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(54) **FASTENING DEVICE FOR ARTICLES OF CLOTHING**

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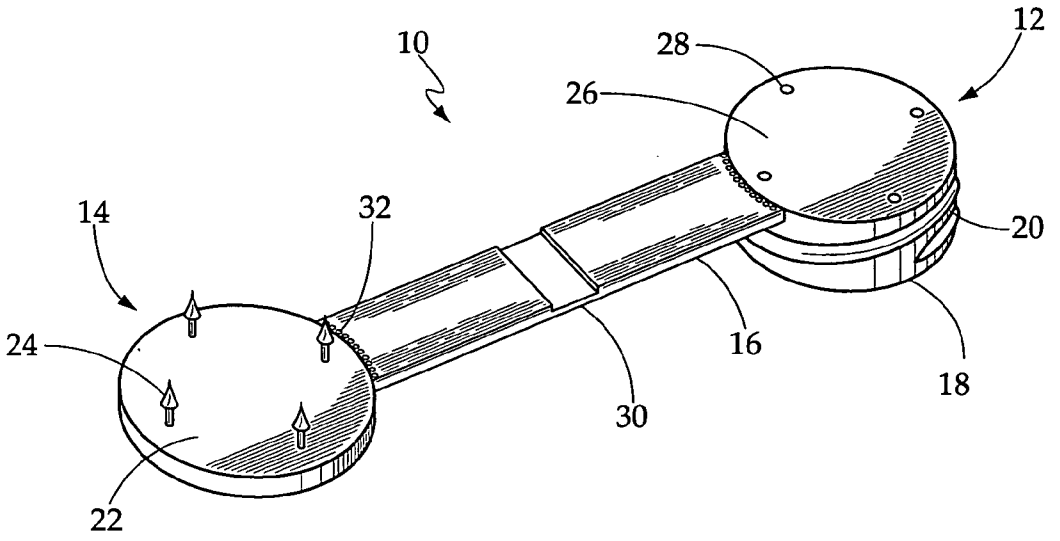
(57) **ABSTRACT**

A fastening device for detachably joining together paired articles of clothing, such as socks or gloves, is described. The device includes male and female fastener portions that are adapted for attaching to the articles of clothing and provided with complementary threads for detachably coupling to each other. In applications, the device protects the article of clothing from loss or mismatch during their laundering or storing.



