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Belt loop connector

Abstract

One embodiment provides a garment system comprising an upper body garment comprising an interior surface and a first set of connectors positioned on the interior surface. The system further comprises a lower body garment comprising a second set of connectors positioned on a surface of the lower body garment. The first set of connectors and the second set of connectors are vertically aligned when a wearer wears the upper body garment and the lower body garment at the same time, and each connector of the second set of connectors is configured to releasably engage and interconnect with a connector of the first set of connectors to attach the upper body garment to the lower body garment.

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References Cited

U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
533373	12/1894	Presby	N/A	N/A
695629	12/1901	Shipley	N/A	N/A
932640	12/1908	Pfiffner	N/A	N/A
1897261	12/1932	Killory	N/A	N/A
1958643	12/1933	Silverman	N/A	N/A
1986519	12/1934	Murray	N/A	N/A
1998085	12/1934	Wilcox	N/A	N/A
2104487	12/1937	Kessler	N/A	N/A
2274382	12/1941	Richman	N/A	N/A
3418659	12/1967	Brown	N/A	N/A
3789431	12/1973	Rand	N/A	N/A
4932079	12/1989	Bridgewater	N/A	N/A
4947489	12/1989	Greenwood	N/A	N/A
5276923	12/1993	Cohen	N/A	N/A
5309572	12/1993	Seamans	N/A	N/A
5313669	12/1993	Rasdell et al.	N/A	N/A
5754982	12/1997	Gainer	N/A	N/A
6223352	12/2000	Watlington	N/A	N/A
6698031	12/2003	Lewis	N/A	N/A
7047567	12/2005	Allen	N/A	N/A
7168103	12/2006	Aldridge et al.	N/A	N/A
7438619	12/2007	Staver et al.	N/A	N/A
8011019	12/2010	Hassan	N/A	N/A
8813266	12/2013	Green	N/A	N/A
8918915	12/2013	Caulfield et al.	N/A	N/A
9015864	12/2014	Evans et al.	N/A	N/A
10827791	12/2019	Banta	N/A	N/A
11350676	12/2021	Law	N/A	N/A
2001/0000361	12/2000	Alger	N/A	N/A
2003/0014802	12/2002	Benham	N/A	N/A
2003/0172431	12/2002	Allen	N/A	N/A
2004/0133963	12/2003	Jennings	N/A	N/A
2006/0010559	12/2005	Hamlet	N/A	N/A

2007/0101477	12/2006	Grilliot et al.	N/A	N/A
2007/0277283	12/2006	Borowski et al.	N/A	N/A
2012/0117715	12/2011	Weafer	N/A	N/A
2012/0204313	12/2011	Evans et al.	N/A	N/A
2012/0246805	12/2011	Jones	N/A	N/A
2013/0291277	12/2012	Kirkwood	N/A	N/A
2014/0101814	12/2013	Caulfield et al.	N/A	N/A
2014/0101815	12/2013	Caulfield et al.	N/A	N/A
2014/0215690	12/2013	Caulfield et al.	N/A	N/A
2014/0304899	12/2013	Almonte et al.	N/A	N/A
2015/0040285	12/2014	Mobayyen	N/A	N/A
2015/0101109	12/2014	Herman	N/A	N/A
2016/0324238	12/2015	Tran	N/A	N/A
2017/0196283	12/2016	Hart	N/A	N/A
2017/0280780	12/2016	Janes	N/A	N/A
2017/0325519	12/2016	Willingham	N/A	N/A
2018/0132537	12/2017	Siegfried	N/A	N/A
2019/0053558	12/2018	Spencer	N/A	N/A
2019/0223529	12/2018	Park	N/A	N/A
2019/0246726	12/2018	Oliva	N/A	N/A
2022/0030996	12/2021	Wenkman	N/A	N/A
2022/0225711	12/2021	Wenkman	N/A	N/A
2022/0248773	12/2021	Ambelang	N/A	N/A
2023/0292864	12/2022	Horbatuck	N/A	N/A
2024/0032634	12/2023	Rodgers	N/A	A41F 17/02

OTHER PUBLICATIONS

U.S. Non-Final Office Action for U.S. Appl. No. 17/815,162 mailed Mar. 13, 2024. cited by applicant
U.S. Notice of Allowance for U.S. Appl. No. 17/815,162 mailed Apr. 30, 2024. cited by applicant

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Background/Summary

TECHNICAL FIELD

(1) One or more embodiments relate generally to garments, and in particular, a belt loop for connecting garments.

