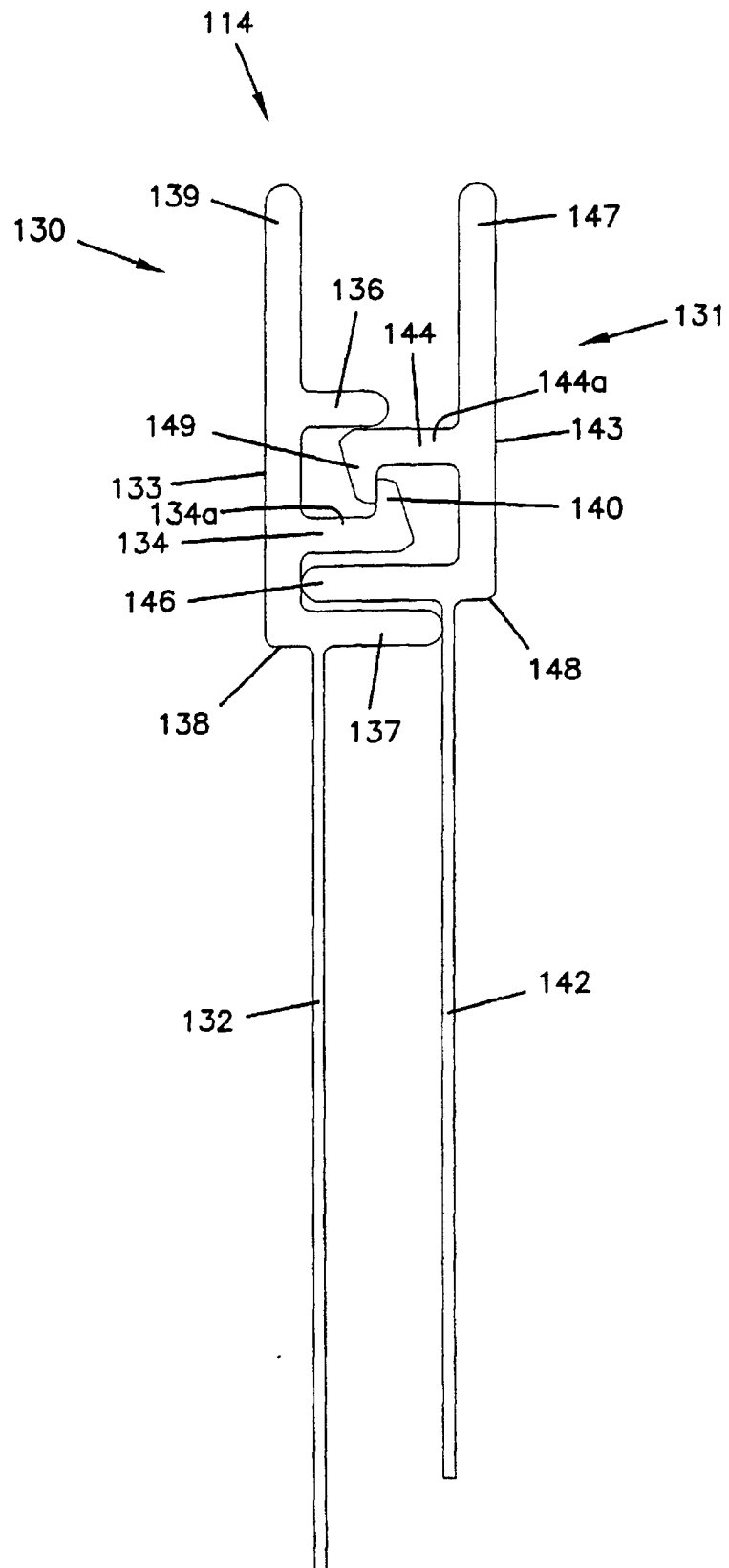


FIG. 3

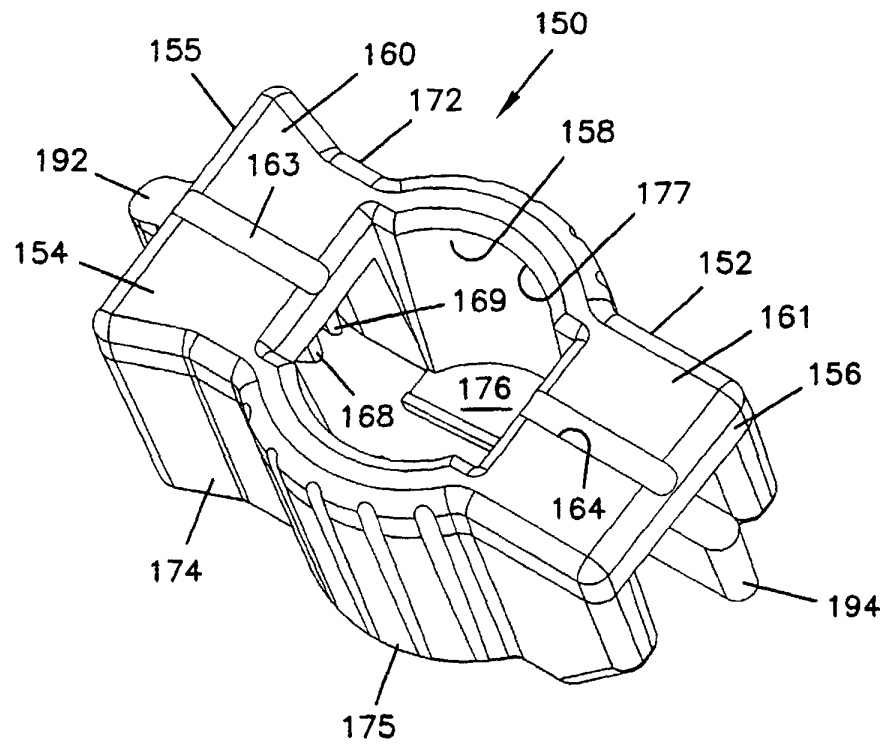


FIG. 4

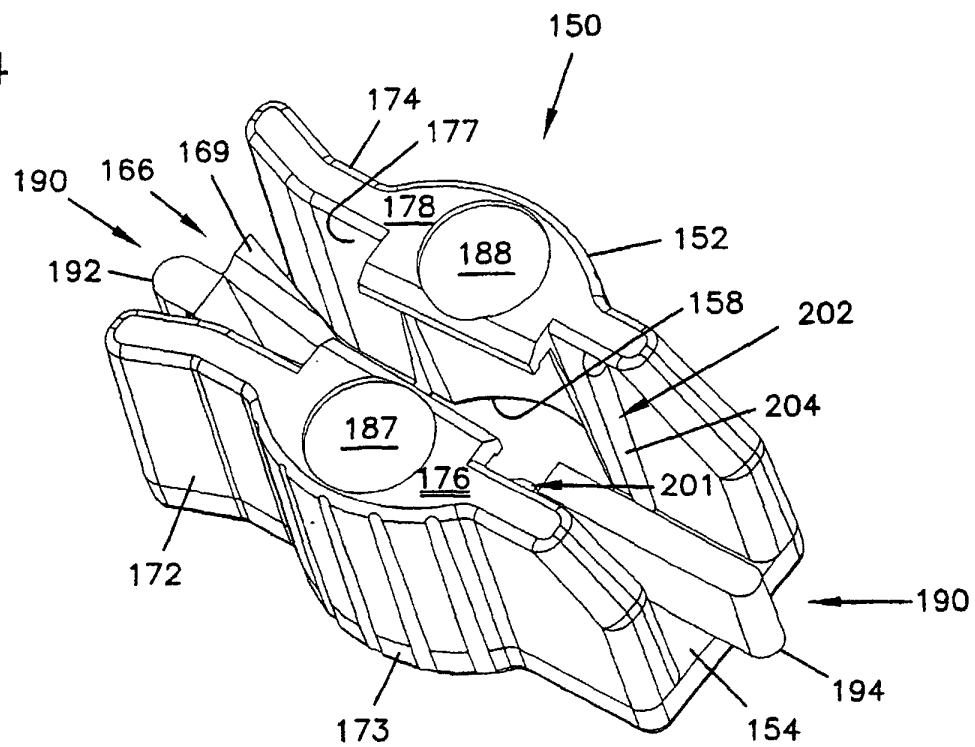


