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(54) Attachable apparatus for hands-free holding of handheld form factor items

(57) An attachable apparatus (100) for hands-free holding of handheld form factor items such as handheld devices includes a receptacle (102), a substrate (104), and an adhesive layer (124), the receptacle configured to receive and retain the handheld form factor item and the adhesive layer disposed on at least a portion of a surface of the substrate to allow a user to removably adhere the attachable apparatus to a first article at a first time and to a second article at a second time, after removal from the first article.

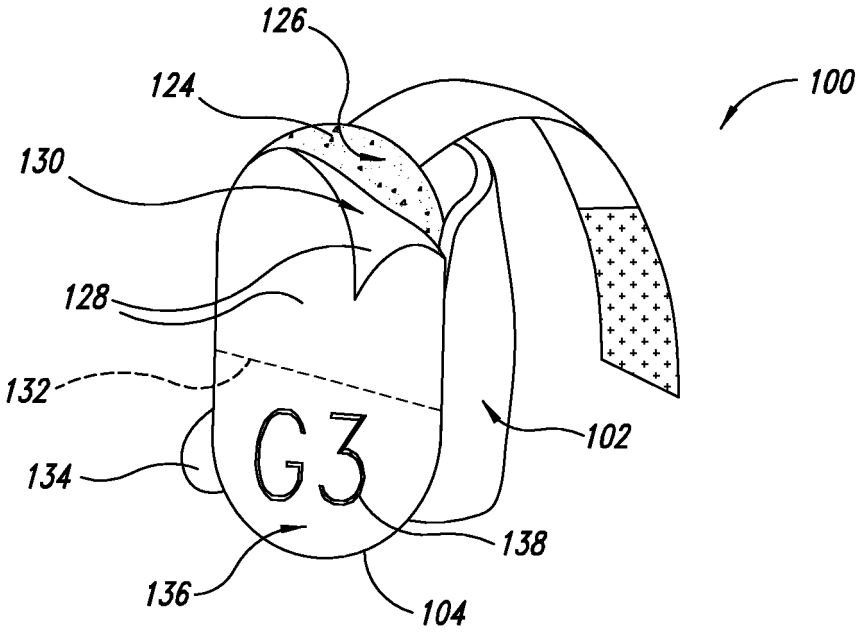

FIG. 2

EP 1 869 997 A2

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims benefit under 35 U.S.C. § 119(e) of U.S. Provisional Patent Application No. 60/805,555 filed June 22, 2006.

BACKGROUND

Field

[0002] This disclosure generally relates to storage and/or transport of handheld form factor items, for example, items such as handheld and/or mobile wireless communications devices, MP3 players, personal digital assistants, and the like.

Description of the Related Art

[0003] Handheld form factor or mobile communications devices and/or items are becoming ubiquitous. Examples of such items include cellular telephones and/or personal digital assistants (PDAs), for example devices sold under the marks BLACKBERRY®, PALM PILOT®, TREO®, and/or IPAQ®. In addition, handheld form factor devices further may include compact video games such as the GAMEBOY®, music players such as the IPOD®, and video players such as the video IPOD® and compact DVD players.

[0004] Since one advantage of handheld form factor items is that they are portable, other complementary apparatus that are becoming customary are holding or carrying cases, pouches, receptacles, bags, holsters, and other devices for storing and/or transporting handheld form factor items. Typically these carrying apparatus are either permanently integrated with an article, such as being stitched on a bag or a garment, or they are temporarily coupled thereto by hook and loop fasteners such as VELCRO®, clips, hooks, strings, shoulder straps and/or buckles. Some carrying apparatus incorporate multiple pieces, such as a base coupled to clothing by locking a portion of the clothing between a tongue member and a wall member, the wall member being adapted to couple to a box container via a suitable attachment or coupling means. One such carrying device is described in U.S. Patent Number 4,128,194, to Hinz.

[0005] However, drawbacks of conventional carrying apparatus have led to many users carrying their handheld form factor items in their pockets or in their hands. Furthermore, most of these carrying apparatuses are not individually adapted to couple to or attach to a variety of articles, for example, an interior of a vehicle, clothing or other garments, kitchen cabinets, refrigerator surfaces, other surfaces, bags, belts, backpacks, and/or any combination thereof and/or any other suitable article to which a user may want to temporarily attach a handheld form factor item for storage and/or transport.

[0006] In addition, conventional carrying apparatuses typically include multiple parts and/or complicated coupling mechanisms. For example, bicep carrying devices use mechanisms similar to a belt buckle, requiring time to mount on the bicep of the user. Additionally, they typically are not comfortable, limiting the user's range of arm motion. These carrying apparatus are also limited to wrapping around a cylindrical target, such as the user's arm or leg. Other conventional carrying apparatus may include hook and loop fasteners, again requiring time and effort to mount onto the article and prone to be accidentally dislodged and/or detached by the slightest interference with other objects such as a wall. Clips and hooks, on the other hand, are not adapted to attach to a surface, such as a garment and/or an interior of a car. Yet other carrying apparatus that have a separate base piece for locking a portion of the article and receiving the carrier, such as that in Hinz, are not adapted to directly and easily secure onto a surface, especially a curvilinear surface. Furthermore, carrying apparatus such as those in Hinz are difficult, expensive and time-consuming to manufacture.

[0007] Accordingly, there is a need for a carrying apparatus that holds handheld form factor items, such as handheld electronics, and which is securable to most articles and is easily removable, and that is inexpensive, easy to manufacture, and that accommodates a variety of handheld form factor items.

BRIEF SUMMARY

[0008] According to one embodiment, an apparatus for hands-free holding of handheld form factor items includes a receptacle comprising a receiving portion and a substrate having a first surface and a second surface, opposed to the first surface, the first surface of the substrate coupled to the receiving portion to form a cavity therebetween open proximate at least one end of the cavity, the cavity sized and dimensioned to at least partially receive a handheld form factor item and retain the handheld form factor item in at least a portion of the receptacle, and an adhesive layer disposed on at least a portion of the second surface of the substrate, to allow a user to removably adhere the apparatus to a first article at a first time, and to removably adhere the apparatus to a second article at a second time, after removal from the first article.

[0009] According to another embodiment, an apparatus for hands-free holding of handheld form factor items includes a substrate having a first surface and a second surface opposed to the first surface, a retaining mechanism comprising a first strap and a second strap, the first and the second straps coupled to the first surface of the substrate and selectively fastenable to retain the handheld form factor item, and an adhesive layer disposed on at least a portion of the second surface of the substrate to allow a user to removably adhere the apparatus to a first article at a first time, and to a second article at a

second time, after removal from the first article.

[0010] According to yet another embodiment, a method of making an attachable apparatus for hands-free holding of handheld form factor items includes disposing an adhesive layer on a first surface of a substrate, adapting the substrate to removably adhere to an article, forming a receptacle on at least a portion of a second surface of the substrate, and sizing the receptacle to receive the handheld form factor item.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0011] In the drawings, identical reference numbers identify similar elements or acts. The sizes and relative positions of elements in the drawings are not necessarily drawn to scale. For example, the shapes of various elements and angles are not drawn to scale, and some of these elements are arbitrarily enlarged and positioned to improve drawing legibility. Further, the particular shapes of the elements as drawn, are not intended to convey any information regarding the actual shape of the particular elements, and have been solely selected for ease of recognition in the drawings.

Figure 1 is an isometric view of an attachable apparatus for hands-free holding of handheld form factor items according to one embodiment.

Figure 2 is another isometric view of the attachable apparatus for hands-free holding of handheld form factor items of Figure 1.

Figure 3 is a front cutaway view of an attachable apparatus for hands-free holding of handheld form factor items and an isometric view of an auxiliary retaining mechanism according to another embodiment.

Figure 4 is an isometric view of an attachable apparatus for hands-free holding of handheld form factor items according to yet another embodiment.

Figure 5 is an isometric view of an attachable apparatus for hands-free holding of handheld form factor items according to still another embodiment.

Figure 6 is an isometric view of an attachable apparatus for hands-free holding of handheld form factor items according to another embodiment.

Figure 7 is an isometric view of a portion of an attachable apparatus for hands-free holding of handheld form factor items according to yet another embodiment.

Figure 8A is an isometric view of a portion of an attachable apparatus for hands-free holding of handheld form factor items according to still another embodiment.

Figure 8B is a cross-sectional view of the attachable apparatus for hands-free holding of handheld form factor items of Figure 8A, viewed across section 8B-8B according to one aspect.

Figure 8C is a cross-sectional view of the attachable apparatus for hands-free holding of handheld form factor items of Figure 8A, viewed across section 8C-8C according to another aspect.

Figure 9 is an isometric view of an attachable apparatus for hands-free holding of handheld form factor items according to another embodiment.

Figure 10 is a front view of an attachable apparatus for hands-free holding of handheld form factor items according to one embodiment adhered to a first article.

Figure 11 is a front view of the attachable apparatus for hands-free holding of handheld form factor items of Figure 10 adhered to a second article after removal from the first article.

DETAILED DESCRIPTION

[0012] Reference throughout this specification to "one embodiment" or "an embodiment" means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the disclosed methods and structures. Thus, the appearances of the phrases "in one embodiment" or "in an embodiment" in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more embodiments.