BACKGROUND

(2) Belt loops are a series of loops around a waist level of a lower body garment (e.g., pants) that hold a belt and help to hold up the body garment on the individual wearing the garment.

SUMMARY

(3) One embodiment provides a garment system comprising an upper body garment comprising an interior surface and a first set of connectors positioned on the interior surface. The system further comprises a lower body garment comprising a second set of connectors positioned on a surface of the lower body garment. The first set of connectors and the second set of connectors are vertically

aligned when a wearer wears the upper body garment and the lower body garment at the same time, and each connector of the second set of connectors is configured to releasably engage and interconnect with a connector of the first set of connectors to attach the upper body garment to the lower body garment.

(4) Another embodiment provides an article of clothing comprising an upper body garment and a lower body garment. The upper body garment comprises an interior surface and a first set of connectors positioned on the interior surface. The lower body garment comprises a second set of connectors positioned on a surface of the lower body garment. The first set of connectors and the second set of connectors are vertically aligned when a wearer wears the upper body garment and the lower body garment at the same time, and each connector of the second set of connectors is configured to releasably engage and interconnect with a connector of the first set of connectors to attach the upper body garment to the lower body garment.

(5) These and other features, aspects and advantages of the one or more embodiments will become understood with reference to the following description, appended claims and accompanying figures.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. **1**A illustrates an example lower body garment, in one or more embodiments;

(2) FIG. **1**B illustrates a front view of the waistband area of the lower body garment in FIG. **1**A, in one or more embodiments;

(3) FIG. **1**C illustrates a back view of the waistband area of the lower body garment in FIG. **1**A, in one or more embodiments;

(4) FIG. **2**A illustrates an example upper body garment, in one or more embodiments;

(5) FIG. **2**B illustrates the bottom edge of the upper body garment in FIG. **2**A, in one or more embodiments;

(6) FIG. **3**A illustrates an example connector of the lower body garment, wherein the connector is a side connector, in one or more embodiments;

(7) FIG. **3**B illustrates an example connector of the lower body garment, wherein the connector is a center connector, in one or more embodiments;

(8) FIG. **4**A illustrates a front view of an example connector of the lower body garment in an open position to engage and interconnect with an example connector of the upper body garment, in one or more embodiments;

(9) FIG. **4**B illustrates a side view of the example connector of the lower body garment in the open position to engage and interconnect with the example connector of the upper body garment, in one or more embodiments;

(10) FIG. **4**C illustrates the example connector of the lower body garment interconnected with the example connector of the upper body garment, in one or more embodiments;

(11) FIG. **4**D illustrates the garments attached together to form a unitary and integrated protective covering, in one or more embodiments; and

(12) FIG. **5** illustrates an example pattern for stitching a hook and loop fastener to a connector, in one or more embodiment.

DETAILED DESCRIPTION

(13) The following description is made for the purpose of illustrating the general principles of one or more embodiments and is not meant to limit the inventive concepts claimed herein. Further, particular features described herein can be used in combination with other described features in each of the various possible combinations and permutations. Unless otherwise specifically defined herein, all terms are to be given their broadest possible interpretation including meanings implied

from the specification as well as meanings understood by those skilled in the art and/or as defined in dictionaries, treatises, etc.

(14) One or more embodiments relate generally to garments, and in particular, a belt loop for connecting garments. One embodiment provides a garment system comprising an upper body garment comprising an interior surface and a first set of connectors positioned on the interior surface. The system further comprises a lower body garment comprising a second set of connectors positioned on a surface of the lower body garment. The first set of connectors and the second set of connectors are vertically aligned when a wearer wears the upper body garment and the lower body garment at the same time, and each connector of the second set of connectors is configured to releasably engage and interconnect with a connector of the first set of connectors to attach the upper body garment to the lower body garment.

