COLLAPSIBLE FREESTANDING BODY ARMOR SUPPORT STAND

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(57) ABSTRACT

A collapsible, freestanding body armor support stand includes a main member having a plurality of telescoping sections that are shiftably interconnected and positionable between retracted and extended configurations. The support stand also includes a plurality of support bars that are pivotally mounted to the main member. The plurality of base members are shiftable between a stowed configuration, wherein the plurality of support members are substantially parallel to the main support member, and a deployed configuration, wherein the plurality of base members support the main support member upon a generally horizontal surface selectively shiftable between a stowed configuration and a deployed configuration. The hanging bars are designed to support, in the deployed configuration, body armor weighing up to 50 lbs or more.
COLLAPSIBLE FREESTANDING BODY ARMOR SUPPORT STAND

CROSS-REFERENCE TO RELATED APPLICATIONS


BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention
[0003] The present invention pertains to the art of article support stands and, more particularly, to a collapsible, freestanding article support stand adapted to support heavy body armor.
[0004] 2. Discussion of the Prior Art
[0005] Collapsible, i.e., telescoping or folding, support stands are well known in the art. Small, easily transported, collapsible stands are used for supporting a wide array of articles such as intravenous bags, cameras, clothes and the like. As the above-mentioned articles are typically not heavy, most collapsible stands are not particularly robust and are made from light gauge steel or aluminum. However, collapsible supports for clothes, coats and the like require additional support structure and are formed from stronger, heavier materials in order to support these larger, heavier objects. The addition of any necessary bracing and other structure, as well as the need for stronger materials, adds to the overall size, complexity and cost of the support stand. Therefore, most existing collapsible supports, particularly those designed to be light and easily transportable, are designed to support articles that typically weigh no more than a couple of pounds. Hanging larger or heavier objects on these existing supports would result in failure of one or more components of the support.
[0006] One object that is heavy and in need of support is body armor. The use of body armor in law enforcement and military applications is on the rise. In general, lightweight body armor weighs between 5-20 lbs. However, when the body armor is augmented with additional ballistic protection in the form of ceramic plates or the like, the weight can increase to over 50 lbs. Typical body armor includes an outer shell that surrounds numerous layers of Kevlar® or other similar material. The addition of strategically located ceramic plates provides added protection for the wearer. While the layers of Kevlar® are resistant to ballistic forces, the outer shell will degrade, particularly if routinely exposed to the acid and moisture of soil. In addition, the ceramic plates, while capable of withstanding impact forces from a 0.5 caliber round, are surprisingly fragile. If cracked or broken, the ceramic plates lose the ability to resist the ballistic forces. Therefore, body armor must be treated with care in order to ensure a continued high level of performance.
[0007] When not worn by a soldier or law enforcement officer, it is best to hang the body armor, in a manner similar to a coat, shirt or the like, in an area that will minimize exposure to circumstances that may cause damage to the ceramic plates. Hanging also minimizes exposure of the outer shell to substances that may cause damage to the material. While this is readily accomplished when on a military base or law enforcement station, proper care of body armor in the field is often times difficult. Locating a hook or other element that can support the weight of body armor, is not always possible. Over time, simply hanging the body armor on a nail or other hook may result in damage to the outer shell and, if the nails or hook fails, damage to the ceramic plates may also result. As noted above, existing collapsible supports are not designed to support heavy objects such as body armor, nor are they designed for combat or field conditions. Therefore, small light-weight supports are not capable of supporting the weight of body armor while heavier, more robust supports cannot be readily transported by a soldier. However, weight is always a concern to a foot soldier such that items which are too bulky or heavy are impractical.
[0008] Based on the above, there exists a need for a collapsible stand for supporting body armor. More specifically, there exists a need for a stand which can be readily collapsed into a compact, lightweight unit and easily transported by a foot soldier, yet remain readily deployable to a length sufficient to prevent the body armor from contacting ground surfaces. Moreover, there exists a need for a collapsible stand that can support body armor having an overall weight of 50 lbs. or more.

