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(54) **ARMOR PLATE CARRIER**

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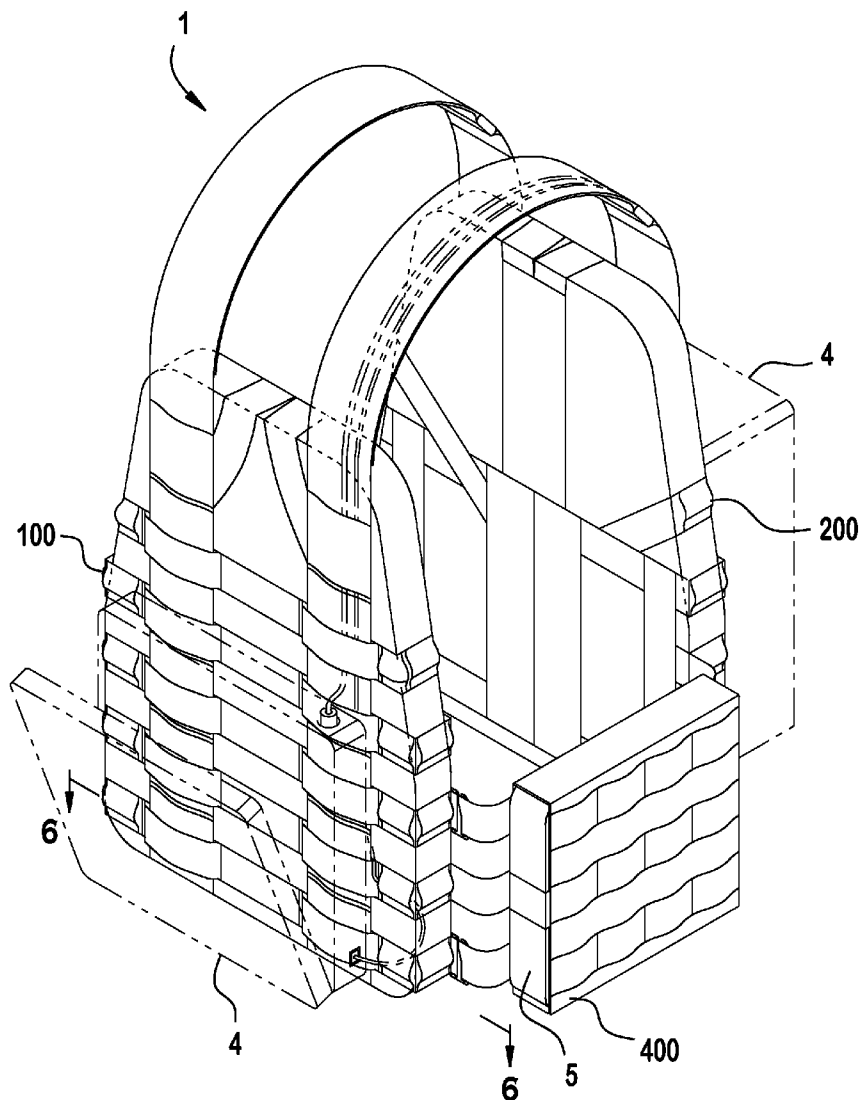
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(57) **ABSTRACT**

An armor plate carrier is provided to receive and adapt to different sized armor. The armor plate carrier includes a rear article, a first side connector, a second side connector, a front article, and a plurality of fasteners. The rear article includes a rear member receiving space, and the first side connector extends from a first side of the rear article. The second side connector extends from a second side of the rear article and attaches to the first side connector. The front article includes a front member receiving space and a front support section connecting to the rear article. The plurality of fasteners are positioned along opposite ends of the front article and connect to the first side connector and the second side connector respectively.



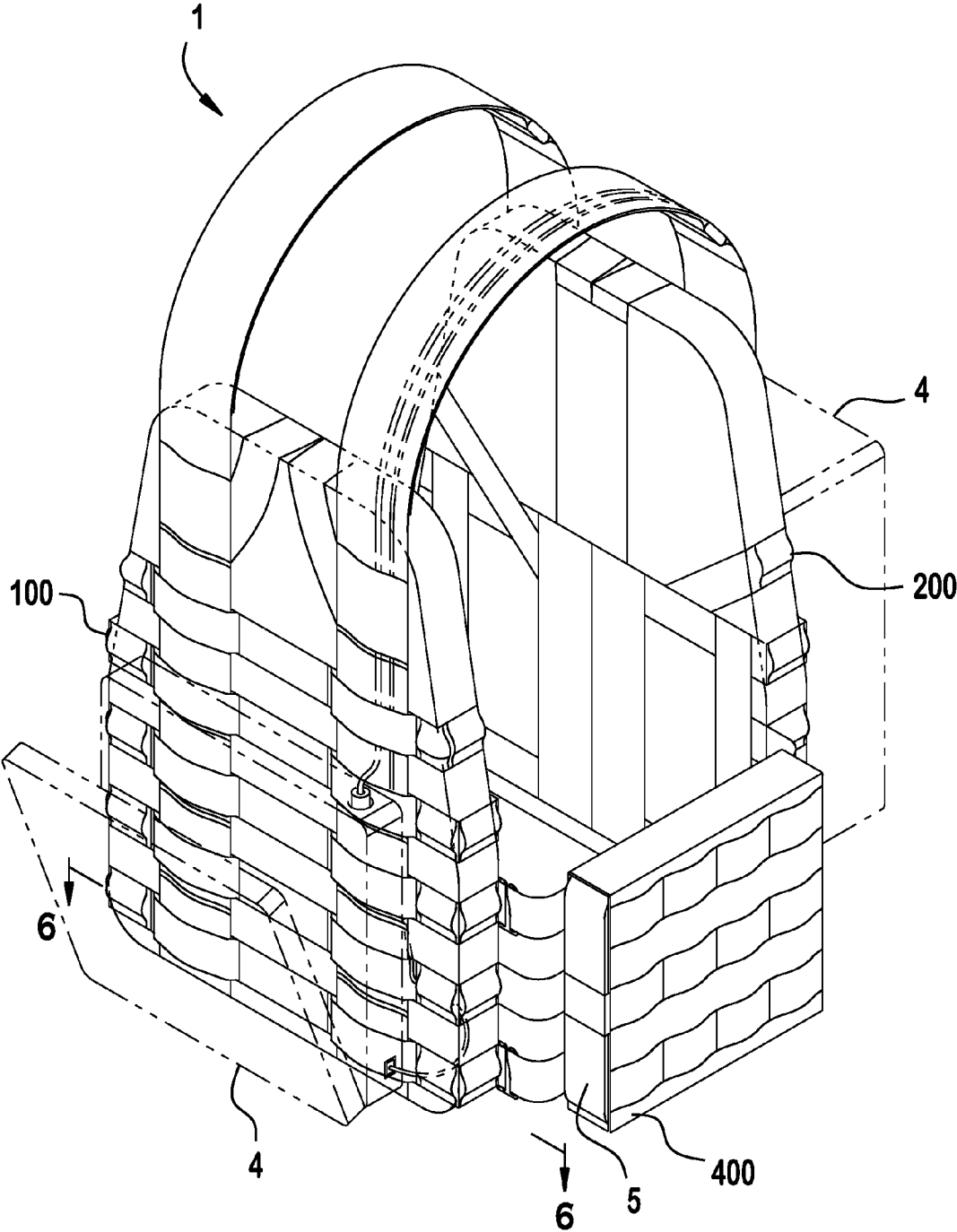
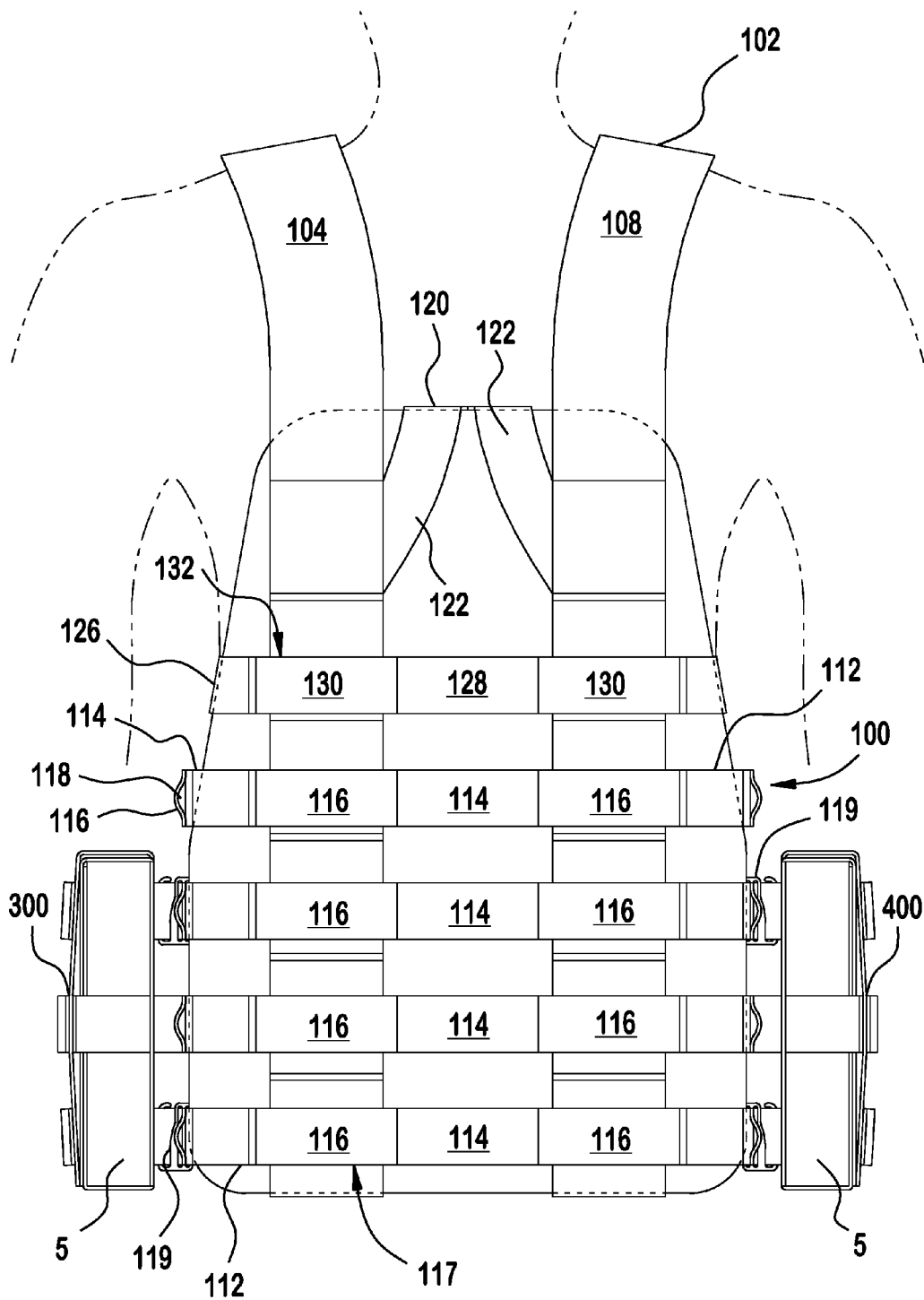