(15) Another embodiment provides an article of clothing comprising an upper body garment and a lower body garment. The upper body garment comprises an interior surface and a first set of connectors positioned on the interior surface. The lower body garment comprises a second set of connectors positioned on a surface of the lower body garment. The first set of connectors and the second set of connectors are vertically aligned when a wearer wears the upper body garment and the lower body garment at the same time, and each connector of the second set of connectors is configured to releasably engage and interconnect with a connector of the first set of connectors to attach the upper body garment to the lower body garment.

(16) FIG. **1**A illustrates an example lower body garment **10**, in one or more embodiments. The lower body garment **10** is intended to be worn by a wearer. The lower body garment **10** comprises, but is not limited to, pants, shorts, etc. The lower body garment **10** includes a waistband area **11** extending downwards from a top edge **10**T of the lower body garment **10** for a distance of about H.sub.1 (FIG. **1**B). For example, in one embodiment, the distance H.sub.1 of the waistband area **11** is about 2 inches.

(17) The top edge **10**T defines a waist opening **12**. The lower body garment **10** further includes two garment legs **13** providing two leg openings. Specifically, each garment leg **13** includes a leg opening designed/shaped for receiving a lower limb of the wearer, wherein the garment leg **13** covers (i.e., partially covers or fully covers) the lower limb. The waist opening **12** is opposite of the leg openings.

(18) As shown in FIG. **1**A, the lower body garment **10** includes one or more connectors **50** that are spaced apart and encircle the waistband area **11**. In one embodiment, the connectors **50** are located on an exterior surface **15** of the lower body garment **10**. In another embodiment, the connectors **50** are located on an interior surface of the lower body garment **10**. As described in detail later herein, each connector **50** is located within proximity of the top edge **10**T to releasably engage and interconnect with a corresponding connector **23** (FIG. **2**A) of an upper body garment **20** (FIG. **2**A). The lower body garment **10** and the upper body garment **20** attach together to form a unitary and integrated protective covering **30** (FIG. **4**D) for the wearer that can protect the wearer from extreme weather and other hazardous conditions (e.g., flight suits worn by pilots, garments worn by firefighters, military personnel, industrial workers, etc.). For example, in one embodiment, the garments **10** and **20** are made from a fabric that is flame resistant or flame retardant, thereby protecting the wearer from flash fires, explosions, and open flames.

(19) The lower body garment **10** may include a plurality of optional belt loops **14** (FIG. **1**B) that are spaced apart and encircle the waistband area **11**. Each belt loop **14** includes an opening designed/shaped for receiving a belt that encircles the waistband area **11**. In one embodiment, the connectors **50** and the belt loops **14** are spaced apart along the waistband area **11**. In another embodiment, the connectors **50** are located on top of the belt loops **14**, such that at least one belt loop **14** includes a corresponding connector **50** on top the belt loop **14** (i.e., attached to an exterior surface of the belt loop **14**).

(20) FIG. **1**B illustrates a front view of the waistband area **11** of the lower body garment **10** in FIG.

1A, in one or more embodiments. FIG. **1**C illustrates a back view of the waistband area **11** of the lower body garment **10** in FIG. **1**A, in one or more embodiments. As shown in FIG. **1**B, in one embodiment, the connectors **50** include, on a front side of the waistband area **11**, a first side connector **50**R and a second side connector **50**L located to the right and to the left, respectively, of a center of the waistband area **11**. As shown in FIG. **1**C, in one embodiment, the connectors **50** further include, on a rear side of the waistband area **11**, a center connector **50**C located at about the center of the waistband area **11**.

(21) In one embodiment, each connector **50** comprises a retaining member.

(22) FIG. **2**A illustrates an example upper body garment **20**, in one or more embodiments. The upper body garment **20** is intended to be worn by a wearer. The upper body garment comprises, but is not limited to, a jacket, a coat, a shirt (e.g., a combat shirt), etc.

