



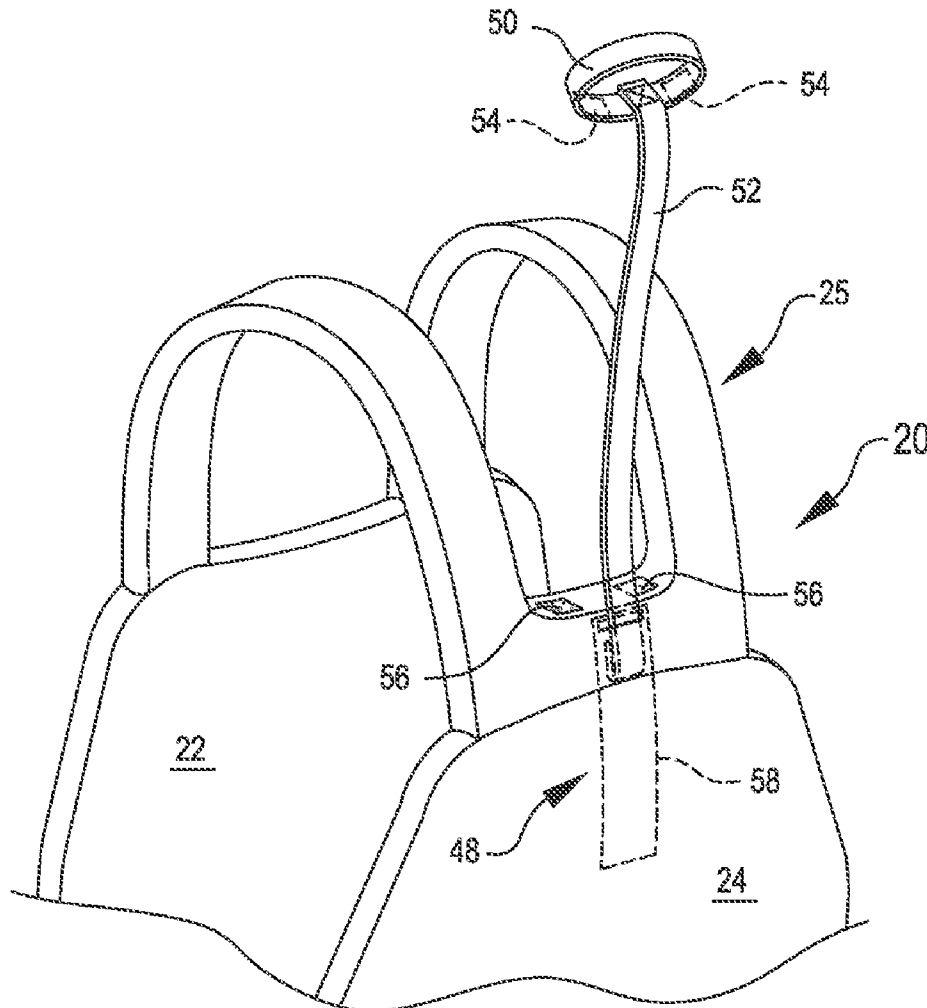
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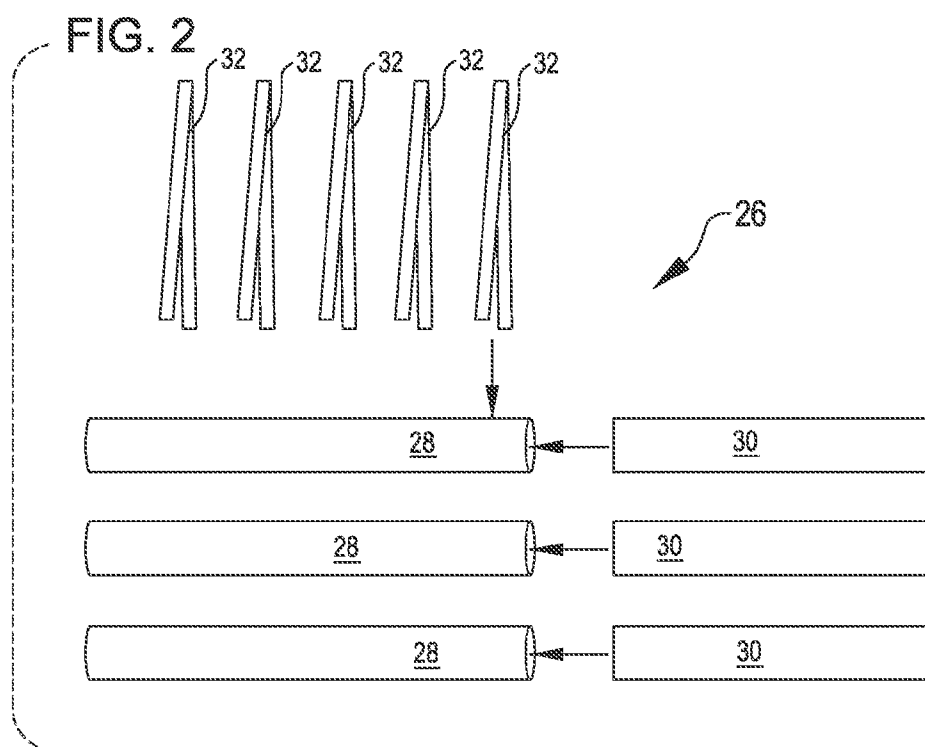
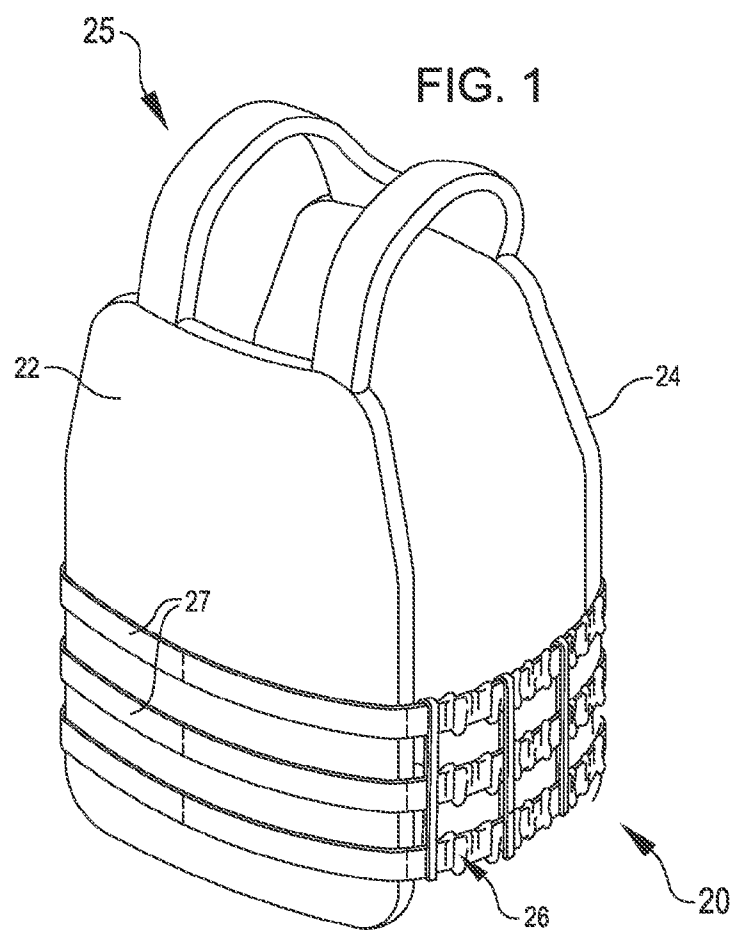
(19) **United States**(12) **Patent Application Publication**
Nykoluk et al.(10) **Pub. No.: US 2015/0257458 A1**(43) **Pub. Date: Sep. 17, 2015**(54) **ATTACHABLE TOW HANDLE POCKET FOR
GARMENT****Publication Classification**(71) Applicant: **5.11, Inc.**, Modesto, CA (US)(72) Inventors: **Cory Owen Nykoluk**, Orange, CA (US);
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Fernando Aguilar, Santa Ana, CA (US)(51) **Int. Cl.****A41D 1/04** (2006.01)**A41D 27/00** (2006.01)(52) **U.S. Cl.**CPC . **A41D 1/04** (2013.01); **A41D 27/00** (2013.01)(73) Assignee: **5.11, Inc.**, Modesto, CA (US)(21) Appl. No.: **14/656,435**(22) Filed: **Mar. 12, 2015****Related U.S. Application Data**(60) Provisional application No. 61/951,986, filed on Mar.
12, 2014.

(57)

ABSTRACT

A load-bearing garment, such as a vest, is provided having stretchable web platform on an outside surface, such as between front and back panels of the vest. The stretchable web platform includes stretchable bands that extend horizontally, and vertical webbing extending between multiple horizontal bands. Additional embodiments are directed to a mounting system in a plate carrier for a plate. Still further embodiments are directed to a handle and strap system for a vest or other garment that permits a quick rescue of a person wearing the vest.





