MAGNETIC CLOTHING STAY DEVICES AND SYSTEMS

Applicant: Philip Bunting, Portland, OR (US)
Inventor: Philip Bunting, Portland, OR (US)

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ABSTRACT
Magnetic clothing stay systems including a first magnetically attractable partner having a first body, a first magnetically attractable element, a first mating surface, and an of clothing item contacting surface; and a second magnetically attractable partner having a second body, a second magnetically attractable element, and a second mating surface, the first mating surface being mateable to the second mating surface are described. In some examples, the first body has a generally dome-shaped body. In some further examples, the second body has a generally disc-shaped body.
MAGNETIC CLOTHING STAY DEVICES AND SYSTEMS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and the benefit under 35 U.S.C. 119(e) of copending U.S. Provisional Patent Application, Ser. No. 61/922,611, filed on Dec. 31, 2013, which is hereby incorporated by reference for all purposes.

BACKGROUND

[0002] The present disclosure relates generally to clothing stay devices and systems for men’s and/or women’s clothing. In particular, magnetic clothing stay devices and systems are described.

[0003] In many professional environments, it is desirable to have a neat and tidy appearance, particularly in the appearance of clothing or garments. Through normal wear, however, it may be difficult to maintain the position of one clothing item relative to another. Simply through the actions of walking, sitting, standing, and general movement, an item of clothing may become rumpled and/or slip relative to another item of clothing. For example, a shirt may become unbuttoned from a waistline of a wearer’s pants. In another example, a shirt may become unbuttoned from a waistline of a wearer’s skirt.

[0004] Known garment stay devices are not entirely satisfactory for the range of applications in which they are employed. For example, existing garment stays are awkward to operate as they can be in a location that is difficult to reach. In another example, conventional garment stay devices are often permanently associated with a clothing item and therefore are not transferable to other clothing items, limiting a wearer’s selection of clothing. In yet another example, a clothing stay may be uncomfortable and/or irritating to a wearer. In yet another example, a clothing stay may pierce and/or otherwise damage clothing in order to function.

[0005] Thus, there exists a need for clothing stay devices and systems that improve upon and advance the design of known clothing stay devices and systems. Examples of new and useful clothing stay devices and systems relevant to the needs existing in the field are discussed below.


SUMMARY

[0007] The present disclosure is directed to magnetic clothing stay systems including a first magnetically attractive partner having a first body, a first magnetically attractive element, a first mating surface, and an outer clothing item contacting surface. The clothing stay system further comprises a second magnetically attractive partner having a second body, a second magnetically attractive element, and a second mating surface, the first mating surface being mateable to the second mating surface. In some examples, the first body has a generally dome-shaped body, the first mating surface being a flat floor of the dome-shaped body, the outer clothing item contacting surface being an outer curved surface of the dome-shaped body. In some other examples, the second body has a generally disc-shaped body, the second mating surface being a flat side of the disc-shaped body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a top side perspective view of a first example of a magnetic clothing stay device.

[0009] FIG. 2 is a bottom side perspective view of the magnetic clothing stay device shown in FIG. 1.

[0010] FIG. 3 is a cross-sectional view showing an example arrangement of the magnetic clothing stay engaged with clothing items of wearer.

DETAILED DESCRIPTION

[0011] The disclosed clothing stay devices and systems will become better understood through review of the following detailed description in conjunction with the figures. The detailed description and figures provide merely examples of the various inventions described herein. Those skilled in the art will understand that the disclosed examples may be varied, modified, and altered without departing from the scope of the inventions described herein. Many variations are contemplated for different applications and design considerations; however, for the sake of brevity, each and every contemplated variation is not individually described in the following detailed description.

[0012] Throughout the following detailed description, a variety of clothing stay devices and systems examples are provided. Related features in the examples may be identical, similar, or dissimilar in different examples. For the sake of brevity, related features will not be redundantly explained in each example. Instead, the use of related feature names will cue the reader that the feature with a related feature name may be similar to the related feature in an example explained previously. Features specific to a given example will be described in that particular example. The reader should understand that a given feature need not be the same or similar to the specific portrayal of a related feature in any given figure or example.

[0013] With reference to FIGS. 1-3 a first example of a magnetic clothing stay, magnetic clothing stay 10, will now be described. Magnetic clothing stay 10 functions to maintain a position of a wearer’s clothing during daily activities, such as maintaining a position of a shirt relative to a waistline of a wearer’s pants. Additionally or alternatively, magnetic clothing stay 10 can be used to maintain a position of a shirt relative to a waistline of a skirt.

