This invention relates to an openable clasp for temporary attachment to flexible sheeting, and more particularly to a ladies hose support incorporating such a clasp.

The primary object of the invention is the provision of a device of this kind, wherein the clasp is composed of a minimal number of simple components, the clasp being flat and of substantially reduced cross section and height, so as to preclude its "showing" under thin material garments, the clasp being specifically designed for low cost and efficient production, from thermoplastic materials, employing ultrasonic welding for the assembly of its components.

Another object of the invention is the provision, in a device of the character indicated above, of a clasp which employs the integral flex-hinge principle, which serves to facilitate manufacture and assembly of the components of the clasp, and to assure its trouble free and accurate opening and closing by the user of the clasp, wherein a button is engaged into and out of a socket, for securely gripping flexible sheeting, such as ladies hose.

A further object of the invention is the provision of a clasp of the character indicated above, wherein the components of the clasp are specifically designed to provide for their side edges to be variably contoured to represent decorative forms, such as a heart, for example, the clasp being susceptible of being made in various colors and surface ornaments, without substantial increases in cost of production.

In the drawings:

FIGURE 1 is a fragmentary front elevation, showing a ladies hose support attached to hose, the front component of the clasp being shown, in full lines, and its rear component, in phantom lines.

FIGURE 2 is a vertical section, taken on the line 2—2 of FIGURE 1.

FIGURE 3 is an edge elevation of the clasp, showing the same in open position.

FIGURE 4 is a front view of the front component of the clasp.

FIGURE 5 is an edge elevation of FIGURE 4.

FIGURE 6 is a front elevation of the rear component of the clasp.

FIGURE 7 is an edge elevation of FIGURE 6.

Referring in detail to the drawings, the illustrated device comprises a vertical length of elastic webbing, to whose lower end portion is secured a clasp 12 of the present invention.

The clasp 12 comprises a vertically elongated front section 14 having a lower end portion 16 which is preferably narrower than its upwardly flaring fan-shaped upper end portion 18. The portion 16 and 18 are connected together by an intermediate portion 20, which is preferably narrower than the portions 16 and 18. The side edges 22, common to the upper end portion 18 and the intermediate portion 20, are adapted to be decoratively contoured, in any desired manner or form.

The front section 14 is of flat, relatively thin, but structurally strong thermoplastic material of preferably one piece or unit construction by conventional techniques, the intermediate portion 20 and the upper portion 18 being of the same thickness. The lower end portion 16, the lower part of which has preferably a semicircular lower end 24, is of increased thickness, and extends readily relative to the remainder of the front section 14, as shown in FIGURES 2 and 5.

The upper end of the lower end portion 16 is defined by a concave horizontal rearwardly opening groove 26, whose presence results in a reduced thickness self-hinge 28.

The lower end portion 16 is formed with a concentric substantially circular socket 30 therethrough, which has a straight chordal horizontal lower edge 32, which is angled rearwardly and downwardly. Upper triangular lugs 31 on the edge 33 of the socket 30, and lower elongated arcuate lugs 35, on the socket edge, are circumferentially spaced from each other, around the socket.

The lugs 31 and 35 are, as shown in FIGURE 5, located in the same vertical plane, adjacent to the rear side of the lower end portion 16, and are spaced from the front side of the portion 16.

The upper end portion 18 is formed in its rear side, with symmetrically distributed and spaced recesses 36, which are provided to receive lugs 38 on the rear section 40 of the clasp 12.

The rear clasp section 40 has a fan-shaped upper end portion 42, similar to the upper end portion 18 of the front clasp section 14, but provided on its front surface, with a bead which has portions 44 which extend along its side edges, and a horizontal lower portion 46, which extends between the lower ends of the side portions 44. The upper end portion 42 has the lugs 38 thereon which extend forwardly beyond the bead portions and engage in the recesses 36, of the front section 14, with the head portion engaging the rear surface thereof, so as to define a fan-shaped recess 50, in which is enclosed and confined, a suitably shaped lower end portion 52, of the elastic webbing 10, through which the lugs 38 have been passed. This arrangement, with the recess 50 being of a depth to compress the elastic webbing, assures secure and multipoint attachment of the webbing to the clasp. Further, through ultrasonic welding of the upper end portions of the sections of the clasp together, subsequent to their assembly, the front and rear clasp sections are securely assembled.