FIG. 1

FIG. 2



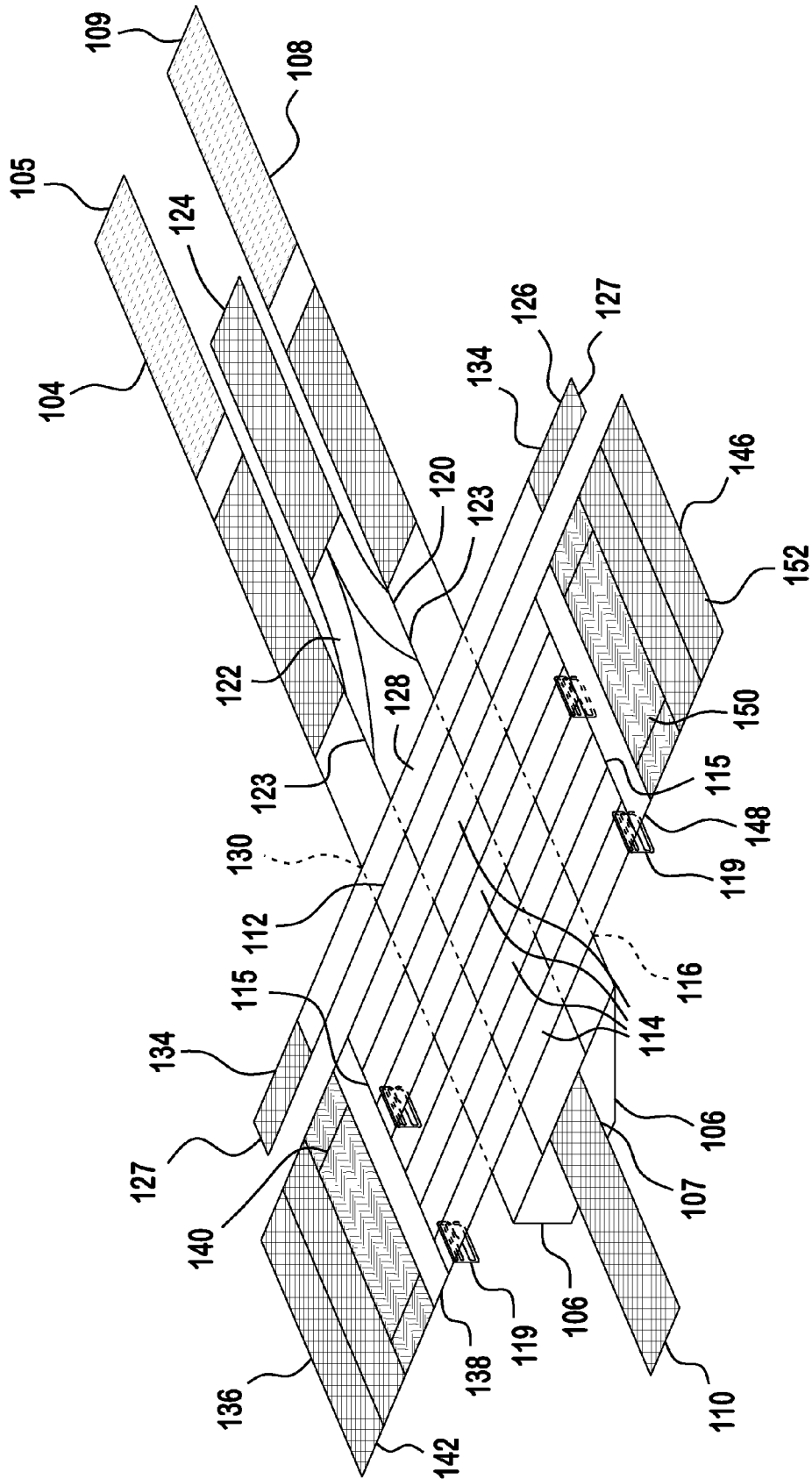


FIG. 3

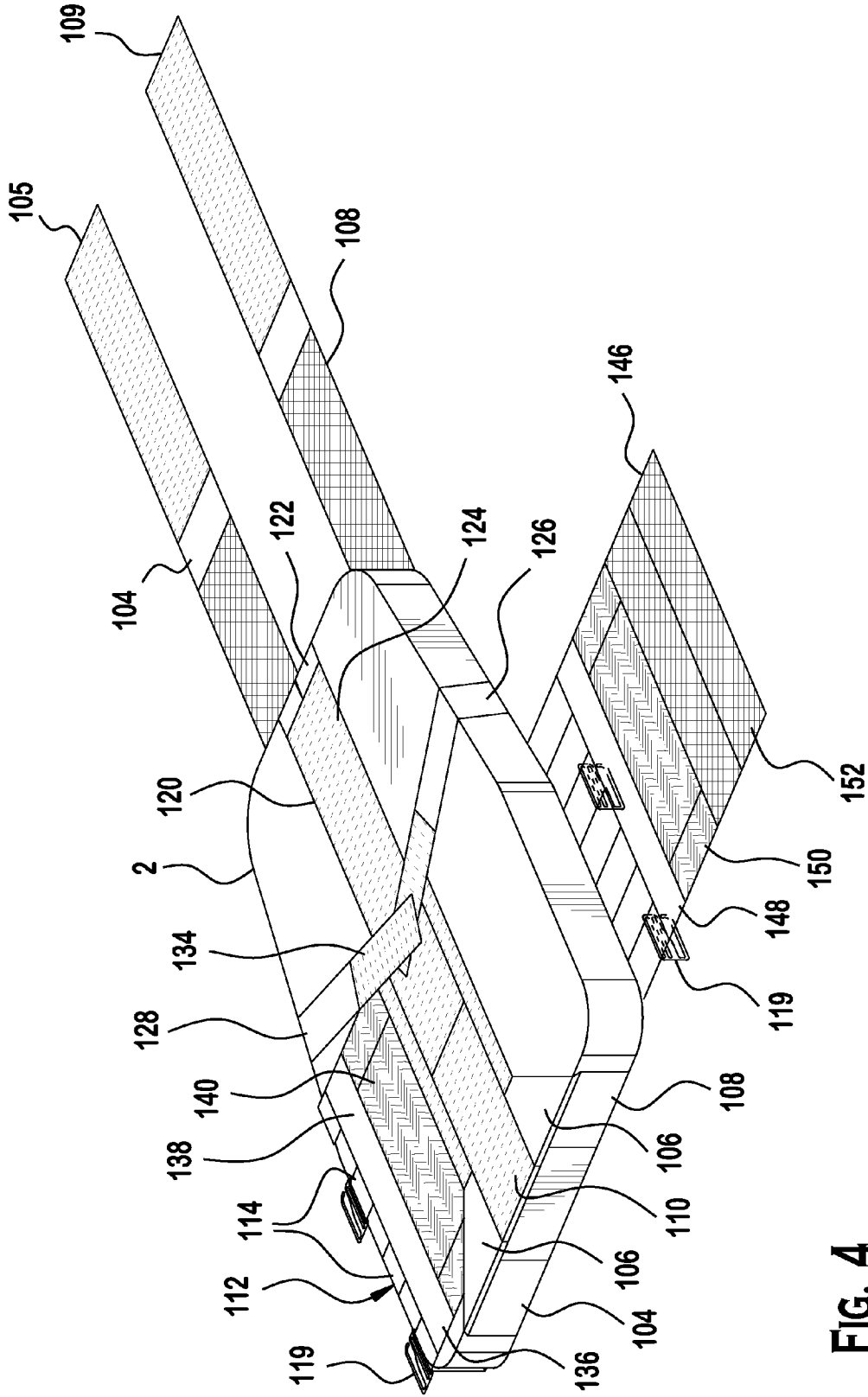


FIG. 4