[0013] Unless the context requires otherwise, throughout the specification and claims which follow, the word "comprise" and variations thereof, such as, "comprises" and "comprising" are to be construed in an open, inclusive sense, that is as "including, but not limited to."

[0014] The Abstract of the Disclosure provided herein are for convenience only and do not interpret the scope or meaning of the claims.

[0015] Figure 1 illustrates one embodiment, in which an attachable apparatus 100 for hands-free holding of handheld form factor items comprises a receptacle 102 and a substrate 104. The receptacle 102 comprises a receiving portion 106. The substrate 104 comprises a first surface 125 and a second surface 126, opposing the first surface 125. The first surface 125 couples to the receiving portion 106 to form a cavity 111 therebetween. The cavity 111 is sized and/or dimensioned to at least partially receive a handheld form factor item and open proximate at least one end 110 to receive at least a portion of the handheld form factor item. Examples of handheld form factor items may include, but are not limited to, cellular telephones and/or personal digital assistants (PDAs), for example devices sold under the marks BLACKBERRY®, PALM PILOT®, TREO®, and/or IPAQ®, and/or other handheld form factor items such as videogames, for example, GAMEBOY®, music players such as the IPOD®, and video players such as the video IPOD® and compact DVD players.

[0016] In one embodiment, the receptacle 102 may comprise a cover 112 fixed at one portion to the first sur-

face 125 of the substrate 104 and selectively coupleable at another portion to the first surface 125 of the substrate 104, forming an at least partially bounded volume, such as for example a cylindrical holster. In one embodiment, the receptacle 102 can be fabricated from an elastic material configured to securely retain the handheld form factor item. For example, at least a portion of the receptacle 102 can be fabricated from chlorosulfonated polyethylene such as HYPALON®, or polychloroprene products such as NEOPRENE®, or other synthetic or natural rubbers, or other material that is resilient or configured to expand to receive the handheld form factor item and exert a pressure on the item for securely retaining the item in the receptacle 102.

[0017] In some embodiments, the apparatus 100 may comprise an optional retaining mechanism 108 which can include a variety of features to assist in retaining the handheld form factor item in the receptacle 102. For example, the retaining mechanism 108 may comprise a first elongated band 114 comprising at least one structure or compound for removably affixing the first elongated band 114 onto a first portion of the attachable apparatus 100 toward a first end of the first elongated band 114 and at least one structure or compound for removably affixing the first elongated band 114 onto a second portion of the attachable apparatus 100 toward a second end of the first elongated band 114, to assist in preventing the handheld form factor item from slipping through the receptacle 102. The first elongated band 114 may be secured toward the first and the second ends of the first elongated band 114, to any two portions of the attachable apparatus 100. For example, the first end can be attached to the substrate 104 and the second end can be removably or fixedly attached to the cover 112.

[0018] The attachable apparatus 100 and/or the retaining mechanism 108 may comprise additional auxiliary retaining mechanisms such as, for example a second elongated band 116. The second elongated band 116 may be at least partially, or completely, removable and/or adjustable in size or length. For example, in one embodiment, the second elongated band 116 may comprise at least one mating portion 118 that mates and/or engages a portion of the attachable apparatus 100, for example a complementary mating portion 120 on the cover 112. For example, the mating portion 118 can comprise a plurality of hooks and the complementary mating portion 120 can comprise a plurality of loops, the mating portion 118 and complementary mating portion 120 removably engaging one another when a user overlaps the mating portions 118, 120, exerting slight pressure to lock the hooks in the loops. An example of hook and loop fastening devices are those sold under the brand name VELCRO®.

[0019] During use, the user inserts the handheld form factor item in the receptacle 102 of the attachable apparatus 100 and for embodiments in which the attachable apparatus 100 comprises the second elongated band 116, the user may extend the second elongated band 116 about at least a portion of the handheld form factor item and engage the mating portion 118 to the complementary mating portion 120 to further secure the handheld form factor item in the receptacle 102.

[0020] The attachable apparatus 100 may also comprise an optional gripping member 122, such as a buckle, a loop, or any other feature that the user may grip, grasp, hold, and/or pull to manipulate the attachable apparatus 100, for example, to carry the device, raise the cover 112 to easily remove the handheld form factor item from the receptacle 102, hang the attachable apparatus 100, or otherwise manipulate the attachable apparatus 100. The gripping member 122 may be mounted anywhere on the attachable apparatus 100, for example, on the cover 112, other portions of the retaining mechanism 108, the receptacle 102, the substrate 104, and/or the first and the second elongated bands 114, 116.

[0021] The receptacle 102 and the substrate 104 may comprise any material capable of retaining a shape and supporting a weight of the handheld form factor items such as cellular telephones and/or personal digital assistants (PDAs), for example devices sold under the marks BLACKBERRY®, PALM PILOT®, TREO®, and/or IPAQ®, and/or other handheld form factor items such as videogames, for example, GAMEBOY®, music players such as the IPOD®, and video players such as the video IPOD® and compact DVD players. For example, the receptacle 102 and substrate 104 may comprise hard or soft plastics, foams, silicone, polyurethane products, cloth and/or fabrics such as cotton, nylon or nylon products, natural and/or synthetic rubbers such as NEOPRENE®, HYPALON®, or SPANDEX®, composites such as carbon fiber, or any other suitable material. In more industrial applications, at least some portions, such as the cover 112 can comprise metals, composites, or even woods. Additionally, or alternatively, any portion of the attachable apparatus 100 may comprise a material to give that portion a specific shape. For example, the substrate 104 may comprise a substantially rigid or semi rigid material, such as cardboard, composites, natural and/or synthetic rubbers, and/or wood products or thin metals encapsulated in fabric to maintain a rigid shape or be selectively malleable. Additionally, or alternatively, the receptacle 102 and the substrate 104 may be formed from a unitary body of material.

[0022] The optional and/or auxiliary retaining mechanisms such as for example the first and the second elongated bands 114, 116 may comprise any material capable of deforming, flexing and/or stretching to conform to a shape of at least a portion of the handheld form factor item and provide additional support to retain the handheld form factor item when secured to a portion of the attachable apparatus 100. For example, the first and the second elongated bands 114, 116 may comprise cloth or fabrics, nylons, plastics, composites, natural and/or synthetic rubbers such as NEOPRENE®, HYPALON®, or SPANDEX®, other elastic materials, or any other material capable of conforming to a shape of at least a portion of the handheld form factor item to retain the item in the

receptacle 102.

[0023] Figure 2 illustrates another view of the attachable apparatus 100 for hands-free holding of handheld form factor items, illustrating the second surface 126 of the substrate 104. The substrate 104 may carry an adhesive layer 124 disposed on at least a portion of the second surface 126 of the substrate 104. The substrate 104 may also optionally carry a selectively removable release liner 128 covering at least a portion of the adhesive layer 124 prior to adhering the attachable apparatus 100 to a surface of an article, such as clothing or other garment, a vehicle interior, an interior and/or exterior of a purse, of a backpack, of a luggage, of a tent, and/or any combination thereof or any other article, surface, object and/or structure to which one may desire to removably couple the attachable apparatus 100 carrying the handheld form factor item or items, such as, for example, to kitchen cabinets, refrigerator surfaces, a wall, and/or other surfaces.

[0024] When the user is ready to couple the attachable apparatus 100 to the article, the user may selectively remove the release liner 128, for example by peeling or otherwise removing the release liner 128 from the adhesive layer 124. The release liner 128 may comprise of at least one glossy surface 130 adapted to easily peel from the adhesive layer 124, leaving substantially the entire adhesive layer 124 on the second surface 126 of the substrate 104. The release liner 128 may be repositionable over the adhesive layer 124 when the apparatus is not in use.

[0025] The release liner 128 may comprise at least one optional first structural feature 132 for facilitating removal of the release liner 128. For example, the first structural feature 132 may comprise features such as perforations, spaced incisions, a plurality of cuts, intermittent slits, any combination thereof, and/or any other partial, intermittent or total breach, fold, severance, and/or discontinuity that may facilitate the removal of the release liner 128. In some embodiments, the first structural feature 132 may comprise an extended tear or cut through a portion of the release liner 128. In other embodiments, the first structural feature 132 may comprise a breach of the release liner 128 extending from toward one edge to toward another edge of the release liner 128. In yet other embodiments the release liner 128 may comprise a second structural feature 134 for facilitating removal of the release liner 128 to expose the adhesive layer 124. For example, the second structural feature 134 may take the form of at least one tab extending beyond a periphery of the release liner 128. The user may manipulate the second structural feature 134, for example pull on the tab, to easily peel the release liner 128 and expose the adhesive layer 124.

[0026] In the illustrated embodiment of Figure 2, the first structural feature 132 is illustrated as a perforation line that is linear; however, the first structural feature 132 may take any shape, such as, but not limited to, a curvilinear shape. The first structural feature 132 may be in a form of a closed shape, such as a circle or an ellipse. The first structural feature 132 may be formed by various methods comprising scoring, punching, perforating, cutting and/or any other method that forms the first structural feature 132 to facilitate the removal of the release liner 128. The first structural feature 132 may also comprise more than one set of perforations, spaced incisions, a plurality of cuts, intermittent slits, any combination thereof, and/or any other partial, intermittent or total breach, fold, severance, and/or discontinuity that may facilitate the removal of the release liner 128. In such embodiments, the sets of first structural features 132 may intersect at a substantially right angle, be parallel and offset, or they may intersect at an angle different from a right angle.

