United States Patent

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[54] **ADJUSTABLE FASTENING DEVICE**
11 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **128/165,** 24/73, 128/566, 128/577
[51] **Int. Cl.** **A61f 13/00**
[50] **Field of Search** 128/566, 567, 568, 165, 137; 2/239, 240; 24/73; 128/165, 166, 167, 577

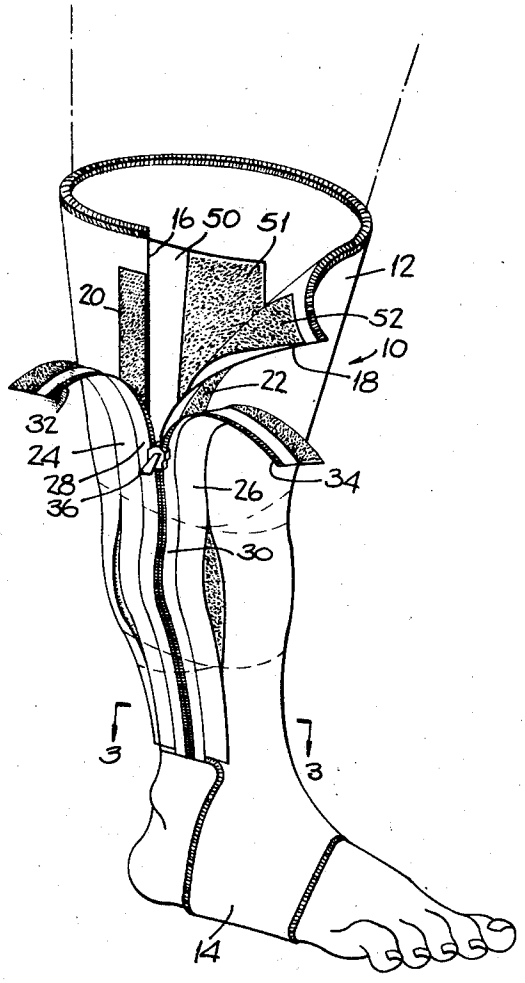
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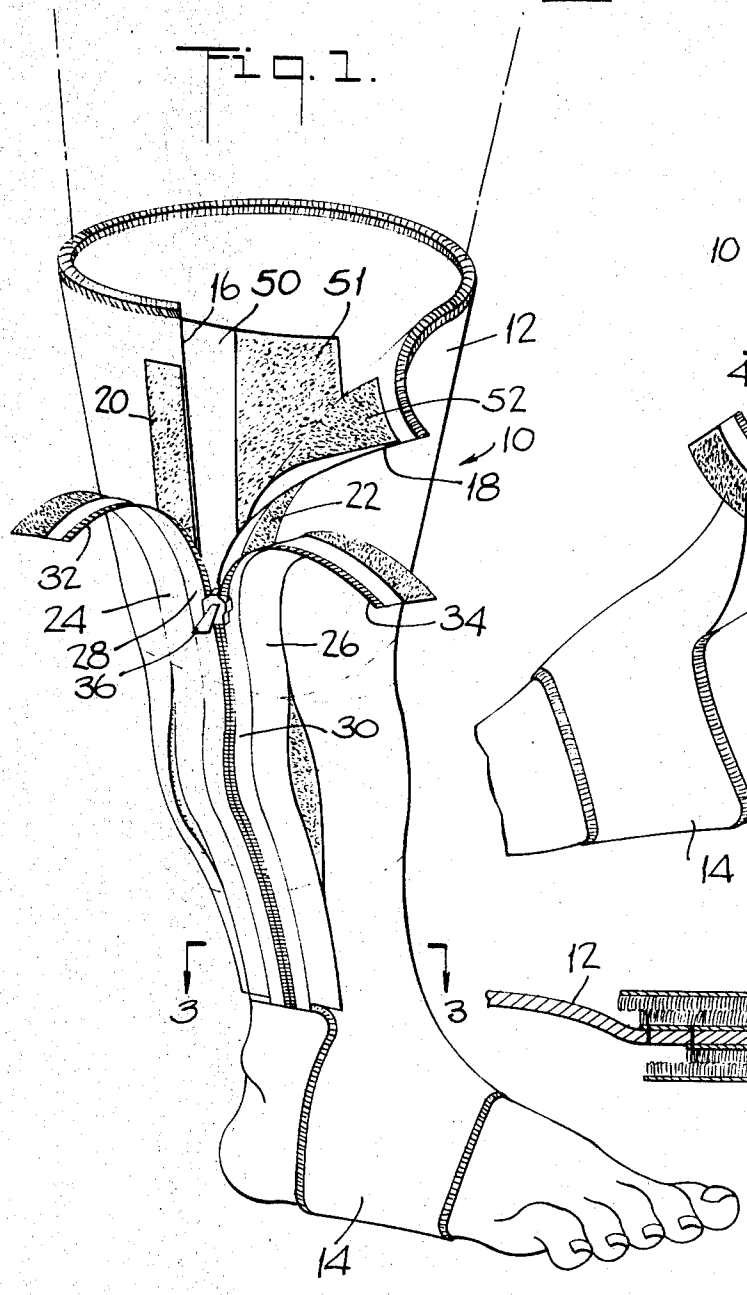
Primary Examiner—Adele M. Eager
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ABSTRACT: An adjustable fastening device useful for securing together an opening in an article which has as a combination an adjustable fastening material positioned to cooperate with a complementary releasable fastening material either on the other side of the garment or on a releasable fastening device such as a zipper. The opening in the article may also be provided with a tongue which is fitted with complementary pairs of the adjustable fastening material.