The rear clasp section 40 is of thermoplastic material of preferably one piece or unit construction by conventional techniques and has an intermediate portion 54, of substantially the same thickness as the intermediate portion 20 of the front clasp section 14, but is of somewhat greater width. The upper end of the intermediate portion 54 is reduced in width where it meets the upper end portion 42, as indicated at 56.

The lower end portion 58, of the rear clasp section 40, is narrower than the intermediate portion 54, and has straight, substantially parallel side edges 60, which converge downwardly at their lower ends, as indicated at 62.

As shown in FIGURES 2 and 7, a lower part of the lower end portion 58 is increased in thickness, as indicated...
at 64, so as to provide a forwardly extending vertical rib on the forward side of which is formed a substantially circular button 66, of substantially the diameter of the socket 30. The upper edge portion of the button 66 is straight and chiral and horizontal, and is beveled upwardly, as indicated at 68, so as to provide for its engagement over the chiral lower edge 32 of the socket 30.

In use and operation, the clasp 12 is applied to flexible sheeting, such as ladies hose H, by placing the rear clasp section 12 behind the hose and the front section 14 down in front of the hose, and hinging the front section forwardly, as indicated in FIGURE 3, while bending the rear section 40 rearwardly, in a manner to engage the lower end of the button 66 between the upper and lower lugs in the socket 30. This causes a portion 70 of the material of the hose H to be pushed through the socket 30 between the upper and lower lugs 31 and 35, respectively. The sections of the clasp 12 are then squeezed together, so that the button 66, covered by the hose material, is worked into the socket 30, behind the lugs 31, 35, so that the clasp 12 becomes securely fastened to the hose H.

In order to release the clasp 12 from the hose H, the front section 14 is pushed upwardly, as by pressure of a finger under its lower end, so that the clasp sections hinge away from each other, and the button 66 is moved out of the socket 30 and frees the hose.

As shown in FIGURE 2, clasp 12 provides a rear section 40 with an external surface which lays flat against an underlying surface, such as the thigh of a leg. Front section 14 similarly has a flat external surface which is not impaired or broken after engagement with rear section 40 so as not to be noticeable when worn beneath thin garment materials.

What is claimed is:

1. A clasp of the character described, comprising a front section and a rear section, said sections being of flexible material, said sections having upper end portions, intermediate portions, and lower end portions, means securing upper end portions together in registered relationship, wherein the intermediate and lower end portions of said sections are adapted to be moved away from each other to an open position of the clasp, the lower end portion of the front section being thicker than the remainder of the front section, said lower end portion being formed of a substantially circular socket, the lower end portion of the rear section being thicker than the remainder of the rear section and formed with a forwardly extending circular button of substantially the same diameter as said socket, said button being adapted to be pushed into the socket, said front section being formed, between its intermediate portion and its lower end portion, with a transverse rearwardly opening groove extending into the rear end of the front section, said groove defining a reduced thickness area serving as an integral hinge, said hinged front section having areas above and below the hinge disposed at an angle relative to each other, and the rear section is fixed intermediate its ends to dispose upper and lower areas thereof at an angle relative to each other, with the button of the rear section in position to engage the socket of the front section, the upper end portion of the rear section having a forwardly extending bead, said bead having side portions extending along the side edges of the upper end portion of the rear section, and a horizontal portion extending between the lower ends of said side portions, said bead being engaged on the side of the upper end portion of the front section, so as to define between the rear side of the upper end portion of the front section, the front side of the upper end portion of the rear section and said bead, an enclosing recess adapted to receive the terminal end of the suspension web, and means securing the upper end portions of the sections together.

2. The clasp according to claim 1, wherein the upper end portion of the front section having a plurality of rearwardly opening recesses, and the upper end portion of the rear section having a plurality of lugs which will reach forwardly beyond said bead and engage in the recesses, thus forming an aperture which may be passed through a web engaged in the enclosing recess.

3. The clasp according to claim 2, wherein said upper end portions of the sections are of thermoplastic material secured together by means of supersonic welding.

4. The clasp according to claim 2, wherein the edge of said socket is formed from a spaced pair of upper lugs and a spaced pair of lower lugs, the lugs being circumferentially spaced around the socket, and spaced from the front side of the upper end portion of the front section, the button being adapted to be initially passed forwardly between the upper and lower lugs, into the socket, and engaged in the socket in front of the lugs.