[0027] As discussed above, the release liner 128 may be re-positioned on the adhesive layer after use or after a period of use, when the attachable apparatus 100 is removed from the article, to cover and protect the adhesive layer 124 until future use. Additionally, or alternatively, the adhesive layer 124 may be reapplied after use or a period of use to refresh or strengthen the adhesive layer 124 for future use.

[0028] The release liner 128 may comprise any material such that the surface 130 of the release liners 128, facing the adhesive layer 124, will adhere to the adhesive layer 124 but can be easily removed to expose at least a portion of the adhesive layer 124. In some embodiments, at least one surface 136 of the release liner 128, can carry indicia 138, for example, be printed on. Such indicia may comprise advertisements, trademarks and/or logos, and/or warnings or notices. Suitable materials for the release liner 128 include paper that is silicon impregnated on at least one of the surfaces 130, 136. When silicon impregnated paper is used, the concentration of silicon on the at least one of the surfaces 130, 136 of the release liner 128 may be such that a substantial portion of the adhesive layer 126 will not remain adhered to the release liner 128 when removed.

[0029] The adhesive layer 124 can comprise any suitable adhesive, for example, a reinforced acrylic adhesive or a pressure and/or temperature sensitive adhesive. In some embodiments, the adhesive can be non-toxic. Some adhesives, such as reinforced acrylic adhesive, may benefit from application of heat to set the adhesive after the attachable apparatus 100 is affixed to the article, such as, but not limited to, clothing, luggage, vehicle interior and exterior surfaces, purses, refrigerator surfaces, gifts, mirrors, and/or any other article and/or any surface of the article, upon which it is desirable to affix the attachable apparatus 100 for hands-free holding of handheld form factor items. In the case of affixing the attachable apparatus 100 to gifts, a card or a fringe gift may be placed inside the receptacle 102.

[0030] The adhesive layer 124 may comprise a dissolvable adhesive, which would facilitate easy cleaning of the article, such as, but not limited to, clothing, luggage, walls, computer monitors, vehicle surfaces, purses, re-

frigerators, clothing, other garments, bags and/or any other article and/or any surface thereof, upon which it is desirable to affix the attachable apparatus 100. For example, reinforced acrylic adhesive dissolves when exposed to dry-cleaning fluid and other solvents, such as WD-40®. Hence, any adhesive remaining after use and/or after a period of use on the article and/or on the attachable apparatus 100 may be removed by, for example, dry-cleaning the article or the attachable apparatus 100 and/or by exposing the article or the attachable apparatus 100 to a solvent. In addition, or instead, a thermoplastic, if used in the adhesive layer 124, can be reheated to further facilitate removal of the attachable apparatus 100 and/or any adhesive residue from the article.

[0031] Therefore, the attachable apparatus 100 can removably couple to the article and be reused after removal. For example the attachable apparatus 100 may be selectively removed from the article for storage, mounting onto a second article, or for future use. Therefore, the attachable apparatus 100 may removably adhere to a first article at a first time and to a second article at a second time after removal from the first article, as discussed further below in conjunction with Figures 10 and 11.

[0032] As demonstrated, the attachable apparatus 100 does not suffer from the drawbacks of conventional carrying or holding apparatus, which are limited in functionality or with respect to the type of articles to which they may attach. For example, clips and hooks are limited to attaching to pockets and belts. Shoulder straps and other straps are limited to circumscribing an article such as a bicep, an ankle, a wrist, poles, and other cylindrical articles. Hook and loop fasteners only attach to surfaces that have the complementing hook or loop portion. In contrast the attachable apparatus 100 comprising the adhesive layer 124 on the second surface 126 of the substrate 104 can retain the handheld form factor item in the receptacle 102 while coupling to substantially any article, such as for example, any surface, object, body part, interior, or exterior of an article. For example, the attachable apparatus 100 can removably couple to a belt, any surface, clothing, bags, purses, vehicle interiors, a wall, or any other object to which attaching the attachable apparatus 100 is desirable to store and/or transport a handheld form factor item.

[0033] Figure 3 illustrates another embodiment, in which an attachable apparatus 200 for hands-free holding of handheld form factor items comprises a removable auxiliary retaining mechanism 216, such as a removable elongated band 216. In this embodiment, the attachable apparatus 200 comprises a substrate 204 and a receptacle 202, which is cut away in Figure 3 along a broken line 203 to illustrate an attachment portion adapted to removably engage the removable elongated band 216 toward one end of the removable elongated band 216. The removable elongated band 216 comprises a structure or a compound for being removably coupled to at least two portions of the attachable apparatus 200 to retain a handheld form factor item in the receptacle 202. For example, the removable elongated band 216 may comprise a first plurality of hooks 217 positioned toward a first end of the removable elongated band 216, and a second plurality of hooks 218 positioned toward a second end of the removable elongated band 216, opposing the first end. In some embodiments the first and the second plurality of hooks 217, 218 may be respectively disposed on opposing surfaces 238, 240 of the removable elongated band 216. The first plurality of hooks 217 may be removably engaged to a first plurality of loops 242 disposed on the substrate 204. The second plurality of hooks 218 may be removably engaged to a second plurality of loops 220 (Figure 4) to retain a handheld form factor item 243 (Figure 4), such as a cell phone, in the receptacle 202. At least a portion of a surface 226 of the substrate 204 comprises an adhesive layer 224 and an optional release liner 228 similar to the release liner 128 described above in conjunction with the illustrated embodiment of Figure 2. When the release liner 228 is removed, the attachable apparatus 200 may be removably adhered to an article 244 (Figure 4), similar to the articles described herein in conjunction with other embodiments.

[0034] Additionally, or alternatively, a user may adjust a position of the first plurality of hooks 217 on the first plurality of loops 242 to vary a length of a portion of the elongated band 216 that extends about the article 244, for example, to securely retain handheld form factor items 243 of various sizes, for example handheld form factor items 243 having distinct lengths. Therefore, the auxiliary retaining mechanism 216 may assist in retaining handheld form factor items 243 of different sizes in the same receptacle 202.

[0035] Those of ordinary skill in the art will appreciate that the receptacles 102, 202 and/or the auxiliary retaining mechanisms 116, 216 can take any other form in other embodiments. For example, Figure 5 illustrates another embodiment, in which an attachable apparatus 300 for hands-free holding of handheld form factor items comprises a receptacle 302 and a substrate 304 formed from a unitary body of material. The receptacle 302 may comprise bounded sides around a periphery 309 thereof, except for a portion, for example a receiving portion 306 of the receptacle 302. Since the periphery 309 is substantially bounded except for the receiving portion 306, an auxiliary retaining mechanism to support a bottom portion of a handheld form factor item can be eliminated in this embodiment or embodiments similar thereto. At least a portion of the receptacle 302 or the periphery 309 may be fabricated from a material comprising cloths or fabrics, nylons, plastics, composites, natural and/or synthetic rubbers such as NEOPRENE®, HYPALON®, or SPANDEX®, other elastic materials, or any other material capable of conforming to a shape of at least a portion of the handheld form factor item to retain the item in the receptacle 302.

[0036] Furthermore, the attachable apparatus 300 may comprise an auxiliary retaining mechanism 316,

such as an elongated band 316, comprising a first coupling member 319, such as a buckle. The elongated band 316 can be configured to extend about a portion of the handheld form factor item that positions toward the receiving portion 306 when in use, the coupling member 319 coupling to and/or engaging a second coupling member 320, such as a buckle locker, on a different portion of the attachable apparatus 300, such as on the receptacle 302. Male members 321 on the first coupling member 319 may briefly deform as they travel passed a receiving opening formed toward an end of the second coupling member 320, and snap back to their original position to lock into openings, locking members or female members 323 of the second coupling member 320. Therefore, at least a portion of the first coupling member 320 may be fabricated from a resilient material, such as a material comprising plastics, silicone, thin or resilient metals, composites, or any other material capable of temporarily deforming and subsequently resuming its originally formed shape. At least a portion, or all of, a surface of the substrate 304 comprises an adhesive layer 324 similar to the substrates 104, 204 described above in conjunction with other embodiments.

[0037] Figure 6, illustrates still another embodiment, in which an attachable apparatus 400 for hands-free holding of handheld form factor items comprises a substrate 404 and a receptacle 402 comprising a surface 405 configured to remain a distance from the substrate 404. For example, the attachable apparatus 400 may comprise ribs or bands 446 coupling the surface 405 of the receptacle 402 to the substrate 404 and forming a cavity 411 therebetween. The bands 446 can be spaced such that an auxiliary retaining mechanism supporting a bottom of a handheld form factor item in the receptacle 402 can be eliminated.