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Fig. 1.



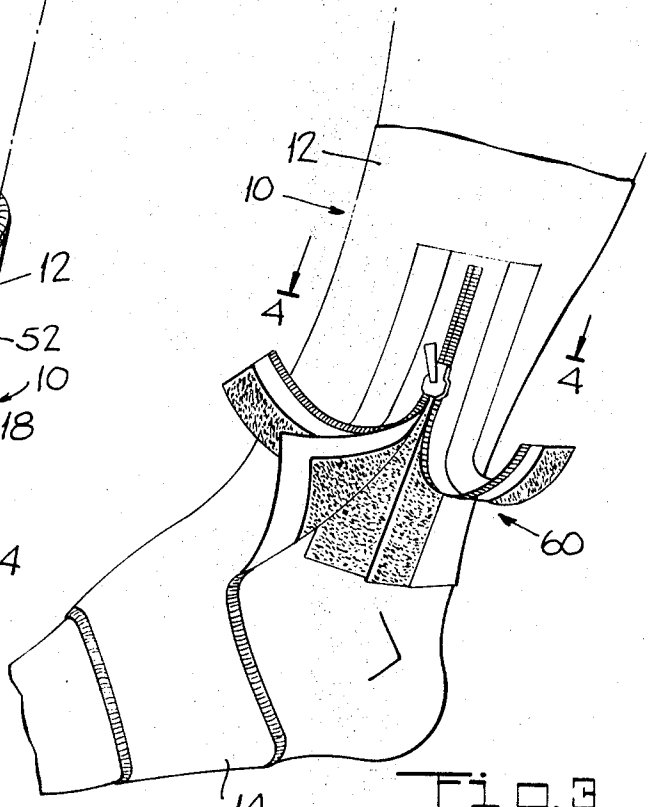


Fig. 3.

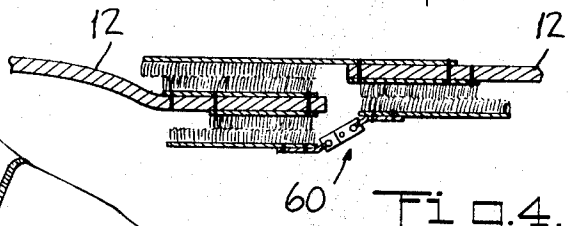
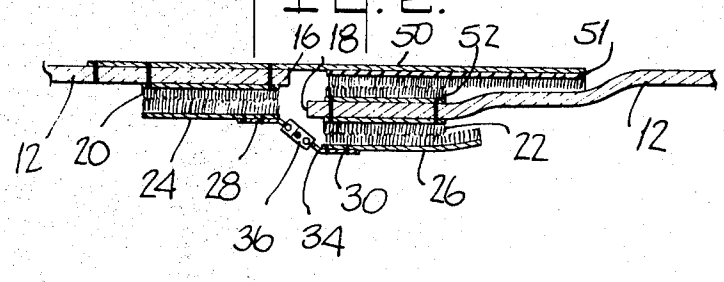


Fig. 4.