(23) The upper body garment **20** includes an interior surface **21** and an opposite exterior surface **22**. The interior surface **21** includes one or more connectors **23** that are spaced apart and spaced from a bottom edge **20**B of the upper body garment **20**. As described in detail later herein, each connector **23** is located within proximity of the bottom edge **20**B to releasably engage and interconnect with a corresponding connector **50** (FIGS. **1**A-**1**C) of the lower body garment **10**.

(24) In one embodiment, each connector **23** includes an optional tab member **24** that allows the wearer of the upper body garment **20** to more easily locate the connector **23** and pull on the tab member **24** when attaching the connecter **23** to a corresponding connector **50** of the lower body garment **10**.

(25) FIG. **2**B illustrates the bottom edge **20**B of the upper body garment **20** in FIG. **2**A, in one or more embodiments. As shown in FIG. **2**B, in one embodiment, the connectors **23** include a first side connector **23**R located to a right of a center of the interior surface **21**, a second side connector **23**L located to a left of the center of the interior surface **21**, and a center connector **23**C located at about the center of the interior surface **21**. In one embodiment, the connectors **23** are spaced from the bottom edge **20**B a distance DI of about 0.5 inches to about 12 inches. For example, in one embodiment, the connectors **23** are spaced about 4 inches from the bottom edge **20**B.

(26) As shown in FIG. **2**B, in one embodiment, each connector **23** comprises a half loop member. Each connector **23** may be made from a cord, such as an elastic cord or a shock cord, with two ends. The ends of each connector **23** are spaced apart and permanently attached to a seam **25** of the interior surface **21** via bartacks **26** (i.e., the ends are bartacked). In sewing, a bartack is a stitch or a series of stitches used to reinforce parts of a garment that may be subject to stress or additional wear (e.g., belt loops, pocket corners, etc.). For example, in one embodiment, the ends of the connectors **23**R and **23**L are spaced apart by a distance of about 1.75 inches, and the ends of the connector **23**C are spaced apart by a distance of about 3 inches. In one embodiment, a length of each bartack **26** is about 0.25 inches.

(27) As stated above, each connector **23** of the upper body garment **20** corresponds to a particular connector **50** of the lower body garment **10** that the connector **23** releasably engages and interconnects with. With reference to FIGS. **1**B and **2**B, the first side connector **23**R of the upper body garment **20** corresponds to the first side connector **50**R of the lower body garment **10**, such that the connectors **23**R and **50**R releasably engage and interconnect with each other to secure a right portion of the upper body garment **20** to the lower body garment **10**. With reference to FIGS. **1**B and **2**B, the second side connector **23**L of the upper body garment **20** corresponds to the second side connector **50**L of the lower body garment **10**, such that the connectors **23**L and **50**L releasably engage and interconnect with each other to secure a left portion of the upper body garment **20** to the lower body garment **10**. With reference to FIGS. **1**C and **2**B, the center connector **23**C of the upper body garment **20** corresponds to the center connector **50**C of the lower body garment **10**, such that the connectors **23**C and **50**C releasably engage and interconnect with each other to secure a center portion of the upper body garment **20** to the lower body garment **10**. The connectors **23**R, **23**L, and **23**C are in vertical alignment with the connectors **50**R, **50**L, and **50**C when the garments