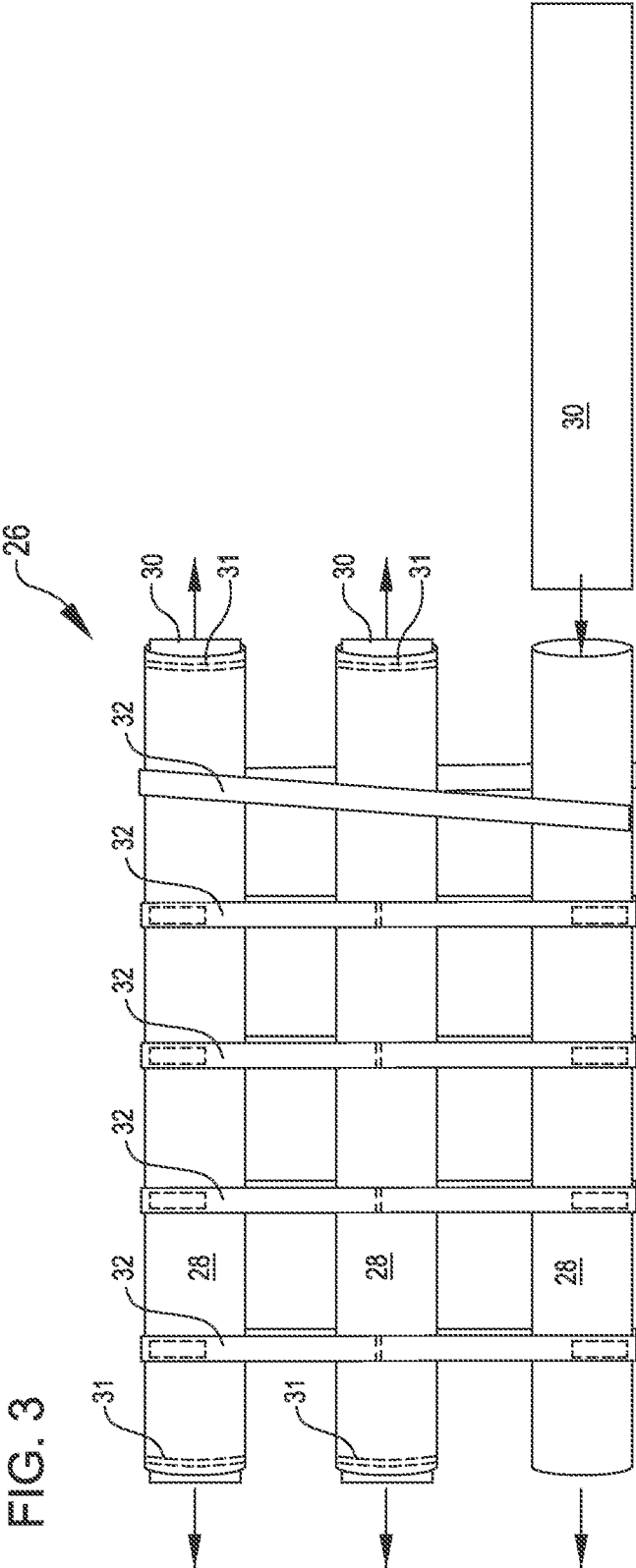


FIG. 4

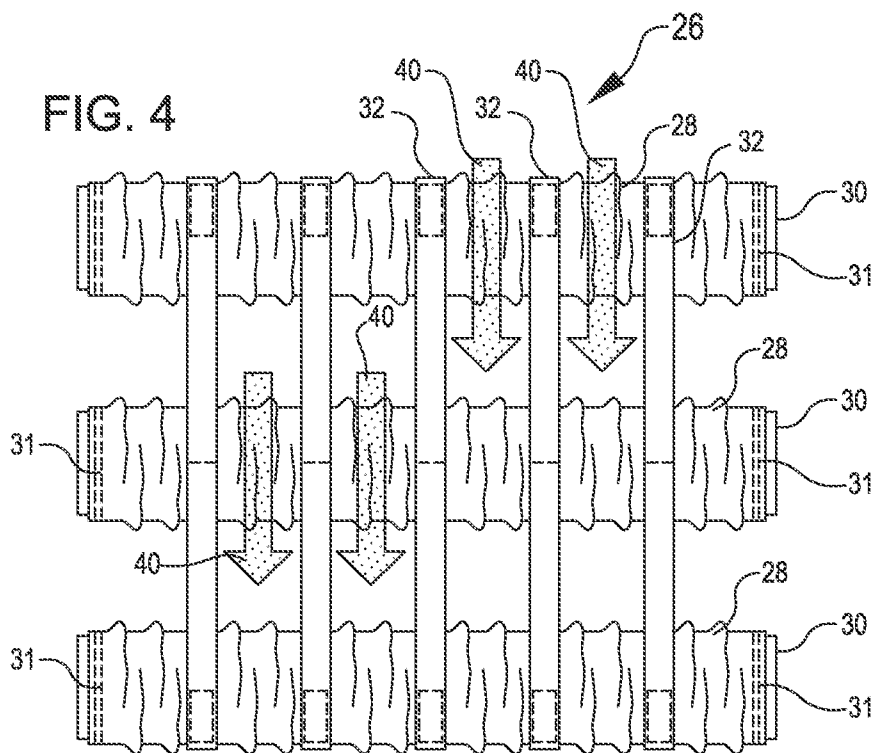


FIG. 5

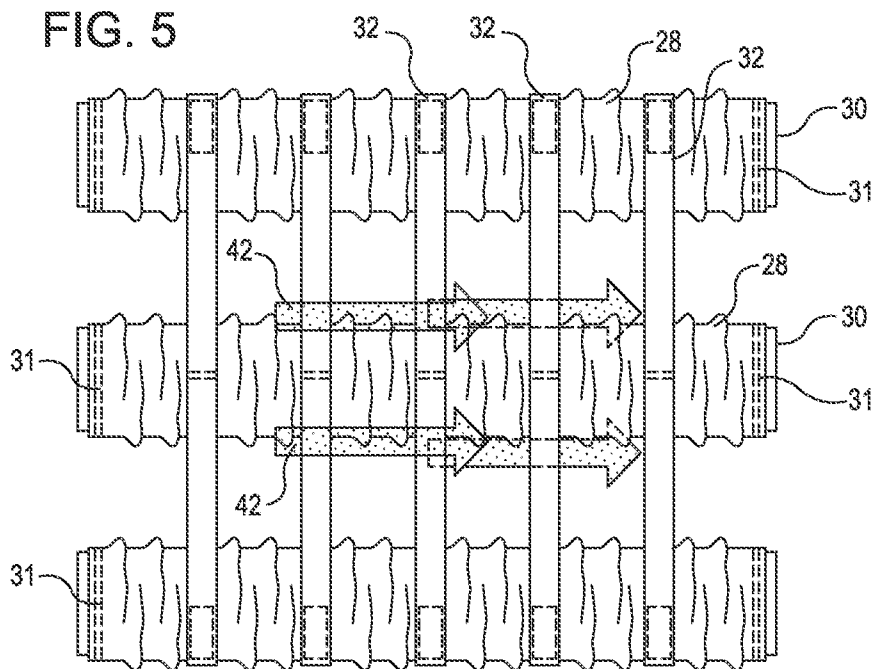


FIG. 6

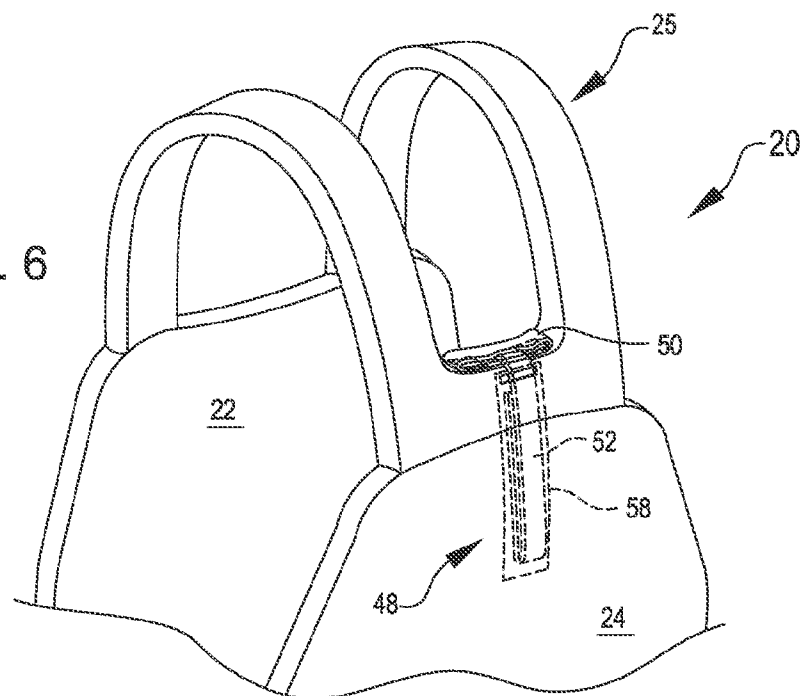