Fig. 2.



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Fig. 5.

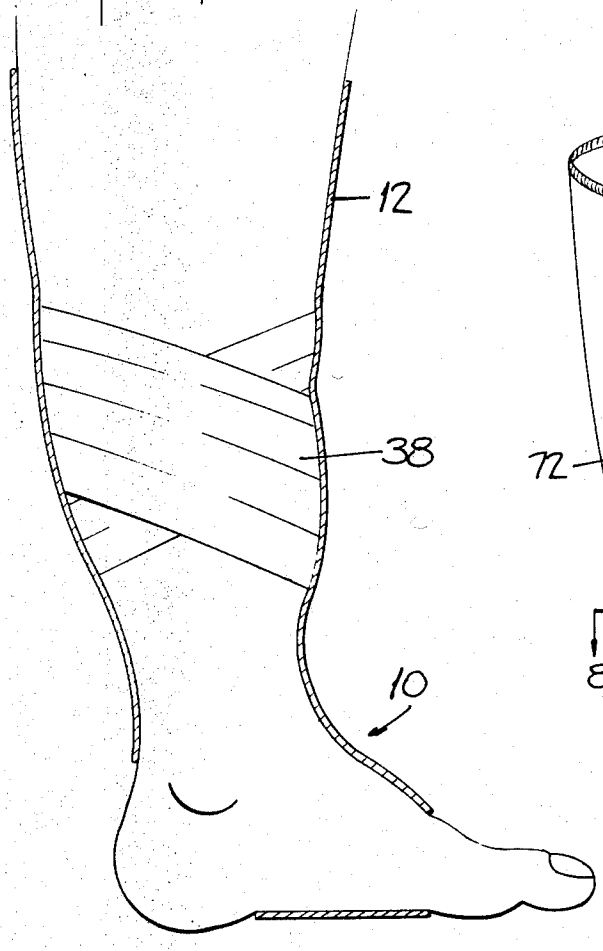


Fig. 7.

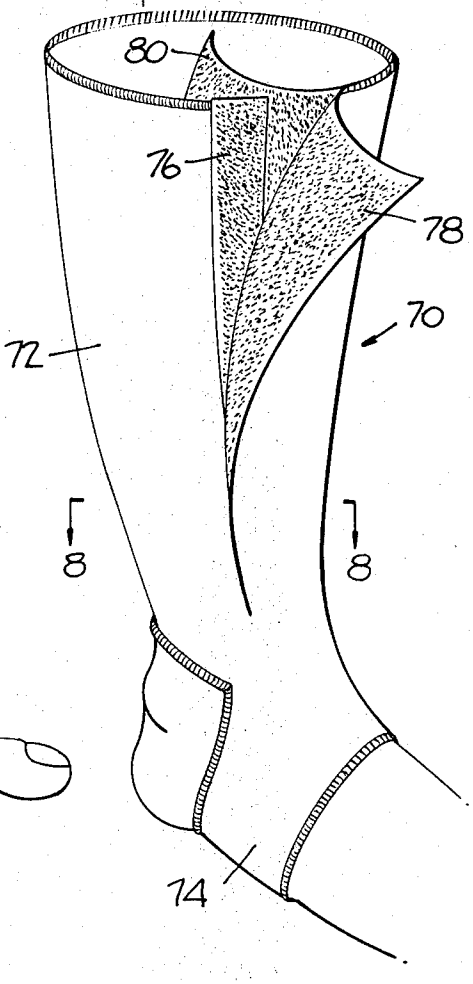


Fig. 6.