10 and **20** are donned by the wearer.
(28) In another embodiment, the structure of the connectors **50** of the lower body garment **10** and the connectors **23** of the upper body garment **20** are reversed, such that the connectors **50** comprise half loop members and the connectors **23** comprise retaining members instead. In yet another embodiment, the connectors **50** of the lower body garment **10** comprise a first combination of half loop members and retaining members, and the connectors **23** of the upper body garment **20** comprise a second combination of half loop members and retaining members complementary to the first combination (i.e., each half loop member of one garment releasably engages and interconnects with a corresponding retaining member of another garment).
(29) FIG. **3**A illustrates an example connector **50** of the lower body garment **10**, wherein the connector **50** is a side connector **50**R or **50**L, in one or more embodiments. In one embodiment, each side connector **50**R, **50**L comprises a one-piece retaining member **60**. The retaining member **60** is foldable at about a center **60**C into two ends/segments of about equal length. Specifically, the retaining member **60** includes a belt loop end **61** adjacent to the waistband area **11**, and a flap end **62** that is opposite of the belt loop end **61**. The belt loop end **61** and the flap end **62** form one continuous piece.
(30) One or more portions of the retaining member **60** are directly and permanently attached to the lower body garment **10**. For example, in one embodiment, the center **60**C of the retaining member **60** is directly and permanently attached to the exterior surface **15** of the lower body garment **10** via a bartack **66** (FIG. **1**B) (i.e., the retaining member **60** is bartacked) sewn at about the center **60**C. In one embodiment, the bartack **66** is located about 0.125 inches from the top edge **10**T of the lower body garment **10**.
(31) As another example, in one embodiment, a portion of the belt loop end **61** is directly and permanently attached to the lower body garment **10**. For example, in one embodiment, a bottom edge of the belt loop end **61** is directly and permanently attached to the exterior surface **15** of the lower body garment **10** via a bartack **65** (i.e., the belt loop end **61** is bartacked) sewn at about the bottom edge. In one embodiment, a length of the bartack **65** is about 0.875 inches.
(32) A portion of the belt loop end **61** that is in between the bartacks **65** and **66** form an opening **51** (FIGS. **4**B-**4**C) designed/shaped for receiving a belt that encircles the waistband area **11**.
(33) The retaining member **60** includes a fastener. In one embodiment, the fastener is a hook and loop fastener (e.g., VELCRO® hook and loop). Specifically, the belt loop end **61** includes a loop fastening material **63**A of the fastener, and the flap end **62** includes a hook fastening material **63**B of the fastener. In one embodiment, the belt loop end **61** includes an area **64**A within proximity of the center **60**C that does not include the loop fastening material **63**A, and the flap end **62** includes an area **64**B within proximity of the center **60**C that does not include the hook fastening material **63**B. In one embodiment, the areas **64**A and **64**B are lined with webbing. Without any fastening materials **63**A and **63**B, the areas **64**A and **64**B provide more vertical room for receiving and securing a connector **23**, and make it more likely for the fastening materials **63**A and **63**B to vertically align. Further, there is less surface area for dirt and other debris to get caught in the fastening materials **63**A and **63**B, thereby causing less wear and tear to the hook and loop fastener over time.
(34) In another embodiment, the locations of the hook fastening material **63**B and the loop fastening material **63**A are reversed, such that the belt loop end **61** includes the hook fastening material **63**B and the flap end **62** includes the loop fastening material **63**A instead.
(35) The flap end **62** is a flap that is releasably attached to the lower body garment **10** via the fastener. For example, in one embodiment, aligning and pressing the flap end **62** on top of and against the belt loop end **61** causes the hook fastening material **63**B to engage and fasten to the loop fastening material **63**A. In FIG. **3**A, the flap end **62** is in an open position, i.e., the hook fastening material **63**B is not engaged and fastened to the loop fastening material **63**A.
(36) In one embodiment, a length of the retaining member **60** is about 6.125 inches. In one

embodiment, the length includes a length L.sub.1 from a bottom edge of the belt loop end **61** to the center **60**C, and another length L.sub.2 from a top edge of the flap end **62** to the center **60**C. In one embodiment, the lengths Ly and L.sub.2 are substantially similar. For example, in one embodiment, each of the lengths L; and L.sub.2 is about 2.5 inches.

(37) In one embodiment, a length L.sub.3 of the loop fastening material **63**A is substantially similar to a length L.sub.4 of the hook fastening material **63**B, such that the surface areas of the materials **63**A, **63**B are similarly sized for better grip. For example, in one embodiment, each of the lengths L.sub.3 and L.sub.4 is about 1.5 inches.

(38) In one embodiment, a width W.sub.1 of the retaining member **60** is about 1 inch.

(39) In another embodiment, the fastener is another type of fastener such as, but not limited to, a snapfit connector (e.g., a cantilever snap, an annular snap, a trap, a dart, etc.), a push-pull connector, a buckle, a retaining ring, a snap, a cantilever spring fastener, a crush rib fastener, a carabiner, etc.