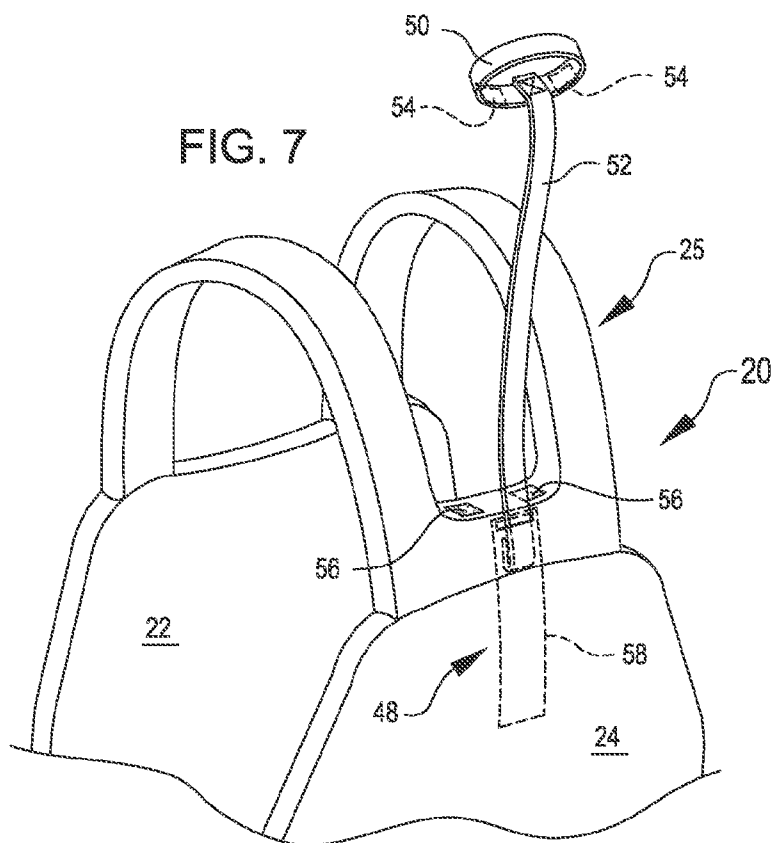
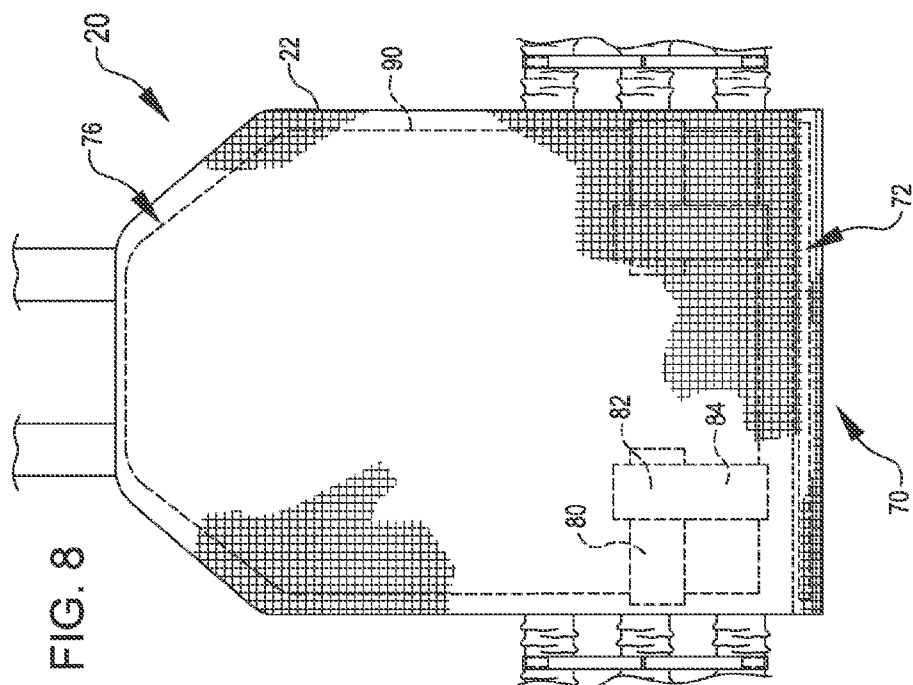
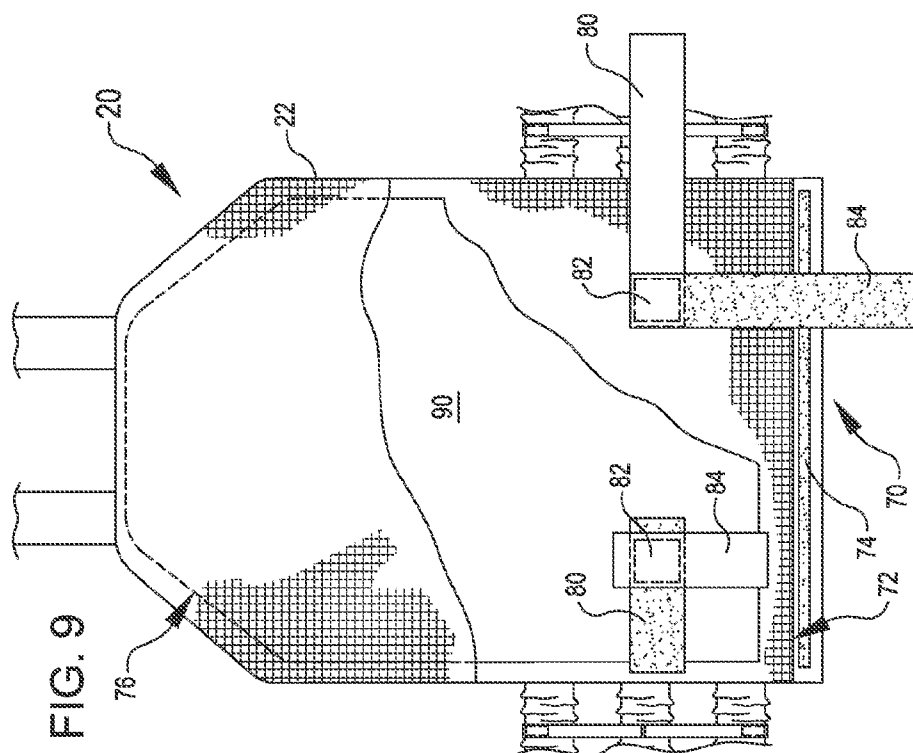


FIG. 7





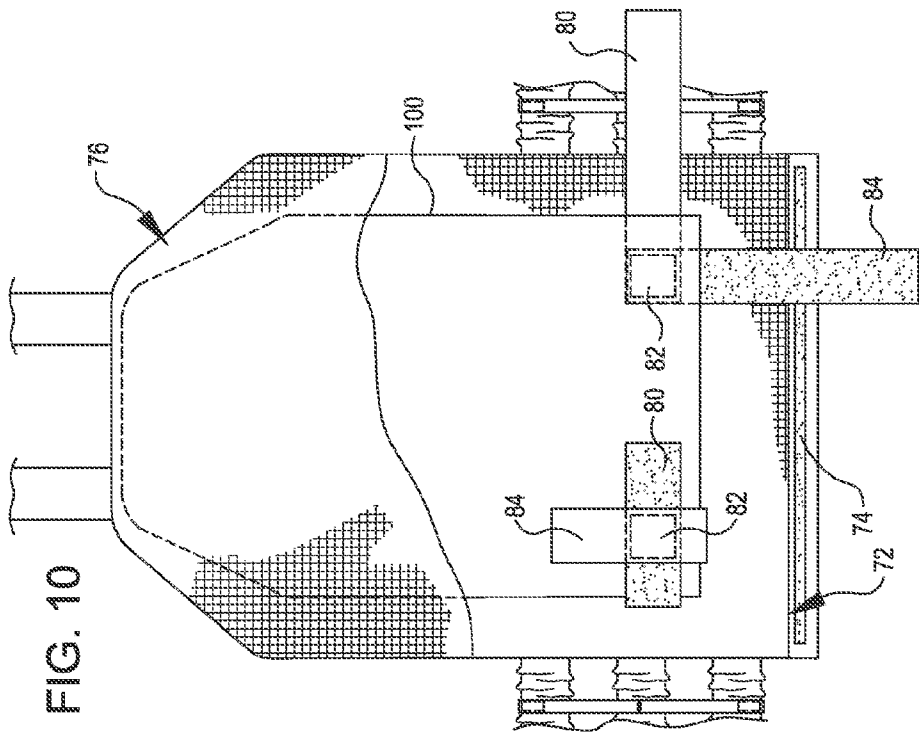
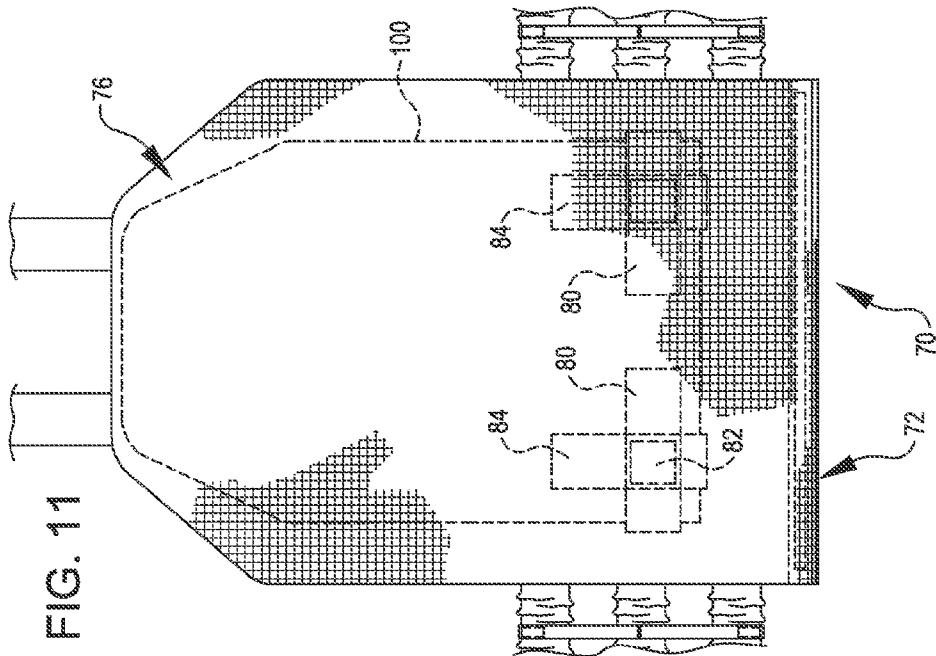