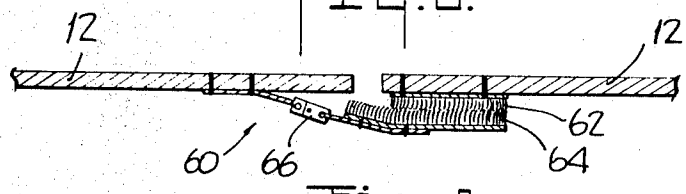
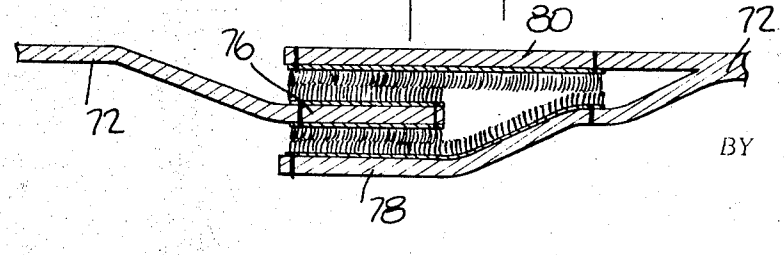


Fig. 8.



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ADJUSTABLE FASTENING DEVICE

The present invention relates to an adjustable fastening device and, more particularly, to an adjustable fastening device for releasably securing together cooperating portions of an article.

It is frequently necessary to provide an adjustable enclosure to accommodate various items the shape and size of which may vary. This is particularly true in garments where the size of the different users varies and also where the garment is of a supporting type where it is desired to adjust the garment to support the body of the user uniformly. This is particularly true in elastic garments such as elastic stockings where it is highly desirable to have the stocking apply uniform pressure throughout its length to the leg of the user. It is frequently a problem to adjust elastic stockings to fit the leg of the user so that uniform pressure is applied to the leg throughout the length of the stocking. This is particularly true when it is necessary to have a portion of the leg of the user bandaged to cover a leg ulcer where conventional elastic stockings are too tight over the bandage or dressing.

It is an object of the present invention to provide a novel adjustable fastening device for securing together cooperating portions of an article.

It is another object of this invention to provide such an adjustable fastening device which utilizes mating adjustable fastening material for adjustably attaching the fastening device.

It is a further object of this invention to provide such an adjustable fastening device for use with garments to readily adjust the size of the garment to conform to the shape and size of the body of the user.

It is an additional object of this invention to provide a supporting type garment with an adjustable fastening device which is adjustable in order to provide uniform support to the body of the user.

It is a further object of this invention to provide an elastic stocking with the adjustable fastening device for adjusting the stocking to provide uniform support to the leg of the user which has a bandage or dressing thereon.

It is another object of this invention to provide an elastic stocking that may be readily donned and removed by elderly, debilitated and obese patients.

Other objects and advantages will be readily apparent from the following detailed specifications and attached drawings wherein:

FIG. 1 is a perspective view of an elastic stocking with the adjustable fastening device of this invention shown on the leg of a user with portions of the adjustable fastening device disengaged for clarity of illustration.

FIG. 2 is a fragmentary cross-sectional view of the elastic stocking and adjustable fastening device of FIG. 1.

FIG. 3 is a perspective view of the opposite side of the elastic stocking of FIG. 1 illustrating an adjustable fastening device provided thereon with portions disengaged for clarity of illustration.

FIG. 4 is a fragmentary cross-sectional view of the elastic stocking and adjustable fastening device of FIG. 3.

FIG. 5 is a cross-sectional view of the elastic stocking of FIG. 1 illustrated on the leg of the user having a bandage thereon.

FIG. 6 is a cross-sectional view of an adjustable fastening device illustrating another embodiment of this invention.

FIG. 7 is a perspective view of an elastic stocking with an adjustable fastening device shown on the leg of a user illustrating another embodiment of this invention.

FIG. 8 is a fragmentary cross-sectional view of the elastic stocking and adjustable fastening device of FIG. 7.

It has now been found that the foregoing objects and other advantages can be readily attained in adjustable fastening device for releasably securing together cooperating portions of an article, such as garments, enclosures and the like. The adjustable fastening device has a first member of adjustable fastening material for attachment to one of the cooperating

portions of the article to be releasably secured together. A second complementary member of adjustable fastening material is provided which is adapted to be adjustably engaged with the first member of fastening material. The fastening material referred to is of the type disclosed in U.S. Pat. No. 2,717,437 sold under the trademark Velcro. In addition, the fastening device of this invention has a fastener provided for releasably securing together the cooperating portions of the article. The fastener has one side attached to the second complementary member of fastening material and its other side adapted for attachment to the other of the cooperating portions of the article to be releasably secured together. The fastener may be any of the conventional suitable types well known in the art.