SUMMARY OF THE INVENTION

[0009] The present invention is directed to a collapsible, freestanding body armor support stand. The support stand includes a main support member having a plurality of telescoping support sections that are shiftable interconnected and positionable between a first or retracted configuration and a second or extended configuration. The plurality of telescoping support sections preferably include a first support section, a second support section and a support third section. In accordance with the invention, the support stand includes a plurality of support bars or base members that are pivotally mounted to the first section of the main support member. The plurality of base members are shiftable between a first or stowed configuration, wherein the plurality of support members are substantially parallel to and flush with the main support member, and a second or deployed configuration, wherein the plurality of base members extend outward into a locked position to provide a stable platform for the main support member.
[0010] In further accordance with the invention, the support stand includes a plurality of hanging bars, or article support members, that are pivotally mounted to one of the second and third support sections. The article support members are selectively shiftable between a first or stowed configuration, wherein the pair of article support members are substantially parallel to and flush with the main support member, and a second or deployed configuration, wherein the pair of article support members extend substantially perpendicularly outward from the main support member. The article support members are designed to support body armor weighing 50 lbs. or greater.
[0011] In still further accordance with the invention, the support stand is provided with supplemental hanging bars or article support members that are pivotally mounted to another of the second and third support sections. In a manner similar to that described above, the supplemental article support members are selectively shiftable between a first or stowed configuration and a second or deployed configuration. In the deployed configuration, the supplemental article support members can be used to support tactical gear such as ammunition belts, canteens, web gear and the like. If required, the supplemental article support members could be utilized to
provide additional support for the body armor or other items. In any case, each of the base members, article support members and supplemental article support members is provided with a latching mechanism that prevents inadvertent shifting between the deployed and stowed configurations.

[0012] In accordance with one aspect of the invention, the plurality of telescoping support sections includes a fourth section having provided thereon an extraction handle. The extraction handle enables a user to readily shift the support stand from the first configuration to the second configuration. Preferably, when in the collapsed configuration, the support stand has an overall length of approximately 13 inches and, when in the deployed configuration, the support stand has an overall length of approximately 46 inches. In this manner, any body armor supported therefrom will remain above the ground and free from dirt and other hazards. In the stowed position, the support stand readily fits within a storage bag for transport by, for example, military personnel.

[0013] Additional objects, features and advantages of the present invention will become more readily apparent from the following detailed description of a preferred embodiment when taken in conjunction with the drawings wherein like reference numerals refer to corresponding parts in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is an upper left perspective view of a collapsible, freestanding body armor support stand constructed in accordance with the present invention shown supporting body armor and a tactical helmet;

[0015] FIG. 2 is an upper left perspective view illustrating the body armor support stand of FIG. 1 without the body armor or the tactical helmet;

[0016] FIG. 3 is a partial perspective view illustrating a bottom portion of the body armor support stand of FIG. 2;

[0017] FIG. 4 is a partial perspective view illustrating a middle or intermediate section of the body armor support stand of FIG. 2;

[0018] FIG. 5 is a partial perspective view illustrating a top portion of the body armor support stand of FIG. 2;

[0019] FIG. 6 is a perspective view of the body armor support stand of FIG. 2 shown in a collapsed configuration;

[0020] FIG. 7 is a perspective view of a carry/storage case for the body armor support stand when in the collapsed configuration of FIG. 6.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0021] With initial reference to FIGS. 1 and 2, a collapsible, freestanding body armor support stand constructed in accordance with the present invention is generally indicated at 2. Support stand 2 is shown, in FIG. 1, supporting body armor 4 and a tactical helmet 6. Of course, support stand 2 could support various other items of gear, tactical or otherwise, such as web gear, uniforms, weapons, sunglasses and the like. As best shown in FIG. 2, body armor support stand 2 includes a main support member 14 formed from a plurality of telescoping, multi-faceted support sections. More specifically, main support member 14 includes a first support section 18, a second support section 19, a third support section 20 and a fourth support section 21. In the embodiment shown, each support section 18-21 is hexagonal in shape. However, various geometric shapes would also be acceptable.