FIG. 12

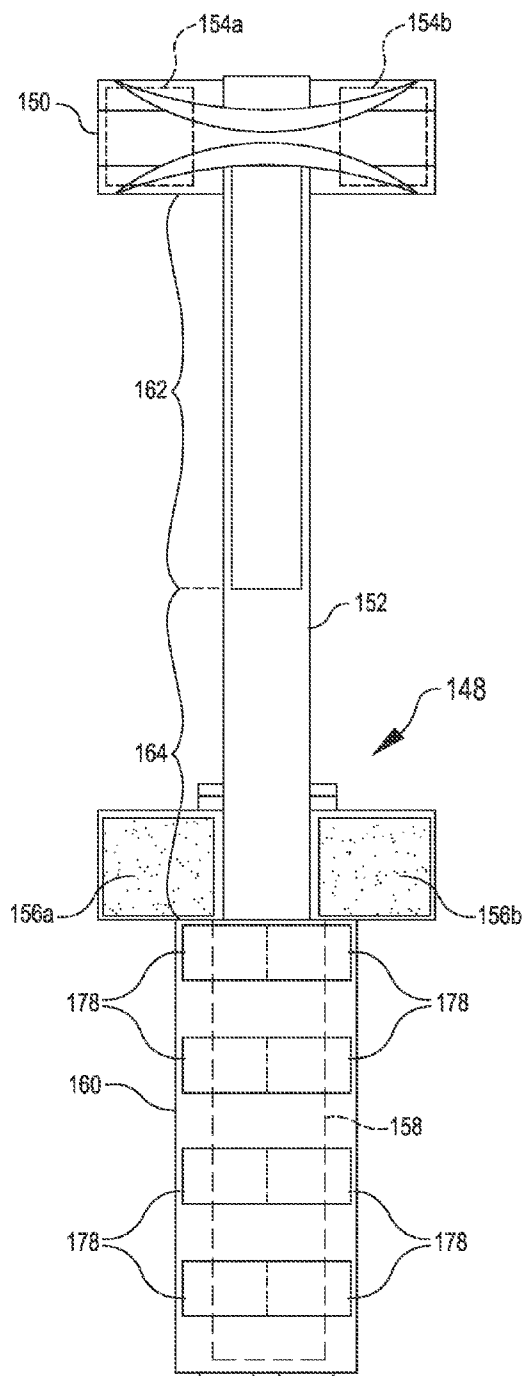


FIG. 13

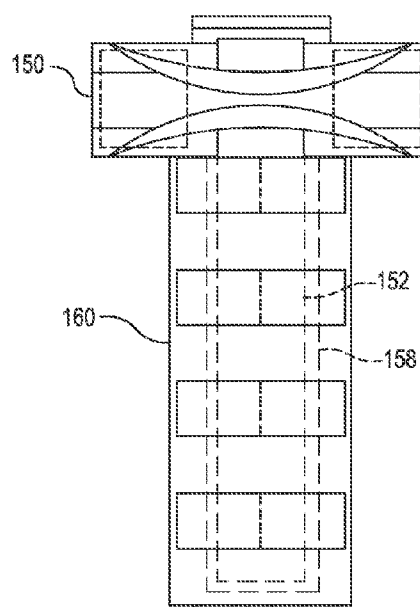


FIG. 14

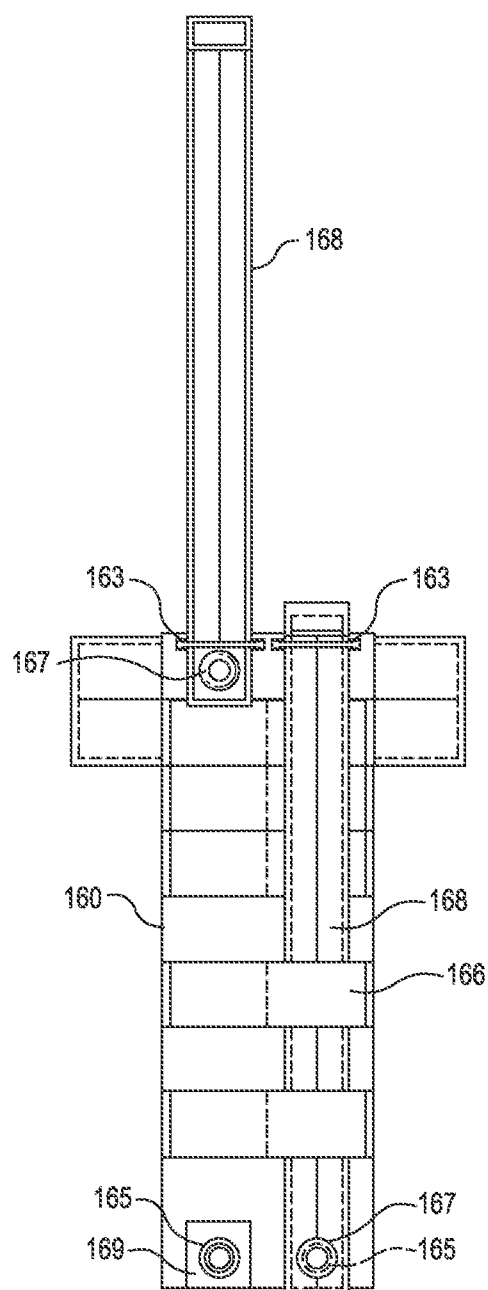


FIG. 15

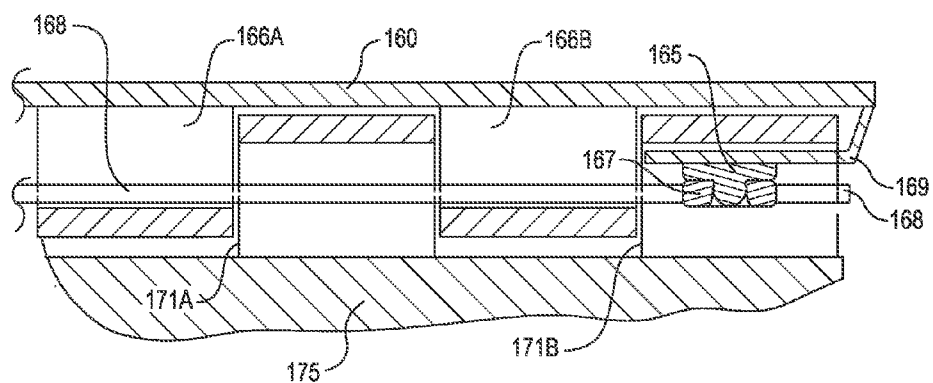


FIG. 16

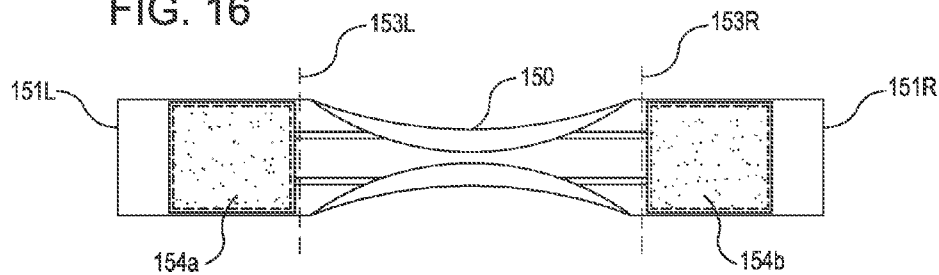
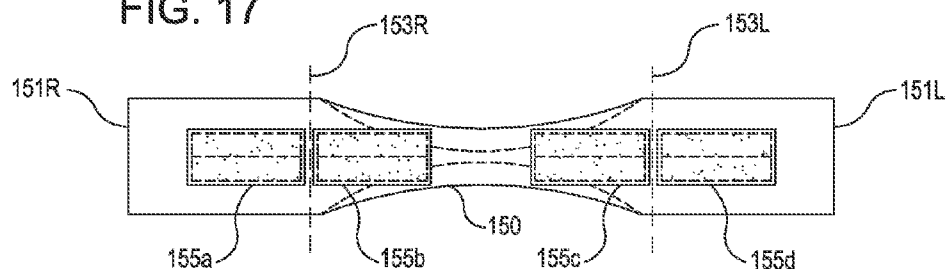


FIG. 17



ATTACHABLE TOW HANDLE POCKET FOR GARMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of U.S. Provisional Application No. 61/951,986 (Attorney Docket No. 93168-893506 (003300US)), filed on Mar. 12, 2014, the full disclosure of which is incorporated herein by reference.