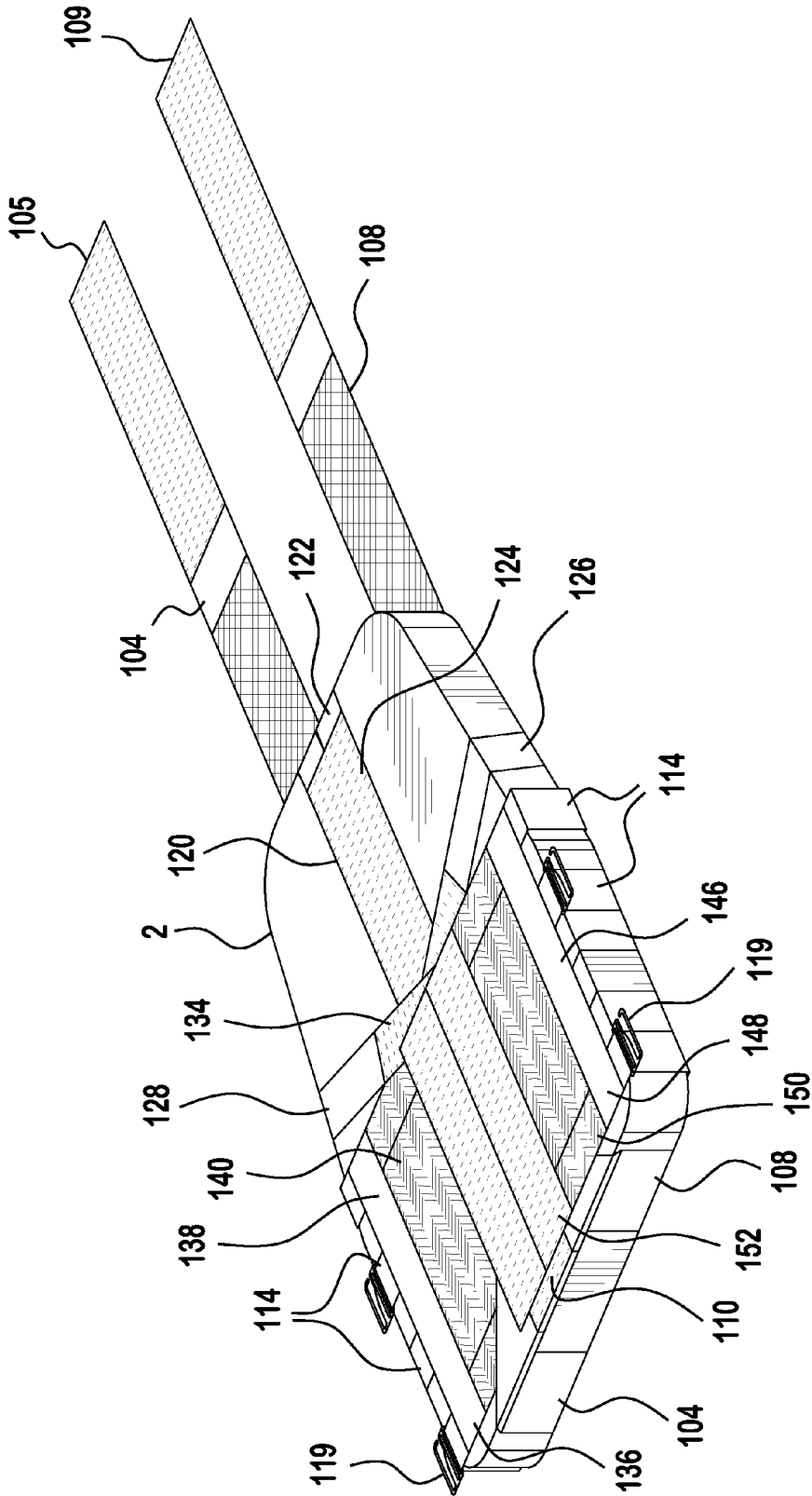


FIG. 5

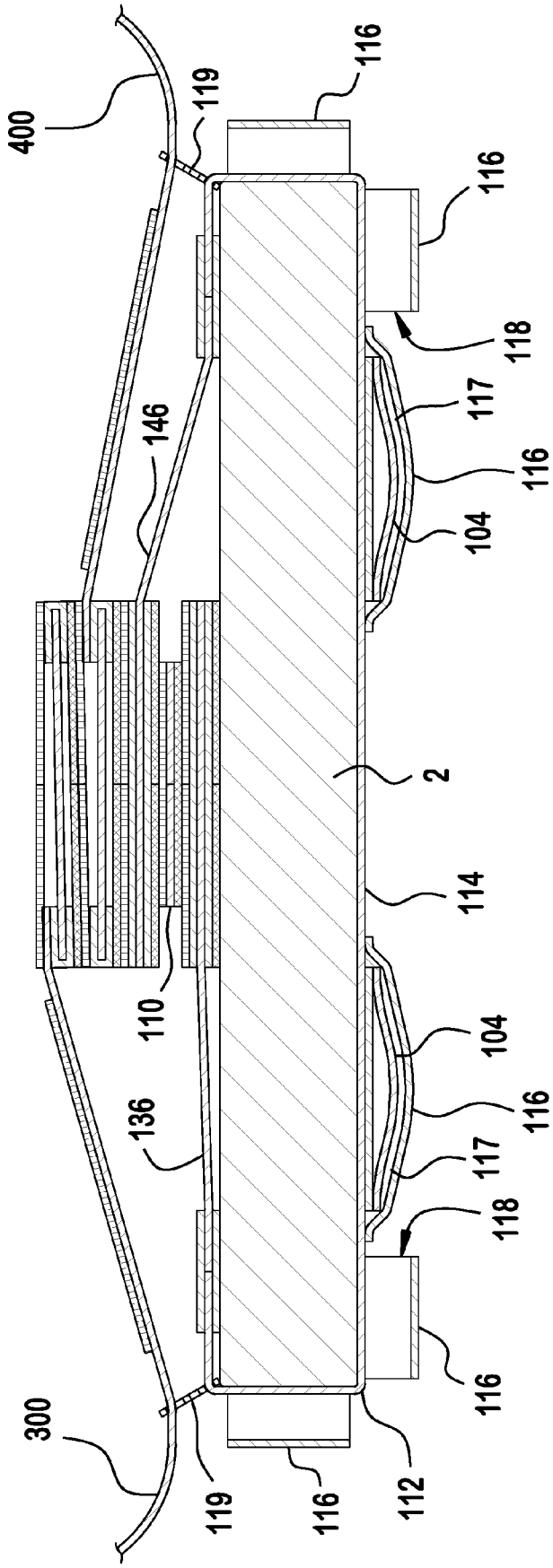
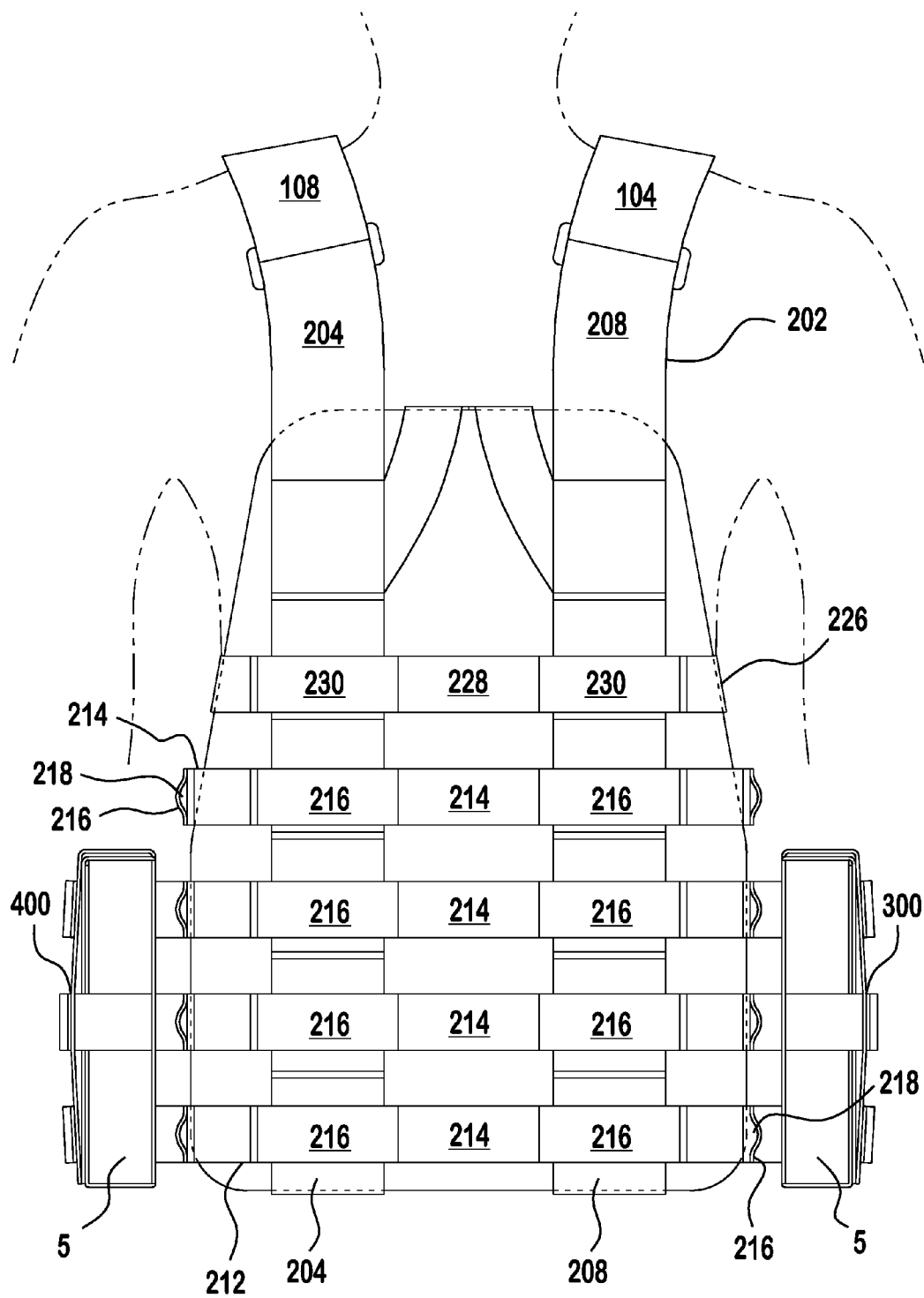