FIG. 5

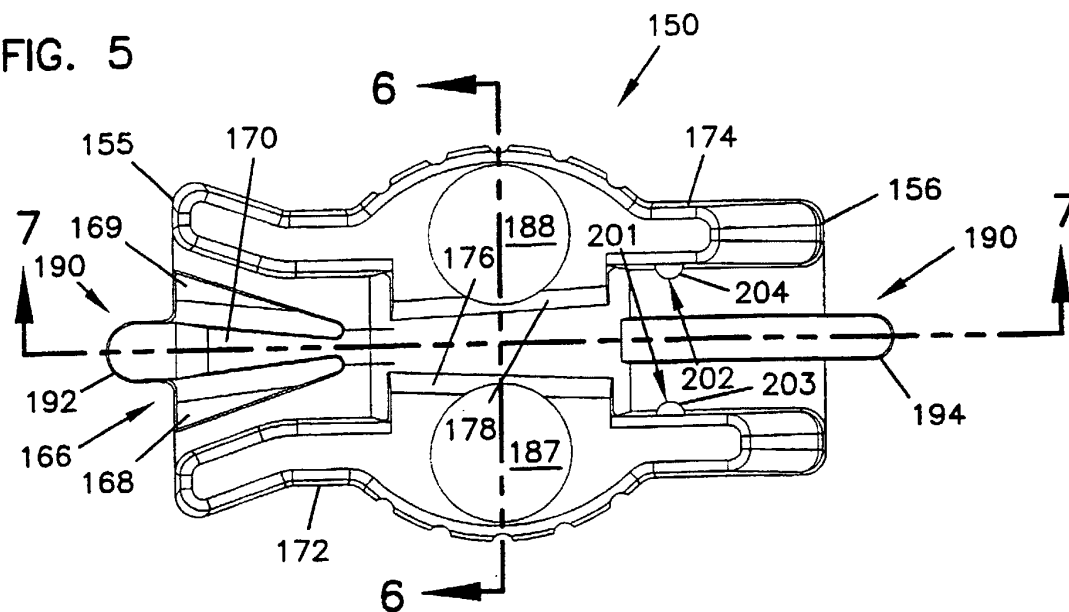


FIG. 6

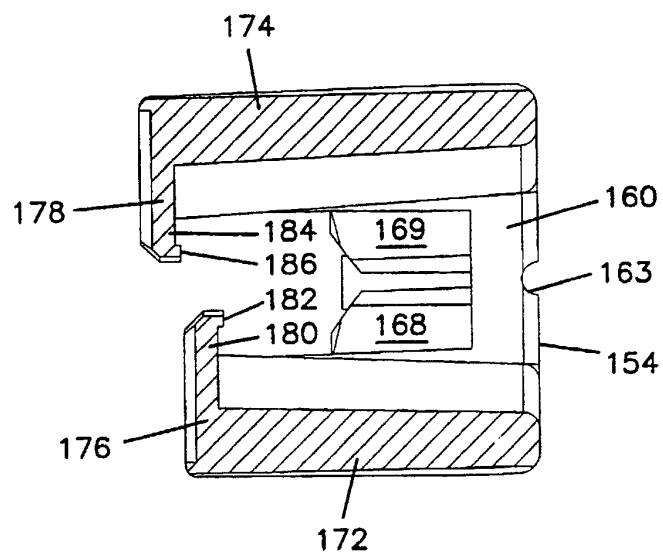


FIG. 7

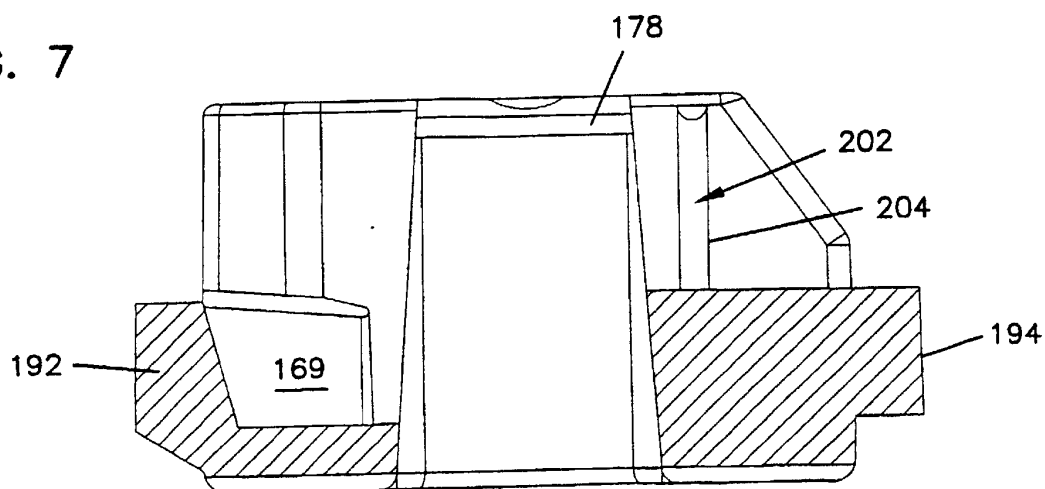