BACKGROUND

[0002] MOLLE (Modular Lightweight Load-carrying Equipment) is load-bearing equipment and rucksacks utilized by the United States armed forces. The MOLLE system is modular and permits the attachment of various MOLLE-compatible accessories, such as holsters, magazine pouches, radio pouches, knife sheathes, and other gear to MOLLE compatible load-bearing garments, such as vests, backpacks, and jackets.

[0003] The MOLLE system's modularity is derived from the use web platforms on load-bearing garments. For example, PALS (Pouch Attachment Ladder System) web platforms can be included on the load-bearing garments. PALS webbing includes rows of heavy-duty nylon stitched onto the vest or other load-bearing garment so as to allow for attachment of MOLLE accessories.

[0004] PALS webbing is attached to load-bearing garments in a grid structure. The PALS grid consists of horizontal rows of 1 inch nylon webbing (most commercial vendors use Type Ma), spaced 1 inch apart, and reattached, typically via stitching, to the backing at 1.5 inch intervals. This consistent reattachment forms, for each strap, a series of upwardly and downwardly opened loops. The loops for adjacent straps are aligned so that a series of loops are stacked one on top of each other. This pattern provides secure and stable attachment for MOLLE accessories.

[0005] The following references may be relevant to this technology: U.S. Published Patent application number 2012/0180189 and U.S. Pat. No. 7,917,968.

BRIEF SUMMARY

[0006] The following presents a simplified summary of some embodiments of the invention in order to provide a basic understanding of the invention. This summary is not an extensive overview of the invention. It is not intended to identify key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some embodiments of the invention in a simplified form as a prelude to the more detailed description that is presented later.

[0007] In accordance with embodiments, a load-bearing garment, such as a vest, is provided having stretchable web platform on an outside surface, such as between front and back panels of the vest. The stretchable web platform includes stretchable bands that extend horizontally, and vertical webbing extending between multiple horizontal bands.

[0008] The stretchable bands can be, for example, elastic sleeves that fit within tube webbing, and pull the tube webbing inward.

[0009] Gear can be attached either to the horizontal bands or the vertical webbing. The gear can be, for example, MOLLE compatible gear.

[0010] Additional embodiments are directed to a mounting system in a plate carrier for a plate. The mounting system

includes two sets of straps, such as webbing, with hook and loop material. The straps can be connected at different points along their length so that plates of various sizes can be accommodated. For each set, one strap extends under the plate and one strap extends around a lower side edge of the plate. The ends are connected by the hook and loop materials. Pulling the ends taut permits the plate to be firmly held in position, regardless of plate size.

[0011] Still further embodiments are directed to a handle and strap system for a vest or other garment that permits a quick rescue of a person wearing the vest. A handle is attached to a strap and is usually accessible from an outside of the vest, for example just below the back of the base of the neck. The strap can be mounted in a pocket or sleeve in this storage configuration. The handle can be grasped and pulled outward, released for example from hook and loop closures. The strap is pulled outward, but is anchored at a distal end to the vest.

[0012] When the handle is pulled out and the strap is pulled taut, the handle can be used to pull and/or drag the wearer of the vest to a safe location. Once used, the strap can be stored again in its sleeve, and the handle can be reattached, if attachments are provided. In some embodiments, the sleeve is part of a separate component attachable to the garment, for example by webbing or other connectors for attaching MOLLE-compatible gear.

[0013] For a fuller understanding of the nature and advantages of the present invention, reference should be made to the ensuing detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Various embodiments in accordance with the present disclosure will be described with reference to the drawings, in which:

[0015] FIG. 1 is a side, perspective view of a vest incorporating stretchable web platform in accordance with embodiments.

[0016] FIG. 2 is an exploded perspective view of stretchable web platform in accordance with embodiments.

[0017] FIG. 3 is a side assembled view of the stretchable web platform of FIG. 2.

[0018] FIG. 4 is a side view, similar to FIG. 3, of the stretchable web platform of FIG. 2, showing vertical mount options for the stretchable web platform.

[0019] FIG. 5 is a side view, similar to FIG. 4, of the stretchable web platform of FIG. 2, showing horizontal mount options for the stretchable web platform.

[0020] FIG. 6 is a perspective view of a plate carrier vest having a handle and strap system, with the system in a stored configuration.

[0021] FIG. 7 is a perspective view, similar to FIG. 6, of the plate carrier vest with the handle and strap system in a deployed configuration.

[0022] FIG. 8 is a rear view of a front panel of a plate carrier vest showing a plate carrier retention system in accordance with embodiments.

[0023] FIG. 9 is partial cutaway rear view of the front panel of the plate carrier vest of FIG. 8, with the plate carrier retention system partly detached.

[0024] FIG. 10 is a partial cutaway rear view, similar to FIG. 9, with the plate carrier retention system partly attached around a smaller plate.

[0025] FIG. 11 is a rear view, similar to FIG. 8, with the plate of FIG. 10 mounted in the plate carrier vest.

[0026] FIG. 12 is a front view of an attachable pouch for a handle and strap system, with the handle and strap system in a deployed configuration, in accordance with embodiments.

[0027] FIG. 13 is a front view, similar to FIG. 12, of the attachable pouch with the handle and strap system in a stored configuration, in accordance with embodiments.

[0028] FIG. 14 is a rear view of the attachable pouch of FIG. 12 showing MOLLE-compatible attachment members, in accordance with embodiments.

[0029] FIG. 15 is a side view of the attachable pouch of FIG. 14 showing the MOLLE-compatible attachment members coupling the attachable pouch to a garment, in accordance with embodiments.

[0030] FIG. 16 is a front view of an unassembled and laid flat handle of the handle and strap system, in accordance with embodiments.

[0031] FIG. 17 is a rear view of an unassembled and laid flat handle of the handle and strap system of FIG. 16, in accordance with embodiments.

[0032] FIG. 18 is a diagram illustrating, from a side view, an example of an internal construction of the handle and strap system of FIGS. 12-17, in accordance with embodiments.

DETAILED DESCRIPTION

[0033] In the following description, various embodiments of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the embodiments. However, it will also be apparent to one skilled in the art that the present invention may be practiced without the specific details. Furthermore, well-known features may be omitted or simplified in order not to obscure the embodiment being described.

[0034] Embodiments herein are directed to tow handle pouches attachable to vests or other garments. This disclosure additionally includes a description of a stretchable web platform exposed for the attachment of gear (FIGS. 1 to 5), a handle and strap system integrated into a vest or other garment that permits a quick rescue of a person wearing the vest (FIGS. 6-7), and a mounting system in a plate carrier (FIGS. 8-11), which are described and claimed in U.S. Non-Provisional patent application Ser. No. 14/094,583, entitled "GARMENT WITH CARRYING SYSTEM," filed Dec. 2, 2013 (Attorney Docket No. 93168-888229), which claims the benefit of U.S. Provisional Application No. 61/732,165 (Attorney Docket No. 93168-831642 (001200US)), filed on Nov. 30, 2012, the entire disclosures of which are hereby incorporated herein by reference.

[0035] In accordance with embodiments, a jacket or vest or other garment is provided having a stretchable web platform exposed for the attachment of gear, such as MOLLE compatible gear. In embodiments, the stretchable web platform can support gear hung either vertically or horizontally.

[0036] For example, in the embodiment shown in FIG. 1, a vest 20 is shown having a front panel 22 and a rear panel 24. A shoulder yoke 25 attaches to the tops of the front and rear panels 22, 24 and connects the two panels. A stretchable web platform 26 extends between a bottom portion of the front panel 22 and the rear panel 24. Specifically, in FIG. 1, the stretchable web platform 26 extends between lower side edges of the front and rear panels. A separate stretchable web platform 26 is positioned on each side of the vest 20, although only the left side is shown in FIG. 1. Webbing material 27 extends from the stretchable web platform 26 and across the

front the front panel 22 and the rear (not shown) of the rear panel 24. Thus, the stretchable web platform 26 on each side of the vest 20 and the webbing material 27 on the front and rear panels 22, 24 circumscribe the bottom of the vest. The stretchable web platform 26 permits some elasticity to the connection between the front and rear panels 22, 24, providing a more snug fit of the vest without the vest being too tight.

[0037] Although shown as attached between the front and rear panels 22, 24, the stretchable web platform 26 can be attached to other locations, such as across the front or inside either of the panels 22, 24 of the vest 20. To this end, the stretchable web platform 26 can extend over any portion of the outside of the vest 20, or can overlap portions of the inside of the vest. The stretchable web platform 26 can also be mounted on other garments, such as a jacket or pants, or could be used with many different items, including backpacks. The stretchable web platform has particular application, however, to installations where both (1) stretch and elasticity and (2) attachment of gear are desired at the same location.

[0038] Details of the stretchable web platform 26 are shown in the exploded perspective view of FIG. 2. The stretchable web platform 26 includes a plurality (e.g., more than two) horizontally-aligned webbing tubes 28. The webbing tubes 28 can be, for example, 1.0 inch tubes of webbing.

[0039] Strips 30 of elastic material are inserted in the webbing tubes 28. The elastic strips 30 can be elastic webbing or other material that is stretchable and has a memory to return to its initial shape after stretching. The elastic can be made of rubber or an imitative rubber synthetic material, as examples.

