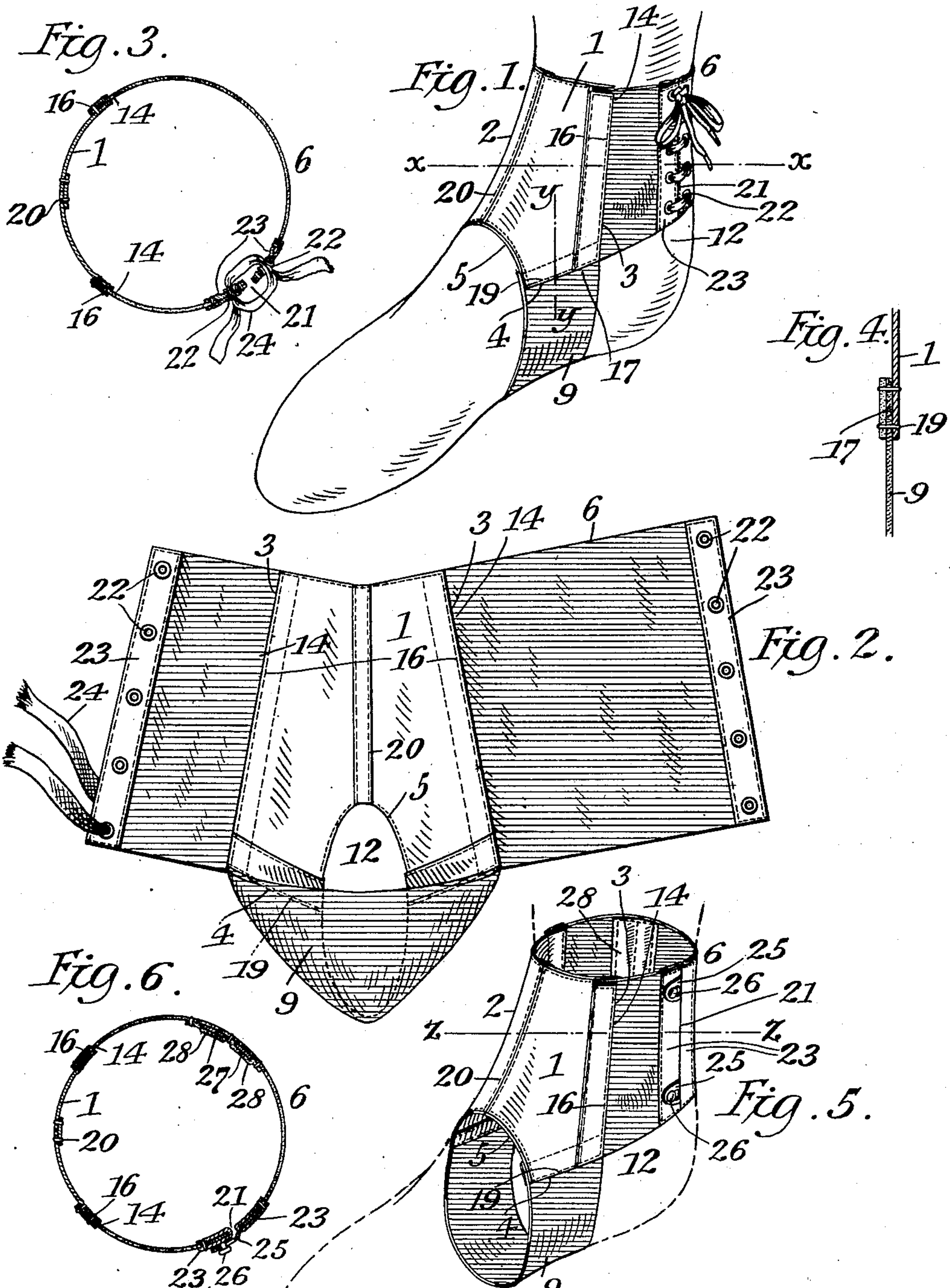


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ANKLE SUPPORT AND PROTECTOR.  
APPLICATION FILED OCT. 22, 1910.

999,010.

Patented July 25, 1911.



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# UNITED STATES PATENT OFFICE.

HENRY JAMES COLLIS, OF TAUNTON, MASSACHUSETTS.

## ANKLE SUPPORT AND PROTECTOR.

999,010.

Specification of Letters Patent. Patented July 25, 1911.

Application filed October 22, 1910. Serial No. 588,462.

*To all whom it may concern:*

Be it known that I, HENRY JAMES COLLIS, a citizen of the United States, and resident of Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Ankle Supports and Protectors, of which the following is a specification.

This invention relates to devices for supporting and protecting ankles, and it has special relation to an improved device of this class which is adapted for use in athletic sports and under all other conditions and circumstances where a protection and support is desired for the ankle.

The object of my present invention and improvement is to provide a simple and improved ankle support and protector which will readily conform to the shape of the ankle portion of the foot and afford particular adaptability, comfort and effectiveness in use, and which will be furthermore simple and inexpensive in construction and more convenient and efficient than the devices of this character which have been heretofore employed.