FIG. 8

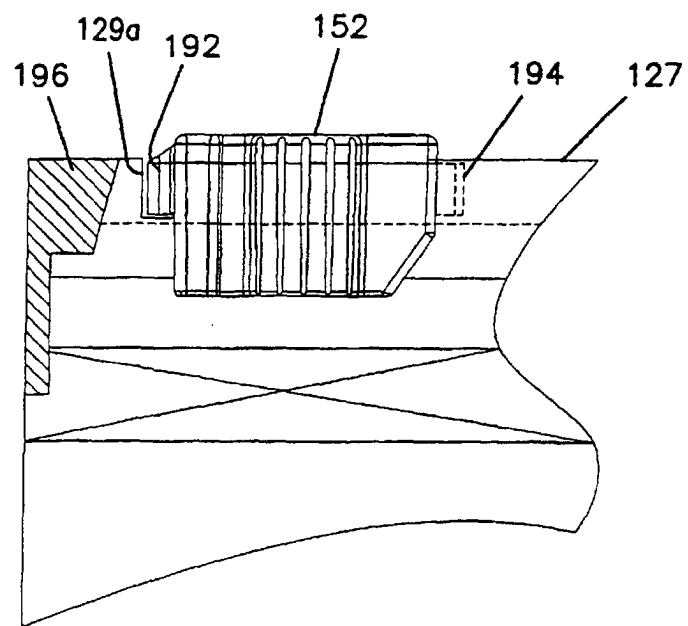


FIG. 9

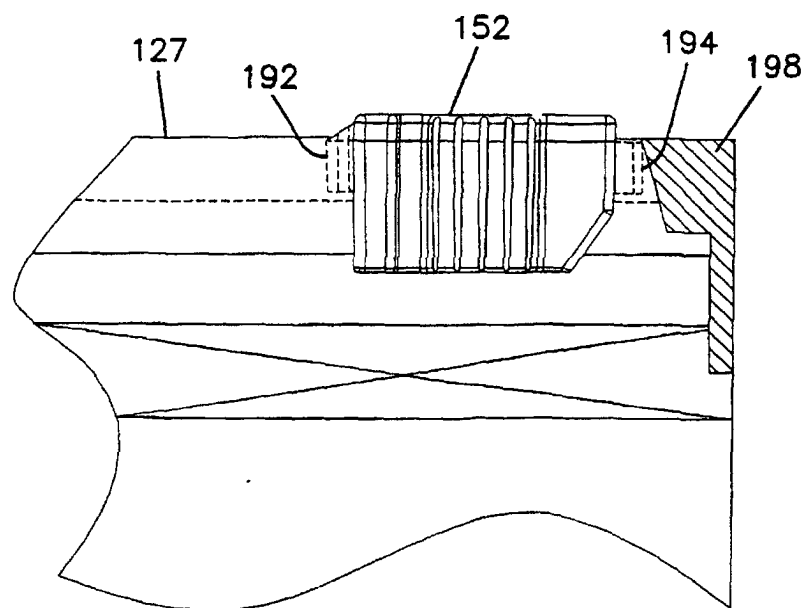


FIG. 10