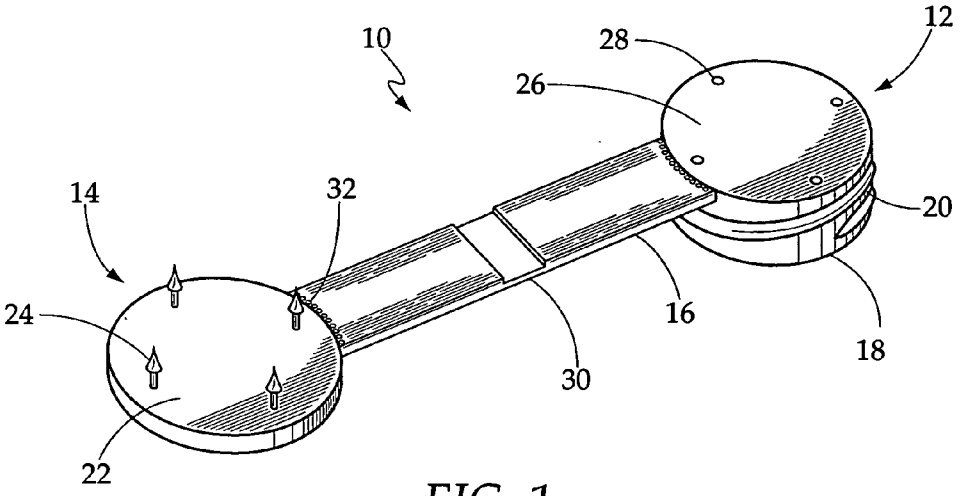

10
12
28
26
14
32
20
24
16
18
30
22

FIG. 1

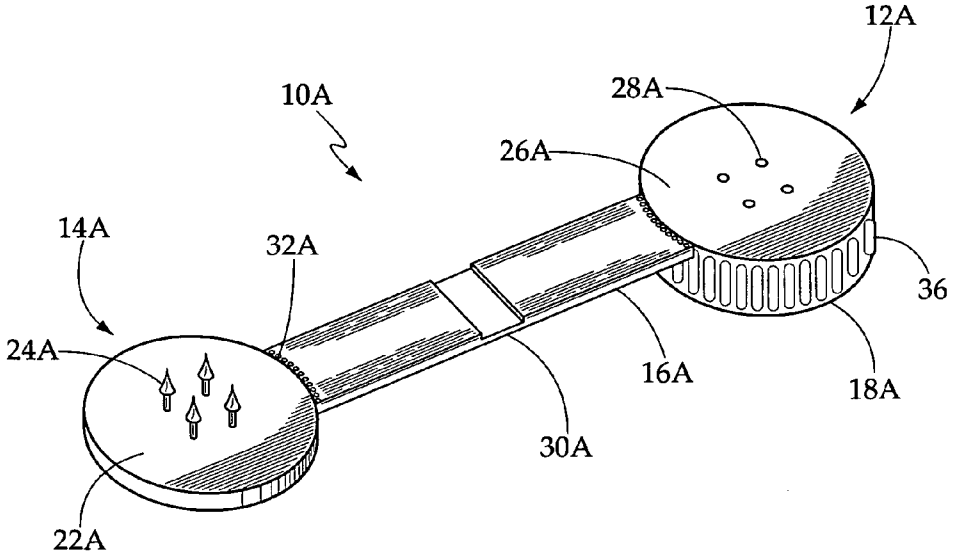

12A
10A
28A
26A
14A
32A
36
24A
16A
18A
30A
22A

FIG. 2

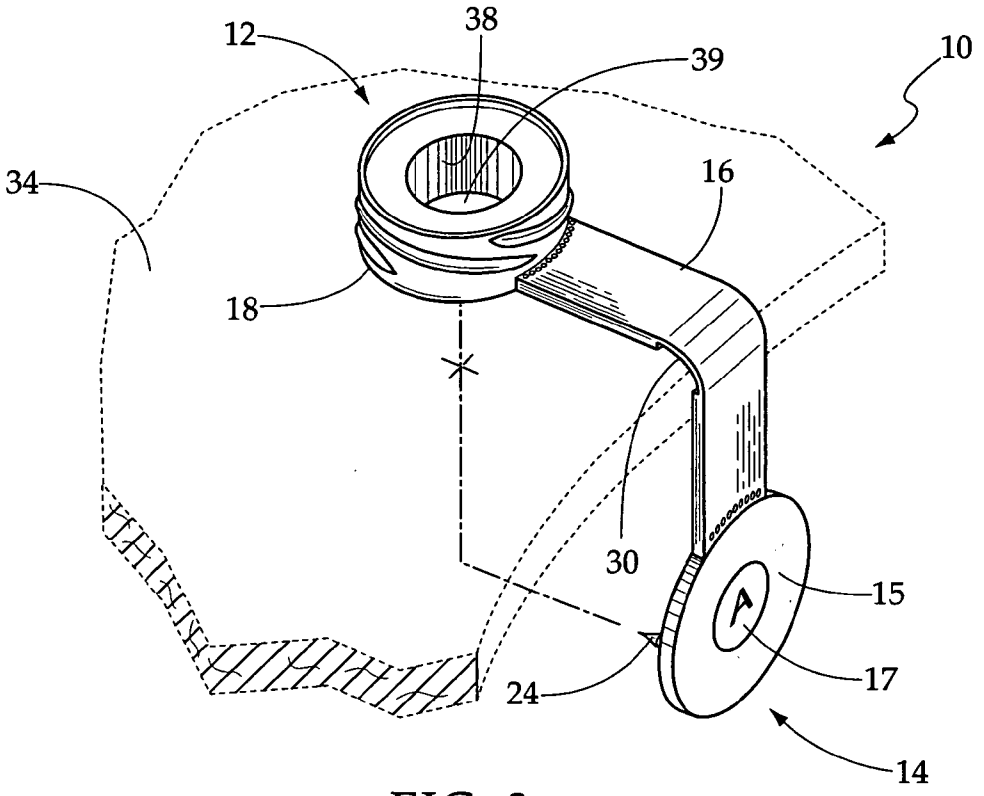


FIG. 3

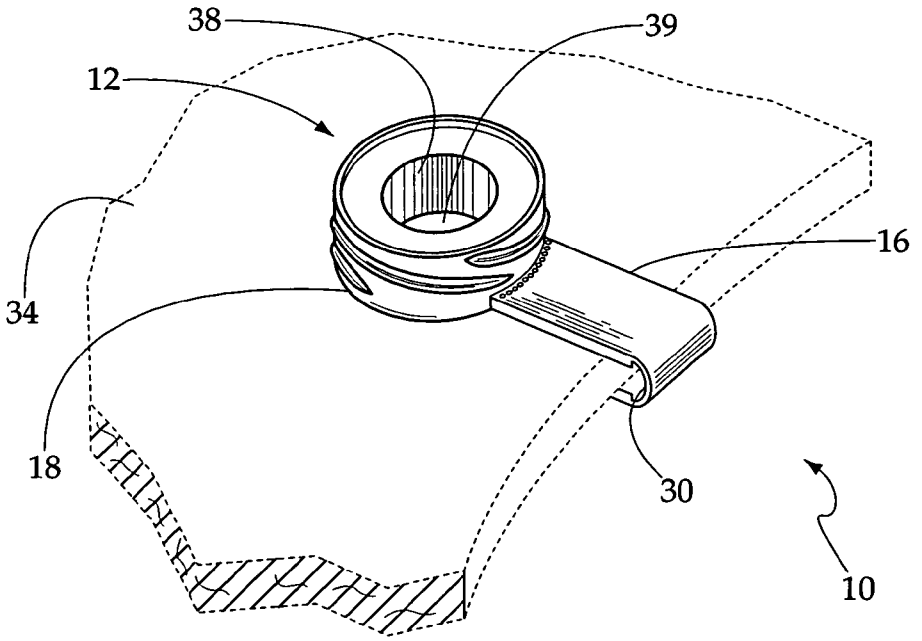


FIG. 4

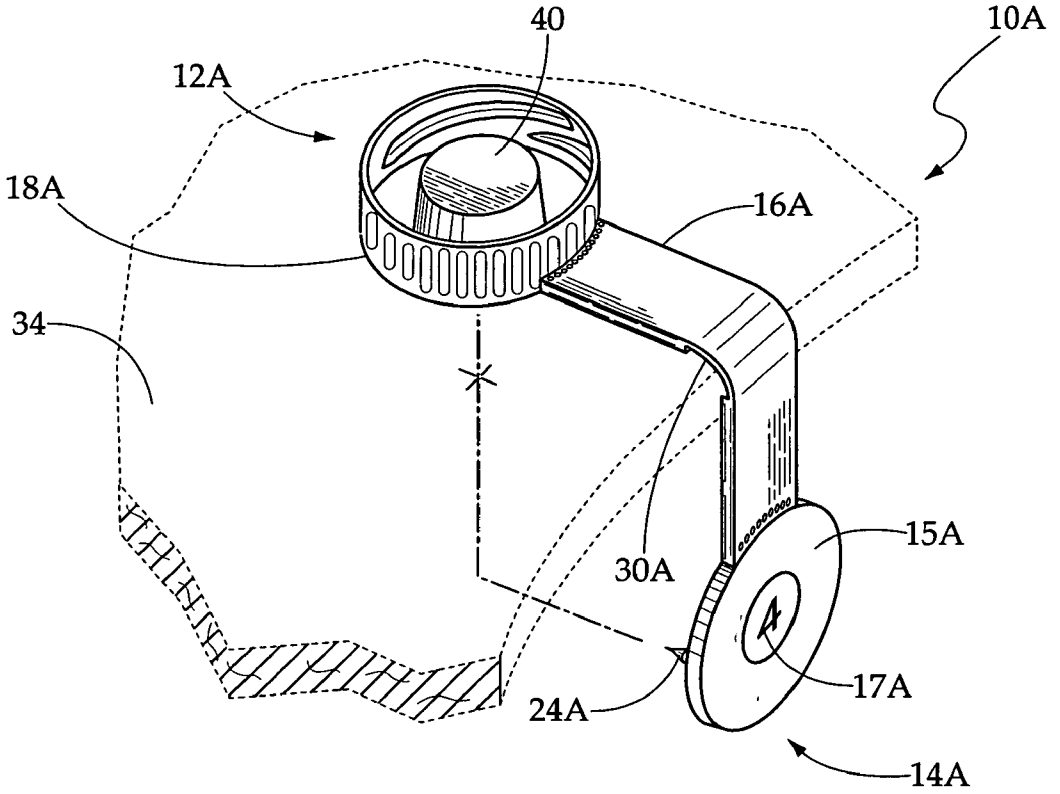

40
10A
12A
18A
16A
34
15A
30A
17A
24A
14A

FIG. 5

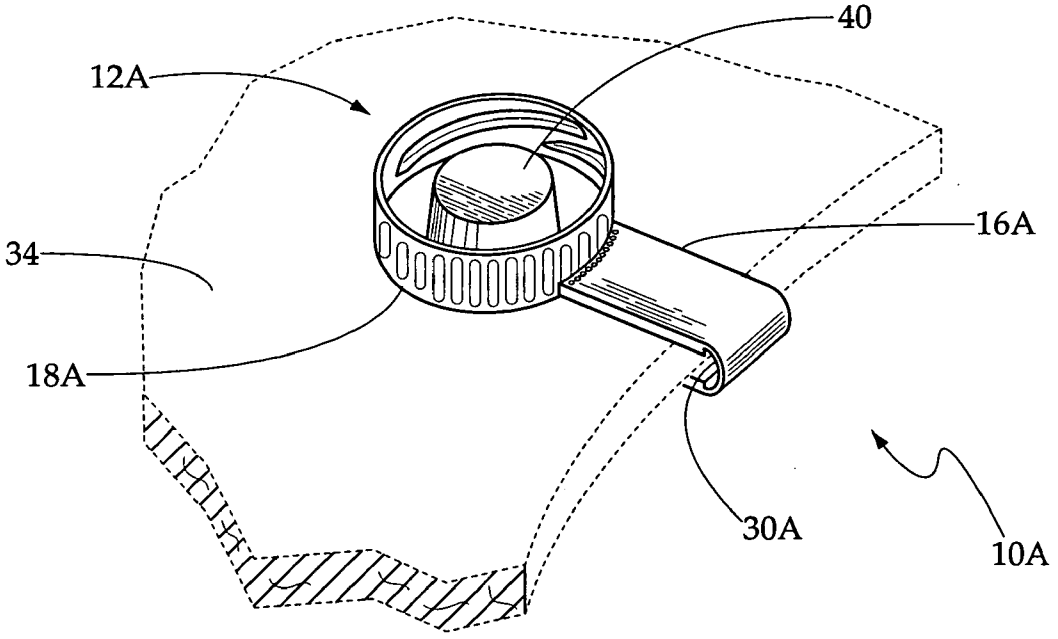

40
12A
16A
34
18A
30A
10A

FIG. 6

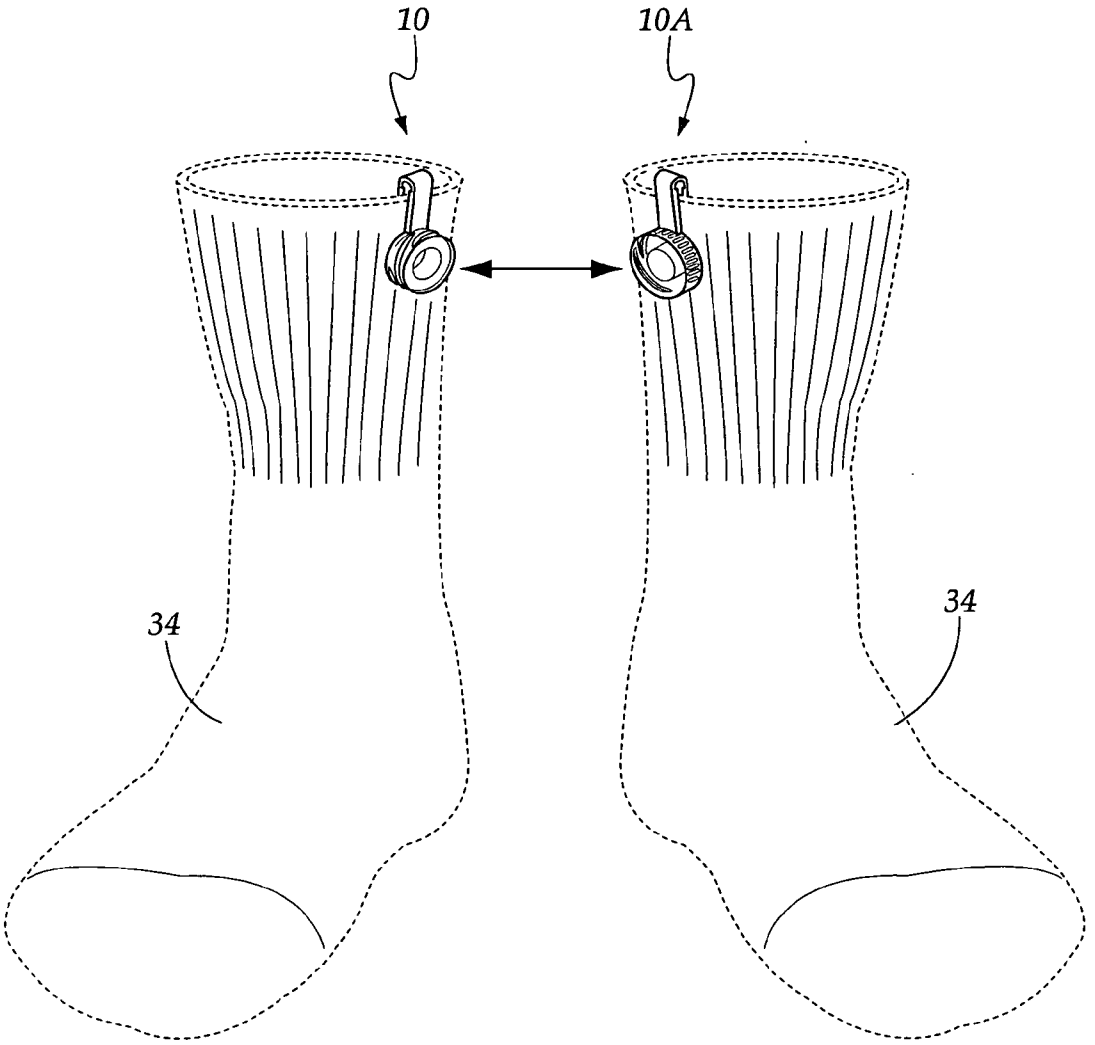


FIG. 7

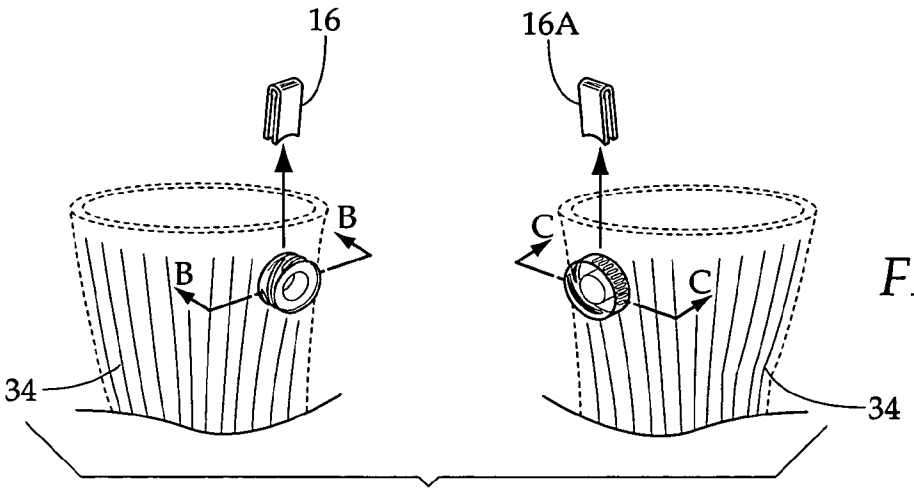


FIG. 8

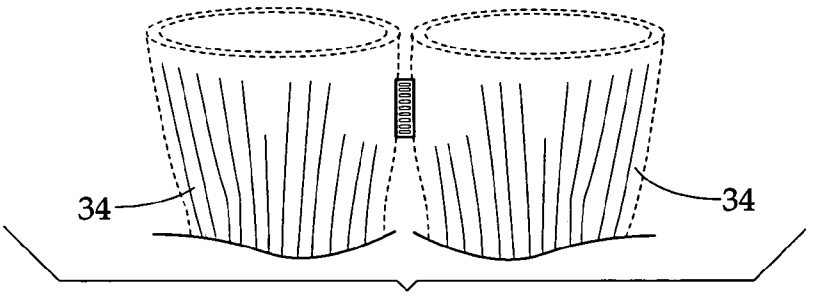


FIG. 9

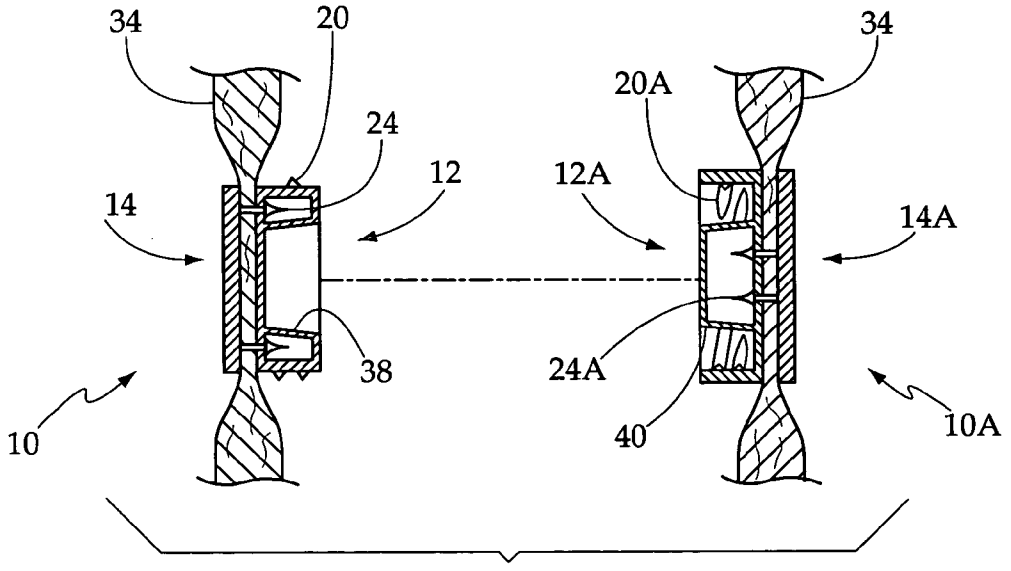


FIG. 10

FASTENING DEVICE FOR ARTICLES OF CLOTHING

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a fastening device for detachably joining together articles of clothing, such as a pair of socks or a pair of gloves.

[0002] It is recognized that there is difficulty in retaining together two individual socks belonging to a pair throughout the process of washing, drying and storing the socks after use. As an illustration, through the laundering process, pairs of socks can become separated or lost, thus leaving the launderer with the unwanted task of having to match up the pairs of socks afterwards. It is also generally appreciated that individual socks frequently become lost in this process.