The adjustable fastening device of this invention is particularly suitable for use with a fastener in the form of a zipper having two cooperating rows of interlocking links which are engaged and separated by a slider engaging the interlocking links. Each of the rows of links are mounted on strips of supporting material with one of the strips of supporting material attached to the second complementary member of adjustable fastening material and the other strip of supporting material adapted for attachment to the other of the cooperating portions of the article to be releasably secured together.

The adjustable fastening device may have a second pair of complementary members of adjustable fastening material adapted to be adjustably engaged with each other. One of the second pair of complementary member is attached to the one side of the fastener and the other of the second pair of complementary members is adapted for attachment to the other of the cooperating portions of the articles to be releasably secured together.

The adjustable fastening device of this invention is suitable in a highly advantageous manner for use on a supporting type garment having an enclosing portion of elastic material adapted to be positioned about a portion of the body of the user. This garment has an enclosing portion with an adjustable opening and a pair of complementary strips of adjustable fastening material. One of the complementary strips is attached to the enclosing portion of the garment adjacent one side of the adjustable opening. Releasable fastening means is provided for securing opposite sides of the enclosing portion adjacent the opening. The fastening means is attached to the other of the complementary strips and to the enclosing portion adjacent the other side of the adjustable opening. Thus the user may adjust the garment by pressing the complementary strips into mating relationship in the desired position to obtain the desired support from the garment.

The garment may also have a flap attached on the interior side of the enclosing portion wherein the flap extends across the adjustable opening. Desirably the flap has a strip of adjustable fastening material attached thereto which is adjustably engageable with a complementary strip of fastening material attached to the interior of the enclosing portion.

This invention is particularly useful in the form of an elastic stocking having an adjustable zipper wherein the stocking has a leg enclosing portion of elastic material having an adjustable opening. Thus the stocking may be adjusted to accommodate bandages or dressings on the leg of the user in order to apply generally uniform support.

This invention may also be in the form of an elastic garment having an adjustable opening wherein the garment has a body enclosing portion of elastic material having an elongated adjustable opening and a pair of flaps are extending from the enclosing portion adjacent one side of the adjustable opening. The opposing surfaces of the flaps have adjustable fastening material disposed thereon. Advantageously a tongue is provided which extends from the enclosing portion adjacent the other side of the adjustable opening. The tongue has complementary adjustable fastening material thereon adjustably engagable with the fastening material on the flaps to adjustably secure the enclosing portion about the body of the user.

Referring now to the drawings there is illustrated in FIGS. 1 and 2 an elastic stocking generally designated by the numeral 10 having a leg portion 12 of a elastic material adapted to enclose the lower portion of the leg of the user from below the knee to above the angle. In addition, the stocking 10 also has a foot portion 14 extending from the leg portion 12 and surrounding the arch of the foot of the user. The elastic stocking 10 is split longitudinally down one side of the leg portion 12 thereby forming side edges 16 and 18 to provide for adjustment of the stocking 12 on the leg of the user.

Advantageously, a pair of elongated fastening strips 20 and 22 are attached to the leg portion 12 adjacent the side edges 16 and 18 respectively for cooperation with a second pair of mating fastening strips 24 and 26 adapted to be adjustably engaged respectively with the fastening strips 20 and 22. The mating fastening strips 20, 22, 24 and 26 and other fastening materials or members referred to in this specification are similar to the type disclosed in the U.S. Pat. No. 2,717,437 and sold under the trademark Velcro. The fastening strips 20 and 22 are attached to the fastening strips 24 and 26 by manually pressing these members together.

Adjacent edges of the strips 24 and 26 have attached thereto, by conventional means such as stitching, elongated strips of material 28 and 30 bearing a conventional zipper in the form of zipper elements 32 and 34 and a slider 36. Desirably the fastening strips 20, 22, 24 and 26 and the zipper elements 32 and 34 extend transversely from the top to the bottom of the leg portion 12 so that the elastic stocking 10 may be readily adjusted and placed on the leg of the user to provide relative uniform pressure to the leg of the user.