[0022] Reference will now be made to FIGS. 2 and 3 in describing first support section 18 constructed in accordance with the present invention.

[0023] As shown, first support section 18 constitutes a base section having a main body 42 including a first end section 44, a second end section 45 and an intermediate section 46. Main body 42 includes multiple faces A-G, each having a corresponding recessed portion 54-59.

[0024] As noted above, first support section 18 constitutes a base section and thus includes a number of support bars or base members 72-77 which, when deployed, enable support stand 2 to be freestanding. As each base member 72-77 is similar, a detailed description will be made with reference to base member 77 with an understanding that base members 72-76 are similarly formed. As shown, base member 77 includes a first end portion 80 that is pivotally mounted to first end section 44 of first support section 18. First end portion 80 extends to a second portion 81 through an intermediate portion 82. Support stand 2 is further shown to include a latching mechanism 88 which ensures that base member 77, once deployed, remains in the deployed position.

[0025] In the most preferred embodiment, latching mechanism 88 is formed from spring-steel and includes a pivoting or flexing member 90 that extends from an outer surface (not separately labeled) of recessed portion 59 adjacent first end 80 of base member 77. Latching mechanism 88 can be fixed at recessed portion 59 using various methods, such as spot welding, riveting, clinching and the like. With this arrangement, when in the deployed configuration, flexing member 90 abuts base member 77 to prevent any inadvertent shifting to the stowed configuration. In order to retract or stow base member 77, flexing member 90 is depressed so as to lay flat against recessed portion 59. At this point, base member 77 can be folded upward to nest within recessed portion 59 such as shown in FIG. 6. In order to ensure that base member 77 remains in the stowed position, a metal disc 97 is provided adjacent second portion 81. Metal disc 97 is positioned so as to cooperate with a magnet 98 provided in recessed portion 59.

[0026] Reference will now be made to FIGS. 2 and 4 in describing second support section 19 constructed in accordance with the present invention. In a manner similar to that described above with respect to first support section 18, second support section 19 includes a main body 108 having a first end section 110 leading to a second end section 111 through an intermediate section 112. Main body 108 is multi-faceted and includes faces H-M (faces K, L and M not shown). Second support section 19 includes a plurality of recessed portions, one of which is indicated at 120. In accordance with the invention, second support section 19 includes a plurality of mid-hanging bars or article support members 126-128 for supporting various articles such as, tactical gear, web gear, and the like. As will be revealed below, article support members 126-128 actually constitute supplemental article support members. In any event, as each article support member 126-128 is substantially identical, a detailed description will be made with reference to article support member 126 with an understanding that article support members 127 and 128 are similarly constructed.

[0027] As shown, article support member 126 includes a first end portion 135 that is pivotally mounted to second support section 19 at recess 120. First end portion 135 extends
to a second end portion 136 through an intermediate portion 137. In a manner similar to that described above, support stand 2 is shown to include a latching mechanism 141 preferably formed from spring steel that engages article support member 126. Latching mechanism 141 includes a pivoting or flexing member 144 that extends from an outer surface (not separately labeled) of recessed portion 120 adjacent end portion 135 of article support 126. With this arrangement, when in the deployed configuration, flexing member 144 abuts article support member 126 to prevent any inadvertent folding. When it is desired to fold or stow article support member 126, flexing member 144 is depressed so as to lay flat against an inner surface (not separately labeled) of recessed portion 120. Article support member 126 is held in place through cooperation of a metal disc 148 and magnet 149 arranged in a manner similar to that described above.

[0028] Reference will now be made to FIGS. 2 and 5 in describing third support section 20 constructed in accordance with the present invention. As shown, third support section 20 includes a main body 157 having a first end section 159 that leads to a second end section 160 through an intermediate section 161. In a manner similar to that described above, main body 157 is multi-faceted and thus includes a plurality of faces N-5 (faces Q and R not shown). In a manner similar to that described above, main body 157 includes a plurality of recessed portions, one of which is indicated at 166 formed in face N.