FIG. 6

FIG. 7



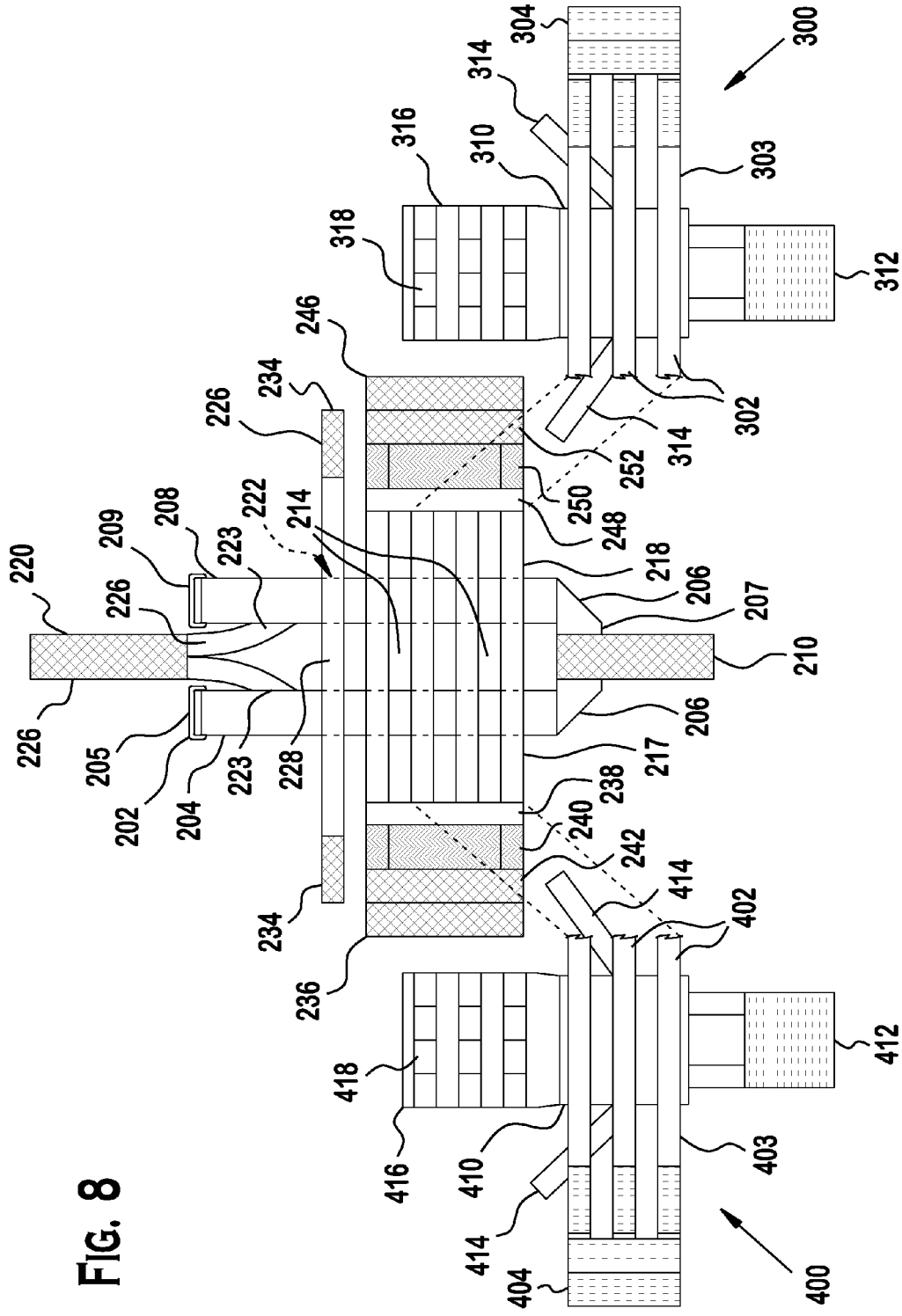


FIG. 8

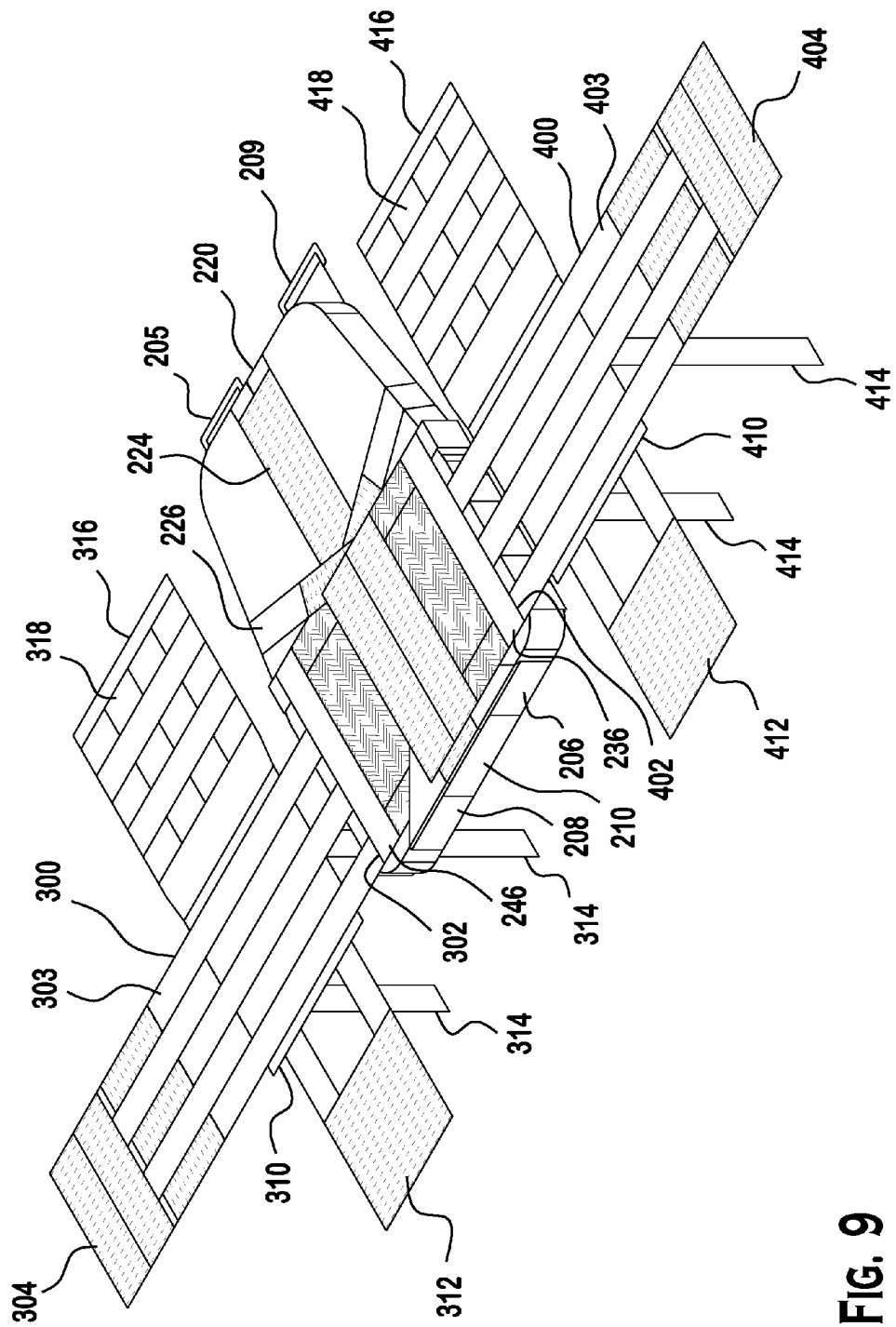


FIG. 9

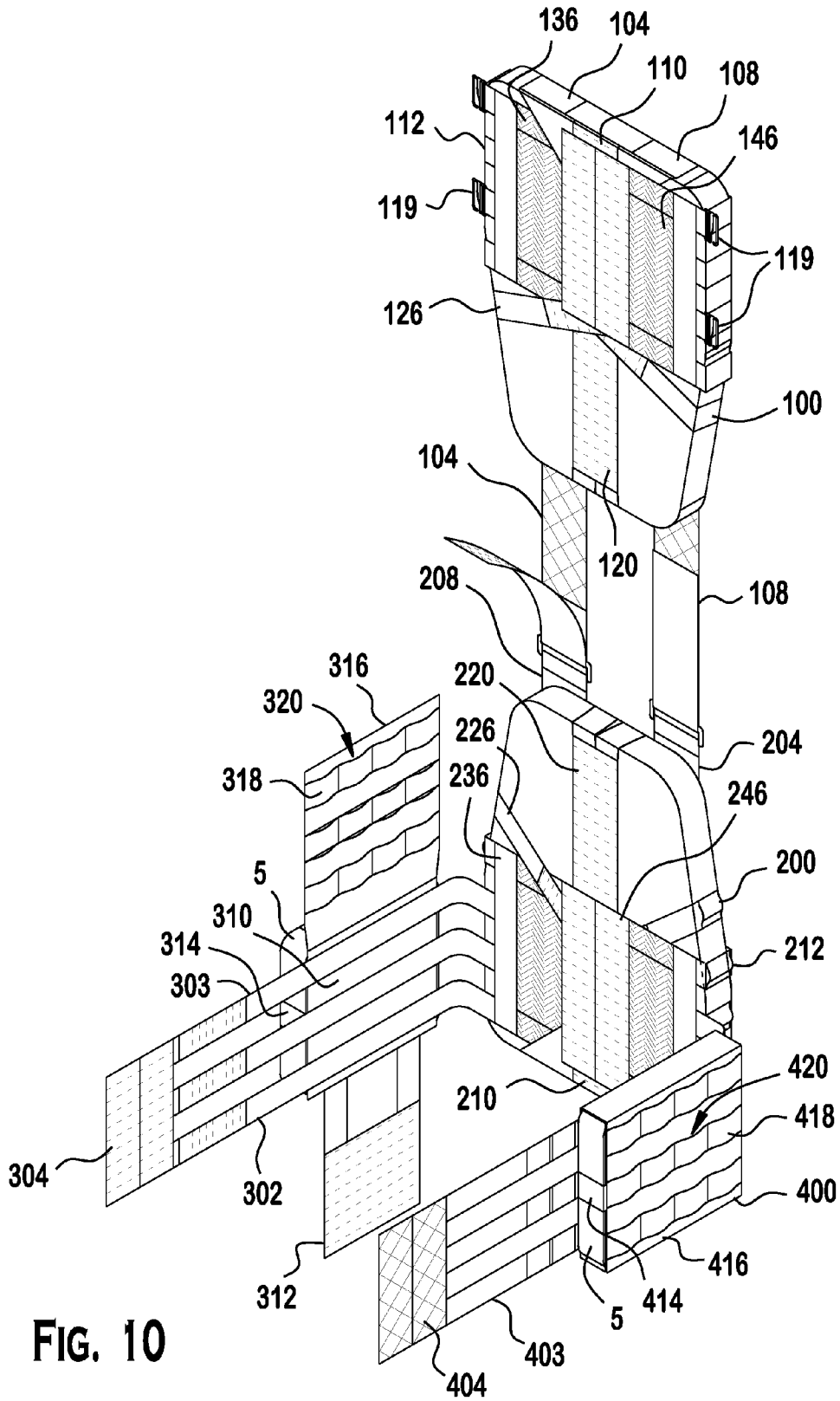


FIG. 10

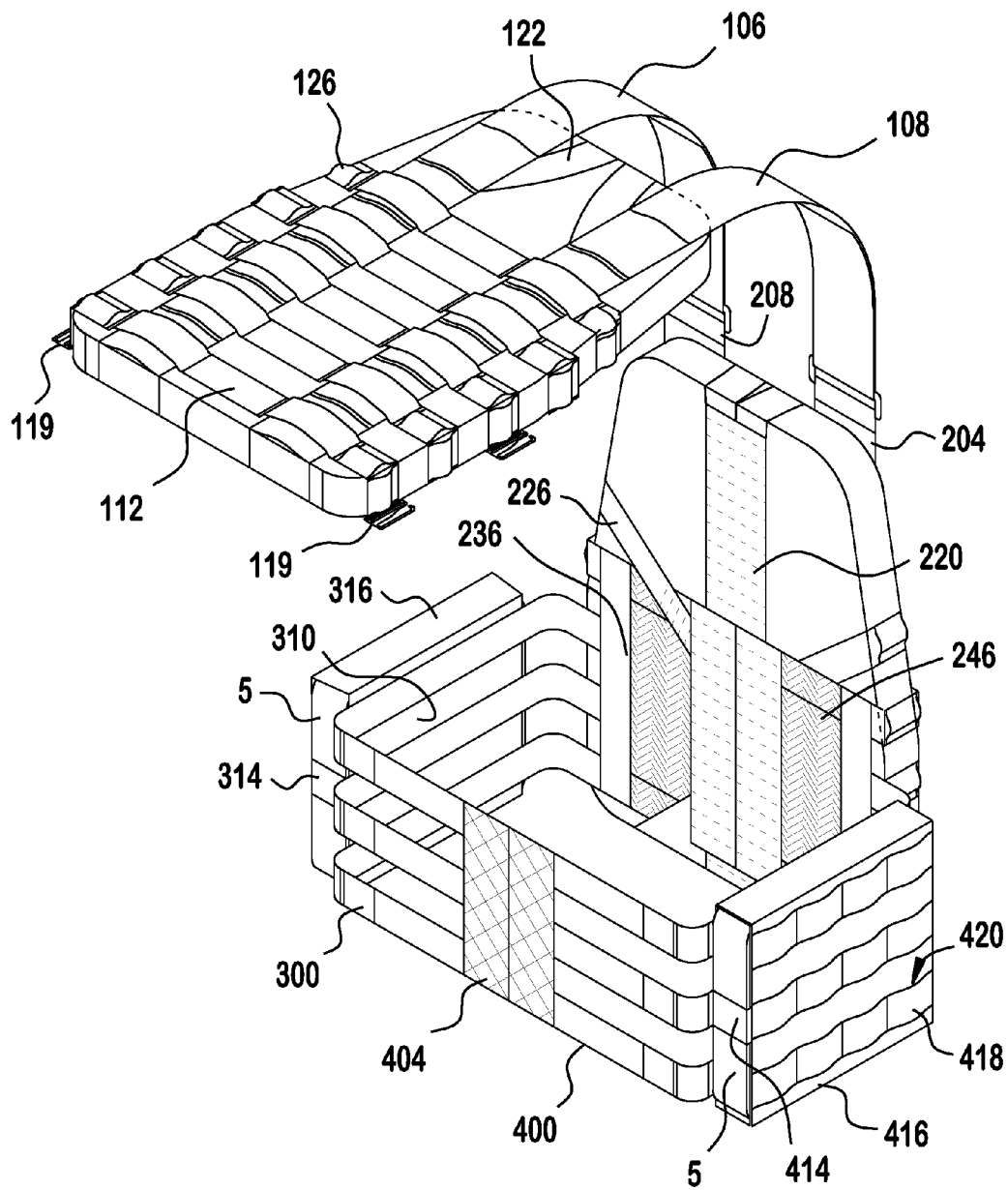


FIG. 11

ARMOR PLATE CARRIER

FIELD OF THE INVENTION

[0001] The invention is relates to an armor plate carrier and, in particular, to an armor plate carrier vest having an adjustable armor receiving section.

BACKGROUND

[0002] Ballistic vests are well-known and used to hold personal armor that helps absorb the impact from firearm-fired projectiles and from explosion shrapnel. Generally, known ballistic vests are worn around the torso. They are made from many layers of woven or laminated fibers in order to promote flexibility and breathability, while minimizing the weight of the vest.

[0003] These known ballistic vests are used by the military, domestic police agents, and private industry. Known ballistic vests generally have a sleeve to receive the armor, which is typically sized for different sized persons. Additionally, ballistic vests may contain more or less armor depending on requirements of a particular situation, so the thickness of the armor may change depending on such requirements. As a result, the type and size of armor is variable, requiring different sized and styles of ballistic vests to accommodate different types and sizes of armor. Known ballistic vests have a problem, in that they are not adaptable to different types or sizes of armor to be securely held therein.