Thus by providing the fastening strips 20 and 22 which cooperate with the mating fastening strips 24 and 26, the elastic stocking 10 may be adjusted about the leg of the user so as to accommodate a bandage 38, such as illustrated in FIG. 5, in order that relatively equal pressure may be applied by the elastic stocking to the leg of the user. The readily adaptable construction of the adjustable fastening device of this invention allows the user to adjust the strips 24 and 26 relative to the strips 20 and 22 to accommodate a bandage 38 so that zipper elements 32 and 34 may be connected by the slider 36 to cause the elastic stocking 10 to apply even pressure to the leg of the user. Further, the elastic stocking 10 may be readily adapted to the particular size of the leg of the user in a similar manner.

The interior of the leg portion 12 may have a flap 50 attached thereto which extends from the side edge 16 and overlaps the side edge 18 in order to prevent the zipper elements 32 and 34 and slider 36 from touching the leg of the user and to provide a more secure connection. The flap 50 may be of conventional relatively soft material having a strip 51 of fastening material positioned for engaging cooperation with a strip 52 of fastening material which is disposed along inside edge of the leg portion 12 adjacent the side edge 18. Thus by having the flap 50 and cooperating strips 51 and 52, additional engaging means is provided for adjustably securing the leg portion 12 about the leg of the user to provide even pressure throughout.

Further, the flap 50 may be made entirely of fastening material that will adhere to the strip 52, or patches of fastening material may be placed along the flap 50 for engagement with cooperating patches disposed on the interior of the leg portion 12.

In FIGS. 3 and 4 there is disclosed a fastening device, generally designated by the numeral 60 positioned on the opposite side of the stocking 10. The construction of the fastening device 60 is identical to the device of FIGS. 1 and 2 except that the fastening device 60 only extends a portion of the length of the leg portion 12 and the zipper is adapted to operate in the opposite direction.

Another embodiment of this invention is disclosed in FIG. 6 that is similar to the embodiment disclosed in FIGS. 1 through 4. The embodiment of FIG. 6 varies from the embodiment of FIGS. 1 through 4 in that only one pair of the fastening strips 62 and 64 are provided with strip 62 attached adjacent the side edge 18. The other strip 64 is attached to one side of the zipper 66 the other side of which is attached to the leg portion 12 adjacent the side edge 16. In this manner a less expensive construction is provided.

An additional embodiment of this invention is disclosed in FIGS. 7 and 8 illustrating an elastic stocking, generally designated by the numeral 70, having a leg portion 72 surrounding the leg of the user from below the knee to a point above the ankle. The stocking 70 also has a foot portion 74 generally enclosing the arch of the foot of the user. The leg portion 72 has an opening extending longitudinally downwardly from the top of the leg portion 72 to a point above the foot portion 74. In order to adjustably secure this opening a tongue 76 is provided extending from one of the edges of the leg portion 72 forming the opening. The tongue 76 is provided with fastening material on opposite sides thereof. The opposite edge of the leg portion 72 forming this opening has an interior flap 78 and a posterior flap 80 with fastening material on opposing surfaces adapted to engage the fastening material on opposite sides of the tongue 76 to adjustably secure the elastic stocking 70 about the leg of the user. Thus by positioning the tongue 76 relative to the flaps 78 and 80, the elastic stocking 70 may be adjusted to the size of the leg of the user and to accommodate a bandage 36 and the like in order to apply uniform pressure to the leg of the user along the entire length of the stocking.

Accordingly, the fastening device of this invention provides a highly advantageous method for adjustably securing various types of articles where it is necessary to adjust the fastening device to accommodate varying configurations. This invention is particularly adaptable for use with elastic supporting type garments where it is desirable to apply equal pressure throughout the length of the garment to the body of the user. This invention is readily adaptable for use on elastic stockings to apply uniform pressure to the leg of the user even when a portion of the leg of the user is wrapped in a bandage or the like.

It will be understood that the foregoing description with the details of exemplary structure is not to be construed in any way to limit the invention, but that modifications may be made thereto without departing from the scope of the invention as set forth in the following claims.