[0040] The elastic strips 30 are shorter in length than the webbing tubes 28. In embodiments, the elastic strips 30 are $\frac{2}{3}$ the length of the webbing tubes 28. As shown in FIG. 3, the ends of the elastic strips 30 are sewn at sew lines 31 to ends of the webbing tubes 28. Sewing the elastic strips 30 to the ends of the webbing tubes 28 causes the webbing tubes to compress and fold to the length of the elastic straps. The webbing tubes 28 can include a number of folds or wrinkles during this compression.

[0041] The compressed webbing tubes 28 and the elastic strips 30, once sewn together, provide a stable structure to which gear, such as MOLLE compatible gear, can be attached. The outer webbing tubes 28 provide a surface that is similar to regular webbing, and thus is suitable for the attachment of gear. The compressed/folded/wrinkled configuration of the web tubing 28, along with the elastic strips 30, permits the overall structure of the stretchable web platform 26 to be stretchable in a horizontal direction, allowing the vest 20 to fit snugly, but not too tightly, against a wearer, and to adjust to movements of a wearer, adding to comfort to the wearer.

[0042] Vertical webbing 32 (FIG. 2) can be attached between multiple webbing tubes 28. The vertical webbing 32 can be any width, but in embodiments is 0.25 inch webbing. The vertical webbing 32 is sewn to the web tubing 28, and can also be sewn through the web tubing to the elastic strips 30. In embodiments, however, the vertical webbing 32 is sewn only to the web tubing 28, allowing the elastic strips 30 to freely move within the web tubing 28.

[0043] As shown in FIG. 4, the stretchable web platform 26 can receive and support gear, such as MOLLE compatible gear, mounted vertically, as shown by the arrows 40. The gear mounts down over one or two of the horizontally aligned web tubings 28. The gear can attach, for example, between vertical webbings 32 or on opposite sides of a vertical webbing.

[0044] As shown in FIG. 5, the stretchable web platform 26 can also receive and support gear, such as MOLLE compatible gear, mounted horizontally, as shown by the arrows 42. The gear mounts sideways, attached to one or more of the vertical webbings 32. The gear can attach, for example, between adjacent horizontally aligned web tubings 28 or on opposite sides of a horizontally aligned web tubing.

[0045] FIG. 6 shows another feature that can be provided for the vest 20. In FIG. 6, a handle and strap system 48 is shown mounted on the rear of the vest 20. The handle and strap system 48 permits a quick rescue of a person wearing the vest or other garment. Briefly described, the handle and strap system 48 is mounted in a storage position against and/or within the vest 20 (FIG. 6), and can be pulled outward to a deployed position where it can be used to drag a wearer of the vest to a safe location (FIG. 7). A handle 50 is attached to a strap 52 and mounted in a storage configuration where the handle is accessible from an outside of the vest, for example just below the back of the base of the neck.

[0046] In the storage position, fasteners or other connectors, such as hook and loop closures 54, 56, can be used to hold the handle 50 in position. Hook and loop closures 54, 56 work well to connect the handle 50, because the closures 54, 56 can be released and the handle 50 and strap 52 deployed using a single movement (i.e., pulling outward on the handle). However, other closures can be used, or the handle can be held in position by gravity and/or retention of the strap 52. Closures could also or alternatively be used to retain the strap 52.

[0047] In the embodiment shown in the drawing, the handle 50 is formed of a loop of webbing. The strap 52 is attached to one position on the loop, and the closures 54 are positioned on opposite sides of the strap attachment. The closures 54 connect to closures 56 when the handle is in the storage position.

[0048] In embodiments, the strap 52 is positioned in a sleeve 58 or other pocket while the handle and strap system 48 is in the storage configuration. The sleeve 58 permits the strap 52 to be out of the way while the handle and strap system 48 is in the storage position, but easily deployed when needed. The sleeve 58 shown in the drawings extends in a direction of deployment so that the sleeve does not hinder deployment. A distal end of the strap 52 is anchored to the vest 20, for example at the opening of the sleeve 58.

[0049] In use, when a wearer of the vest 20 is to be rescued, the wearer is extended in a prone position, and the rescuer grasps the handle and pulls outward in a direction, first releasing the hook and loop closures 54, 56, and then pulling the strap 52 from the sleeve 58. The strap 52 is pulled taut against its anchor at an opening of the sleeve 58, such as is shown in FIG. 7. Continued pulling on the handle 50 permits the rescuer to drag the wearer to safety. The vest 20 retains the wearer during this rescue, and the strap can readily take advantage of the fact that the wearer is fully connected.

[0050] Once used, the strap 52 can be stored again in its sleeve 58, and the handle 50 can be reattached via the hook and loop closures 54, 56.

[0051] FIGS. 12-18 show a similar, yet distinct, handle and strap system 148. In FIG. 12, a handle and strap system 148 is shown mounted on a pouch 160. Briefly described, the pouch 160 can be releasably attached to a garment to equip the garment with a handle and strap system 148 with functions similar to the handle and strap system 48 described above with reference to FIGS. 6-7. In general, features in FIGS. 12-18 that are identified with reference numbers that share the final two trailing digits as reference numbers used to identify

features in FIGS. 6-7 may share common names and functions as those corresponding features in FIGS. 6-7. However, such similar features are not limited to the previously described configurations or functions and may include alterations that provide additional or alternative functions and/or configurations, including those further described herein.

[0052] In the embodiment shown in the drawing, the strap 152 can include a reinforced section 162 and a flexible section 164. For example, the reinforced section 162 may include more layers of webbing stitched together or a thicker webbing than the flexible section 164. In some aspects, a support board or other reinforcing member is internally disposed in the reinforced section 162. The reinforced section 162 may be semi-rigid and/or more rigid than the flexible section 164. The flexible section 164 can provide slack for the strap 152 to bend or contort, which can provide a wide range of angles at which a person may be towed using the strap 152. The reinforced section 162 can provide rigidity to a portion of the strap 152 to facilitate insertion of the strap 152 into the sleeve 158. For example, an end of the reinforced section 162 distal to the handle 150 can be aligned easily with and inserted into the opening of the sleeve 158. A subsequent simple fluid motion of pushing along the length of the reinforced section 162 from a position proximate the handle 150 can cause the strap 152 to slide fully into the sleeve 158 and the stored position depicted in FIG. 13. The flexible section 164 can bend as the reinforced section 162 is inserted into the opening of the sleeve 158. As the reinforced section 162 is slid into the sleeve 158, the flexible section 164 can be consequently pulled into the sleeve 158. In this manner, the strap 152 can be doubled on top of itself as it is stowed, thereby providing an efficient use of space in the sleeve 158.

[0053] As best seen in FIG. 14, a rear side of the pouch 160 can include attachment features for connecting to MOLLE-compatible garments. For example, in the embodiments shown in the drawings, the pouch can include a plurality of loops 166 and one or more attachment members 168. The loops 166 can be formed by strips of webbing sewn at regular intervals to the pouch 160. The loops 166 may be arranged in a pattern to align with a MOLLE-compatible support structure mounted on a vest 20 or other garment. Non-limiting examples of the attachment members 168 include sections of webbing (which in some cases may be made semi-rigid by stitching), rods sized to fit through the MOLLE-compatible support structure, and cords.

[0054] To install the pouch 160, the attachment members 168 can be woven alternately through the loops 166 and the support structure to join the pouch 160 to the garment. A first fixture 165 mounted on the pouch 160 can engage with a second fixture 167 mounted on the attachment member 168 to further secure the attachment member 168 in place. For example, the first and second fixtures 165 and 167 may include mating sides of a snap fastener (e.g., shown detached from one another in a first set on a left side of FIG. 14 and shown attached to one another in a second set on a right side of FIG. 14). Other types of first and second fixtures 165 and 167 can be used, including, but not limited to, hook and loop fasteners. Securing a leading end of the attachment member 168 in such a manner can decrease a risk of the attachment member 168 becoming jostled free during use of the handle and strap system 148.

[0055] In the embodiment depicted in the drawings, a guide 163 is also provided on the pouch 160 at an end opposite the first fixture 165. For example, the guide 163 is shown at a

proximal end of the pouch 160, and the first fixture 165 is shown at a distal end of the pouch 160. The guide 163 can align the attachment member 168 during installation into the arrangement of loops 166 and MOLLE-compatible support structure. The guide 163 may also provide an additional constraint to secure the attachment member 168 to the pouch 160. Securing the attachment member 168 to the pouch 160 can reduce the risk of the attachment member 168 coming free of the pouch 160 during use and/or the risk of the attachment member 168 being misplaced when the pouch 160 is not attached to a garment. For example, the guide 163 may have a cross-section sized to allow movement of the attachment member 168 through the guide 163 and to prevent either end of the attachment member 168 from easily passing through the guide 163. Although the guide 163 is shown in FIG. 14 as a rectangular plastic ring sized to prevent passage there through of a snap (i.e., the first fixture 165), any other suitable shape and/or material may also be used. Arrangements may also differ from that depicted (e.g., the pouch 160 may include a snap or other first fixture 165 at the proximal end and the guide 163 at the distal end).