My present invention and improvements are particularly designed to provide an improved ankle support or protector of the class above set forth which will present a smooth and pliable body-portion at the front of the ankle and over the instep, and eliminate the employment of fastening means or projecting parts at the front portion, whereby perfect ease and comfort will exist at the front body-portion of the device and any injury to the tender part of the foot at that point by fastening means will be obviated, and in which the fastening means will be provided in the elastic and yielding body-portion of the device, whereby the improved device will fit in smooth and adaptable condition and without excess thickness of material at the front body-portion and will be particularly adapted for convenient and comfortable wear.

In the drawings—Figure 1 is a perspective view illustrating the appearance of the device when in use. Fig. 2 is an inside view of the device, with the fastening means of the elastic body-portion in open position. Fig. 3 is a detail cross-section, taken on the line  $x-x$ , Fig. 1. Fig. 4 is a detail cross-section, taken on the line  $y-y$ , Fig. 1. Fig. 5 is a perspective view illustrating a modified

construction of the device. Fig. 6 is a detail cross-section of said modified construction, taken on the line  $z-z$ , Fig. 5.

Corresponding parts in all the figures are denoted by the same reference characters.

Ankle supports of the class to which my present improvements particularly relate have usually heretofore been constructed with a divided front portion formed by front retaining members connected by fastening means, the main body of the device being a single elastic webbing strip secured at its front edges to the rear edges of said separate front retaining and fastening members, and the bottom portion of the device being an elastic webbing strip secured at its top edges to the bottom edges of said separate front retaining and fastening members, such a construction being shown and described in my co-pending application for patent filed May 4, 1909, Serial No. 493,869. When the fastening means for adjusting the size of the device and for securing it in position are thus employed at the front for connecting the meeting edges of the separate front retaining members, an additional thickness necessarily exists at the front portion and the fastening means also form a projecting thickness at that part of the device, and the thickness is also increased by a tongue or projecting flap which is required beneath such fastening means. Increased pressure is thus caused at the tender portion of the foot in front of the ankle.

My present invention is designed to overcome the disadvantages and conditions just noted, by obviating excess thickness and projecting fastening means at the front portion of the device and by providing fastening means in the main elastic body portion of the device, such fastening means being thus positioned at one side of the ankle and under highly yielding elastic conditions.

Referring to the drawings, 1 designates the front member of the device, which is constructed of soft pliable non-elastic material, such as leather or a suitable fabric. This front member 1 constitutes the front portion of the body of the device and is undivided and forms a single front body-member in one structural piece without fastening means or securing devices. The member 1 substantially conforms to the front portion of the foot above the instep, its central part being curved to the required contour, as at



2, and its rear edges are preferably on a straight plane from top to bottom, as at 3, while its bottom edges are preferably on a straight plane from front to rear and at right angles to the rear edges 3, as at 4, the lower portion of the curved central part 2 having its edge bowed or curved upwardly to fit over the instep, as at 5. Said body-member 1 thus constitutes a soft and pliable but non-elastic front portion which will smoothly fit over the tender portion of the foot at the instep and will be unimpaired by projecting fastening devices.

The main body, 6, of the device consists of elastic material, preferably webbing in strip or band shape, and extends between the rear edges 3 of the non-elastic front body-member 1. This elastic strip body-portion is adapted to extend around the ankle and conform thereto, and has its front edges, 14, secured to the rear edges 3 of the front member 1.

A supplementary elastic strip, 9, forms the bottom portion of the device and is adapted to pass under the instep on a plane directly beneath the front member 1. This bottom strip 9 is preferably constructed of elastic webbing in band or ribbon shape, and has its top edges, 17, secured to the bottom edges 4 of the member 1. The elastic strip portions 6 and 9 are thus at right angles to each other, forming an elastic body for the complete device, held and retained in operative position by the single pliable front member 1, and the relative arrangement provides an open space, as at 12, intervening between the bottom of the main body strip 6 and the rear of the bottom instep band 9, through which the heel of the wearer can project.

The pliable front member 1 may consist of a single thickness of material and may be formed in one piece or made up of separate pieces suitably secured together, preferably by stitching, as at 20. The edges of the elastic strip members 6 and 9 are fastened to the front member 1 in any suitable manner, preferably by stitching, as at 16 and 19.

In my present improvements, the main elastic body strip 6, which surrounds the ankle, is divided from top to bottom at its side, as at 21, and the adjoining edges at this division are connected by suitable fastening means. The fastening means are thus in the elastic and highly yielding body-portion of the device and are in position at one side of the projecting portion of the ankle, thus enabling more perfect adjustment of the device to the foot of the wearer and producing more perfect yielding conditions with relation to the fastening.

In the construction shown in Fig. 1, the fastening means in and at the side of the elastic body-portion consists of a series of eyelets, 22, secured in pliable reinforcing

strips, 23, at the meeting edges of the elastic body strip 1 at the division 21, and a lacing, 24, operating in said eyelets.