[0003] In order to overcome this problem and difficulties associated in easily keeping together pairs of socks, or other articles of clothing, such as pairs of gloves, it is known to provide various devices for fastening such articles of clothing.

[0004] Boxer, in U.S. Pat. No. 4,058,853, for example, describes an article to hold a pair of socks together during laundering or the like, particularly, a flexible patch secured to each sock which adheres them to each other when pressed together. Such self-contained hook and loop VELCRO fasteners, however, are relatively inelastic while the shank portions of socks stretch.

[0005] In Klotz, U.S. Pat. No. 3,688,348, the use of special bands wrapped around the shanks of sock pairs to keep them together during washing is disclosed. However, such bands have the disadvantage of lack of availability at the time of discarding socks.

[0006] Ursino, U.S. Pat. No. 5,038,413, provides a snap type fastener device for securing socks, which includes decorative covers that concealed the fasteners while the socks are being worn. The removable covers, however, are especially dangerous, as they present a choking hazard to children. Furthermore, the fastening means attaches through the body of the socks, thereby requiring a plurality of circumferentially spaced axially extending ribs to engage an annular rim portion of the fastener. This configuration does not secure the snap fastener means securely through the sock, in that it could disengage easily while the socks are in wash.

[0007] Other related devices are shown in Bellet, U.S. Pat. No. 6,092,241; Dean, U.S. Pat. No. 6,032,294; Stubbs, U.S. Pat. No. 5,974,590; Smith, U.S. Pat. No. 5,357,660; Butler, U.S. Pat. No. 1,682,771; Bohman, U.S. Pat. No. 2,663,877; Hofmeister, U.S. Pat. No. 3,699,617; Sneider, U.S. Pat. No. 3,774,267; Ciuffo, U.S. Pat. No. 5,321,855; Hicks, U.S. Pat. No. 5,450,658; Hurst, U.S. Pat. No. 5,530,998; Christy, U.S. Pat. No. 5,579,541; and Messman, U.S. Pat. No. 5,740,558.

[0008] Accordingly, it is an objective of the present invention to provide a new and improved device for releasably, yet securely, fastening pairs of articles of clothing together without damaging the articles of clothing.

[0009] Another object is to provide a time and labor saving device in laundering pairs of clothing articles, such as socks.

[0010] Another object of the invention is to prevent the loss of one of a pair of articles of clothing, such as a single sock from a pair of socks or a single glove from a pair of gloves.

[0011] It is another object of the present invention to provide a simple device for releasably attaching two pieces of fabric together for any practical use intended by the user.

[0012] These and other objects and advantages of the present invention will become apparent to readers from a consideration of the ensuing description and the accompanying drawings.

BRIEF DESCRIPIION OF THE DRAWINGS

[0013] FIG. **1** is a perspective view of the male fastener portion of the present invention in an opened position.

[0014] FIG. **2** is a perspective view of the female fastener portion of the present invention in an opened position.

[0015] FIG. **3** is an exploded perspective view showing the male fastener portion of the present invention being affixed to an article of clothing, such as a sock.

[0016] FIG. **4** is a perspective view showing the male fastener portion of the present invention affixed to an article of clothing, such as a sock.

[0017] FIG. **5** is an exploded perspective view showing the female fastener portion of the present invention being affixed to an article of clothing, such as a sock.

[0018] FIG. **6** is a perspective view showing the female fastener portion of the present invention affixed to an article of clothing, such as a sock.

[0019] FIG. **7** is a perspective view of the male and female fastener portions of the present invention secured onto their respective socks and positioned opposite each other.

[0020] FIG. **8** is a perspective view of the male and female fastener portions of the present invention respectively secured onto a pair of socks with two positioning tabs removed.

[0021] FIG. **9** shows the male and female fastener portions of the fastening device as illustrated in FIG. **8** attached to each other.