I claim:

1. An elastic stocking having an adjustable opening comprising:

a leg enclosing portion of elastic material;

a first pair of complementary members of adjustable fastening material, one of said complementary members being attached to said enclosing portion adjacent one side of said adjustable opening;

a zipper releasably securing opposite sides of said enclosing portion adjacent said opening, said zipper having one side attached to the other of said complementary members; and

a second pair of complementary members of adjustable fastening material adapted to be adjustably engaged with each other, one of said second pair of complementary members being attached to the other side of said zipper and the other of said second pair of complementary members being attached to said enclosing portion adjacent said other side of said adjustable opening.

2. The adjustable fastening device of claim 1 wherein said zipper is a slide fastener having two cooperating rows of interlocking links which are engaged and separated by a slider engaging said interlocking links, each of said rows of links being mounted on strips of supporting material, and wherein one of said strips of supporting material is attached to said second complementary member of adjustable fastening material and the other of said members of supporting material is adapted for attachment to the other of the cooperating portions of the article to be releasably secured together.

3. The adjustable fastening device of claim 2 having another pair of complementary members of adjustable fastening material adapted to be adjustably engaged with each other, one of said another pair of complementary members being attached to said other side of said fastener and the other of said another pair of complementary members being adapted for attachment to the other of the cooperating portions of the article to be releasably secured together.

4. The adjustable fastening device of claim 3 wherein said fastener is a slide fastener having two cooperating rows of interlocking links which are engaged and separated by a slider engaging said interlocking links, each of said rows of links being mounted on strips of supporting material, and wherein one of said strips of supporting material is attached to said second complementary member of adjustable fastening material, and the other of said strips of supporting material is attached to said other of said another pair of complementary members.

5. The elastic stocking having an adjustable zipper of claim 1 wherein said zipper has two cooperating rows of interlocking links which are engaged and separated by a slider engaging said interlocking links, each of said rows of links being mounted on strips of supporting material, and wherein one of said strips of supporting material is attached to said other of said complementary members of adjustable fastening material, and the other of said strips of supporting material is attached to said one of said another pair of complementary members.

6. The elastic stocking having an adjustable zipper of claim 1 wherein said enclosing portion has a flap attached on the interior side thereof extending across said adjustable opening, said flap having a member of adjustable fastening material attached thereto, adjustably engagable with a complimentary member of fastening material attached to the interior of said enclosing portion.

7. An elastic garment with an adjustable opening comprising: a body enclosing portion of elastic material having an elongated adjustable opening, a pair of flaps extending from said enclosing portion adjacent one side of said adjustable opening, opposing surfaces of said flaps having adjustable fastening material thereon, a tongue extending from said enclosing portion adjacent the other side of said adjustable opening, said tongue having complementary adjustable fastening material thereon adjustably engagable with said fastening material on said flaps for adjustably securing said enclosing portion about the body of the user.

8. The adjustable fastening device on a garment of claim 7 having another pair of complementary strips of adjustable fastening material adapted to be adjustably engaged with each other, one of said another pair of complementary strips being attached to said fastening means and the other of said another pair of strips being attached to said enclosing portion adjacent said other side of said adjustable opening.

9. The adjustable fastening device on a garment of claim 8 having as a releasable fastening means a slide fastener having two cooperating rows of interlocking links which are engaged and separated by a slider engaging said interlocking links, each of said rows of links being mounted on strips of supporting material, and wherein one of said strips of supporting material is attached to said one of said complementary strips of adjustable fastening material, and the other of said strips of supporting material is attached to said enclosing portion adjacent said other side of said adjustable opening.

10. The adjustable fastening device on a garment of claim 9 wherein said enclosing portion has a flap attached on the interior side thereof extending across said adjustable opening, said flap having a strip of adjustable fastening material attached thereto adjustably engagable with a complementary strip of fastening material attached to the interior of said enclosing portion.

11. An elastic stocking with an adjustable opening comprising: a leg enclosing portion of elastic material having an elongated adjustable opening extending a portion of the length of said enclosing portion, a pair of flaps extending from said enclosing portion adjacent one side of said adjustable opening, opposing surfaces of said flaps having adjustable fastening material along the length thereof, a tongue extending from said enclosing portion adjacent the other side of said adjustable opening, said tongue having complementary adjustable fastening material thereon adjustably engagable with said fastening material on said flaps for securing said enclosing portion about the leg of the user.