[0056] In some embodiments, the first fixture 165 is mounted on the pouch 160 by a tab 169. The tab 169 may include a piece of webbing or fabric attached to the pouch 160, for example, by stitching. Use of the tab 169 may reduce structural damage to the pouch 160 during removal and/or replacement of the first fixture 165. For example, removing stitching for a tab 169 with a snap fixture and introducing new stitching to secure a replacement tab 169 having a hook and loop fastener can be less destructive than cutting to remove a snap fixture directly affixed to the pouch 160. In some embodiments, the tab 169 is hingedly attached to the pouch 160. For example, of the four edges of the tab 169 shown in FIG. 14, the tab 169 may be stitched along the bottom edge and unsecured along the other three edges.

[0057] A hingedly attached tab 169 can fold over or behind the attachment member 168 so that the first fixture 165 of the tab 169 can align for engagement with the second fixture 167 of the attachment member 168. For example, in the embodiment shown in FIG. 15, the attachment member 168 is routed alternately through loops 166 of the pouch 160 and loops 171 of a MOLLE-compatible support structure 175 mounted on a vest 20 or other garment (e.g., in order through loops 166A, 171A, 166B, and 171B). In this depicted example of FIG. 15, the hinged tab 169 (bearing the first fixture 165) is routed into the final loop 171B of the MOLLE-compatible support structure 175, allowing the first fixture 165 to engage the second fixture 167 within that final loop 171B. This may provide greater versatility than an arrangement with the first fixture 165 directly fixed to the pouch 160 (in which the final loop 171B otherwise may be an engagement-preventing obstruction between the first fixture 165 and the second fixture 167).

[0058] Although FIG. 15 depicts the tab 169 as positioned between the attachment member 168 and the pouch 160, in some embodiments, the tab 169 may fold over the end of the attachment member 168 to secure the attachment member 168 between the tab 169 and the pouch 160. For example, the tab 169 may include a first fixture 165 on a side that faces the pouch 160, and the first fixture 165 may engage a second fixture 167 disposed on a side of the attachment member 168 that faces away from the pouch 160. In some embodiments, the tab 169 and/or the attachment member 168 may include a fixture that can engage a complementary fixture regardless of

whether the complementary fixture is oriented facing toward or away from the pouch 160. As an illustrative example, FIGS. 14 and 15 depict the second fixture 167 as a hollow, grommet-like female snap that can receive a male snap (as the first fixture 165) regardless of whether the male snap is on the side of the tab 169 that faces away from the pouch 160 (as shown) or on the side of the tab 169 that faces toward the pouch 160 (not shown). Other types of fixtures may be utilized, including, but not limited to, hook and loop fasteners. In some embodiments, both sides of the tab 169 and the attachment member 168 may include fixtures such that a subset of the fixtures can engage each other regardless of whether the tab 169 is folded over or behind the attachment member 168.

[0059] Although attachment loops 166 and 177 are described with respect to FIG. 15, any appropriate MOLLE-compatible connection system can be used to secure the pouch 160 to a garment. For example, the pouch 160 and the garment could be joined via one or more stretchable web platforms 26 (such as described herein with respect to FIGS. 1-5) attached to the pouch 160 and/or garment. Additionally or alternatively, the pouch 160 and/or the garment may utilize attachment features such as disclosed in U.S. Non-Provisional patent application Ser. No. 14/454,641, entitled "HEXAGONAL ATTACHMENT SYSTEM," filed Aug. 7, 2014 (Attorney Docket No. 93168-906586), the entire disclosure of which is hereby incorporated herein by reference.

[0060] FIGS. 16 and 17 are respectively a front and a rear view of an unassembled and laid flat handle 150 of the handle and strap system 148, in accordance with embodiments. The handle 150 may be comprised of a loop of webbing. The loop can be formed by folding ends 151R and 151L of the webbing toward each other (e.g., along dashed lines 153L and 153R, moving ends 151R and 151L into the page with respect to FIG. 16 and out of the page with respect to FIG. 17) and then attaching the ends 151R and 151L together (e.g., by stitching or heat sealing). Closures 154a, 154b mounted on an outside of the webbing (as depicted in FIG. 16) may be arranged so that they will respectively align with closures 156a, 156b mounted on the pouch 160 (as depicted in FIG. 12) when the ends 151R and 151L of the webbing have been joined to form the loop of handle 150. The closures 154 and 156 can secure the handle 150 to the pouch 160 when the handle 150 is in the storage position. For example, in the embodiment depicted in the drawings, the closures 154 and 156 may be hook and loop fasteners arranged in such a fashion that the handle 150 will lay substantially flat when attached to the pouch 160 in the storage position (as shown in FIG. 13). In some aspects, the handle 150 may include internal closures 155a-d mounted on an inside of the handle 150. The internal closures 155a-155d may be arranged so that they will respectively align with other internal closures (e.g. 155a with 155b; 155c with 155d) when the ends of the webbing are joined to form the loop of handle 150. Such internal closures 155a-d can keep the loop of the handle 150 in a low-profile configuration or in a collapsed state when not in use, thereby reducing the chance of accidentally catching the loop of the handle 150 on items when the handle 150 is in the storage position and not in use. Other arrangements are also possible, such as the closures 155b and 155c forming a single elongate strip for engaging either or both of the individual closures 155a and 155d.

[0061] In some aspects, the pouch 160 can also include a plurality of loops 178 or other MOLLE-compatible attachment features on a front side of the pouch 160. For example, as depicted in FIG. 12, the front of the pouch 160 may include

a set of loops **178** arranged to match a pattern of MOLLE-compatible loops on the garment so that the net number of available rows or columns of MOLLE-mounting structure will not be diminished by attaching the pouch **160** to the garment. However, any number or type of attachment features may be included on either the front side or rear side of the pouch **160**, regardless of the particular arrangement of features used on the opposite side. For example, although the pouch **160** is shown with two columns and four rows of loops **178** on a front side of the pouch **160**, any other number of rows and/or columns (or any other type of attachment feature) could be utilized instead.

[0062] The handle and strap system **148** can be constructed with a number of internal components. For example, as best shown in FIG. **18**, the handle and strap system **148** can include a front panel **180**, a liner panel **182**, a rear panel **184**, a strap webbing **186**, a handle support board **188**, and a handle webbing **190**. The liner panel **182** and the rear panel **184** can be formed from a folded panel (as shown) or provided as separate pieces. The strap webbing **186** can be attached between the liner panel **182** and the rear panel **184**, such as by one or more sets of bartack stitches or other reinforced stitching **192** passing through the front panel **180**, the strap webbing **186**, and the rear panel **184**. Reinforcing the strap webbing **186** with the liner panel **182** and/or the rear panel **184** can increase a strength of attachment of the strap webbing **186** and enable the system **148** to function at a high load capacity. The front panel **180** can be attached to liner panel **182**, such as by heat sealing and/or stitching sides and a bottom of the front panel **184**. In some embodiments (including some embodiments in which the liner panel **182** and the rear panel **184** are provided as separate pieces), the front panel **180** may be formed from a folded panel that includes the liner panel **182** or the rear panel **184** on an opposite side of the fold from the front panel **180**. The front panel **180** and the rear panel **184** can each include segments of webbing **194** (and/or other attached material) that are formed (e.g., by stitching) into loops and/or other attachment features (e.g., forming loops **178** of FIG. **12** and loops **166** of FIG. **14**).

[0063] The handle webbing **190** is secured to the strap webbing **186**. For example, the strap webbing **186** may include an end portion **196** folded over the handle webbing **190**. The end portion **196** may be attached to strap webbing **186**, such as by heat sealing and/or stitching. The support board **188** may also be included in between the strap webbing **186** and end portion **196**. The support board **188** may form part of the reinforced section **162** (FIG. **12**) and provide additional rigidity useful for aligning the strap **152** for returning to the stored position in the sleeve **158**. The sleeve **158** may be formed between the front panel **180** (FIG. **18**) and the liner panel **182**. Attaching the strap webbing **186** with the liner panel **182** and/or the rear panel **184** can also prevent the strap webbing **186** from inadvertently entering between layers other than the layers forming the sleeve **158**.

[0064] FIGS. **8-11** show a plate retention system **70** for a vest, such as the vest **20**, in accordance with embodiments. The plate retention system **70** can be utilized, for example, in pockets on the front and/or back panels **22**, **24** of the vest **20**. Such pockets are known, and typically include an opening, such as an opening **72** at the bottom of the front panel **22** (FIG. **8**). In the embodiment shown in the drawing, the opening **72** can include a closure **74**, such as hook and loop closures, for easy access. The pocket is generally designated by the refer-

ence numeral **76**, and is generally the inside region of a panel, such as the front panel **22**, designed to receive a plate.

[0065] In use, a wearer can install a plate in one of the front and/or back panels **22**, **24**. Such plates are known, and can be various sizes, depending upon the desire of the user and/or the needs for a particular assignment. In embodiments disclosed herein, the plate retention system **70** is configured to securely mount plates of different sizes and anchor and/or center a plate in place in the pocket **76**.

[0066] In embodiments, the plate retention system **70** includes two sets of straps, one each at the lower bottom corners of the pocket **72**. In short, these sets of straps include straps that are configured to extend around the bottom and sides of a plate inserted in the pocket and that attach to each other to push the plate to the center and top of the pocket **76**. In this manner, the straps anchor the plate against the upper edge of the pocket, regardless of the size of the plate inserted. The straps can be any material, such as webbing, and include attachment mechanisms, such as hook and loop material, that permit attachment to each other at various locations along their length. Variable attachment locations permit anchoring of several different sizes of plates. The straps can be connected at different points along their length so that plates of various sizes can be accommodated. For each set, one strap extends under the plate and one strap extends around a bottom side edge of the plate. The ends are connected by the hook and loop materials to anchor the plate in the center of the pocket against the top of the pocket.