[0038] In some embodiments, the ribs or bands 446 may comprise an elastic or resilient material, such as silicone, plastic, or synthetic and/or natural rubbers such as NEOPRENE®, HYPALON®, or SPANDEX®, so that a distance between the surface 405 and the substrate 404 can elastically adjust to a thickness of a variety of handheld form factor items respectively having different thicknesses.

[0039] As depicted in Figure 6, in some embodiments, an auxiliary retaining mechanism 416 supporting a top portion of the handheld form factor item, can comprise another belt configuration comprising an elongated band having apertures 448, which engage a pin 450 of buckle 452 affixed to the receptacle 402 to assist in retaining at least a portion of the handheld form factor item in the receptacle 402, such as a portion of the handheld form factor item that positions toward a receiving portion 406 of the receptacle 402 when the attachable apparatus 400 is in use. At least a portion, or all of, a surface of the substrate 404 comprises an adhesive layer 424 similar to the substrates 104, 204, 304 described above in conjunction with other embodiments.

[0040] In a further embodiment illustrated in Figure 7, an attachable apparatus 500 for hands-free holding of handheld form factor items may comprise a receptacle 502, which in turn comprises a receiving portion 506. The receiving portion 506 may be selectively bounded after receiving a handheld form factor item for storage and/or transport. For example, the receiving portion 506 may comprise a zipper 516 that closes the receiving portion 506, securely retaining at least a portion of the handheld form factor item in the receptacle 502. Those of ordinary skill in the art will appreciate that a structure or compound for sealing the receiving portion 506 may comprise any suitable closure mechanism such as, but not limited to, hook and loop fasteners, snap-on buttons, removable adhesives, a male/female slidable enclosure such as those used to seal ZIPLOC® bags, any combination thereof, or any other suitable closure mechanism, device, structure or feature. At least a portion, or all of, a surface of a substrate 504 of the attachable apparatus 500 comprises an adhesive layer 524 similar to the substrates 104, 204, 304, 404 described above in conjunction with other embodiments.

[0041] In yet a further embodiment illustrated in Figure 8A, an attachable apparatus 600 for hands-free holding of handheld form factor items may comprise a substrate 604 having more than one distinct layer, other than an adhesive layer 624 (Figures 8B and 8C) carried on one side of the substrate 604. For example, as shown in Figure 8B, the substrate 604 may comprise two distinct layers, for example, a first layer 654 and a second layer 656, fabricated from the same or different material. The first and the second layers 654, 656 may be fabricated from any suitable material, such as for example, hard or soft plastics, foams, silicone, polyurethane products, cloth and/or fabrics such as cotton, nylon or nylon products, natural and/or synthetic rubbers, malleable metals, foils or films, composites such as carbon fiber, any combination thereof, or any other suitable material. The first layer 654 may attach to the second layer 656 via any suitable attachment structure or compound.

[0042] For example, the first layer 654 may attach to the second layer 656 around at least a portion of a periphery of the substrate 604 offset away from the periphery of the substrate 604 toward a center of the substrate 604. For example a mating surface of the first and second layers 654, 656 may comprise complementary hook and loop fasteners, stitching, adhesive, or any other suitable attachment means.

[0043] In the illustrated embodiment of Figure 8B, the attachment structure includes a stitching 662 coupling or attaching the first and second layers 654, 656 away from the periphery of the substrate 604. Accordingly, forces and/or stresses induced by accidental impacts or a pulling force on the apparatus 600, will be transferred toward the attachment, for example toward the stitching 662. Since such a force or stress is diverted from the periphery of the substrate 604, the attachment means, such as the stitching 662 prevents edges of the substrate 604 and/or the adhesive layer 624 from peeling or otherwise dislodg-

ing or being removed from an article to which the attachable apparatus 600 is adhered.

[0044] In one embodiment, an attachable apparatus 600 may further comprise an optional border member 658, such as for example, a piping, coupling one of the first or the second layer 654, 656 to the other of the first or the second layer 654, 656, and/or to a cover 612 (Figure 8A) of receptacle 602 of the attachable apparatus 600. The border member 658 may extend from at least a portion of the first layer 654, toward a periphery of the first layer 654, to at least a portion of the second layer 656, toward a periphery of the second layer 656, wrapping around the periphery of the substrate 604 and captively receiving the first and the second layers 654, 656 about at least a portion of the periphery thereof, as shown in Figure 8B. Accordingly, the first layer 654, the second layer 656, and in some embodiments, the adhesive layer 624, can be interposed between portions 660 of the border member 658.

[0045] Any suitable attachment means may secure the first and second layers 654, 656 and the portions 660 of the border member 658, such as, adhesives, hook and loop fasteners, stitching, or any other suitable attachment means. In the illustrated embodiment of Figure 8B, the stitching 662 extends through portions 660 of the border member 658, the first layer 654, the second layer 656 and in some embodiments, the adhesive layer 624. As one of ordinary skill in art will appreciate, since a region at which the first and the second layers 654, 656 attaches to the border member 658 is offset from the periphery of the apparatus 600 and/or the substrate 604, forces and/or stresses induced by accidental impacts or a pulling force on the apparatus 600, will be transferred toward the attachment, for example toward the stitching 662. Accordingly, such forces and/or stresses, which may otherwise adversely cause an edge of the apparatus 600 to peel away or otherwise dislodge from an article to which the apparatus 600 is adhered, will be directed away from the periphery to prevent inadvertent peeling or dislodging of the attachable apparatus 600.

[0046] As shown in Figure 8A and 8C, in some embodiments, the first layer 654 can be coupled to the receptacle 602 and the second layer 656 may carry the adhesive layer 624 on at least a portion of a surface thereof, opposing the first layer 654. Further, a first stitching 664 may secure the first layer 654 to the border member 658 while a second stitching 666 secures the second layer 656 to the border member 658. For example, the first stitching 664 may be more offset from the periphery than the second stitching 666. Accordingly, an unintended or accidental force on the apparatus 600, the receptacle 602 and/or the substrate 604 will induce a load on the first layer 654 that is transferred through the first stitching 664, which is more offset from the periphery than the second stitching 666 and even less likely to affect a removal of any portion of the adhesive layer 624 from the article to which the apparatus 600 is adhered.

[0047] One of ordinary skill in the art having read this disclosure will appreciate that an attachable apparatus for hands-free holding of handheld form factor items need not include all the features described herein, or may include additional features. For example, in some embodiments the receptacle may be formed by the retaining mechanism and the cover of the receptacle may be eliminated.

[0048] In one embodiment illustrated in Figure 9, an attachable apparatus 700 for hands-free holding of handheld form factor items may comprise a substrate 704 and a retaining mechanism 708, which comprises a first strap 714 and a second strap 716, that intersect at a substantially right angle or at an angle different from a right angle. At least one of the first or second straps 714, 716 may be selectively detachable at one end and have an attachment structure or compound 718 that is positioned toward the at least one end. The first and/or the second straps 714, 716 can be fabricated from cloths or fabrics, nylons, plastics, composites, natural and/or synthetic rubbers such as NEOPRENE®, HYPALON®, or SPANDEX®, other elastic materials, or any other material capable of conforming to a shape of at least a portion of the handheld form factor item to securely retain the item. This attachment may operate substantially similar to attachments described above in conjunction with Figure 1, and the elongated band 116 and the mating portion 118.

[0049] Accordingly, at least one of the straps 714, 716 can be adjustable in length based on a positioning of the corresponding first or second band 714, 716 with respect to the attachment structure or compound 718, to suit securing hand held form factor items of various sizes. It is understood that the attachment and/or adjustment structure or compound 718 can comprise any of the attachment and/or adjustment methods, components, structures (e.g., hook and loop fasteners), or compounds (e.g., adhesives), discussed herein in conjunction with any of the embodiments.

[0050] Furthermore, the first and the second straps 714, 716 may or may not attach to one another toward a region 768 proximate to which they intersect. This attachment may also be selectively attachable incorporating at least one of the attachment structures or compounds described herein in conjunction with any of the embodiments.

[0051] Figures 10 and 11 are provided to demonstrate two example articles with the same attachable apparatus 100 of Figure 1 attached thereto at a first time and a second time, respectively. In Figure 10, the attachable apparatus 100 is attached to a T-shirt at the first time. When the user decides, for example, to store or transport the content of the attachable apparatus on a different article, the user can remove the attachable apparatus 100 with the contents and attach them to another article, for example, a back pack, as shown in Figure 11. Therefore, the attachable apparatus 100 can removably couple to one article at the first time and be selectively removed from the article for mounting onto the second article at the second time, after removal from the first article.

[0052] Although use of the attachable apparatus 100, 200, 300, 400, 500, 600, 700 for hands-free holding of handheld form factor items has been described primarily for use with handheld form factor items, such as handheld devices and/or electronics, those of skill in the art will appreciate that the attachable apparatus 100, 200, 300, 400, 500, 600, 700 can also be use to store and/or transport any handheld form factor item that may fit in the receptacle 102, 202, 302, 402, 502, 602 and/or the straps 714, 716. These items may include, but are not limited to, eyeglasses, MP3 players, cameras, handheld form factor radios, cigarette packs, personal items such as a wallet or contents thereof, and/or makeup accessories, GPS instruments and/or any other handheld form factor item.