[0022] FIG. **10** illustrates cross-sectional views of the male fastener portion secured onto a sock, taken across the lines B-B of FIG. **8**, and of the female fastener portion secured onto a sock, taken across the lines C-C of FIG. **8**.

[0023] Similar reference characters denote corresponding features consistently throughout the attached drawings.

[0024] Although every reasonable attempt is made in the accompanying drawings to represent the various elements of the embodiments in relative scale, it is not always possible to do so with the limitations of two-dimensional paper. Accordingly, in order to properly represent the relationship of various features among each other in the depicted embodiments and to properly demonstrate the invention in a reasonably simplified fashion, it is necessary at times to deviate from the absolute scale in the attached drawings. However, one of ordinary skill in the art would fully appreciate and acknowledge any such scale deviations as not limiting the enablement of the disclosed embodiments.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0025] Referring now to FIGS. **1** and **2**, there is shown the fastening device of the present invention, which is generally comprised of two portions, a male fastener portion **10** (FIG. **1**) and a female fastener portion **10** (FIG. **2**). Together, the male fastener portion **10** and the female fastener portion **10**A comprise the present invention, a fastening device. Generally, the male and female fastener portions are each comprised of, respectively, a first end **12**, **12**A, an opposite second end **14**, **14**A, and a positioning tab **16**, **16**A therebetween. On the respective inner surfaces **22**, **22**A of the second ends **14**, **14**A of each respective male and female fastener portion **10**, **10**A, there are a plurality of fastening pins **24**, **24**A. (Referring to FIG. **7**, the "inner surface" refers to the surface which is adjacent to an article of clothing **34**, such as a sock, when the male and female faster portions **10**, **10**A of the fastening device are attached to the sock. See also FIGS. **3-6**. This will become evident as the preferred embodiments are described herein.) The respective inner surfaces **26**, **26**A of the first ends **12**, **12**A of each respective male and female portion **10**, **10**A, are further comprised with a plurality of fastening holes **28**, **28**A for receiving the respective and corresponding fastening pins **24**, **24**A from the second ends **14**, **14**A of each fastener portion **10**, **10**A. The fastening pins **24**, **24**A and the fastening holes **28**, **28**A of respective male and female fastener portions **10**, **10**A are complementary, in that the fastening pins **24**, **24**A, as demonstrated below, insert through the fastening holes **28**, **28**A when attaching the male and female fastener portions **10**, **10**A to separate articles of clothing.

[0026] With regard to the male fastener portion **10**, the fastening pins **24** on the inner surface **22** of the second end **14** are positioned away from the center of the inner surface **22** and near the periphery or outer circumference of the inner surface **22**. Conversely, the fastening pins **24**A on the corresponding inner surface **22**A of the corresponding second end **14**A of the female fastener portion **10**A are positioned near the center of the inner surface **22**A and away from the periphery or outer circumference of the inner surface **22**A. The purpose of such positioning of the fastening pins **24**, **24**A of each portion shall be obvious in view of further discussion on the preferred embodiments of the invention.

[0027] With respect to the male fastener portion **10**, the first end **12** has a raised circular-shaped male locking element **18** protruding from the outer surface of that portion, said male locking element **18** being further comprised of threads **20** on its outer surface. In a similar fashion, with respect to the female fastener portion **10**A, the first end **12**A also has a raised corresponding circular-shaped female locking element **18**A protruding from its outer surface, which is configured much like a "bottle cap" with corresponding receiving threads **20**A (not shown in FIG. **2**; shown in FIGS. **5-8**, **10**) formed therein, for engaging with and receiving the threads **20** on the male locking element **18**. This configuration thereby allows the male locking element **18** to be securely, yet releasably, attached to the female locking element **18**A by manually engaging and twisting those components in a "clockwise" or "tightening" fashion. That is, the inner threads **20**A on the female locking element **18**A are complementary to the outer threads **20** on the male locking element **18**, in that they are configured to achieve a tight lock by manually screwing together much like a plastic bottle cap is twisted onto the plastic bottle neck by means of interlocking threads. This allows for secure attachment of the male fastener portion **10** to the female fastener portion **10** and for de-attachment thereof.

[0028] Referring now to FIGS. **3** and **4**, there is shown the male fastener portion **10** of the present invention being affixed to an article of clothing **34**, such as a sock. The positioning tab **16** has a hinged means **30** between the first end **12** and the second end **14**. To facilitate folding of the male fastener portion **10** over the top edge of the sock **34**, the hinged means **30** may be a portion of the positioning tab **16** which has a reduced cross section. The male fastener portion **10** is attached to the sock **34** by first placing the positioning tab **16** on the outer edge of the sock **34** in such a manner that the male locking element **18** is directed outwardly from the sock **34**, i.e., away from the body of the wearer and on the outside of the sock when worn. The fastening pins **24** push through the sock **34**, and once the fastening pins **24** have penetrated the fabric of the sock **34**, the fastening pins **24** insert through the fastening holes **28**, thereby securely attaching the male fastener portion **10** to the sock **34**. The fastening pins **24** are relatively rigid, yet with enough flexibility and elasticity, that they are capable of being forced through the fastening holes **28**. Comprised of a resilient material, once the fastening pins **24** are fully inserted through the fastening holes **28**, the fastening pins **24** regain their original shape, and due to the larger diameter at the distal ends thereof relative to the diameter of the fastening holes **28**, the fastening pins **24** are prevented from disengaging from the fastening holes **28**. As such, this attachment by means of the fastening pins **24** and the fastening holes **28** is to securely attach the male fastener portion **10** to the fabric **34**. It shall be generally appreciated by those skilled in the art that any number of means may be utilized to attach the first and second ends of the male fastener portion **10** through a fabric **34**, and the present invention is meant to encompass such other attaching means.