[0029] In accordance with the invention, third support section 20 includes a pair of top hanging bars or main article support members 177 and 178. As each article support member 177, 178 is substantially identical, a detailed description will be made with respect to article support member 177 with an understanding that article support member 178 is similarly constructed. As shown, article support member 177 includes a first end portion 183 that is pivotally mounted to second end section 160 at recess 166. First end portion 183 extends to a second end portion 184 through an intermediate portion 185. In a manner similar to that described above, article support member 177 includes a latching mechanism 191 formed from spring steel and secured to within recessed portion 166. In a manner also similar to that described above, latching mechanism 191 includes a pivoting or flexing member 194. With this arrangement, when in the deployed configuration, flexing member 194 abuts support member 177. In this manner, flexing member 194 prevents support member 177 from pivoting even when supporting body armor weighing 50 lbs. or more. When it is desired to fold support member 177, flexing member 194 is depressed so as to lay flush within recess portion 166. At this point, support member 177 can be folded into recessed portion 166 to enable unrestricted telescoping action of support stand 2. Support member 177 is held in place by metal disc 200 and magnet 201.

[0030] Next, attention is directed to FIGS. 2 and 6 in describing top most support section 21 of the present invention. As shown, top section 21 includes a main body 207 having a first end section 209 which extends to a second end section 210 through an intermediate section 211. Like the previously described support sections 18-20, top section 21 is multi-faceted and thus includes faces T-W (faces W-Y not shown). Top section 21 is further shown to include an extraction handle 213 that extends across second end section 210. Extraction handle 213 enables a user to stand on select ones of base members 72-73 and readily grasp and extend support stand 2 from the retracted position shown in FIG. 6 to the extended position shown in FIG. 2. When in the extended position, telescoping sections 18-21 are locked into position by spring lock arrangements 216-218. At this point, supplemental article support members 126-128 and article support members 177, 178 are deployed and locked into position. In the most preferred embodiment, support stand 2 has an overall length of approximately 46 inches. In this manner, body armor hanging from support members 177 and 178 can be supported well above floor and/or ground surfaces.

[0031] When in the retracted position shown in FIG. 6, support section 18 telescopically receives support sections 19-21 such that support stand 2 assumes a compact configuration with a preferred embodiment having an overall length of approximately 13 inches. In this configuration, support stand 2 can be stored within a zippered storage case, such as shown at 225 in FIG. 7. Zippered storage case 225 includes a padded foam tray (not shown) surrounded by an external, waterproof fabric that protects support stand 2 from damaging fluids and the like. Preferably, storage case 225 includes a zipper for quick and secure closure, as well as a hanging strap 240. With this arrangement, support stand 2 can be readily carried by, for example, a soldier, and used to support body armor and tactical gear such as web gear, backpacks and helmets. The support stand can be readily collapsed to a compact configuration, yet freely extendable and self-standing to provide support for body armor weighing 50 lbs. or more. In this manner, soldiers can extend the overall service life of body armor, as well as other gear, when in the field or other hostile conditions.

[0032] Although described with reference to a preferred embodiment of the invention, it should be readily understood that various changes and/or modifications can be made to the invention without departing from the spirit thereof. For instance, the overall lengths of support stand 2 in the retracted and/or extended position can vary depending upon particular needs. In addition, the number and configuration of the support sections and support bars can vary in accordance with the invention. For instance, it should be realized that other base support systems could be employed, such as a tripod. Furthermore, various latching arrangements could be employed in connection with the numerous support bars, as well as between the various sections to enable, for example, the upper support section to be detached and placed on another base section, without departing from the invention. In general, the invention is only intended to be limited by the scope of the following claims.