(40) FIG. **3**B illustrates an example connector **50** of the lower body garment **10**, wherein the connector **50** is a center connector **50**C, in one or more embodiments. In one embodiment, the center connector **50**C comprises a one-piece retaining member **70**. The retaining member **70** is foldable at about a center **70**C into two ends of about equal length. Specifically, the retaining member **70** includes a belt loop end **71** adjacent to the waistband area **11**, and a flap end **72** that is opposite of the belt loop end **71**. The belt loop end **71** and the flap end **72** form one continuous piece.

(41) One or more portions of the retaining member **70** are directly and permanently attached to the lower body garment **10**. For example, in one embodiment, the center **70**C of the retaining member **70** is directly and permanently attached to the exterior surface **15** of the lower body garment **10** via a bartack **76** (FIG. **1**C) (i.e., the retaining member **70** is bartacked) sewn at about the center **70**C. In one embodiment, the bartack **76** is located about 0.125 inches from the top edge **10**T of the lower body garment **10**.

(42) As another example, in one embodiment, a portion of the belt loop end **71** is directly and permanently attached to the lower body garment **10**. For example, in one embodiment, a bottom edge of the belt loop end **71** is directly and permanently attached to the exterior surface **15** of the lower body garment **10** via a bartack **75** (i.e., the belt loop end **71** is bartacked) sewn at about the bottom edge. In one embodiment, a length of the bartack **75** is about 0.875 inches.

(43) A portion of the belt loop end **71** that is in between the bartacks **75** and **76** form an opening **51** (FIGS. **4**B-**4**C) designed/shaped for receiving a belt that encircles the waistband area **11**.

(44) The retaining member **70** includes a fastener. In one embodiment, the fastener is a hook and loop fastener (e.g., VELCRO® hook and loop). Specifically, the belt loop end **71** includes a loop fastening material **73**A of the fastener, and the flap end **72** includes a hook fastening material **73**B of the fastener. In one embodiment, the belt loop end **71** includes an area **74**A within proximity of the center **70**C that does not include the loop fastening material **73**A, and the flap end **72** includes an area **74**B within proximity of the center **70**C that does not include the hook fastening material **73**B. In one embodiment, the areas **74**A and **74**B are lined with webbing. Without any fastening materials **73**A and **73**B, the areas **74**A and **74**B provide more vertical room for receiving and securing a connector **23**, and make it more likely for the fastening materials **73**A and **73**B to vertically align. Further, there is less surface area for dirt and other debris to get caught in the fastening materials **73**A and **73**B, thereby causing less wear and tear to the hook and loop fastener over time.

(45) In another embodiment, the locations of the hook fastening material **73**B and the loop fastening material **73**A are reversed, such that the belt loop end **71** includes the hook fastening material **73**B and the flap end **72** includes the loop fastening material **73**A instead.

(46) The flap end **72** is a flap that is releasably attached to the lower body garment **10** via the fastener. For example, in one embodiment, aligning and pressing the flap end **72** on top of and

against the belt loop end **71** causes the hook fastening material **73**B to engage and fasten to the loop fastening material **73**A. In FIG. **3**B, the flap end **72** is in an open position, i.e., the hook fastening material **73**B is not engaged and fastened to the loop fastening material **73**A.

(47) In one embodiment, a length of the retaining member **70** is about 8.125 inches. In one embodiment, the length includes a length L.sub.5 from a bottom edge of the belt loop end **71** to the center **70**C, and another length L.sub.6 from a top edge of the flap end **72** to the center **70**C. In one embodiment, the lengths L.sub.5 and L.sub.6 are substantially similar. For example, in one embodiment, each of the lengths L.sub.5 and L.sub.6 is about 3.5 inches.

(48) In one embodiment, a length L.sub.7 of the loop fastening material **73**A is substantially similar to a length L.sub.8 of the hook fastening material **73**B, such that the surface areas of the materials **73**A, **73**B are similarly sized for better grip. For example, in one embodiment, each of the lengths L.sub.7 and L.sub.8 is about 2.25 inches.

(49) In one embodiment, a width W.sub.2 of the retaining member **70** is about 1 inch.