[0053] The various embodiments described above can be combined to provide further embodiments. All of the U.S. patents, U.S. patent application publications, U.S. patent applications, foreign patents, foreign patent applications and non-patent publications referred to in this specification and/or listed in the Application Data Sheet, including but not limited to U.S. Provisional Patent Application No. 60/805,555 filed June 22, 2006, are incorporated herein by reference, in their entirety. Aspects of the embodiments can be modified, if necessary to employ concepts of the various patents, applications and publications to provide yet further embodiments.

[0054] These and other changes can be made to the embodiments in light of the above-detailed description. In general, in the following claims, the terms used should not be construed to limit the claims to the specific embodiments disclosed in the specification and the claims, but should be construed to include all possible embodiments along with the full scope of equivalents to which such claims are entitled. Accordingly, the claims are not limited by the disclosure.

Claims

1. An apparatus for hands-free holding of handheld form factor items, the apparatus comprising:

a receptacle comprising a receiving portion and a substrate having a first surface and a second surface, opposed to the first surface, the first surface of the substrate coupled to the receiving portion to form a cavity therebetween open proximate at least one end of the cavity, the cavity sized and dimensioned to at least partially receive a handheld form factor item and retain the handheld form factor item in at least a portion of the receptacle; and

an adhesive layer disposed on at least a portion of the second surface of the substrate, to allow a user to removably adhere the apparatus to a first article at a first time, and to removably adhere the apparatus to a second article at a second time, after removal from the first article.

2. The apparatus of claim 1 wherein the receptacle comprises a cover fixed at one portion to the first surface of the substrate and selectively coupleable at another portion to the first surface of the substrate.

3. The apparatus of claim 1, further comprising:

at least one retaining mechanism adapted to assist in retaining the handheld form factor item in the cavity of the receptacle, the retaining mechanism being at least partially detachable from the apparatus and adjustable to secure handheld form factor items of various sizes.

4. The apparatus of claim 3 wherein the retaining mechanism comprises at least one elongated band and means for removably affixing the band onto a first portion of the apparatus toward a first end of the band and means for removably affixing the band onto a second portion of the apparatus toward a second end of the band, the band extending from the first portion of the apparatus to the second portion of the apparatus to assist in retaining the handheld form factor item in the cavity of the receptacle.

5. The apparatus of claim 4 wherein the means for removably securing the band comprises hook and loop fasteners.

6. The apparatus of claim 4 wherein the means for removably securing the band comprises a buckle.

7. The apparatus of claim 1 wherein the adhesive layer comprises a reinforced acrylic adhesive.

8. The apparatus of claim 1 wherein the adhesive layer comprises at least one of a heat-sensitive adhesive or a pressure-sensitive adhesive.

9. The apparatus of claim 1, further comprising:

a release liner covering at least a portion of the adhesive layer prior to use, the release liner selectively removable to expose the adhesive layer for use and repositionable over the adhesive layer when not in use.

10. The apparatus of claim 9 wherein the release liner comprises silicon-coated polypropylene

11. The apparatus of claim 9 wherein the release liner comprises an at least partially glossy surface and at least one surface adapted to carry indicia.

12. The apparatus of claim 9 wherein the release liner comprises means for facilitating removal of the re-

lease liner to expose the adhesive layer.

13. The apparatus of claim 12 wherein the means for facilitating removal of the release liner comprises at least one structural feature extending across at least a portion of a surface of the release liner and through at least a portion of a thickness of the release liner.

14. The apparatus of claim 12 wherein the means for facilitating removal of the release liner comprises at least one tab extending beyond a periphery of the release liner.

15. The apparatus of claim 1 wherein the adhesive layer comprises an adhesive that can be dissolved by a solvent.

16. The apparatus of claim 1, further comprising:

a gripping member coupled to the receptacle and configured to allow the user to selectively manipulate at least a portion of the apparatus.

17. The apparatus of claim 16 wherein the gripping member is a ring.

18. The apparatus of claim 1 wherein the substrate further comprises:

a first layer having a first surface and a second surface, opposed to the first surface, the first surface at least partially forming the first surface of the substrate and coupled to the receiving portion to form the cavity therebetween;
a second layer having a first surface adjacent the first surface of the first layer and a second surface, opposed to the first surface, the second surface at least partially forming the second surface of the substrate, the adhesive layer disposed on at least a portion of the second surface; and
means for attaching the first layer to the second layer toward a periphery of the first and the second layers, directing transfer of loads induced by an inadvertent force away from the periphery toward the means for attaching.

19. The apparatus of claim 18 wherein the means for attaching the first layer and the second layer to the border member comprises at least one stitching.

20. The apparatus of claim 19, further comprising:

a border member extending from at least a portion of the first surface of the first layer toward the periphery of the first layer to at least a portion of the second surface of the second layer toward the periphery of the second layer to captively receive the first and second layers around at least a portion of a periphery of the substrate.

21. The apparatus of claim 19 wherein the means for attaching the first layer and the second layer to the border member comprises at least a first stitching attaching the first layer to the border member and at least a second stitching attaching the second layer to the border member, the second stitching being positioned between the first stitching and the periphery of the substrate.

22. The apparatus of claim 1 wherein the receptacle is fabricated from an elastic material.

23. The apparatus of claim 22 wherein the elastic material comprises at least one of NEOPRENE®, HYPALON®, or SPANDEX®.

24. An apparatus for hands-free holding of handheld form factor items, the apparatus comprising:

a substrate having a first surface and a second surface opposed to the first surface;
a retaining mechanism comprising a first strap and a second strap, the first and the second straps coupled to the first surface of the substrate and selectively fastenable to retain the handheld form factor item; and
an adhesive layer disposed on at least a portion of the second surface of the substrate to allow a user to removably adhere the apparatus to a first article at a first time, and to a second article at a second time, after removal from the first article.

25. The apparatus of claim 24 wherein at least one of the first and second straps is detachable from the apparatus toward an end of the at least one of the first and the second straps and adjustable to secure handheld form factor items of various sizes.

26. A method of making an attachable apparatus for hands-free holding of handheld form factor items, the method comprising:

disposing an adhesive layer on a first surface of a substrate, adapting the substrate to removably adhere to an article;
forming a receptacle on at least a portion of a second surface of the substrate; and
sizing the receptacle to receive the handheld form factor item.

27. The method of claim 25, further comprising:

covering at least a portion of the adhesive layer with a release liner until use.

28. The method of claim 27, further comprising:

forming at least one structural feature on the release liner to facilitate removal of the release liner from the adhesive layer.

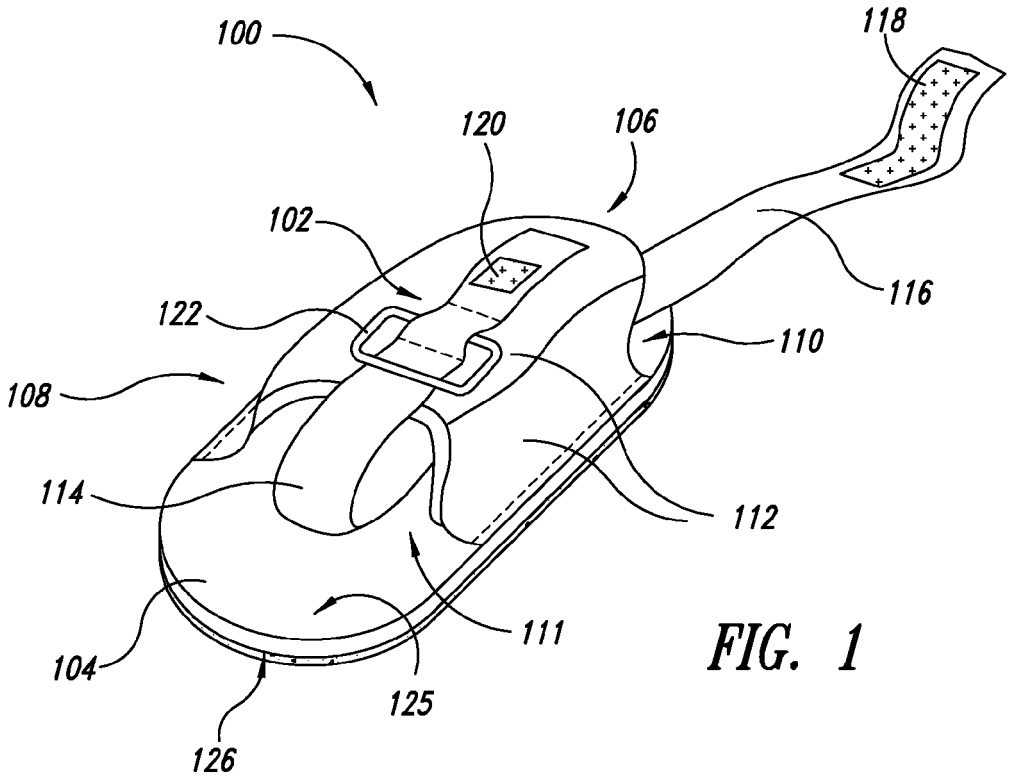
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FIG. 1