[0029] Still referring to FIGS. **3** and **4**, when the male fastener portion **10** is securely attached to an article of clothing **34**, such as a sock, the fastening pins **24** of the male fastener portion **10** are enclosed within a ring-shaped protective shield **38**, thereby hiding from view and protecting the fastening pins **24** when the male fastener portion **10** is securely attached to the fabric. Due to the fact that the fastening pins **24** on the inner surface **22** of the second end **14** of the male fastener portion **10** are positioned away from the center of the inner surface **22** and in proximity to the periphery or outer circumference of the inner surface **22**, as described above, this protective shield **38** is configured in such a way that it creates a recess or cavity **39** within the male locking element **18**.

[0030] Referring now to FIGS. **5** and **6**, there is shown the female fastener portion **10**A of the present invention being securely affixed to an article of clothing **34**, such as a sock. Again, the positioning tab **16**A has a hinged means **30**A between the first end **12**A and the second end **14**A. To facilitate folding of the female fastener portion **10**A over the top edge of the sock **34**, the hinged means **30**A may be a portion of the positioning tab **16**A which, again, has a reduced cross section. The female fastener portion **10**A is attached to the sock **34** by first placing the positioning tab

16A on the outer edge of the sock 34 in such a manner that the female locking element 18A is directed outwardly from the sock 34, i.e., away from the body of the wearer and on the outside of the sock when worn. The fastening pins 24A push through the sock 34, and once the fastening pins 24A have penetrated the fabric of the sock 34, the fastening pins 24A insert through the fastening holes 28A, thereby securely attaching the female fastener portion 10A to the sock 34 in the same manner as described above. Again, this attachment by means of the fastening pins 24A and the fastening holes 28A is to securely attach the female fastener portion 10A to the fabric 34.

[0031] Still referring to FIGS. 5 and 6, when the female fastener portion 10A is securely attached to an article of clothing 34, such as a sock, the fastening pins 24A of the female fastener portion 10A are also enclosed within a dome-shaped protective shield 40, thereby hiding from view and protecting the fastening pins 24A. Due to the positioning of the fastening pins 24A on the inner surface 22A of the second end 14A and the fastening holes 28A on the inner surface of the first end 12A of the female fastener portion 10A, the protective shield 40 is positioned in the center of the recessed area of the female locking element 18A.

[0032] Referring now to FIGS. 7, 8 and 10, it can be seen that, when the male and female locking elements 18, 18A are engaged, the protective shield 40 on the female locking element 18A fits inside the complementary recess 39 formed by the protective shield 38 on the male locking element 18. The respective protective shields 38 and 40 are preferably circular in shape, but they may assume other shapes so long as they do not interfere with each other when the male and female locking elements 18, 18A are engaged and twisted relative to each other to lock the male and female fastener portions 10, 10A together.

[0033] Although a preferred embodiment of the present invention employs the positioning tabs 16, 16A to facilitate positioning of the male and female fastener portions 10, 10A onto articles of clothing 34, such as a pair socks, the present invention may optionally omit such use of the positioning tabs 16, 16A. That is, the fastening device in accordance with the present invention may be provided without the positioning tabs 16, 16A. With such alternative embodiment of the present invention, a user may be able to position and attach the first and second ends of the respective male and female fastener portions 10, 10A onto articles of clothing or other fabric materials without the assistance of the positioning tabs 16, 16A. It will therefore be appreciated by those skilled in the art, particularly with regard to fashion and clothing design, but not limited thereto, that the present invention may be adopted to fastening any two pieces of fabric together. As such, for example, the male and female fastener portions 10, 10A, with or without positioning tabs 16, 16A, may be used as a "screwable" button/snap for a shirt, and it would allow the user to place the buttons/snaps in any desired position on the shirt, thereby achieving functionality and design. The invention may be further widely adopted in other industries and uses—anywhere there is a need to securely, but releasably, attach two pieces of fabric together.

[0034] Referring now to FIGS. 7, 8 and 9, once the male and female fastener portions 10, 10A are securely attached to the respective single socks 34 forming a pair of socks, the positioning tabs 16, 16A may be removed. The removal of the positioning tabs 16, 16A is facilitated by a plurality of perforations 32, 32A, or other convenient means generally known to those skilled in the art, whereby the user of the fastening device of the present invention can easily tear off the positioning tabs 16, 16A from the secured male and female fastener portions 10, 10A that form the fastening device. Although it is preferable that the positioning tabs 16, 16A be removed before the male and female locking elements 18, 18A are brought together, this step is not required to achieve full use and functionality of the invention. The male and female locking elements 18, 18A may then be securely attached to each other by simply engaging the complementary threads 20, 20A of each portion by screwing them together, much like a plastic bottle cap with internal threads is twisted onto the complementary threads on the top of the bottle neck. That is, by screwing the male locking element 18 clockwise relative to the female locking element 18A (and vice versa), the male and female fastener portions 10, 10A are securely attached together; conversely, by turning the male locking element 18 counterclockwise relative to the female locking element 18A (and vice versa), the male and female fastener portions 10, 10A are released from each other. This process is completely reversible. In a preferred embodiment, the corresponding threads 20, 20A on the respective male and female locking elements 18, 18A are sufficiently blunt so as to require a minimal turn of only between approximately 90 degrees to 180 degrees to achieve a tight lock between the male and female locking elements 18, 18A. In another preferred embodiment of the present invention, only a twist of between 45 degrees to 90 degrees is required, thereby requiring even less manual torque in order to achieve a fully fastened and secured state of the two portions. In a further preferred embodiment, the female locking element 18A of the female fastener portion 10A is equipped with a plurality of ribs 36 on its outer side for providing traction to the user for twisting the female fastener portion 10A either on or off the male fastener portion 10.