(50) In another embodiment, the fastener is another type of fastener such as, but not limited to, a snapfit connector (e.g., a cantilever snap, an annular snap, a trap, a dart, etc.), a push-pull connector, a buckle, a retaining ring, a snap, a cantilever spring fastener, a crush rib fastener, a carabiner, etc.

(51) FIG. **4**A illustrates a front view of an example connector **50** of the lower body garment **10** in an open position to engage and interconnect with an example connector **23** of the upper body garment **20**, in one or more embodiments. FIG. **4**B illustrates a side view of the example connector **50** in the open position to engage and interconnect with the example connector **23**, in one or more embodiments. FIG. **4**C illustrates the example connector **50** interconnected with the example connector **23**, in one or more embodiments. FIG. **4**D illustrates the garments **10** and **20** attached together to form a unitary and integrated protective covering **30**, in one or more embodiments. Once a wearer wears both the lower body garment **10** and the upper body garment **20**, the garments **10** and **20** can be attached together by engaging and interconnecting each connector **50** of the lower body garment **10** with a corresponding connector **23** of the upper body garment **20**. For example, connectors **50**R, **50**L, and **50**C of the lower body garment **10** are interconnected with connectors **23**R, **23**L, and **23**C of the upper body garment **20**, respectively.

(52) To attach a connector **50** with a corresponding connector **23**, a fastener (e.g., hook and loop fasteners shown in FIGS. **3**A-**3**B) of the connector **50** is released, causing a flap end (e.g., flap ends **62** and **72** shown in FIGS. **3**A-**3**B) of the connector **50** to pivot upwards into an open position. When the flap end is in the open position, the wearer can pull on the connector **23** located on the interior surface **21** of the upper body garment **20** and bring the connector **23** in close proximity to the flap end. The wearer places the flap end within the connector **23** (e.g., the flap end is placed through an opening formed by the half loop member of the connector **23**). Once the flap end has engaged the connector **23**, the flap end can be pivoted in a down wards direction into a closed position, as shown in FIG. **4**C. When in the closed position, the fastener engages (e.g., hook fastening materials **63**B, **73**B and loop fastening materials **63**A, **73**A shown in FIGS. **3**A-**3**B engage) causing a secure attachment between the connectors **50** and **23**.

(53) Once the upper body garment **20** is attached to the lower body garment **10**, the upper body garment **20** is prevented from being forced up and separating from the lower body garment **10** and exposing the wearer.

(54) FIG. **5** illustrates an example pattern **80** for stitching a hook and loop fastener to a connector **50**, in one or more embodiments. Loop fastening material (e.g., **63**A, **73**A in FIGS. **3**A-**3**B) of the fastener is sewn to a belt loop end (e.g., **61**, **71** in FIGS. **3**A-**3**B) of the connector **50** along a path **81** that forms an X for extra reinforcement. Hook fastening material (e.g., **63**B, **73**B in FIGS. **3**A-**3**B) of the fastener is sewn to a flap end (e.g., **62**, **72** in FIGS. **3**A-**3**B) of the connector **50** along a path **82** that forms a square/rectangle. In one embodiment, a bottom edge of the belt loop end and a top edge of the flap end are turned under and caught in the stitching for reinforcement. Stitching is

visible on an exterior of the flap end to provide a wearer with a visual aid for aligning the hook fastening material to the loop fastening material.
(55) References in the claims to an element in the singular is not intended to mean “one and only” unless explicitly so stated, but rather “one or more.” All structural and functional equivalents to the elements of the above-described exemplary embodiment that are currently known or later come to be known to those of ordinary skill in the art are intended to be encompassed by the present claims. No claim element herein is to be construed under the provisions of 35 U.S.C. section 112, sixth paragraph, unless the element is expressly recited using the phrase “means for” or “step for.”
(56) The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the singular forms “a”, “an” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms “comprises” and/or “comprising,” when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.
(57) The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. The description of the embodiments has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the embodiments in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention.
(58) Though the embodiments have been described with reference to certain versions thereof; however, other versions are possible. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred versions contained herein.