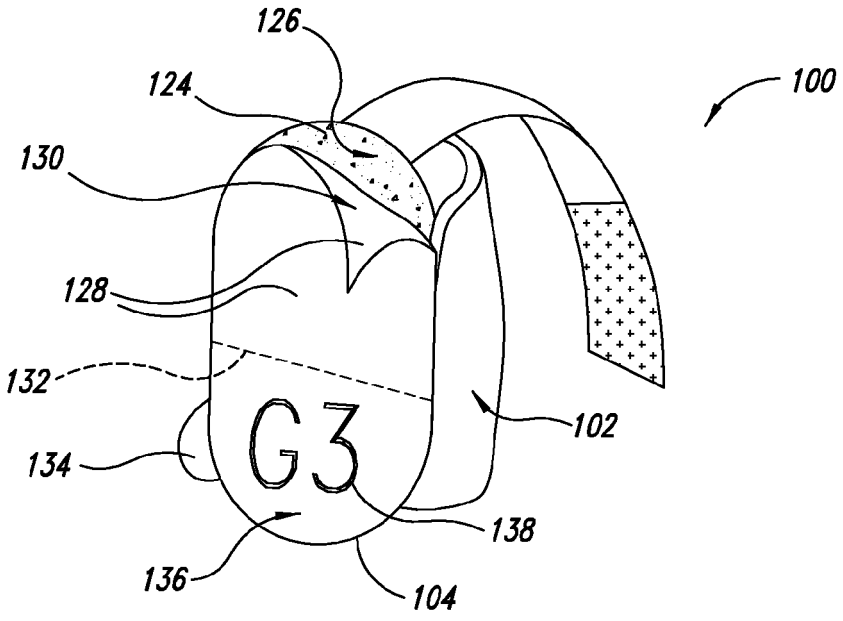
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FIG. 2