[0014] Magnetic clothing stay 10 addresses many of the shortcomings existing with conventional garment stays. For example, the presently described magnetic clothing stay is easy to operate and transferable to any clothing item. Further, the presently described magnetic clothing stay does not damage clothing or cause discomfort to a user during operation and wear.

[0015] As shown in FIGS. 1-3, magnetic clothing stay system 10 includes a first magnetically attractive partner 12 (e.g., a first magnetic assembly) magnetically paired to a second magnetically attractive partner 14 (e.g., a second magnetic assembly). In other examples, the magnetic cloth-
ing stay includes an additional magnetically attractable partner magnetically paired to the second magnetically attractable partner.

[0016] As can be seen in FIGS. 1 and 2, magnetically attractable partner 12 has a generally dome-shaped body 16 with a plurality of facets 18 evenly distributed over the domed surface of the body. Dome-shaped body 16 has a height a. In one specific example, the height a is 0.5 in. In alternate embodiments, the first magnetically attractable partner may have an alternative shape. For example, the first magnetically attractable partner can be ovoid, pyramidal, or stepped.

[0017] The domed surface of body 16 is configured to contact an inner surface of an outer clothing item, such as a pair of pants or a skirt (as depicted in FIG. 3). Because the plurality of facets are on the surface of the domed portion (i.e., curved surface) of the body, they substantially comprise a clothing contacting surface. Facets 18 can increase friction between the dome-shaped body and the inner surface of the outer clothing item. Accordingly, facets 18 can substantially comprise a gripping surface.

[0018] Body 16 further includes a flat mating surface 20, which is a floor of the dome-shaped body. In other words, the domed portion of the body is on a first side and the flat mating surface is on a second opposing side. Mating surface 20 is a location where first magnetically attractable partner 12 can be magnetically mated with second magnetically attractable partner 14.

[0019] Within body 16 and proximal to mating surface 20, there is at least one magnetically attractable element 40 (shown in FIG. 3). For example, body 16 may include a rare-earth magnetic material. In one specific example, the body includes one or more magnetic members comprised of neodymium ferrite boron. In alternate examples, the magnetically attractive element may be any magnetically attractable material, such as iron or another magnetically attractable metal.

[0020] Further, body 16 can be comprised of a soft and/or tacky rubber material that additionally increases friction between the dome-shaped body and the inner surface of the outer clothing item. In one example, body 16 is comprised of an elastomeric compound. In one specific example, the body is comprised of silicone. It will be appreciated that in some examples, the body may have an outer surface layer comprised of an elastomeric compound and a central portion comprised of a different material.

[0021] In alternate examples, the dome-shaped body may be substantially smooth without facets) or include another configuration for a gripping surface, such as a surface covered with small flexible projections. In other alternate examples, the dome-shaped body may be comprised of a harder material, such as plastic, wood, or metal.

[0022] As depicted in FIGS. 1 and 2, second magnetically attractable partner 14 has a generally disc-shaped body 22 with a plurality of facets 24 evenly distributed over an outer curved wall of body 22. Disc-shaped body 22 has a height b. In general, the height b is less than the height a. In one specific example, the height b is 0.1875 in.

[0023] Body 22 has a flat mating surface 26 on a first side of the body that can make abutting surface-to-surface contact with mating surface 14. It will be appreciated that during use, a portion of a clothing item is retained between mating surface 26 and mating surface 14, and the magnetically attractable partners are paired without making surface-to-surface contact (as depicted in FIG. 3 and described below).

[0024] Within body 22 and proximal to mating surface 26, there is at least one magnetically attractable element (shown in FIG. 3). For example, body 22 may include a rare earth magnet, such as neodymium or neodymium ferrite boron. In alternate examples, the magnetically attractable element may be any magnetically attractable material, such as iron or another rare earth magnetically attractable metal.

[0025] When engaged with an inner clothing item (as shown in FIG. 3), such as a tucked-in portion of a shirt, the material of the inner clothing is laid flat between mating surfaces 20 and 26. In this case, mating surface 26 makes surface-to-surface contact with an inner surface of the inner clothing item and mating surface 20 makes surface-to-surface contact with an outer surface of the inner clothing item.

[0026] Body 22 further includes a flat surface 28. Flat surface 28 opposes mating surface 26 and lies on an outer surface of magnetic clothing stay 10 when the first and second magnetic assemblies are magnetically paired. When worn, surface 28 can contact the skin of the wearer or an outer surface of an undergarment, such as a t-shirt or a slip.