[0004] Furthermore, advancements in technology have provided more and more accessories or modules for use with the known ballistic vest. For instance, computer and monitor modules may be attached to the ballistic vest. A cable is required to electrically connect these modules and may problematically dangle from the known ballistic vest causing obstruction. Additionally it may be cumbersome to route wire through vias in the known ballistic vest. This may present a problem for the user that may compromise the user's ability to focus on or execute an assignment.

SUMMARY

[0005] In light of the shortcomings of the prior art, and long felt need for an adjustable device, the invention provides an armor plate carrier that adapts to a user.

[0006] The armor plate carrier includes a rear article, a first side connector, a second side connector, a front article, and a plurality of fasteners. The rear article includes a rear member receiving space, and the first side connector extends from a first side of the rear article. The second side connector extends from a second side of the rear article and attaches to the first side connector. The front article includes a front member receiving space and a front support section connecting to the rear article. The plurality of fasteners are positioned along opposite ends of the front article and connect to the first side connector and the second side connector respectively.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The invention will be explained in greater detail with reference to embodiments, referring to the appended drawings, in which:

[0008] FIG. 1 is a perspective view of an armor plate carrier according to the invention, shown assembled with attached modules;

[0009] FIG. 2 is a front view of the armor plate carrier according to the invention, showing a front article securing a first piece of armor;

[0010] FIG. 3 is a rear perspective view of the front article of the armor plate carrier according to the invention, shown unassembled;

[0011] FIG. 4 is another rear perspective view of the front article of the armor plate carrier according to the invention, showing the first piece of armor partially secured by the front article;

[0012] FIG. 5 is another rear perspective view of the front article of the armor plate carrier according to the invention, showing the first piece of armor fully secured by the front article;

[0013] FIG. 6 is a sectional view of the armor plate carrier according to the invention, taken along line 6-6 in FIG. 1, showing a lower portion of the front article;

[0014] FIG. 7 is a rear view of the armor plate carrier according to the invention, showing a rear article assembled and connected to the front article;

[0015] FIG. 8 is a front view of the rear article of the armor plate carrier according to the invention, with the first side connection piece and the second side connection piece exploded from the rear article;

[0016] FIG. 9 is a rear perspective view of the rear article of the armor plate carrier according to the invention, showing the rear article assembled with a second piece of armor;

[0017] FIG. 10 is front perspective view of the armor plate carrier according to the invention, showing the front article connecting to the rear article; and

[0018] FIG. 11 is another front perspective view of the armor plate carrier according to the invention, showing the first side connection piece and the second side connection piece connected to each other.

DETAILED DESCRIPTION OF THE EMBODIMENT(S)

[0019] Referring first to FIG. 1, an armor plate carrier 1 according to the invention is shown and includes the following major components: a front article 100, a rear article 200, a first side connector 300, and a second side connector 400.

[0020] The front article 100 consists of a front support section 102, a bottom support 110, a front body 112, a top attachment 120, a moveable front attachment piece 126, a first side fastener 136, and a second side fastener 146. Each will now be described in greater detail.

[0021] As shown in FIGS. 2 and 3, the front support section 102 consists of a first support section 104 and a second support section 108. In the shown embodiment, the first support section 104 extends along a length thereof to a fold 106, then through a front support connector 107 extending essentially perpendicular to the first length to a second fold 106 into a second length. The second support section 108 extends essentially parallel to the first length and essentially perpendicular to the front support connector 107. The first support section 104 runs substantially parallel to the second support section 108. Additionally, the first support section 104 and the second support section 108 are separated from each other by a distance a. However, it is possible that the first support section 104 and the second support section 108 extend incongruent to each other, for instance, in a v-shaped.

[0022] The front support section 102 may be made of a webbing material having a flat fabric webbing with a solid weave and a selected width. As used throughout this detailed

description, it should be understood that reference to webbing material includes traditional webbing material and other materials and textiles such as meshes, animal textiles, plant textiles, synthetic textiles, or composite textiles. Additionally, in other embodiments, the front support section 102 may be a single piece of sheet material or more than a pair of material strips. It should be understood by those reasonably skilled in the art that the various designs and combinations of webbing material might be used.

[0023] At each of the distal ends 105, 109 of the first and second support sections 104, 108 is a fastener element, such as hook and loop fasteners, removable adhesives, slides, buttons, buckles, etc. It should be understood by those reasonably skilled in the art that the fastener element may take other forms such as adhesives or fasteners, including hook and loop fasteners, snaps, latches, removable adhesives, slides, buttons, buckles, etc

[0024] Now with reference to FIG. 3, the bottom support 110 is positioned along the front support connector 107. The bottom support 110 extends generally perpendicular from the front support connector 107. In the shown embodiment, the bottom support 110 is a single strip of webbing material extending from the front support section 102, and in particular, where the first support section 104 and the second support section 108 meet. In other embodiments, the bottom support 110 connects the first support section 104 and the second support section 108, if they are separate pieces of material. The bottom support 110 includes a fastener element along a major surface thereof. However, it should be understood, that the bottom support 110, in this exemplary embodiment includes fastener elements along both its major surfaces. In an alternative embodiment, the bottom support 110 may be two sections of fastener element that have been connected together, without use of the webbing material there between.

[0025] Now with reference to FIGS. 1-3, the front body 112 consists of a plurality of cross strips 114, each extending generally parallel to each other and generally perpendicular to the first and second front support sections 104, 108. Like the first and second front support sections 104, 108, the plurality of cross strips 114 are made of a webbing material, and likewise have a selected width which may be different from that of the first and second support sections 104, 108.

[0026] A plurality of backing strips 116 are attached to each of the cross strips 114 to form support section receiving openings 117 there between. Each backing strip is a strip of webbing material having the same width as the plurality of cross strips 114, in the embodiment shown. Each of the cross strips 114 has a distal end 115 extending outward from the support section receiving openings 117. Proximate each distal end 115 are additional backing strips 116 applied to form cable receiving openings 118, which in this embodiment, happen to be perpendicular to the support section receiving openings 117. It should be understood by those reasonably skilled in the art that backing strips 116 may be applied at selected locations along the cross strips 114 to create openings in desired directions or quantities.

[0027] Fasteners 119 are disposed at selected distal ends of the cross strips 114. These fasteners 119 may be standard slide fasteners and may be attached to the distal ends 115 by looping the cross strips 114 there around. In particular, each fastener 119 may also include a hook connected to the slide, as shown. In the shown embodiment, a pair of fasteners 119 are disposed along the distal ends 115 and can be any type of

attachment means including an adhesive, a snap, a hook, a latch, buckle, a hook and loop fastener, or other fastener known to the art.

[0028] Now with reference to FIGS. 2 and 3, the top attachment 120 is shown and extends from each of the first and second support sections 104, 108 and is located between them. The top attachment 120 includes a top fastener 124 and a pair of support strips 122. The top fastener 124 is a strip of webbing material and includes a fastener element on both of its major surfaces. However, in an alternative embodiment, the top fastener 124 may be sections of fastener elements that have been connected together, without use of the webbing material there between. The pair of support strips 122 extends from the top fastener 124 to respective ones of the first and second support sections 104, 108. Each support strip 122 is a strip of webbing material. In the embodiments shown, the first support strip 122 extends away from the top fastener 124 toward the front body 112 and the first support section 104, while the second support strip 122 extends away from the top fastener 124 toward the front body 112 and the second support section 108.

[0029] Now with reference to FIGS. 1-3, the moveable front attachment piece 126 is shown and positioned between the front body 112 and the top attachment 120. The moveable front attachment piece 126 includes a supplemental support strip 128 and a plurality of backing strips 130. The supplemental support strip 128 extends generally parallel to the cross strips 114 between distal ends 127 thereof. The backing strips 130 are applied to the supplemental support strip 128 at selected locations to define support section receiving openings 132. Located at each of the distal ends 127 is an attachment section 134. Each attachment section 134 includes fastener material applied to its major surfaces. The moveable front attachment piece 126, like the cross strips 114, is formed of a webbing material having a selected width. Positioned at selected locations along the moveable front attachment piece 126 are the plurality of backing strips 130 attached thereto.

[0030] Now with reference to FIG. 3, the first side fastener 136 extends outward from the distal end 115 of the plurality of cross strips 114 and includes a connective support section 138, an adjustment section 140 and a fastener section 142. The connective support section 138 is located adjacent to the cross strips 114 and is formed of a webbing material. The webbing material extends substantially orthogonal to the cross strip 114 in the shown embodiment. The adjustment section 140 extends outward from the connective support section 138 and is formed of a stretch material, such as a synthetic fabric having elastic fibers that stretches. The fastener section 142 extends outward from the adjustment section 140, is formed of a fabric, and has a fastener element applied on a major inner surface thereof.

[0031] Now with reference to FIG. 3, the second side fastener 146 extends outward from the distal end 115 of the plurality of cross strips 114 opposite the first side fastener 136 and similarly includes a connective support section 148, an adjustment section 150 and a fastener section 152. The connective support section 148 is located adjacent to the cross strips 114 and is formed of a webbing material. The adjustment section 150 extends outward from the connective support section 148 and, like the adjustment section 150, is made from a stretch material. The fastener section 152 extends outward from the adjustment section 150, is formed of a fabric, and has a fastener element applied on a major outer surface thereof.

[0032] Now with reference to FIGS. 7-9, the rear article 200 will be described in greater detail. The rear article 200 consists of a bottom support 210, a rear body 212, a top attachment 220, a moveable rear attachment piece 226, a first side fastener 236, and a second side fastener 246.

[0033] As shown in FIGS. 8 and 9, the rear support section 202 consists of a first support section 204 and a second support section 208. In the shown embodiment, the first support section 204 extends along the length thereof to a fold 206, then through a rear support connector 207 extending essentially perpendicular to the first length to a second fold 206 into a second length, the second support section 208. The second support section 208 extends essentially parallel to the first length and essentially perpendicular to the rear support connector 207. The first support section 204 runs substantially parallel and congruent with the second support section 208. However, it is possible that the first support section 204 and the second support section 208 extend incongruent to each other, for instance, in a v-shaped. Additionally, the first support section 204 and the second support section 208 are separated from each other by a distance a.

[0034] The rear support section 202 may be made of a webbing material having a flat fabric webbing with solid weave and a selected width. Additionally, in other embodiments, the rear support section 202 may be a single piece of sheet material or more than a pair of material strips. It should be understood by those reasonably skilled in the art that the various designs and combinations of webbing material might be used.

[0035] At each of the distal ends 205, 209 of the first and second support sections 204, 208 is a fastener element. It should be understood by those reasonably skilled in the art that the fastener element might take other forms such as adhesives or fasteners, including hook and loop fasteners, snaps, latches, removable adhesives, slides, buttons, buckles, etc.

[0036] Now with reference to FIG. 8, the bottom support 210 is positioned along the rear support connector 207. The bottom support 210 extends generally perpendicular from the rear support connector 207. In the shown embodiment, the bottom support 210 is a single strip of webbing material extending from the rear support section 202, and in particular, where the first support section 204 and the second support section 208 meet. In other embodiments, the bottom support 210 connects the first support section 204 and the second support section 208, if they are separate pieces of material. The bottom support 210 includes a fastener element along a major surface thereof. However, it should be understood, that the bottom support 210, in this exemplary embodiment includes fastener elements along both its major surfaces.