[0035] In a further preferred embodiment, the male and female fastener portions 10, 10A of the fastening device comprising the present invention are comprised of hypoallergenic and/or corrosion-resistant materials that can withstand the highest temperatures commonly used in home and commercial laundry and dry cycles and would not cause allergic skin reactions.

[0036] Referring now to FIGS. 3 and 5, it is intended that, when the articles of clothing are worn, such as a pair of socks, the flat outer surfaces 15, 15A of the second ends 14, 14A of each portion will be immediately adjacent to the body of the wearer, i.e., those surfaces 15, 15A are between the sock and the skin of the wearer of said socks. Contrarily, it is intended that the male and female locking elements 18, 18A of each portion will be oriented outwardly from the body of the wearer, i.e., the locking elements 18, 18A are on the outside of the socks when worn by the user. As such, when the male and female portions are attached to articles of clothing, such as a pair of socks, the locking elements 18, 18A will be on the outside of each sock.

[0037] In another embodiment of the invention, optional indicia means may be used. Specifically, an indicia means 17, 17A may be incorporated on the flat surfaces 15, 15A of the second ends 14, 14A of each portion. The indicia means 17, 17A may be a letter of the alphabet, a number, a

geometric design, combinations thereof, or any other means. Preferably, the indicia means **17**, **17**A is flush with the flat surfaces **15**, **15**A. In addition, the indicia means **17**, **17**A may be a color, wherein the entire fastening device or both portions of the fastening device are colored. The indicia means **17**, **17**A may serve to identify the clothing item or the owner of the clothing. For those items such as socks, and other items which are normally comprised of pairs, the identical indicia means may be applied to both members of the pair so that the pair is more readily and rapidly identified. This is especially helpful for individuals who, for example, have several pairs of socks closely resembling one other in color (e.g., blue, navy blue, black) or pattern, or for individuals who may be color blind.

[**0038**] The fastening device in accordance with the present invention can be used not only for connecting together fabric materials, such as pairs of socks, during the washing and drying cycles, but whenever it is desired to keep the two socks of a pair together, such as when storing them. In addition, colors, raised Braille indicia, and other indicia having numbering, letters and designs, such as animal figures, symbols or other logos may be placed on the male and female fastener portions of the present invention for providing information and/or for aesthetic purposes.

[**0039**] Due to the large number of indices and combination of indices which may be used, the fastening device has many institutional uses and applications.

[**0040**] Furthermore, the fastening device in accordance with the present invention is easily attached to an article of clothing **34** without special equipment. It is quickly attached in seconds by hand and without the need for any tool. The fastening device in accordance with the present invention can be attached to the article of clothing **34** when initially purchased or at any time subsequently.

[**0041**] Although various preferred embodiments of the present invention and the method of using the same have been described in the foregoing specification with considerable details, it is to be understood that modifications may be made to the invention which do not exceed the scope of the appended claims and modified forms of the present invention done by others skilled in the art to which the present invention pertains will be considered infringement of this invention when those modified forms fall within the claimed scope of this invention.

[**0042**] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[**0043**] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

1. A device for fastening articles of clothing, comprising:

a male fastener portion having a first end and a second end, wherein:

the first end comprises a plurality of first openings and a first edge having an outer thread; and

the second end comprises a plurality of first pins, each first pin having an elongated first shank and a first snap head, the second end adapted for affixing to the first end by snapping the first pins in the first openings through fabric of a first article of the clothing; and

a female fastener portion including a third end and a forth end, wherein:

the third end comprises a plurality of second openings and a second edge having

an inner thread complementary to the outer thread; and

the forth end comprises a plurality of second pins, each second pin having an elongated second shank and a second snap head, the forth end adapted for affixing to the third end by snapping the second pins in the second openings through fabric of a second article of the clothing,

wherein the male and female fastening portions are adapted for coupling to each other by engaging the inner thread and the outer thread and turning one of the fastening portions.

a male fastener portion

2-**21**. (canceled)

22. The device of claim 1, wherein:

the first pins are disposed along a first circumference; and

the second pins are disposed along a second circumference which diameter is smaller than a diameter of the first circumference.

23. The device of claim 1, wherein portions of the first end are adapted to enclose the first snap heads.

24. The device of claim 1, wherein portions of the third end are adapted to enclose the second snap heads.

25. The device of claim 1, wherein at least one of the first snap heads or the second snap heads are tapered.

26. The device of claim 1, wherein:

the male fastener portion further comprises a first positioning tab elastically coupling the first and second ends; and

the female fastener portion further comprises a second positioning tab elastically coupling the third and forth ends.

27. The device of claim 26, wherein at least one of the first positioning tab or the second positioning tab is a detachable positioning tab.

28. The device of claim 27, wherein:

the first positioning tab is adapted for tearing off from the first and second ends; and

the second positioning tab is adapted for tearing off from the third and forth ends.

29. The device of claim 1, wherein the male and female fastener portions are fabricated from corrosion-resistant hypoallergenic materials.

30. The fastening device of claim 1, wherein an amount of turn for coupling the male and female fastener portions is approximately between 90 degrees and 180 degrees.

31. The fastening device of claim 1, wherein at least one of the male or female fastener portions comprises indicia having elements selected from the group consisting of Braille lettering, symbols, letters, numbers, and logos.

* * * * *