[0027] Body 22 can be comprised of a tacky rubber and/or elastomeric material that increases friction between the disc-shaped body and the inner surface of the inner clothing item. In one example, body 22 is comprised of silicone. In alternate examples, the disc-shaped body may include a gripping surface, such as a surface covered with small flexible projections. In other alternate examples, the disc-shaped body may be comprised of a harder material, such as plastic, wood, or metal.

[0028] FIG. 3 shows a cross-sectional view of a wearer 30 wearing an outer clothing item 32 (e.g., a pair of pants or a skirt), an inner clothing item 34 (e.g., a tucked-in portion of a shirt), and an undergarment 36 (e.g., a t-shirt or a slip). Wearer 30 is further wearing a belt 38 at the wearer’s waistline 40. Wearer 30 is also additionally wearing magnetic clothing stay 10. A position of inner clothing item 34 is maintained relative to outer clothing item 32 by magnetic clothing stay 10.

[0029] As depicted in FIG. 3, a surface of first magnetically attractable partner 12 contacts an inner surface of outer clothing item 32. A top side of first magnetically attractable partner 12 is proximal to waistline 40 and belt 38. Mating surface 20 contacts an outer surface of inner clothing item 34 and is magnetically paired (i.e., magnetically mated) to mating surface 26. Inner clothing item 34 is captured between mating surfaces 20 and 26. In this configuration, mating surface 26 contacts an inner surface of inner clothing item 34 and surface 28 contacts an outer surface of undergarment 36. First magnetically attractable partner 12 is configured to be abutted to waistline of the outer clothing item when an upward force is applied on inner clothing item 34. Thus, the clothing stay system limits “untucking” and/or movement of the inner clothing item relative to the outer clothing item.

[0030] In an alternate example, the wearer may not have an undergarment and surface 28 may contact skin of the wearer. In another alternate example the wearer may not have a belt and first magnetically attractable partner 12 may be abutted only to waistline 40. In even another example the undergarment can additionally be retained between the first magnetic partner and the second magnetic partner.

[0031] In the examples shown in FIGS. 1 and 3, the height a is greater than the height b. In general, the height b is a sufficient distance so that the second magnetically attractive partner is small and generally flat. Thus, the second magnetically attractive partner may be undetectable
to and comfortable to be worn by the user. In general, the height a is a sufficient distance so that the first magnetically attractive partner may be engaged with and abutted against the waist line of the wearer's outer clothing item (e.g., pants, skirt, belt, etc.). Thus, when the wearer moves about during normal daily activity, such as by lifting the wearer's arms to reach for an object on a shelf, the first magnetically attractive partner does not go above the waistline.

[0032] Because the inner clothing item is captured and/or releasably retained between the first magnetically attractive partner and the second magnetically attractive partner, the position of the inner clothing item relative to the outer clothing item is maintained. Therefore, the magnetic clothing stay system functions to maintain a neat and tidy appearance of the wearer's clothing items. In alternate embodiments, the magnetic clothing stay may include a third magnetically attractive partner that magnetically pairs to the second magnetically attractive partner on an inner surface of the underwear to additionally maintain a position of the underwear relative to the inner clothing item and the outer clothing item.

[0033] The disclosure above encompasses multiple distinct inventions with independent utility. While each of these inventions has been disclosed in a particular form, the specific embodiments disclosed and illustrated above are not to be considered in a limiting sense as numerous variations are possible. The subject matter of the inventions includes all novel and non-obvious combinations and subcombinations of the various elements, features, functions and/or properties disclosed above and inherent to those skilled in the art pertaining to such inventions. Where the disclosure or subsequently filed claims recite “a” element, “a first” element, or any such equivalent term, the disclosure or claims should be understood to incorporate one or more such elements, neither requiring nor excluding two or more such elements.

[0034] Applicants reserve the right to submit claims directed to combinations and subcombinations of the disclosed inventions that are believed to be novel and non-obvious. Inventions embodied in other combinations and subcombinations of features, functions, elements and/or properties may be claimed through amendment of those claims or presentation of new claims in the present application or in a related application. Such amended or new claims, whether they are directed to the same invention or a different invention and whether they are different, broader, narrower or equal in scope to the original claims, are to be considered within the subject matter of the inventions described herein.

1. A magnetic clothing stay system, comprising:
a first magnetically attractive partner having
a first body,
a first magnetically attractive element disposed within the first body,
a first mating surface on a first side of the first body, and
an outer clothing item contacting surface of a second opposing side of the first body; and
a second magnetically attractive partner having
a second body,
a second magnetically attractive element disposed within the second body; and
a second mating surface on a first side of the second body, the second mating surface being matable with the first mating surface.