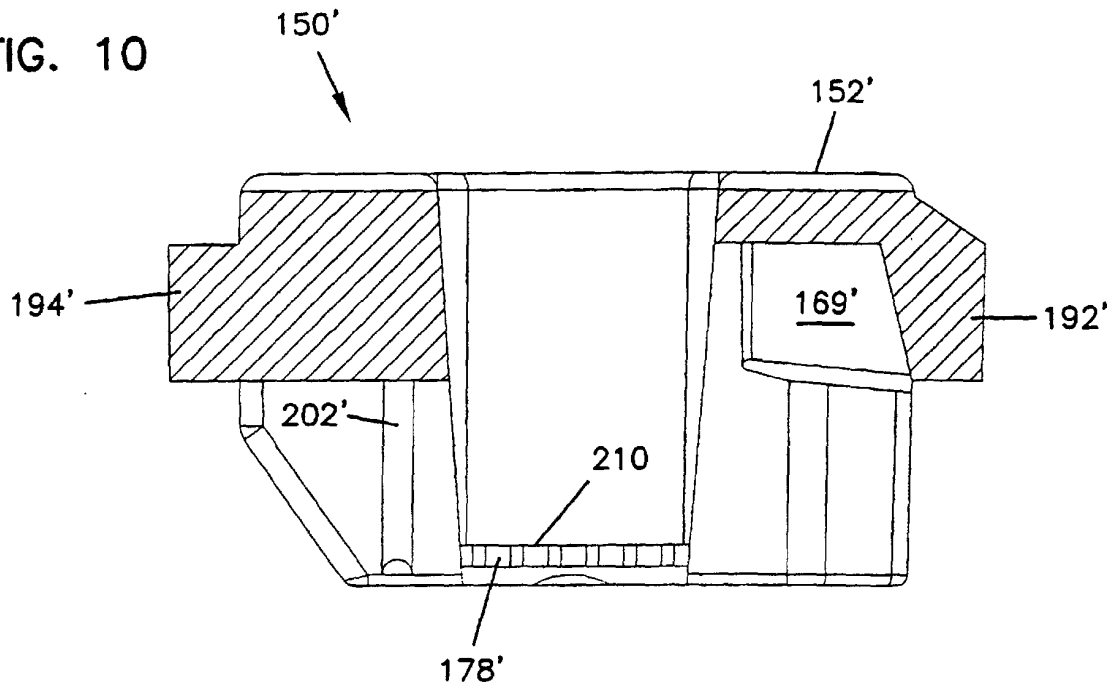


FIG. 11

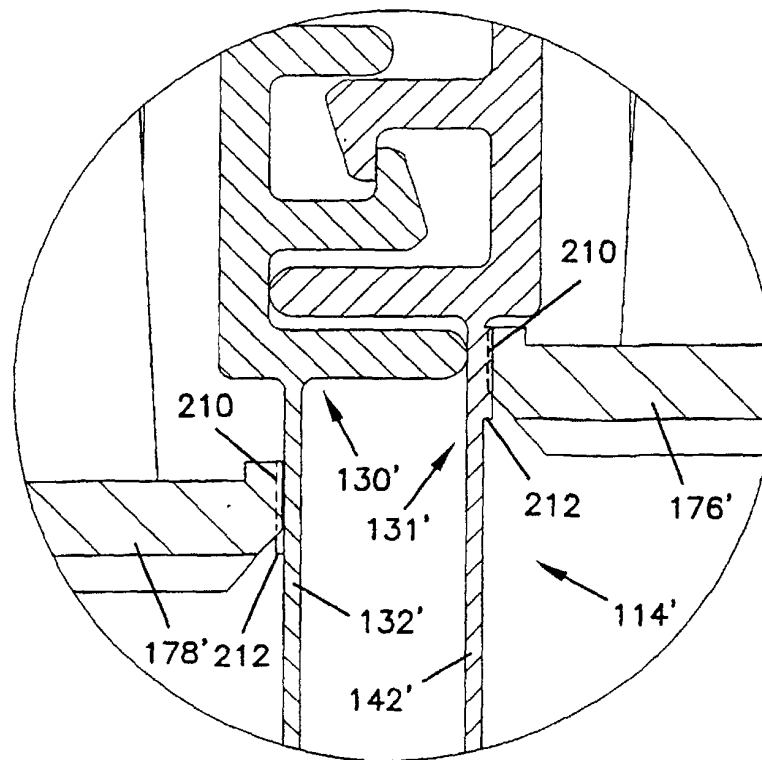


FIG. 12

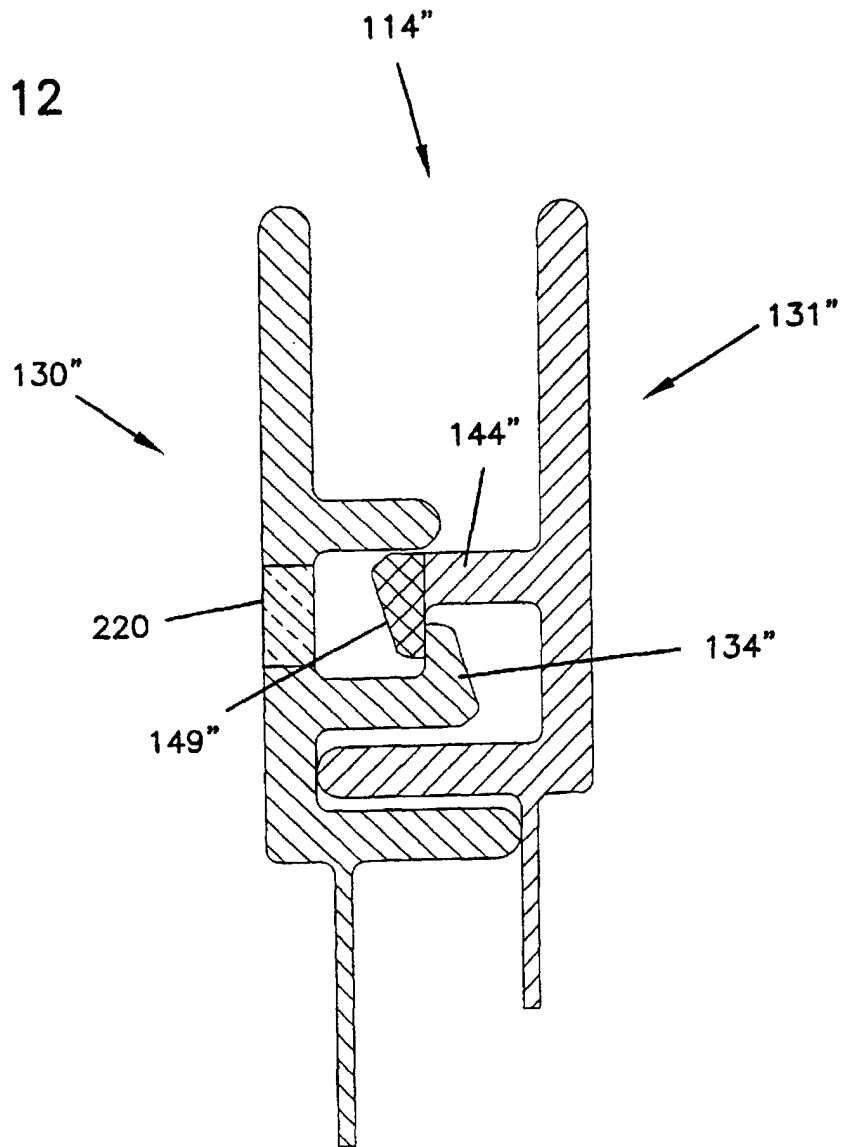


FIG. 13