We claim:
1. A collapsible freestanding body armor support stand comprising:
   a main support member having a plurality of telescoping support sections shiftable connected and positionable between a first, retracted configuration and a second, extended configuration, said plurality of telescoping support sections including at least a first support section, a second support section and a third support section;
   a plurality of base members pivotally mounted to the first support section of the main support member, said plurality of base members being shiftable between a first or stowed configuration, wherein the plurality of support members are substantially parallel to the main support member, and a second or deployed configuration, wherein the plurality of base members support the main support member upon a generally horizontal surface; and
a pair of article support members pivotally mounted to one of the second and third support sections, said pair of article support members being shiftable between a first or stowed configuration, wherein the pair of article support members are substantially parallel to the main support member and a second or deployed configuration, wherein the pair of article support members extend outward from the main support member, said pair of article support members being adapted to support body armor weighing up to 50 pounds or more.

2. The collapsible freestanding body armor support stand according to claim 1, wherein the plurality of article support members are constituted by a pair of article support members pivotally mounted to the third support section.

3. The collapsible freestanding body armor support stand according to claim 1, further comprising: a plurality of supplemental article support members pivotally mounted to the other of the second and third support sections.

4. The collapsible freestanding body armor support stand according to claim 3, wherein the plurality of supplemental article support members constituted by three article support members pivotally mounted to the second support section.

5. The collapsible freestanding body armor support stand according to claim 1, wherein each of the plurality of telescoping support sections includes a plurality of recessed portions, each of said plurality of base members and article support members being pivotally mounted to respective ones of the support sections at a corresponding one of the plurality of recessed portions.

6. The collapsible freestanding body armor support stand of claim 5, further comprising: a latching mechanism mounted in each of the plurality of recessed portions.

7. The collapsible freestanding body armor support stand according to claim 1, further comprising: a fourth support section telescopically connected to the third support section.

8. The collapsible freestanding body armor support stand according to claim 7, wherein when in the retracted configuration the support stand has an overall length of approximately 13 inches and when in the extended configuration the support stand has an overall length of approximately 46 inches.

9. The collapsible freestanding body armor support stand according to claim 7, further comprising: a waterproof carry bag, said support stand being stored in a waterproof carry bag when in the retracted position.

10. The collapsible freestanding body armor support stand according to claim 7, further comprising: an extraction handle mounted to the fourth support section.

11. A collapsible freestanding body armor support stand comprising:

- a main support member having a plurality of telescoping support sections shiftable connected and positionable between a first, retracted configuration and a second, extended configuration, said plurality of telescoping support sections including a first support section, a second support section and a third support section;
- means for selectively supporting the main support member upon, and substantially perpendicularly to, a generally horizontal surface; and
- means for selectively supporting body armor weighing up to 50 pounds or more.

12. The collapsible freestanding body armor support stand according to claim 11, wherein main support member support means includes a plurality of base members pivotally connected to the first support section.

13. The collapsible freestanding body armor support stand according to claim 12, wherein the means for selectively supporting body armor includes a pair of article support members pivotally mounted to one of the second and third support sections.

14. The collapsible freestanding body armor support stand according to claim 13, wherein each of the plurality of telescoping support sections includes a plurality of recessed portions, each of said plurality of base members and article support members being pivotally mounted to respective ones of the support sections at a corresponding one of the plurality of recessed portions.

15. The collapsible freestanding body armor support stand of claim 14, further comprising: a latching mechanism mounted in each of the plurality of recessed portions.

16. The collapsible freestanding body armor support stand according to claim 11, further comprising: a fourth support section telescopically connected to the third support section.

17. The collapsible freestanding body armor support stand according to claim 16, further comprising: an extraction handle mounted to the fourth support section.

18. The collapsible freestanding body armor support stand according to claim 16, wherein when in the retracted configuration the support stand has an overall length of approximately 13 inches and when in the extended configuration the support stand has an overall length of approximately 46 inches.

19. The collapsible free standing body armor support stand according to claim 11, wherein the means for supporting body armor includes a plurality of article support members pivotally mounted to the third support section and a plurality of supplemental article support members mounted to the second support section.

20. The collapsible free standing body armor support stand according to claim 19, wherein the plurality of article support members is constituted by a pair of article support members and the supplemental article support members constituted by three article support members.