2. The magnetic clothing stay system of claim 1, wherein the first body has a generally dome-shaped body, the first mating surface being a flat floor of the dome-shaped body, the outer clothing item contacting surface being an outer curved surface of the dome-shaped body.

3. The magnetic clothing stay system of claim 1, wherein the outer clothing item contacting surface is a faceted surface.

4. The magnetic clothing stay system of claim 1, wherein first body's comprised of an elastomeric compound.

5. The magnetic clothing stay system of claim 4, wherein the first body is comprised of silicone.

6. The magnetic clothing stay system of claim 1, wherein the first magnetically attractive element is disposed within the first body proximal to the first mating surface.

7. The magnetic clothing stay system of claim 1, wherein the first magnetically attractive element is a magnet.

8. The magnetic clothing stay system of claim 1, wherein the second body has a generally disc-shaped body, the second mating surface being a first flat side of the disc-shaped body.

9. The magnetic clothing stay system of claim 1, wherein the second body is comprised of an elastomeric compound.

10. The magnetic clothing stay system of claim 9, wherein the second body is comprised of silicone.

11. The magnetic clothing stay system of claim 1, wherein the second magnetically attractive element is disposed within the second body proximal to the second mating surface.

12. The magnetic clothing stay system of claim 1, wherein the second magnetically attractive element is a magnet.

13. The magnetic clothing stay system of claim 1, wherein the first magnetically attractive partner is configured to be disposed between an inner surface of an outer clothing item and an outer surface of an inner clothing item, and wherein the second magnetically attractive partner is configured to be disposed on an inner surface of the inner clothing item, the inner clothing item being releasably retained between the first mating surface and the second mating surface.

14. The magnetic clothing stay system of claim 1, wherein the first magnetically attractive partner and the second magnetically attractive partner are configured to retain at least one inner clothing between the first mating surface and the second mating surface, and are further configured to be disposed below a waistline of an outer clothing item, proximal to the waistline.

15. The magnetic clothing stay system of claim 14, wherein the first magnetically attractive partner is configured to be abutted to the waistline of the clothing item when an upward force is applied on the at least one inner clothing item.

16. A magnetic clothing stay system, comprising:
a first magnetically attractive partner having
a dome-shaped body with a first magnetically attractive element disposed within the dome-shaped body,
a first mating surface on a first side of the dome-shaped body, the first magnetically attractive element being disposed within the dome-shaped body proximal to the first mating surface, and
an outer clothing item contacting surface on a second opposing side of the first body; and
a second magnetically attractive partner having
a disc-shaped body with a second magnetically attractive element disposed within the disc-shaped body, and
a second mating surface on a first side of the second body, the second mating surface being matable with the first mating surface.
attractable element being disposed within the disc-shaped body proximal to the second mating surface.

17. The magnetic clothing stay system of claim 16, wherein the dome-shaped body and the disc-shaped body are each comprised of an elastomeric compound.

18. The magnetic clothing stay system of claim 16, wherein the first magnetically attractable partner is configured to be disposed between an inner surface of an outer clothing item and an outer surface of an inner clothing item, and the second magnetically attractable partner is configured to be disposed on an inner surface of the inner clothing item, the outer clothing item being releasably retained between the first mating surface and the second mating surface.

19. The magnetic clothing stay system of claim 16, wherein the first magnetically attractable partner and the second magnetically attractable partner are configured to retain an inner clothing item between the first mating surface and the second mating surface, and are further configured to be disposed below a waistline of an outer clothing item, proximal to the waistline, and wherein the first magnetically attractable partner is configured to be abutted to the waistline of the outer clothing item when an upward force is applied on the inner clothing item.

20. A magnetic clothing stay system, comprising: a first magnetically attractable partner having a first body with a first magnetically attractable element disposed within the first body, a first mating surface on a first end of the first body, and an outer clothing item contacting surface on a second opposing end of the first body; and a second magnetically attractable partner having a second body with a second magnetically attractable element disposed within the second body, and a second mating surface mateable with the first mating surface, wherein the first magnetically attractable partner is configured to be disposed between an inner surface of an outer clothing item and an outer surface of an inner clothing item, and the second magnetically attractable partner is configured to be disposed on an inner surface of the inner clothing item, wherein the first magnetically attractable partner and the second magnetically attractable partner are configured to retain the inner clothing item between the first mating surface and the second mating surface, and are further configured to be disposed below a waistline of a clothing item, proximal to the waistline, and wherein the first magnetically attractable partner is configured to be abutted to the waistline of the outer clothing item when an upward force is applied on the inner clothing item.

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