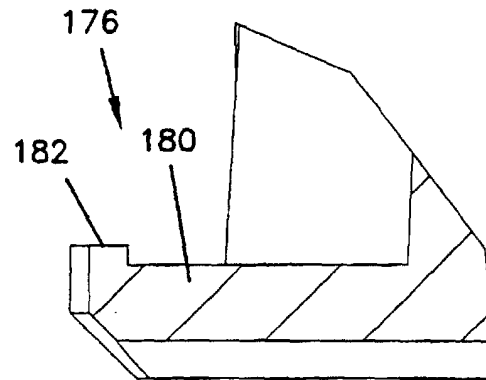


FIG. 14

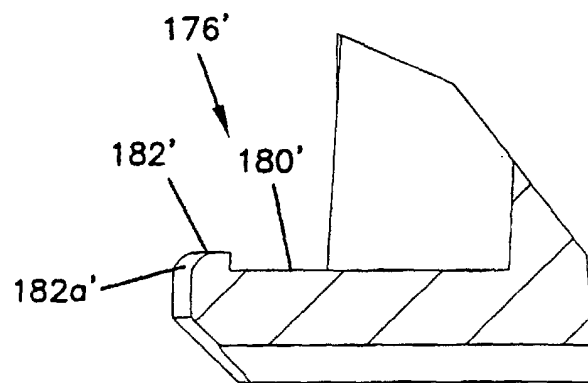
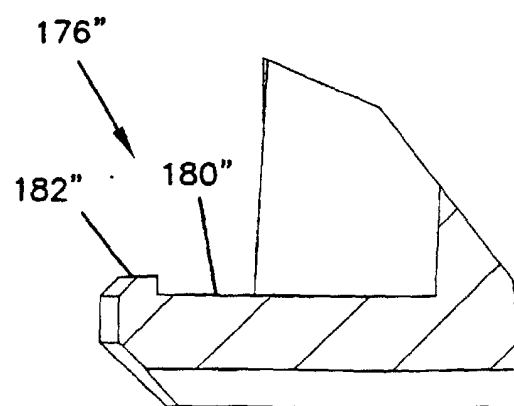