[0067] Specific embodiments are shown in FIGS. **8-11**. A first strap **80** of each pair is positioned to extend horizontally, and is spaced from the bottom of the opening **72**. The strap **80** is anchored at a first location **82** spaced inward from the side edge of the pocket and upward from a bottom edge of the pocket.

[0068] A second strap **84** of each pair is positioned to extend vertically, and is also anchored at a position spaced inward from the side edge of the pocket and upward from a bottom edge of the pocket. In embodiments, this second strap **84** is also anchored at the first location **82**.

[0069] In embodiments, the first strap **80** is positioned so that, if any size plate that would typically be installed in the front panel **22** were installed in the pocket of the front panel and pushed fully upward against the top of the pocket, the bottom edge of the plate would extend below a bottom edge of the first strap **80**. The length of the first strap **80** is preferably sufficient so that, if the widest plate that fits into the pocket were installed, the strap could double back along its length while extending around the outer edge of the plate. Thus, the first location **82** would fall behind any size plate installed in the pocket **76**.

[0070] The second strap **84** is positioned in a similar manner relative to the bottom and sides of the pocket **76**. In an embodiment where the two straps are anchored at the same location **82**, the two locations for the two sets of straps are positioned to be located behind any size plate to be received in the pocket after the plate has been centered and pushed to the top of the pocket.

[0071] To install a plate, such as the plate **90** shown in FIGS. **8** and **9**, the fasteners **74** are opened at the bottom of the pocket **76** at the opening **72**. The plate **90** is inserted into the pocket **76**, centered in the pocket, and pressed upward against the top of the pocket. The ends of the two strap **80**, **84** are wrapped around the side and bottom of the plate, respectively, and then attached to each other, for example via hook and loop

fasteners extending along the length of the straps **80**, **84**. As an example, loop fastener material can be included on a front side of the strap **84**, and hook fastener material on the rear side of the strap **80**. The strap **80** is then folded over first, with the strap **84** attached to the strap **80**. The straps **80**, **84**, if anchored at the same location **82**, would be attached in the same vertical and horizontal position as the location **82** on the opposite side of the plate **90**. If the straps are anchored at different locations, then the attachment would be varied based on the size of the plate.

[0072] For a different size plate, such as the plate **100** shown in FIGS. **10-11**, the straps are pulled more so as to appropriately anchor the plate. The system can thus be used on many different sized plates, and can be used to center the plate and position the plate upward. A plate could also be positioned to one side by varying the straps, for example to move the plate away from an injury. In addition, the plate does not have to be pushed to the top of the pocket, but instead could be held by gravity against the attached straps. Additionally, a similar strap configuration could be used at other locations in the pocket **76** (e.g., the top) to push the plate downward or in another desired direction.

[0073] Other variations are within the spirit of the present invention. Thus, while the invention is susceptible to various modifications and alternative constructions, certain illustrated embodiments thereof are shown in the drawings and have been described above in detail. It should be understood, however, that there is no intention to limit the invention to the specific form or forms disclosed, but on the contrary, the intention is to cover all modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention, as defined in the appended claims.

[0074] The use of the terms “a” and “an” and “the” and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms “comprising,” “having,” “including,” and “containing” are to be construed as open-ended terms (i.e., meaning “including, but not limited to,”) unless otherwise noted. The terms “connected” and “attached” (or variations thereof) are to be construed as partly or wholly contained within or joined together, even if there is something intervening. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., “such as”) provided herein, is intended merely to better illuminate embodiments of the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0075] Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention

to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

[0076] All references, including publications, patent applications, and patents, cited herein, including cited in the contemporaneously filed Information Disclosure Statement, are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

What is claimed is:

1. An assembly comprising:

- a pouch having a MOLLE-compatible support structure attached thereto configured for releasably attaching the pouch to a load bearing garment, the pouch comprising a sleeve;
- a strap having a first end and a second end, the first end anchored to the pouch; and
- a handle at the second end of the strap;

wherein the strap and the handle are configurable between

- (1) a storage configuration in which the strap is at least mostly received in the sleeve and the handle is positioned adjacent to the pouch, and
- (2) a deployed configuration in which the handle is positioned away from the pouch and the strap is at least mostly pulled out of the sleeve, so that a rescuer can grasp the handle when the handle and the strap are the storage configuration, pull the handle so that the strap and handle move into the deployed configuration, continue to pull the handle until the strap is tensioned, and pull the handle to drag, via the tensioned strap, a wearer of the load bearing garment when the pouch is releasably attached to the load bearing garment via the MOLLE-compatible support structure.

2. The assembly of claim 1, wherein the strap further comprises:

- a reinforced section proximal to the handle; and
- a flexible section distal to the handle, wherein the reinforced section is configured to slide through an opening of the sleeve to move the flexible section into the sleeve and change the strap from the deployed configuration to the storage configuration.

3. The assembly of claim 2, wherein the handle comprises a loop and an internal set of hook and loop fasteners arranged on an inside of the loop so as to maintain the loop in a collapsed state when the internal set of hook and loop fasteners are engaged with one another.

4. The assembly of claim 3, further comprising:

- an external set of hook and loop fasteners, a first part of the external set positioned on the pouch, a mating second part of the external set positioned on the handle and configured to engage the first part of the external so that the handle is secured to the pouch in the storage configuration.

5. The assembly of claim 4, wherein the MOLLE-compatible support structure comprises a first MOLLE-compatible support structure attached to a first side of the pouch, the assembly further comprising a second MOLLE-compatible support structure attached to a second side of said pouch opposite the first side.

6. The assembly of claim 5, further comprising:
an attachment member comprising (i) a semi-rigid section of webbing configured to weave through features of the MOLLE-compatible support structure of the pouch and features of the load bearing garment so as to releasably attach the pouch to the load bearing garment, and (ii) a first snap component at an end of the attachment member;
- a plastic rectangular ring positioned at a first end of the pouch and configured for aligning the attachment member for passage through at least the features of the MOLLE-compatible support structure of the pouch; and
a tab attached at a second end of the pouch, the flap comprising a second snap component configured to releasably engage the first snap component on the attachment member.
7. An assembly comprising:
a pouch having a support structure attached thereto configured for releasably attaching the pouch to a load bearing garment;
a handle deployable from the pouch;
a strap connecting the handle to the pouch; the strap configurable between (1) a storage configuration in which the strap is stowed relative to the pouch, and (2) a deployed configuration in which the strap is extended from the pouch so that a rescuer can pull the handle to drag a wearer of the load bearing garment when the pouch is releasably attached to the load bearing garment via the support structure.
8. The assembly of claim 7, wherein the handle comprises a loop.
9. The assembly of claim 8, wherein the handle comprises a set of internal closures arranged on an inside of the loop so as to maintain the loop in a collapsed state when the internal closures are engaged with one another.
10. The assembly of claim 7, further comprising:
a first set of closures on the pouch; and
a second set of closures on the handle, the second set of closures configured to engage the first set of closures so that the handle is secured to the pouch in the storage configuration.
11. The assembly of claim 7, wherein the MOLLE-compatible support structure is attached to a first side of the pouch, the assembly further comprising a second MOLLE-compatible support structure attached to a second side of said pouch opposite the first side.
12. The assembly of claim 7, further comprising:
an attachment member configured to weave through features of the MOLLE-compatible support structure of the pouch and features of the load bearing garment so as to releasably attach the pouch to the load bearing garment.
13. The assembly of claim 12, further comprising:
a guide attached to the pouch and configured for aligning the attachment member for passage through at least the features of the MOLLE-compatible support structure of the pouch.
14. The assembly of claim 12, further comprising:
a tab attached to the pouch and comprising a first fixture configured to engage a second fixture on the attachment member.
15. An assembly comprising:
a front panel;
a liner panel to which the front panel is attached;
a rear panel;
a strap webbing attached between the liner panel and the rear panel;
a handle webbing attached to the strap webbing;
a MOLLE-compatible support structure attached to the rear panel and configured for releasably attachment to a load bearing garment; and
a sleeve formed between the front panel and the liner panel, at least a portion of the strap webbing stowable in the sleeve and removable from the sleeve so that a rescuer can pull the handle to drag a wearer of the load bearing garment when the MOLLE-compatible support structure is releasably attached to the load bearing garment.
16. The assembly of claim 15, further comprising stitching through the liner panel, the strap webbing, and the rear panel, wherein the strap webbing is attached between the liner panel and the rear panel by the stitching.
17. The assembly of claim 15, wherein the strap webbing further comprises a reinforced section formed by a first section of the strap webbing being folded over and attached to a second section of the strap webbing.
18. The assembly of claim 17, wherein the handle webbing is positioned between the first section of the strap webbing and the second section of the strap webbing.
19. The assembly of claim 17, wherein the reinforced section further comprises a support board positioned between the first section of the strap webbing and the second section of the strap webbing.
20. The assembly of claim 17, wherein the MOLLE-compatible support structure comprises a first MOLLE-compatible support structure attached to the rear panel, the assembly further comprising a second MOLLE-compatible support structure attached to the front panel.

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