[0037] Now with reference to FIGS. 7-9, the rear body 212 consists of a plurality of cross strips 214 each extending generally parallel to each other and generally perpendicular to the first and second support sections 204, 208. Like the first and second support sections 204, 208, the plurality of cross strips 214 are made of a webbing material, and likewise have a selected width, which may be different from that of the first and second support sections 204, 208.

[0038] A plurality of backing strips 216 are attached to each of the cross strips 214 to form support section receiving openings 217 there between. Each backing strip is a strip of webbing material having the same width as the plurality of cross strips 214, in the embodiment shown. Each of the cross strips 214 has a distal end 215 extending outward from the

support section receiving openings 217. Proximate each distal end 215 are additional backing strips 216 applied to form cable receiving openings 218, which in this embodiment, happened to be perpendicular to the support section receiving openings 217. It should be understood by those reasonably skilled in the art that backing strips 216 may be applied at selected locations along the cross strips 214 to create openings in desired directions or quantities.

[0039] Connectors 219 are disposed at selected distal ends of the cross strips 214. These connectors 219 may be standard slide fasteners and may be attached to the distal ends. In particular, each connector 219 may also include a hook connected to the slide, as shown. In the shown embodiment, a pair of connectors 219 are disposed along the distal ends 215 and can be any type of attachment means including an adhesive, a snap, a hook, a latch, buckle, a hook and loop fastener, or other fastener known to the art.

[0040] Now with reference to FIGS. 7 and 8, the top attachment 220 extends from each of the first and second support sections 204, 208 and is located between them. The top attachment 220 includes a top fastener 224 and a pair of support strips 222. The top fastener 224 is a strip of webbing material and includes a fastener element on both of its major surfaces. The pair of support strips 222 extends from the top fastener 224 to respective ones of the first and second support sections 204, 208. Each support strip 222 is a strip of webbing material. In the embodiments shown, the first support strip 222 extends away from the top fastener 224 toward the rear body 212 and the first support section 204, while the second support strip 222 extends away from the top fastener 224 toward the rear body 212 and the second support section 208.

[0041] Now with reference to FIGS. 7-9, the moveable rear attachment piece 226 is shown and positioned between the rear body 212 and the top attachment 220. The moveable rear attachment piece 226 includes a supplemental support strip 228 and a plurality of backing strips 230. The supplemental support strip 228 extends generally parallel to the cross strips 214. The backing strips 230 are applied to the supplemental support strip 228 at selected locations to define support section receiving openings 232. Located at each of the distal ends 227 is an attachment section 234. Each attachment section 234 includes fastener material applied to its major surfaces. The moveable rear attachment piece 226, like the cross strips 214, is formed of a webbing material having a selected width. Positioned at selected locations along the moveable rear attachment piece 226 are the plurality of backing strips 230 attached thereto.

[0042] Now with reference to FIG. 8, the first side fastener 236 extends outward from the distal end 215 of the plurality of cross strips 214 and includes a connective support section 238, an adjustment section 240 and a fastener section 242. The connective support section 238 is located adjacent to the cross strips 214 and is formed of a webbing material. The webbing material extends substantially orthogonal to the cross strip 214 in the shown embodiment. The adjustment section 240 extends outward from the connective support section 238 and is formed of a stretch material, such as a synthetic fabric having elastic fibers that stretches. The fastener section 242 extends outward from the adjustment section 240, is formed of a fabric, and has a fastener element applied on a major outer surface thereof.

[0043] Also shown in FIG. 8, the second side fastener 246 extends outward from the distal end 215 of the plurality of cross strips 214 opposite the first side fastener 236 and simi-

larly includes a connective support section 248, an adjustment section 250 and a fastener section 252. The connective support section 248 is located adjacent to the cross strips 214 and is formed of a webbing material. The adjustment section 250 extends outward from the connective support section 248 and, like the adjustment section 240, is made from a stretch material. The fastener section 252 extends outward from the adjustment section 250, is formed of a fabric, and has a fastener element applied on a major outer surface thereof.

[0044] Next, with reference to FIGS. 8 through 10, a first side connector 300 of the armor plate carrier 1 according to the invention will be described.

[0045] As shown, the first side connector 300 includes a rear article attachment section 302, a front connection section 304, and a side armor securing section 308.

[0046] The rear article attachment section 302 is a plurality of webbing materials extending from the rear article 200. In particular, in the embodiment shown, the rear article attachment section 302 extends from one of the distal ends 215 of the plurality of cross strips 214. The rear article attachment section 302 includes a plurality of fitting strips 303 that extend orthogonal to the rear article 200 and, in particular, the rear support section 202. In the embodiment shown, the plurality of fitting strips 303, like the cross strips 214, are made of webbing material.

[0047] As shown, the front connection section 304 extends from a free end of the rear article attachment section 302. In the shown embodiment, the front connection section 304 is a wide strip of webbing material with a length that runs substantially orthogonal to a length of the plurality of fitting strips 303. The front connection section 304 includes a fastener element along one major surface side thereof. However, one skilled in the art would appreciate that a fastener element could be disposed along both major surface sides thereof. In another embodiment, the front connection section 304 would also include a strip of stretch material positioned between the webbing material and the plurality of fitting strips 303.

[0048] Additionally, as shown in FIGS. 8-10, the rear article attachment section 302 may include a plurality of backing strips 306 attached to each of the fitting strips 303 to form cable receiving openings 307 there between. Each backing strip 306 is a strip of webbing material having the same width as the plurality of fitting strips 303, in the embodiment shown. It should be understood by those reasonably skilled in the art that backing strips 306 might be applied at selected locations along the fitting strips 303 to create openings in desired directions or quantities.

[0049] As shown in FIGS. 8-10, the side armor securing section 308 includes a body 310, a bottom section 312, a pair of side straps 314, and a top section 316.

[0050] The body 310 is a section of material, such as webbing material, extending from a front surface of the rear article attachment section 302. The bottom section 312 is a strip of webbing material extending from a lower surface of body 310 and having a fastener material disposed along an outer surface thereof. Each of the pair of side straps 314 is a material strip extending from opposite side surfaces of body 310, respectively. Each side strap 314 includes a fastener element disposed along one or both major surfaces, near distal ends thereof. The top section 316 is a section of webbing material extending from an upper surface of body 310 and having a fastener element disposed along an inner surface thereof. The top section 316 may include a plurality of backing strips 318 disposed along an outer surface thereof, to form

cable receiving openings 320 there between. Each backing strip 318 is a strip of webbing material having free ends connected to the top section 316. It should be understood by those reasonably skilled in the art that backing strips 306 may be applied at selected locations along the fitting strips 303 to create openings in desired directions or quantities.

[0051] Next, with reference to FIGS. 8 through 10, a second side connector 400 of the armor plate carrier 1 according to the invention will be described.

[0052] As shown, the second side connector 400 includes a rear article attachment section 402, a front connection section 404, and a side armor securing section 408.

[0053] The rear article attachment section 402 is a plurality of webbing material extending from the rear article 200. In particular, in the embodiment shown, the rear article attachment section 402 extends from another the distal end 215 of the plurality of cross strips 214, with respect to the first side connector 300. The rear article attachment section 402 includes a plurality of fitting strips 403 that extend generally orthogonal to the rear article 200 and, in particular, the rear support section 202. In the embodiment shown, the plurality of fitting strips 403, like the cross strips 214, are strips of webbing material.

[0054] As shown, the front connection section 404 extends from a free end of the rear article attachment section 402. In the shown embodiment, the front connection section 404 is a wide strip of webbing material with a length that runs substantially orthogonal to a length of the plurality of fitting strips 403. The front connection section 404 includes a fastener element along one major surface thereof. However, one skilled in the art would appreciate that a fastener element could be disposed along both major surfaces thereof. In another embodiment, the front connection section 404 may also include a strip of stretch material positioned between the webbing material and the plurality of fitting strips 403.

[0055] Additionally, as shown in FIGS. 8-10, the rear article attachment section 402 may include a plurality of backing strips 406 attached to each of the fitting strips 403 to form cable receiving openings 407 there between. Each backing strip 406 is a strip of webbing material having the same width as the plurality of fitting strips 403, in the embodiment shown. It should be understood by those reasonably skilled in the art that backing strips 406 may be applied at selected locations along the fitting strips 403 to create openings in desired directions or quantities.

[0056] As shown in FIGS. 8-10, the side armor securing section 408 includes a body 410, a bottom section 412, a pair of side straps 414, and a top section 416.

[0057] The body 410 is a section of material, such as webbing material, extending from a front surface of the rear article attachment section 402. The bottom section 412 is a strip of webbing material extending from a lower surface of body 410 and having a fasteners material disposed along an outer surface thereof. Each of the pair of side straps 414 is a material strip extending from opposite side surfaces of body 410, respectively. Each side strap 414 includes a fastener element disposed along one or both major surfaces, such as distal ends thereof. The top section 416 is a section of webbing material extending from an upper surface of body 410 and having a fastener element disposed along an inner surface thereof. The top section 416 may include a plurality of backing strips 418 disposed along an outer surface thereof, to form cable receiving openings 420 there between. Each backing strip 418 is a strip of webbing material having free ends

connected to the top section 416. It should be understood by those reasonably skilled in the art that backing strips 406 may be applied at selected locations along the fitting strips 403 to create openings in desired directions or quantities.

[0058] Now with reference to the drawings, assembly of the armor plate carrier 1 will be described in greater detail.

[0059] First, as shown in FIG. 3, the webbing material is laid from the distal end 105 to form the first support section 104. The fold 106 is sewn into the first support section 104 at an end of the front support connector 107. Likewise, the second fold 106 is sewn into the second support section 108 at an opposite end of the front support connector 107. The webbing material is laid to the distal end 109, in order to form the second support section 108. The fastener element is then applied, for example by sewing, on at least one major surface, at each of the distal ends 105, 109.

[0060] One end of the bottom support 110 is sewn to the front support connector 107 proximate to a middle of the front support connector 107. The fastener element is then applied, for example by sewing, on both major surfaces thereof.

[0061] Next, the plurality of cross strips 114 are laid apart and substantially parallel to each other to form the front body 112. The cross strips 114 are looped around the fasteners 119, and the distal ends 115 are sewn to the connective support sections 138, 148. The connective support sections 138, 148 are then sewn to the adjustment section 140, 150, which is then sewn to the fastener section 142, 152. The fastener element is then applied to the fastener section 142, 152, for example by sewing, and along the major inner and outer surfaces thereof. The distal end 115 of the backing strips 116 are sewn to the cross strip 114 at selective positions to form the cable receiving openings 118.

[0062] In order to form the moveable front attachment piece 126, the webbing material is laid along a length to form the supplemental support strip 128 and the attachment section 134 is then sewn to each of the distal ends 127.

[0063] The top fastener 124 is formed by sewing fastener element on both of major surfaces thereof of the webbing material. The first and second support strips 122 are then sewn to a trailing end of the top fastener 124, thus forming the top attachment 120. Next, the distal ends of the first and second support strips 122 are then sewn to the first and second support sections 104, 108, respectively.

[0064] The supplemental support strip 128 is laid to extend substantially perpendicular to the first and second support sections 104, 108. The backing strips 130 are then sewn to the supplemental support strip 128 and the first and second support sections 104 are received through the support section receiving openings 132.