FIG. 15



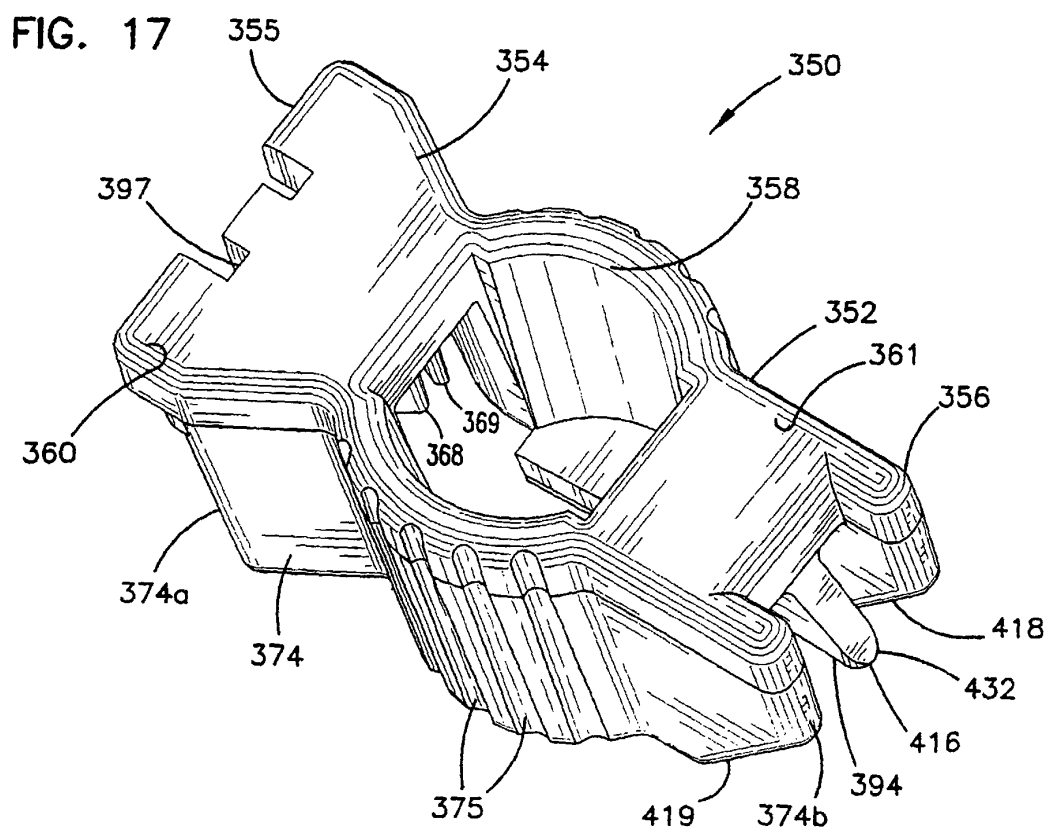
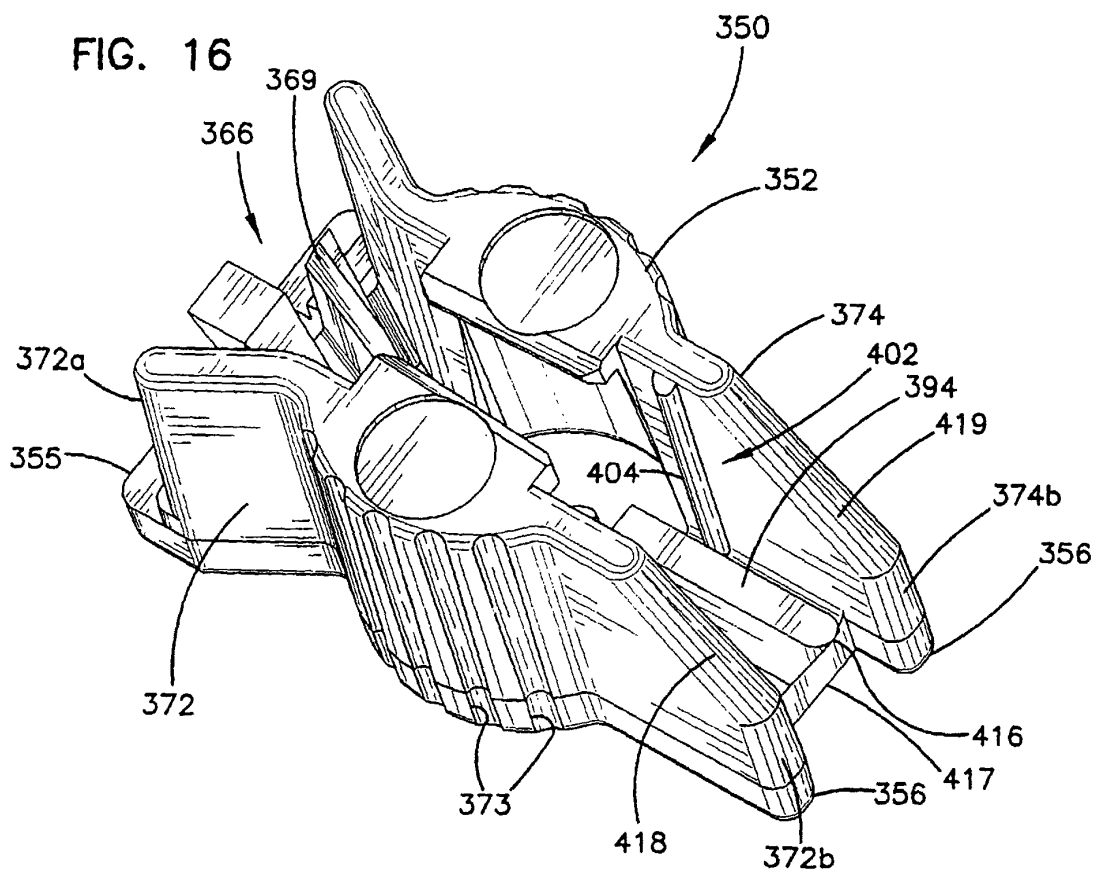