Claims

1. A garment system comprising: a first piece of body garment comprising a first type of connector; and a second piece of body garment comprising a second type of connector configured to releasably engage and interconnect with the first type of connector to attach the first piece of body garment to the second piece of body garment; wherein the second type of connector includes a one-piece continuous member foldable at about a center to define a pair of opposite segments; wherein a first segment of the pair includes a first area with a first type of fastening material and a second area without the first type of fastening material; wherein a second segment of the pair includes a third area with a second type of fastening material and a fourth area without the second type of fastening material; and wherein a size of the first area with the first type of fastening material is substantially similar to a size of the third area with the second type of fastening material, such that, when the second type of connector engages and interconnects with the first type of connector, the second area without the first type of fastening material and the fourth area without the second type of fastening material provide space for receiving and retaining the first type of connector, and the first area with the first type of fastening material engages and fastens to an entirety of the third area with the second type of fastening material.
2. The garment system of claim 1, wherein the first piece of body garment and the second piece of body garment comprise an upper body garment and a lower body garment, respectively, and the first type of connector and the second type of connector are vertically aligned when a wearer wears the upper body garment and the lower body garment at the same time.
3. The garment system of claim 1, wherein the first type of connector is arranged on an interior surface of the first piece of body garment.
4. The garment system of claim 1, wherein the second type of connector is arranged on a surface of

the second piece of body garment.
5. The garment system of claim 1, wherein the first type of connector comprises a half loop member.
6. The garment system of claim 1, wherein the first segment of the pair forms a belt loop for receiving a belt, and the second segment of the pair forms a flap for retaining the first type of connector to the second piece of body garment when the second type of connector engages and interconnects with the first type of connector.
7. The garment system of claim 6, wherein the belt loop is directly and permanently attached to the second piece of body garment, and the flap is removably attached to the second piece of body garment.
8. The garment system of claim 1, wherein a size of the first segment of the pair is substantially similar to a size of the second segment of the pair.
9. The garment system of claim 1, wherein first type of fastening material and the second type of fastening material are different types of fastening material.
10. The garment system of claim 1, wherein first type of fastening material and the second type of fastening material together form a hook and loop fastener.
11. The garment system of claim 1, wherein the first piece of body garment and the second piece of body garment comprise at least one additional first type of connector and at least one additional second type of connector, respectively.
12. An article of clothing comprising: a first body garment comprising a first connector; and a second body garment comprising a second connector configured to releasably engage and interconnect with the first connector to attach the first body garment to the second body garment; wherein the second connector includes a one-piece continuous member foldable at about a center to define a pair of opposite segments; wherein a first segment of the pair includes a first area with a first fastening material and a second area without the first fastening material; wherein a second segment of the pair includes a third area with a second fastening material and a fourth area without the second fastening material; and wherein a size of the first area with the first fastening material is substantially similar to a size of the third area with the second fastening material, such that, when the second connector engages and interconnects with the first connector, the second area without the first fastening material and the fourth area without the second fastening material provide space for receiving and retaining the first connector, and the first area with the first fastening material engages and fastens to an entirety of the third area with the second fastening material.
13. The article of clothing of claim 12, wherein the first body garment and the second body garment comprise an upper body garment and a lower body garment, respectively, and the first connector and the second connector are vertically aligned when a wearer wears the upper body garment and the lower body garment at the same time.
14. The article of clothing of claim 12, wherein the first connector is arranged on an interior surface of the first body garment.
15. The article of clothing of claim 12, wherein the second connector is arranged on a surface of the second body garment.
16. The article of clothing of claim 12, wherein the first connector comprises a half loop member.
17. The article of clothing of claim 12, wherein the first segment of the pair forms a belt loop for receiving a belt, and the second segment of the pair forms a flap for retaining the first connector to the second body garment when the second connector engages and interconnects with the first connector.
18. The article of clothing of claim 17, the wherein belt loop is directly and permanently attached to the second body garment, and the flap is removably attached to the second body garment.
19. The article of clothing of claim 12, wherein first fastening material and the second fastening material are different types of fastening material.
20. The article of clothing of claim 12, wherein the first body garment and the second body

garment comprise at least one additional first connector and at least one additional second connector, respectively.