[0065] The plurality of cross strips 114 are then laid substantially perpendicular to the first and second support sections 104, 108, and the backing strips 116 are sewn to the each of the cross strips 114, such that the first and second support sections 104 are received through the support section receiving openings 117.

[0066] Now with reference to FIG. 8, assembly of the rear article 200 will be described in greater detail.

[0067] In order to form the rear support section 202, the webbing material is laid from the distal end 205 to form the first support section 204. The fold 206 is sewn to the first support section 204 at an end of the rear support connector 207. Likewise, the second fold 206 is sewn to the second support section 208 at an opposite end of the rear support connector 207, and the webbing material is laid to the distal

end 209, in order to form the second support section 208. The fastener element is then applied, for example by sewing, on at least one major surface, at each of the distal ends 205, 209.

[0068] One end of the bottom support 210 is sewn to the rear support connector 207 proximate to a middle of the rear support connector 207. The fastener element is then applied, for example by sewing, on both major surfaces thereof.

[0069] In order to form the rear body 212, the plurality of cross strips 214 are laid apart and substantially parallel to each other. The cross strips 214 are looped around the connectors 219, and the distal ends 215 are sewn to the connective support sections 238, 248. The connective support sections 238, 248 are then sewn to the adjustment section 240, 250, which then is sewn to the fastener section 242, 252. The fastener element is then applied to the fastener section 242, 252, for example by sewing, and along the major inner and outer surfaces thereof.

[0070] The distal end 215 of the backing strips 216 are sewn to the cross strip 214 to form the cable receiving openings 218.

[0071] In order to form the moveable rear attachment piece 226, the webbing material is laid along a length to form the supplemental support strip 228 and the attachment section 234 is then sewn to each of the distal ends 227.

[0072] The top fastener 224 is formed by sewing fastener element on both of major surfaces thereof of the webbing material. The first and second support strips 222 are then sewn to a trailing end of the top fastener 224, thus forming the top attachment 220. The distal ends of the first and second support strips 222 are then sewn to the first and second support sections 204, 208, respectively, to connect the top attachment 220 to the rear support section 202.

[0073] The supplemental support strip 228 is laid to extend substantially perpendicular to the first and second support sections 204, 208. Next, the backing strips 230 are sewn to the supplemental support strip 228 and the first and second support sections 204 are received through the support section receiving openings 232.

[0074] The plurality of cross strips 214 are then laid substantially perpendicular to the first and second support sections 204, 208, and the backing strips 216 are sewn to the each of the cross strips 214 and the first and second support sections 204 are received through the support section receiving openings 217.

[0075] As shown in FIG. 9, assembly of the first side connector 300 will be described.

[0076] First, the plurality of fitting strips 303 are laid out apart and running a length substantially parallel to each other to form the rear article attachment section 302. The front connection section 304 is sewn to the free end of the rear article attachment section 302. Next, the backing strips 306 are sewn to each of the fitting strips 303 to form cable receiving openings 307 there between.

[0077] The side armor securing section is formed when the bottom section 312, the pair of side straps 314, and the top section 316 are sewn to each side of the body 310. The plurality of backing strips 318 are then sewn to the outer surface of the body to form cable receiving openings 320 there between. The body 310 is sewn to the rear article attachment section 302, thus forming the first side connector 300.

[0078] Now with reference to FIG. 9, an assembly of the second side connector 400 will be described.

[0079] First, the plurality of fitting strips 403 are laid out apart and running a length substantially parallel to each other

to form the rear article attachment section 402. The front connection section 404 is sewn to the free end of the rear article attachment section 402. Next, the backing strips 406 are sewn to each of the fitting strips 403 to form cable receiving openings 407 there between.

[0080] The side armor securing section is formed when the bottom section 412, the pair of side straps 414, and the top section 416 are sewn to each side of the body 410. The plurality of backing strips 418 are then sewn to the outer surface of the body to form cable receiving openings 420 there between. The body 410 is sewn to the rear article attachment section 402, thus forming the second side connector 400.

[0081] As shown in FIG. 9, the first and second side connectors 300, 400 are then sewn to the rear body 212 along opposite distal ends 215 thereof. However, in other embodiments, the first and second side connectors 300, 400 may be sewn to the first and second side fasteners 236, 246, respectively.

[0082] Now with reference to the FIGS. 4, 5, and 6, assembly of armor with the front article 100, the rear article 200, the first side connector 300, and the second side connector 400 will be discussed.

[0083] A first piece of armor 2 is positioned along a rear surface of the front body 112. The distance between each cross strip 114 can be adapted to correspond with first piece of armor 2. This is performed by adjusting the front body 112 and, in particular, the cross strip 114 along the first support section 104 and second support section 108, using the support section receiving openings 117.

[0084] Next, the first side fastener 136 is folded over on side of the first piece of armor 2 to lie across a front thereof. Since the first side fastener 136 includes the adjustment section 140, which is elastic, the first side fastener 136 is adaptable to the width of the first piece of armor 2. The fastener section 242 of the first side fastener 136 connects with the bottom support 110 and the top attachment 120.

[0085] In the embodiment shown, portions of the front support section 102 are folded over a lower wall of the first piece of armor 2. The front support section 102 wraps around the first piece of armor 2, and the fastener element of the bottom support 110 attaches to the fastener section 142 of the first side fastener 136. As a result, the first piece of armor 2 is now secured from sliding downward from a first member receiving space 160.

[0086] Likewise, the top attachment 120 folds over an upper wall of the first piece of armor 2, and attaches to the fastener section 142. In particular, the pair of support strips 122 wraps around the upper wall and the fastener section 142. Now, the first piece of armor 2 is secure from sliding upward from the first member receiving space 160.

[0087] Next, as shown, the moveable front attachment piece 126 is adjusted along the front support section 102 so that the moveable front attachment piece 126 adapts to the dimensions of the first piece of armor 2. Distal ends 127 of the supplemental support strip 128 wrap around opposite sides of the first piece of armor 2 and connect to the first side fastener 136. Since the moveable front attachment piece 126 is adjustable along the front support section 102, between the top attachment 120 and front body 112, the moveable front attachment piece 126 can further secure the first piece of armor 2 in the first member receiving space 160.

[0088] In order to fully secure all sides of the first piece of armor 2 in the first member receiving space 160, the second

side fastener 146 is folded over an opposite side of the first piece of armor 2 with respect to the side secured by the first side fastener 136, such that the second side fastener 146 lays across a point of contact between the bottom support 110, the top attachment 120 and the moveable front attachment piece 126 with the first side fastener 136. Since the second side fastener 146 includes the adjustment section 150, which is elastic, the second side fastener 146 is adaptable to the width of the first piece of armor 2 and provides a snug fit around the first piece of armor 2, securing it in the first member receiving space 160.

[0089] Since the front article 100 includes components parts that can slide or stretch, the front article 100 is adaptable to the dimensions of the first piece of armor 2 to firmly secure the first piece of armor within the first member receiving space 160.

[0090] As shown in FIG. 9, the second piece of armor 3 is positioned along a rear surface of the rear body 212. The distance between each cross strip 214 can be adapted to correspond with first piece of armor 2, as well as along the rear support section 202 with respect to the user's chest. This is performed by adjusting the rear body 212 and, in particular, the cross strip 214 along the first support section 204 and second support section 208, using the support section receiving openings 217.

[0091] Next, the first side fastener 236 is folded over one side of the first piece of armor 2 to lie across a rear thereof. Since the first side fastener 236 includes the adjustment section 240, which is elastic, the first side fastener 236 is adaptable to the width of the first piece of armor 2.

[0092] In the embodiment shown, portions of the rear support section 202 that connect with the bottom support 210 are folded over a lower wall of the first piece of armor 2. The rear support section 202 wraps around the first piece of armor 2, and the fastener element of the bottom support 210 attaches to the fastener section 242 of the first side fastener 236. As a result, the first piece of armor 2 is now secure from sliding downward from a second member receiving space 260.

[0093] Likewise, the top attachment 220 folds over an upper wall of the first piece of armor 2. In particular, the pair of support strips 222 wraps around the upper wall and the top fastener 224 attaches to the fastener section 242. Now, the first piece of armor 2 is secure from sliding upward from the second member receiving space 260.

[0094] Next, as shown, the moveable rear attachment piece 226 is adjusted along the rear support section 202 so that the moveable rear attachment piece 226 adapts to the dimensions of the first piece of armor 2. The distal ends 227 of the supplemental support strip 228 wrap around opposite sides of the first piece of armor 2 and the attachment sections 234 connect to the first rear fastener section 242. Since the moveable rear attachment piece 226 is adjustable along the rear support section 202, between the top attachment 220 and rear body 212, the moveable rear attachment piece 226 can further secure the first piece of armor 2 in the second member receiving space 260.

[0095] In order to fully secure all sides of the first piece of armor 2 in the second member receiving space 260, the second side fastener 246 is folded over an opposite side of the first piece of armor 2 with respect to the side secured by the first side fastener section 236, such that the fastener section 252 lays across a contact point of the bottom support 210, the top attachment 220 and the moveable rear attachment piece 226 with the fastener section 242. Since the second side

fastener **246** includes the adjustment section **250**, which is elastic, the second side fastener **246** is adaptable to the width of the first piece of armor **2** and provides a snug fit around the first piece of armor **2**, securing it in the second member receiving space **260**.

[0096] In the shown embodiment, the rear article **200** is adaptable to the dimensions of the second piece of armor **3** to firmly secure the second piece of armor **3** within the second member receiving space **260**. Considering that rear article **200** includes components parts that can slide or stretch, the rear article **200** not only adapts to dimensions of the first piece of armor **2**, but also positions the first piece of armor **2** with respect to the user's chest.

[0097] As shown in FIG. **10**, a piece of side armor **5** is positioned along an inner surface of body **310**, and the bottom section **308** is folded up and positioned on a surface of the piece of side armor **5**. Next, the pair of side straps **314** are folded over and fastener elements of the side straps **314** connect with the fastener elements of the bottom section **308**. The top section **309** is then folded down, and the fastener elements of the top section **309** attach to the bottom section **308** and the side straps **314** to secure the piece of side armor **5** in the side member receiving space **330**.

[0098] Likewise, a side member receiving space **412** is assembled, when the fasteners material of the bottom section **408**, the pair of side straps **414**, and the top section **409** securely connect to each other. The side member receiving space **412** that can be sized to accommodate and secure a piece of side armor **5**. In the shown embodiment, the piece of side armor **5** is positioned along an inner surface of body **410**, and the bottom section **412** is folded up and positioned on a surface of the piece of side armor **5**. Next, the pair of side straps **414** are folded over to connect with the bottom section **412**. The top section **409** is then folded down to securely hold the piece of side armor **5** in the side member receiving space **412**.

[0099] Now with reference to the FIGS. **4** through **6**, assembly of armor with the front article **100**, the rear article **200**, the first side connector **300**, and the second side connector **400** will be discussed.

[0100] Once the first piece of armor **2**, the second piece of armor **3**, and pieces of side armor **5** are secured, as described above, the front article **100** and the rear article **200** removably attach to each other using the fastener element positioned along both distal ends thereof. In particular, the front support section **102** and the rear support section **202** attach to each other using webbing slides and hook and loop fasteners, in order to adjust the length thereof. However, it is possible that one skilled in the art could use a variety of known methods or mechanisms to attach the front support section **102** and the rear support section **202**.