FIG. 18

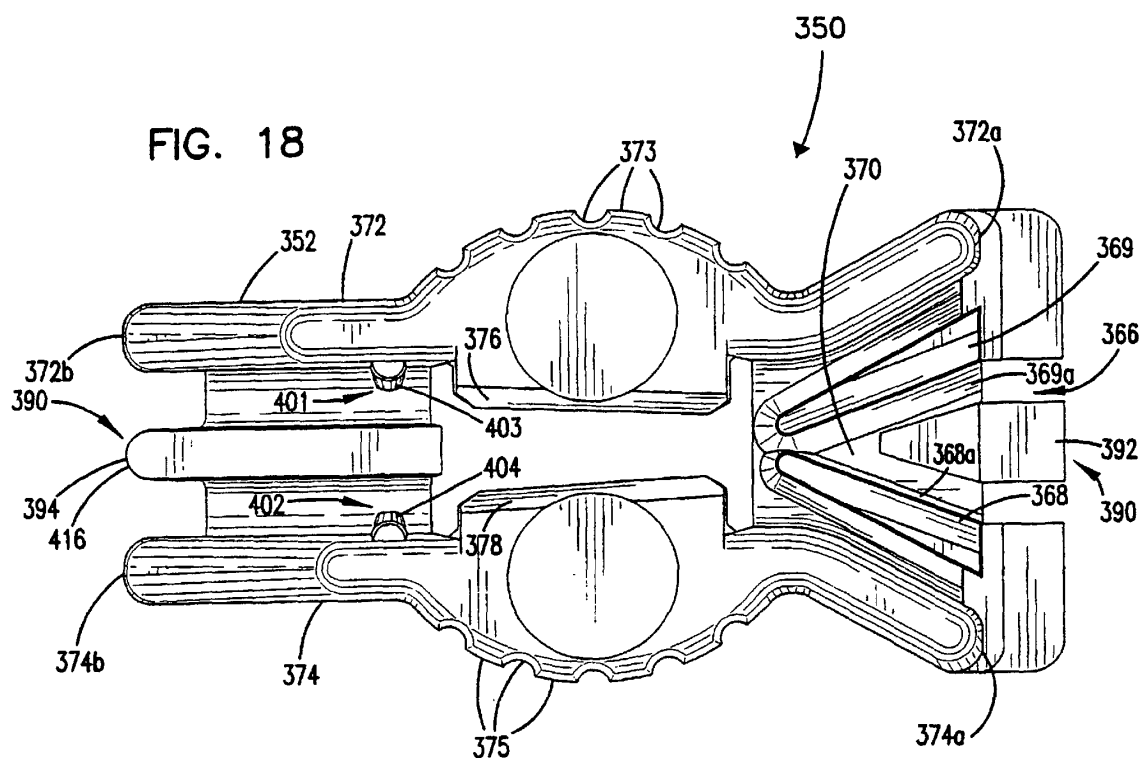
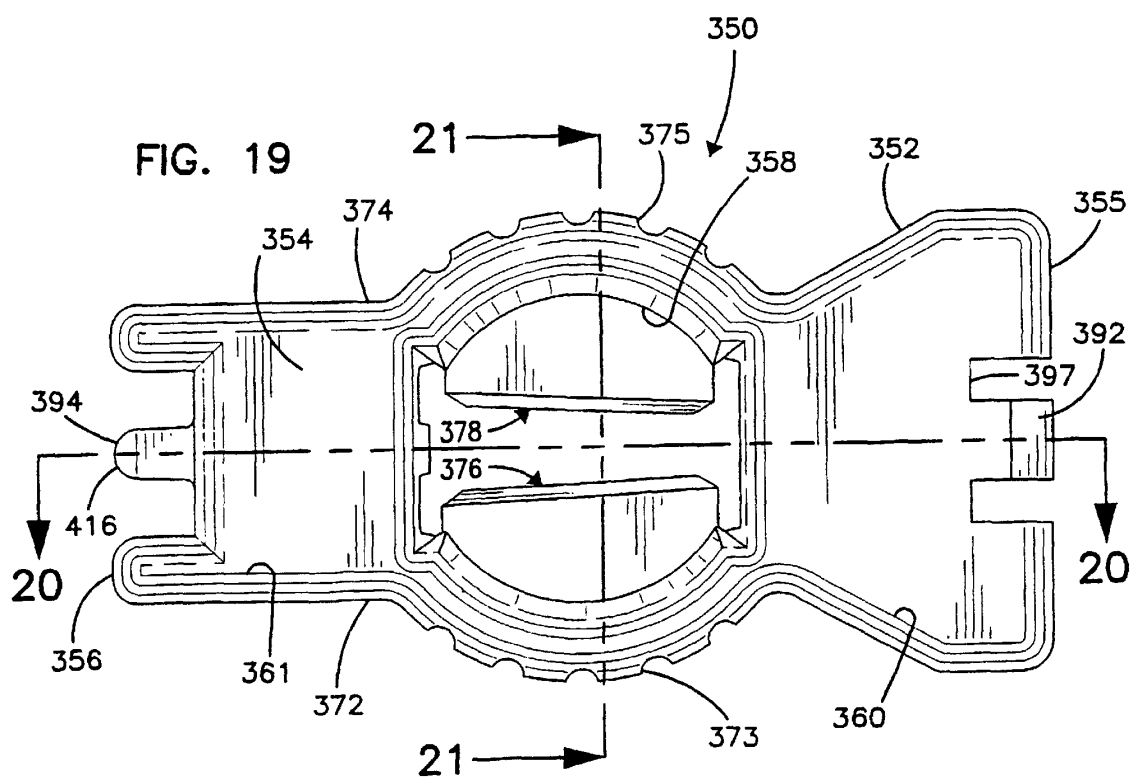