5. The clasp according to claim 7, wherein said upper end portions of the sections are of thermoplastic material secured together by means of supersonic welding.

6. The clasp according to claim 1, wherein the edge of said socket is formed with a spaced pair of upper lugs and a spaced pair of lower lugs, the lugs being circumferentially spaced around the socket, and spaced from the front side of the upper end portion of the front section, the button being adapted to be initially passed forwardly between the upper and lower lugs, into the socket, and engaged in the socket in front of the lugs.

7. In combination, a substantially circular button, having a terminal end, a flat clasp for supporting ladies hose and designed not to be noticeable when worn under thin garment materials consisting of thin, flexible, front and rear sections of unit construction which cooperate to form flat flexed external surfaces after engagement, said sections being secured to each other by their end portions including means for securing said web terminal end, said upper portion of one section including a plurality of rearwardly opening recesses, and the upper portion of the other section includes a plurality of lugs extending forwardly engaging the recesses of the other section, said lugs being adapted to secure said web, said web having cooperative means for engaging said lugs passing through, said sections having intermediate and lower end portions, said intermediate portion having integral flex-hinge means permitting the areas above and below said hinge to be disposed at an angle relative to each other, said lower end portion having nesting components adapted to securely nest with each other and said hose and comprising a substantially circular socket formed in one section and a substantially circular button formed on the other section, said socket and button being cooperatively formed so that the button may be engaged into and part of the socket, both button and socket being of substantially the same diameter and thickness so as to provide flat external surfaces after engagement.

8. The combination of claim 7, wherein said front section and rear section comprises thermoplastic material, said hinge means comprising a transverse rearwardly opening groove defining a reduced thickness area to permit areas above and below the hinge to be disposed at an angle relative to each other thereby providing flexibility.

9. The combination of claim 8, wherein the upper end portion includes a forwardly extending bead, said bead having side portions extending along the side edges of the upper end portion of the section, and a horizontal portion extending between the lower ends of said side portions, said bead being engaged with a rear side of the upper end portion of the other section so as to define an enclosing recess between the sections for receiving the terminal end of a flexible suspension web.

10. The combination of claim 9, wherein said socket includes a spaced pair of upper lugs and a spaced pair of lower lugs circumferentially spaced around the socket edge, the button being adapted to initially pass forwardly between the upper and lower lugs engaging said socket and lugs, said socket and button having similarly upwardly
beveled straight horizontal lower edges which meet after engagement.

11. A thin flat clasp for supporting ladies hose and designed not to be noticeable when worn under thin garment materials consisting of thin flexible front and rear sections of unit construction cooperating to form flattened external surfaces after closure, said sections being secured to each other at their upper end portions including means for securing the terminal end of a web, said upper portion of one section including a plurality of rearwardly opening recesses, and the other portion of the other section including a plurality of forwardly extending lugs adapted to engage in the recesses of the other section and secure the upper end portions of each section together in registered relationship thereby permitting the remaining portions to move apart from each other to an open position, said sections having intermediate and lower end portions, said intermediate portion having integral flex-hinge means including a transverse reduced thickness area forming a groove which serves as an integral hinge thereby permitting the portion above said groove to be flexed at an angle relative to the portion below, said lower end portion having nesting components including a socket located in the front section having a plurality of lugs circumferentially spaced around the edge of said socket, and a button on the rear section, said socket and button having similarly beveled straight horizontal lower edges permitting said button to pass through said socket between said lugs thereby engaging said socket at the bevel, said button and socket being substantially circular and having substantially the same diameter and thickness thereby providing flat front and rear external surfaces after closure.

12. The clasp of claim 11, wherein the upper portion of one section includes a raised bead projecting in a plane normal to the flat surface of said section and extending along the edges of said upper portion and having a horizontal portion extending between the lower ends of said side portion, said bead being opposingly secured to the upper end portion of the other section so as to define an enclosing recess between said sections adapted to receive the terminal end of a flexible suspension web, said lugs and bead positioned on the same section, said lugs extending forwardly beyond said bead.

13. A clasp according to claim 12, wherein said upper end portions of the sections are of thermoplastic material secured together by means of supersonic welding.

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DONALD A. GRIFFIN, Primary Examiner
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