[0101] In use, the front article **100** and rear article **200** are positioned over the user's chest, shoulders and back, and then adjusted according to the user size and body features, using the fastener elements that adjust the components described above. This allows the user to better position the first piece of armor **2** and the second piece of armor **3** with respect to the size and body features of the user.

[0102] Next, the first side connector **300** and the second side connector **400** wrap around the user's torso, from the back to the front, and connect using the fastener elements disposed along the front connection sections **304**, **404**, respectively. When connected, the first side connector **300** and the second side connector **400** secure the rear article **200**

along the user's back. The first side connector **300** and the second side connector **400** fit snugly around the user's torso.

[0103] Next, the front article **100** attaches to the first side connector **300** and the second side connector **400** using the plurality of fasteners **119**. As a result, the armor plate carrier **1** includes a first fit using the first side connector **300** and the second side connector **400** and then a second fit that secures the front article **100** with the first side connector **300** and the second side connector **400**. This provides a better customized fit for the user.

[0104] It should be understood that any of the described connecting component parts using fastener elements or the like, include connection of mating male and female connecting parts. For instance, in the shown embodiment, hook and loop fasteners are used. Therefore, one skilled in the art should appreciate that various connecting parts may be used and the connecting component parts should be made compatible. For instance, one component surface may include a section of hooks that catch the loops along the connecting component surface.

[0105] While an exemplary embodiment shows an assembly of sewn component parts, it should be understood by one skilled in the art that other connecting means are available, including fasteners, adhesives, and mechanical joints.

[0106] Additionally, an assembly of the armor plate carrier **1** may include more, or less components than that which is described, or may be assembled in a different order that which has been described.

[0107] The foregoing illustrates some of the possibilities for practicing the invention. Many other embodiments are possible within the scope and spirit of the invention. It is, therefore, intended that the foregoing description be regarded as illustrative rather than limiting, and that the scope of the invention is given by the appended claims together with their full range of equivalents.

What is claimed is:

1. An armor plate carrier, comprising:
 - a rear article having a rear member receiving space;
 - a first side connector extending from a first side of the rear article;
 - a second side connector extending from a second side of the rear article and attaching to the first side connector; and
 - a front article having a front member receiving space, a front support section connecting to the rear article, and a plurality of fasteners positioned along opposite ends thereof and connecting to the first side connector and the second side connector respectively.
2. The armor plate carrier according to claim **1**, wherein the front support section includes a first support section and a second support section extending from a bottom portion thereof.
3. The armor plate carrier according to claim **2**, wherein the first support section and the second support section are a pair of strips extending substantially parallel to each other.
4. The armor plate carrier according to claim **3**, wherein the front article includes a front body having a material strip extending transverse to and receiving the first support section and the second support section respectively.
5. The armor plate carrier according to claim **3**, wherein front body includes a plurality of cross strips extending orthogonal to the front support section and a plurality of support section receiving openings adapted to receive the front support section.

6. The armor plate carrier according to claim 5, wherein the plurality of cross strips are webbing material having a solid weave.

7. The armor plate carrier according to claim 6, wherein the plurality of support section receiving openings are formed from a plurality of backing strips connecting to one of the plurality of cross strips.

8. The armor plate carrier according to claim 7, further comprising an additional backing strip applied to one of the plurality of cross strips along a first distal end thereof to form a cable receiving opening.

9. The armor plate carrier according to claim 8, wherein the cable receiving opening opens substantially perpendicular to the plurality of support section receiving openings.

10. The armor plate carrier according to claim 4, further comprising:

a first side fastener extending from a first side of the front body;

a bottom support extending from the front support section and connectable with the first side fastener; and

a second side fastener extending from a second side of the front body and connectable with the first side fastener.

11. The armor plate carrier according to claim 10, wherein the first side fastener includes a connective support section connecting to the front body.

12. The armor plate carrier according to claim 11, wherein the first side fastener further includes a fastener section disposed along a free end of the first side fastener.

13. The armor plate carrier according to claim 12, wherein the first side fastener further includes an adjustment section connecting the connective support section and the fastener section.

14. The armor plate carrier according to claim 13, wherein the connective support section is a strip of fabric webbing connecting to the front body.

15. The armor plate carrier according to claim 14, wherein the adjustment section includes a section of elastic material capable of elastic deformation.

16. The armor plate carrier according to claim 13, wherein the second side fastener connects to the front body opposite a side where the first side fastener connects.

17. The armor plate carrier according to claim 16, wherein the second side fastener includes another connective support section connecting to the front body, another fastener section disposed along a free end of the second side fastener, and another adjustment section connecting the other connective support section and the other fastener section.

18. The armor plate carrier according to claim 10, wherein the bottom support extends from the front support section and includes a fastener element disposed along both surface sides thereof.

19. The armor plate carrier according to claim 18, wherein the bottom support connects the first support section and the second support section together.

20. The armor plate carrier according to claim 10, further comprising a top attachment extends from the front body and includes fastener element connectable with the first side fastener.

21. The armor plate carrier according to claim 20, wherein the top attachment includes a pair of support strips connecting to the first support section and the second support section respectively, and a fastener section having a fastener element disposed along both surface sides thereof.

22. The armor plate carrier according to claim 20, further comprising a moveable front attachment piece disposed along the front support section and positioned between the front body and the top attachment.

23. The armor plate carrier according to claim 22, wherein the moveable front attachment piece includes a supplemental support strip extending across the front support section and a support section receiving opening disposed along the supplemental support strip for receiving the front support section.

24. The armor plate carrier according to claim 23, wherein the support section receiving opening includes a backing strip that is secured to the supplemental support strip to form a loop section.

25. The armor plate carrier according to claim 24, wherein the rear article includes a rear support section having a first rear support section and a second rear support section extending from a bottom surface thereof and connecting to the front support section and the second support section of the front article.

26. The armor plate carrier according to claim 25, wherein the rear article includes a slide to receive fastener elements disposed along distal ends of the front support section and the second support section.

27. The armor plate carrier according to claim 26, wherein the rear article includes a rear body having a material strip extending transverse to and receiving the first rear support section and the second rear support section respectively.

28. The armor plate carrier according to claim 27, wherein the rear body includes a plurality of rear cross strips and a plurality of backing strips connecting to the plurality of rear cross strips to form a plurality of rear support section receiving openings.

29. The armor plate carrier according to claim 28, wherein each of the plurality of rear support section receiving openings is a front support section receiving channel.

30. The armor plate carrier according to claim 27, further comprising:

a first rear side fastener extending from a first side of the rear body;

a rear bottom support extending from a lower side of the rear support section and connectable with the first rear side fastener; and

a second rear side fastener extending from a second side of the rear body and connectable with the first rear side fastener.

31. The armor plate carrier according to claim 30, wherein the first rear side fastener includes a connective support section connecting to the rear body.

32. The armor plate carrier according to claim 31, wherein the first rear side fastener further includes a fastener section disposed along a free end of the first rear side fastener, and an adjustment section connecting the connective support section and the fastener section.

33. The armor plate carrier according to claim 32, wherein the adjustment section is a section of elastic material capable of reversible deformation.

34. The armor plate carrier according to claim 32, wherein the second rear side fastener includes another connective support section connecting to the rear body along an opposite side thereof with respect to the first rear side fastener.

35. The armor plate carrier according to claim 32, wherein the rear bottom support extends from the rear support section and includes a fastener element disposed along both surface sides thereof.

36. The armor plate carrier according to claim 31, further comprising a rear top attachment extending from an upper side of the rear support section and connectable with the first rear side fastener.

37. The armor plate carrier according to claim 36, wherein the rear top attachment includes a plurality of support strips rigidly attached to the first support section and the second support section respectively, and a fastener section having a fastener element disposed along both surface sides thereof.

38. The armor plate carrier according to claim 37, further comprising a moveable rear attachment piece disposed on the rear support section and positioned between the rear body and the rear top attachment.

39. The armor plate carrier according to claim 38, wherein the moveable rear attachment piece includes a rear supplemental support strip extending across the rear support section and a plurality of rear supplemental support receiving sections disposed along the rear supplemental support strip for receiving the rear support section.

40. The armor plate carrier according to claim 39, wherein the plurality of rear supplemental support receiving sections receive a pair of material strips of the rear support section.

41. The armor plate carrier according to claim 40, wherein each of the plurality of rear supplemental support receiving sections is a material strip having two free ends that connect to the rear supplemental support strip to form a loop section.

42. The armor plate carrier according to claim 40, wherein the first side connector includes a rear article attachment section connected to the rear article and a front connection section extending from the rear article attachment section and having a fastener to connect with the second side connector.

43. The armor plate carrier according to claim 42, wherein the first side connector further includes a side armor securing section having:

- a body connected to the rear article attachment section;
- a bottom section extending from a lower surface of the body and having a fastener element disposed along a major surface thereof;
- a top section extending from an upper surface of the body and having a fastener element disposed along a major surface thereof to connect with the bottom section; and
- a pair of side straps extending from opposite side of the body and connectable to the bottom section.

44. An armor plate carrier, comprising:

- a front support section having a first support section and a second support section extending from a bottom portion thereof;
- a front body extending transverse to and receiving the first support section and the second support section respectively;
- a first side fastener extending from a first side of the front body;
- a bottom support extending from a lower side of the front body and connectable with the first side fastener; and
- a second side fastener extending from a second side of the front body and connectable with the first side fastener.

45. The armor plate carrier according to claim 44, wherein the first support section and the second support section are a pair of material webbing strips extending substantially parallel to each other.

46. The armor plate carrier according to claim 44, wherein the front body includes a plurality of cross strips extending orthogonal to the front support section and a plurality of support section receiving openings adapted to the plurality of cross strips.

47. The armor plate carrier according to claim 46, wherein the plurality of support section receiving openings include a plurality of backing strips connecting to the plurality of cross strips to provide a channel to receive the front support section.

48. The armor plate carrier according to claim 47, wherein the first side fastener includes a connective support section connecting to the front body, a fastener section disposed along a free end of the first side fastener, and adjustment section connecting the connective support section and the fastener section.

49. The armor plate carrier according to claim 48, wherein the adjustment section is a section of elastic material capable of reversible deformation and having a first side thereof connected to the connective support section and a second side thereof connected to the fastener section.

50. The armor plate carrier according to claim 49, wherein the fastener section includes fastener elements disposed along both surface sides thereof.

51. The armor plate carrier according to claim 47, wherein the second side fastener includes another connective support section connecting to the front body along an opposite side, another fastener section disposed along a free end of the second side fastener, and another adjustment section connecting the other connective support section and the other fastener section.

52. The armor plate carrier according to claim 44, further comprising a top attachment extending from an upper side of the front support section and connectable with the first side fastener.

53. The armor plate carrier according to claim 52, further comprising a moveable front attachment piece disposed on the front support section and positioned between the front body and the top attachment.

54. The armor plate carrier according to claim 53, wherein the moveable front attachment piece includes a supplemental support strip extending extends substantially orthogonal to the front support section and a plurality of supplemental support receiving sections attached to the supplemental support strip.

55. The armor plate carrier according to claim 54, wherein the plurality of supplemental support receiving sections receive the first support section and the second support section respectively.

56. The armor plate carrier according to claim 55, wherein each of the plurality of supplemental support receiving sections includes a backing strip having two free ends that connect to the supplemental support strip to form a loop section.

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