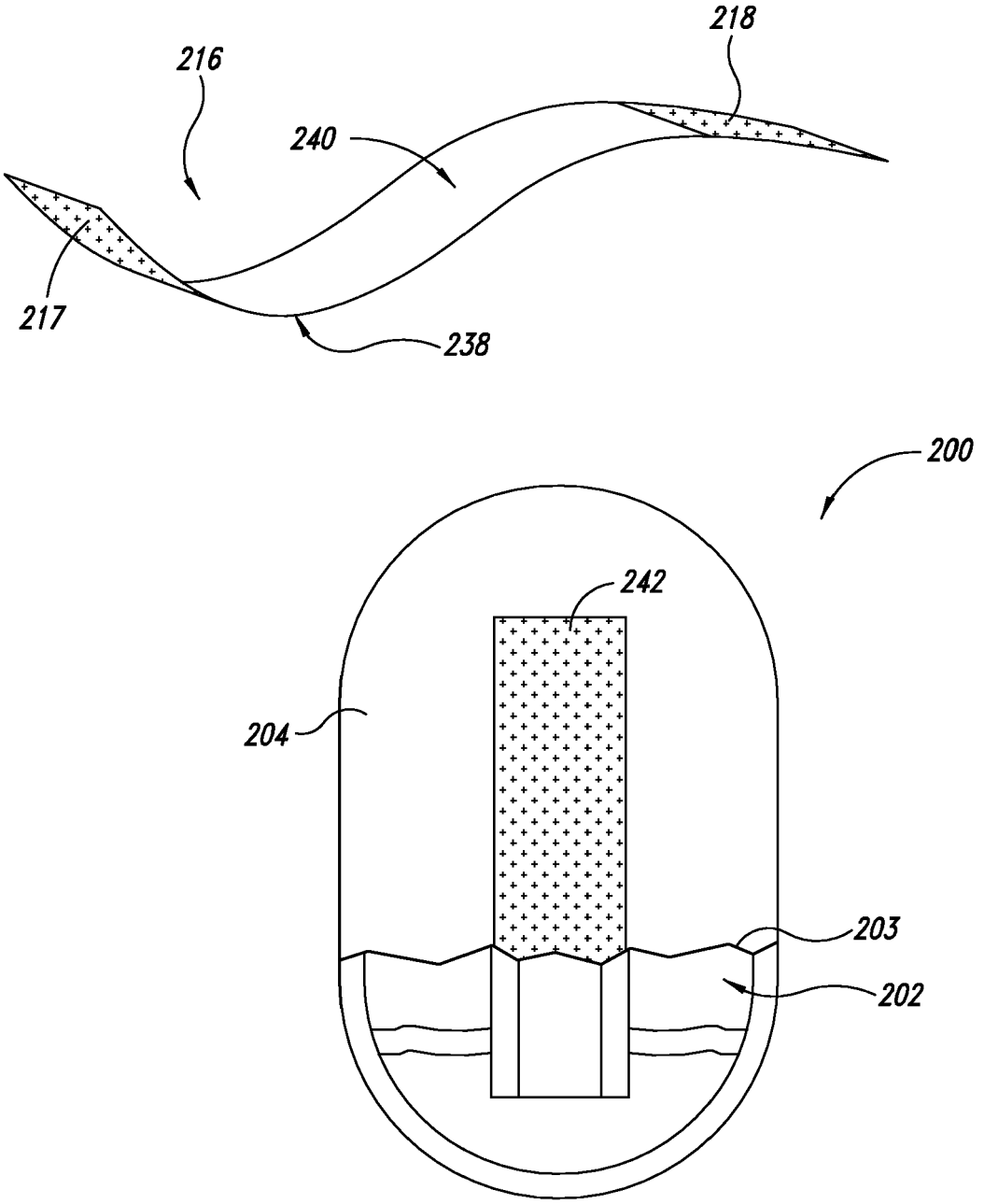

FIG. 3

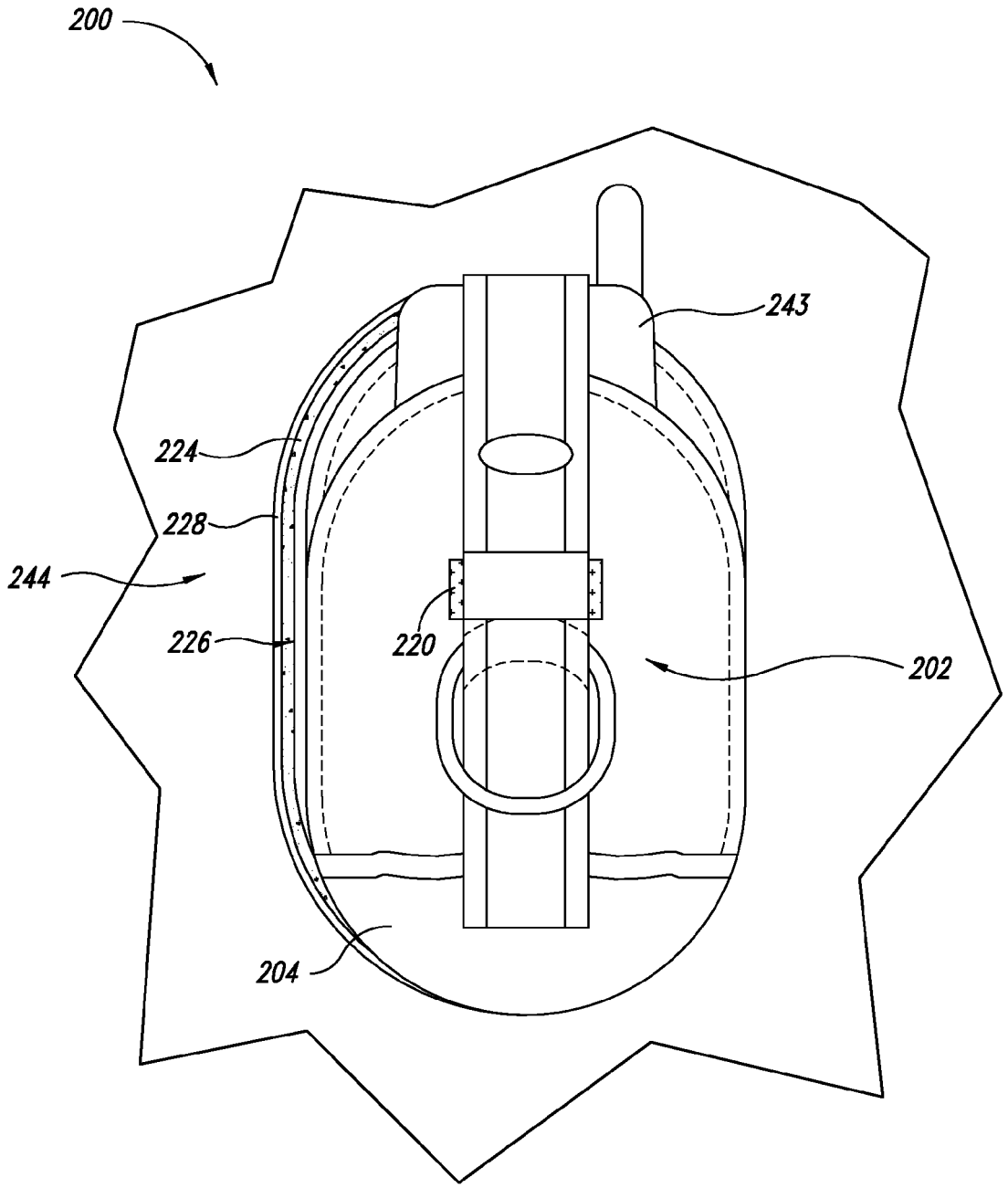

FIG. 4

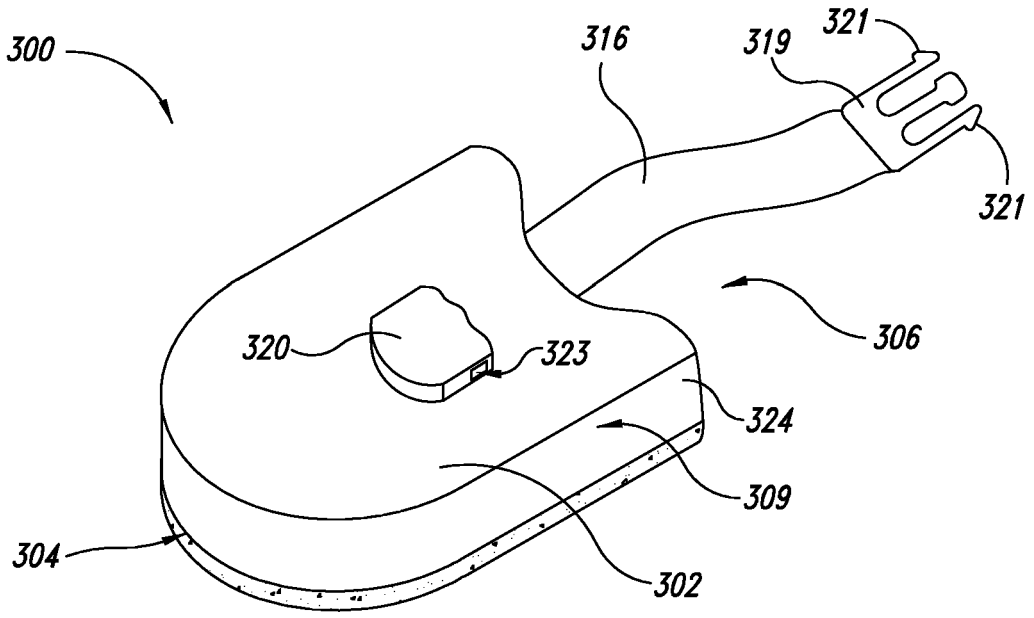
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FIG. 5

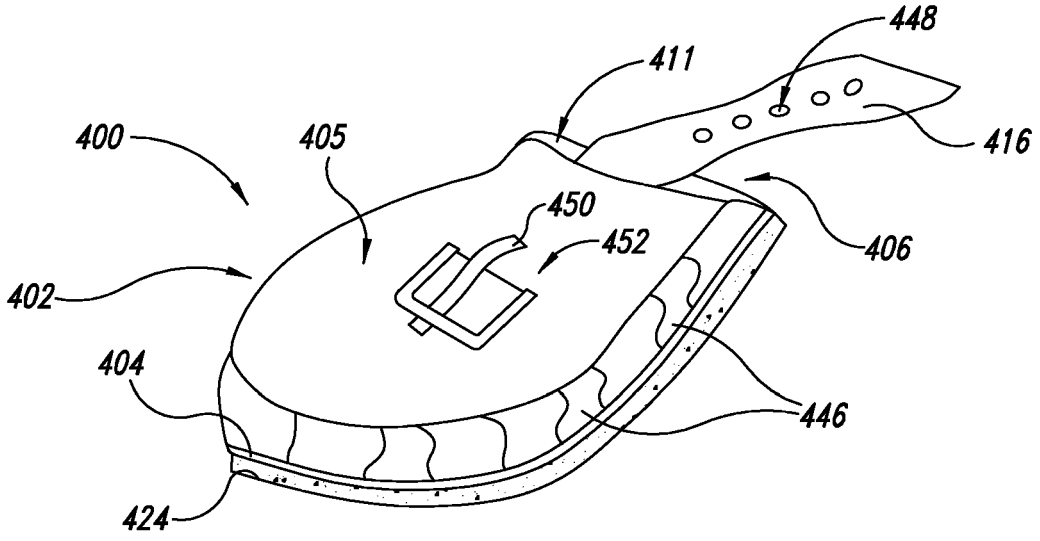
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FIG. 6