FIG. 19



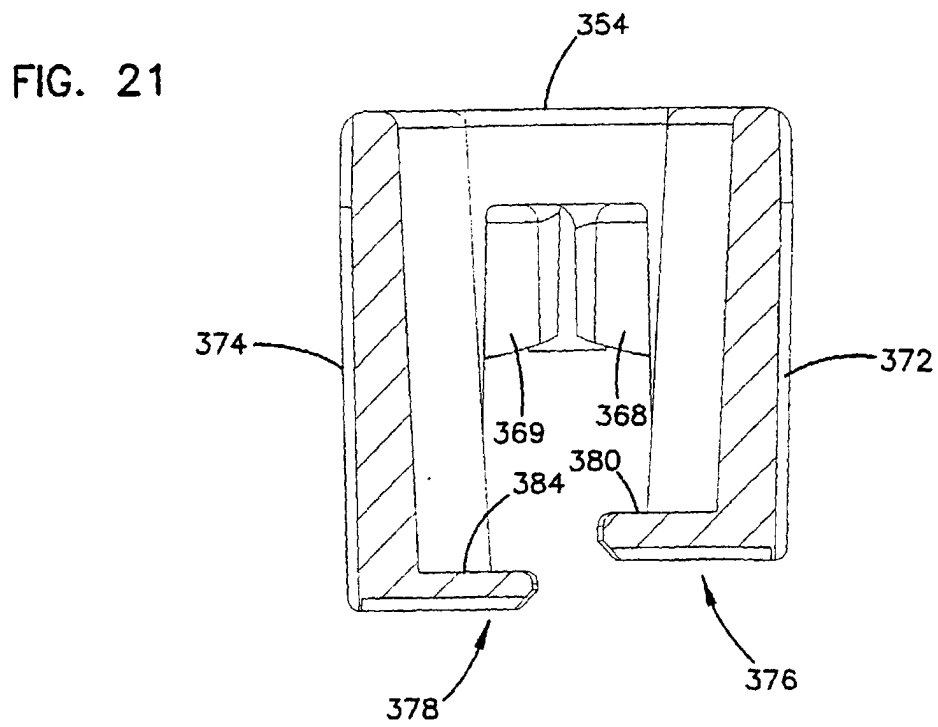
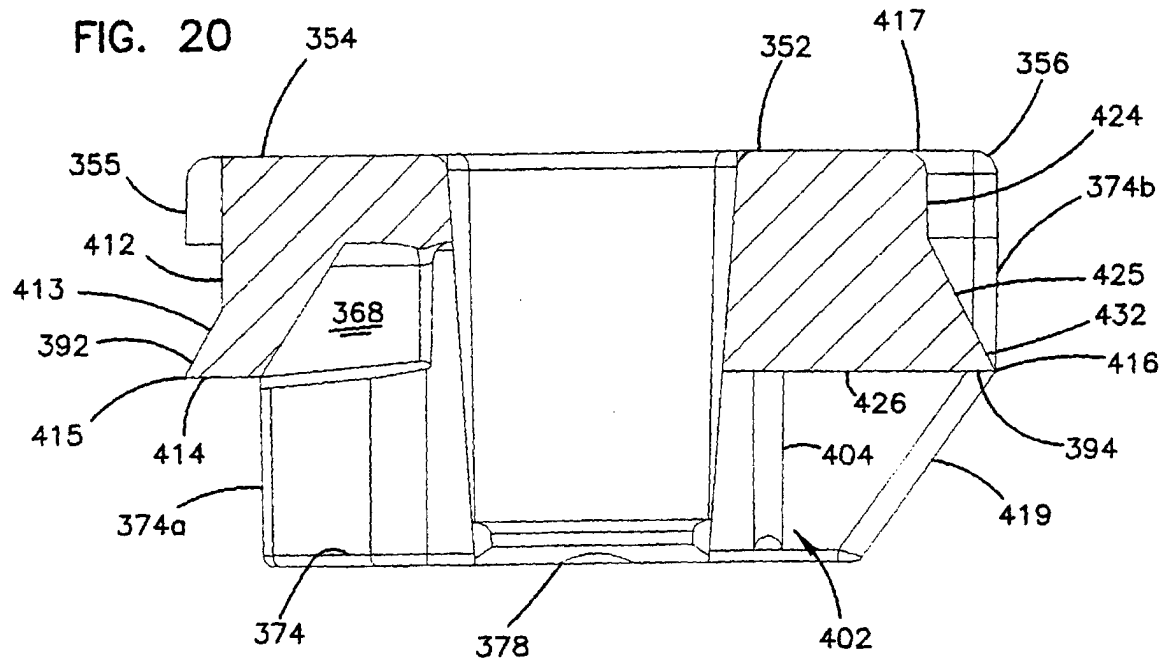


FIG. 22

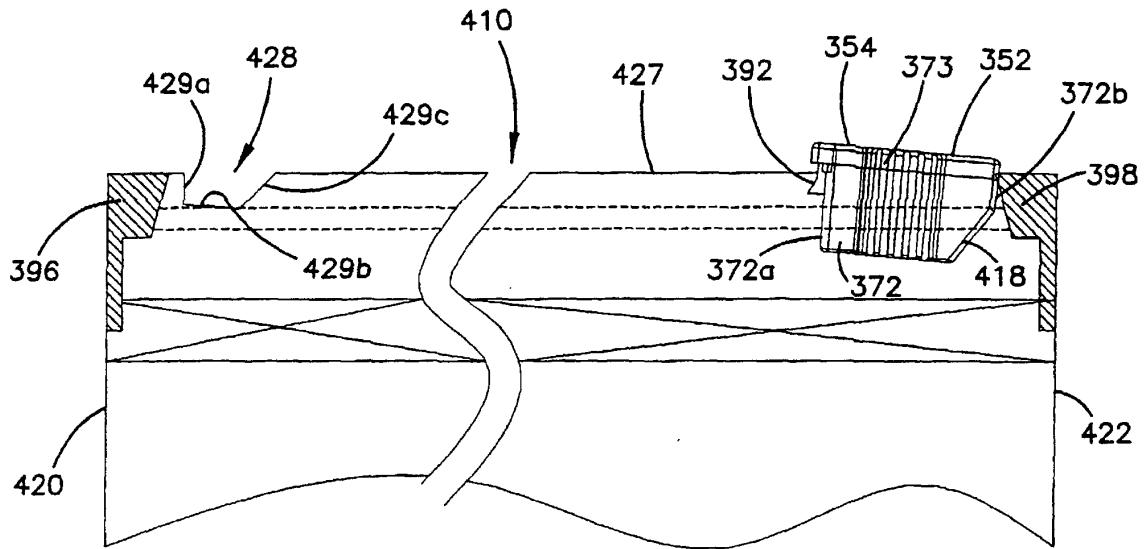


FIG. 23