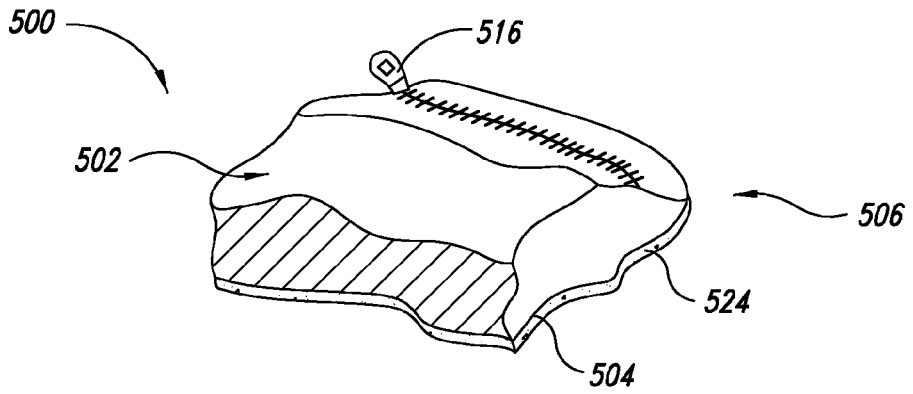

FIG. 7

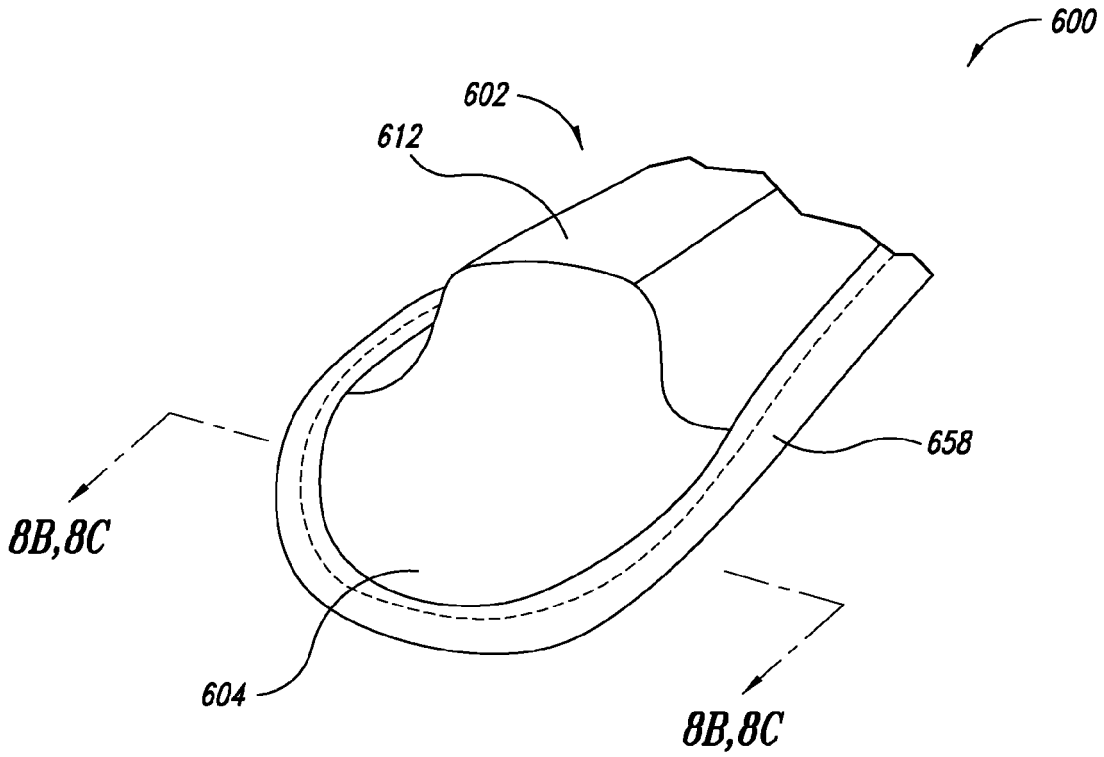

FIG. 8A

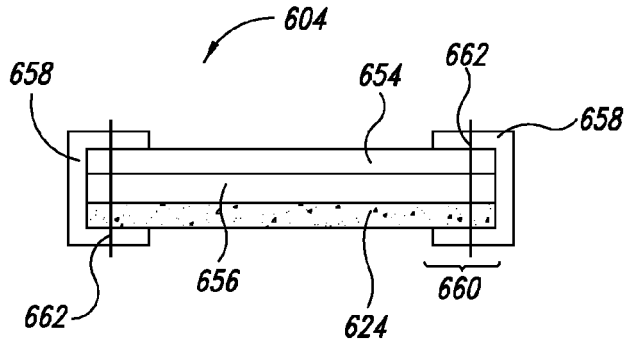

FIG. 8B

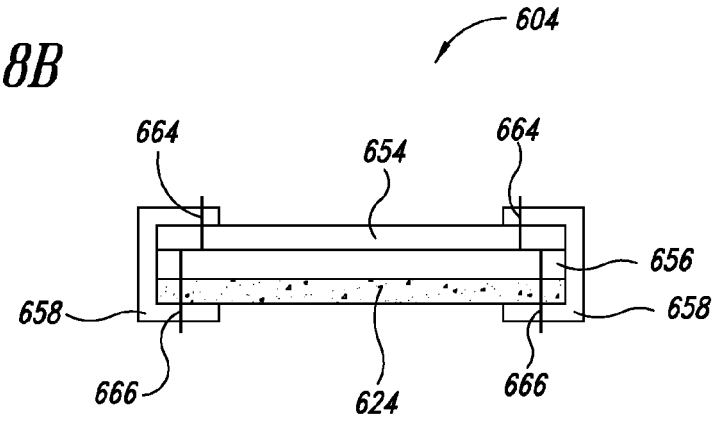

FIG. 8C

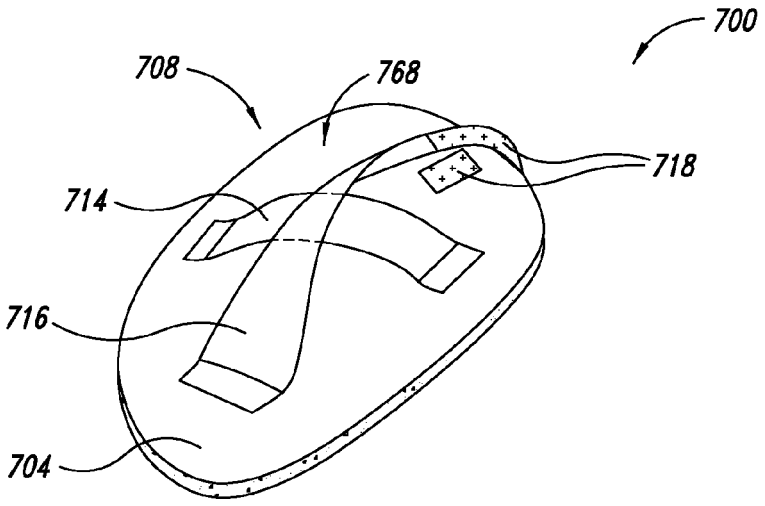

FIG. 9

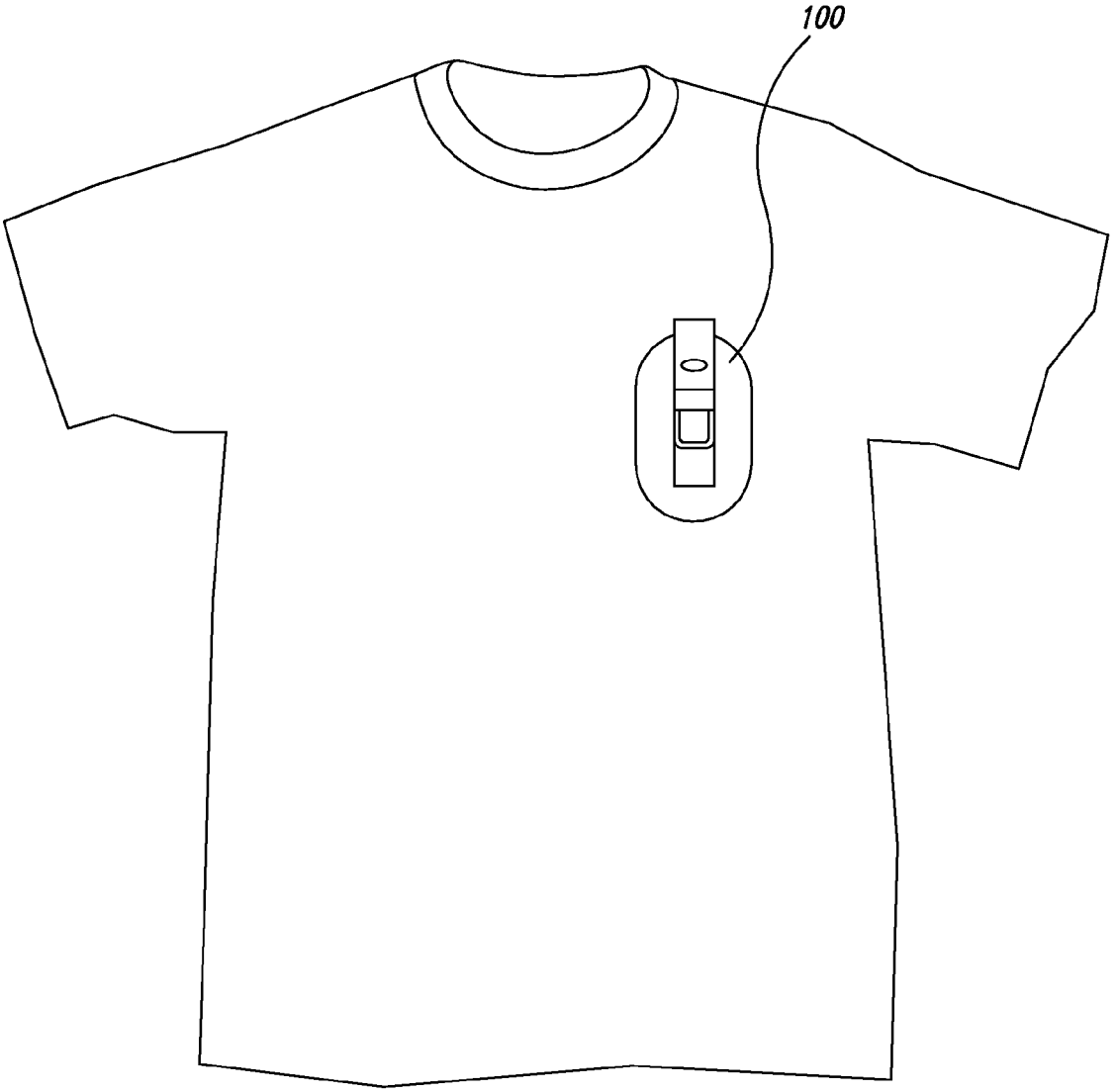

FIG. 10

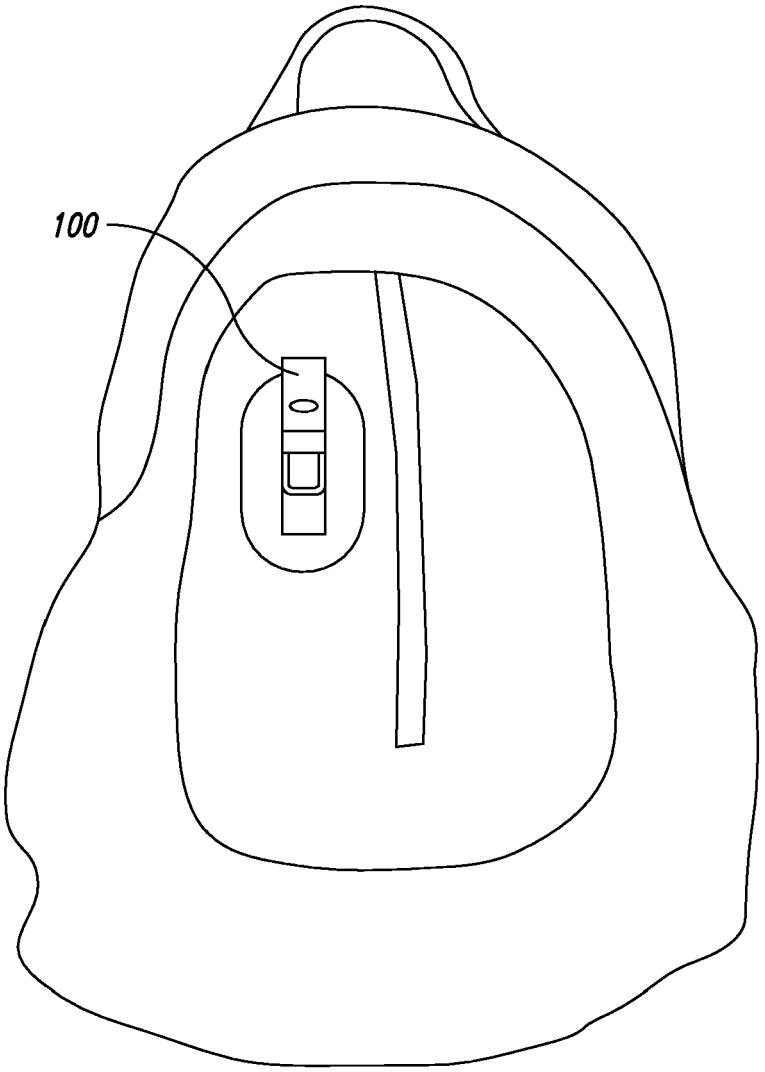

FIG. 11

REFERENCES CITED IN THE DESCRIPTION

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- US 4128194 A, Hinz **[0004]**