In the modified construction shown in Figs. 5 and 6, the fastening means consists of hooks and studs, as at 25 and 26, respectively carried at the meeting edges of the division 21 and secured by the reinforcing strips 23. In this modified construction I have also shown reinforcing strips, 27, carried in suitable pockets, 28, in the elastic body strip 6, at the side opposite the fastening 25 and 26, whereby the same bracing and support conditions are provided at opposite sides of the ankle, and such reinforcing or stiffening strips 27 may be provided in series or at various points of the elastic body strip 6 to produce supporting and bracing conditions as desired.

Inasmuch as ankle supports of the class to which my present improvements especially relate are usually worn inside the shoe, the improved features of associate construction as comprised in my present invention are of particular importance and advantage. The smooth and pliable single front retaining member 1 wholly of flexible or pliable and non-elastic material, without projective fastening means, comes immediately beneath the lacing or fastening means of the shoe, and thus provides a smooth retaining member without projective devices, which will fit plially beneath the shoe lacing or fastening and conform in glove-fashion to the tender front portion of the foot. This affords important advantages over constructions in which the fastening means for the ankle support is provided at the front retaining portion of the device, such as in previous constructions in which the front member is constituted by two strips connected by projective fastening means, under which circumstances a double thickness of fastening means would exist at the tender front portion of the foot just above the instep. In the improved construction constituting my present invention fastening means for the ankle support are comprised without impairing the flexible or pliable front retaining member at the tender front portion of the foot, the fastening means being provided at a line of division extending from top to bottom of the main body-member strip of elastic fabric or webbing and at the side portion thereof at a point intermediate its rear or central portion and the single front non-elastic retaining body-member, the point of division where the adjoining edges of said main elastic body-member are connected by the fastening means being preferably just in rear of the ankle bone, where the fastening means will exert no disadvantageous pressure. The composite structure as above set forth thus produces a very simple and glove-



fitting ankle support of the class employing a pliable front retaining member carrying the elastic body and instep bands and also having fastening means for adjusting the size of the body portion or band which surrounds the ankle, and the construction also enables the employment in this type of ankle supports of the elastic members cut from continuous strips of elastic fabric in ribbon form in lieu of the expensive handwoven type of elastic bandages which are required in similar devices where no pliable means are provided for retaining and carrying the elastic portions for surrounding the ankle and instep. The improved construction, with its composite features as above set forth, also enables the practical employment of the reinforcing strips in connection with said main elastic body-member strip on planes approximately parallel to the line of the fastened division thereof, so that the ankle can be supported uniformly at opposite sides of the main elastic body-member strip, on the line of the fastened division and on a corresponding line opposite thereto, as herein shown.

Under some conditions of manufacture, the body portion of the device may be extended in height, so that it will project upon the leg above the ankle to any desired extent, and when so extended seams may be provided in the elastic body strip at the back or at other suitable points, for economy in manufacture, as will be readily understood.

I do not desire to be understood as limiting myself to the detail construction and arrangement of parts as herein shown and described, as it is manifest that variations and modifications therein may be resorted to, in the adaptation of my invention to varying conditions of use, without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variations and modifications as properly fall within the scope of my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. An improved ankle support and protector of the class described, comprising a single front body-member constituting the retaining means for carrying the elastic members and consisting wholly of flexible or pliable and non-elastic material, said front body-member being permanently closed throughout its area and adapted to fit over the front portion of the instep and conform thereto and having its rear edges at each side extending on a line from top to bottom and its bottom edges at each side extending on a line from front to rear, a main body-member consisting of a strip of elastic fab-

ric or webbing and extending from edge to edge of said front body-member and connected at its ends with said rear edges at each side of the front body-member and adapted to surround the ankle, said main body-member strip of elastic fabric or webbing being divided from top to bottom at its sides at a point intermediate its rear or central portion and the front non-elastic body-member, fastening means connecting the adjoining edges of said main elastic body-member at said division, and a bottom body-member consisting of a strip of elastic fabric or webbing and extending from edge to edge of the sides of said front body-member at the bottom and having its ends connected with said front to rear bottom edges of the front body-member and adapted to pass under the instep.

2. An improved ankle support and protector of the class described, comprising a single front body-member constituting the retaining means for carrying the elastic members and consisting wholly of flexible or pliable and non-elastic material, said front body-member being permanently closed throughout its area and adapted to fit over the front portion of the instep and conform thereto and having its rear edges at each side extending on a line from top to bottom and its bottom edges at each side extending on a line from front to rear, a main body-member consisting of a strip of elastic fabric or webbing and extending from edge to edge of said front body-member and connected at its ends with said rear edges at each side of the front body-member and adapted to surround the ankle, said main body-member strip of elastic fabric or webbing being divided from top to bottom at its side at a point intermediate its rear or central portion and the front non-elastic body-member, fastening means connecting the adjoining edges of said main elastic body-member at said division, reinforcing strips carried by said main elastic body-member strip and extending on planes approximately parallel to the line of the fastened division thereof, and a bottom body-member consisting of a strip of elastic fabric or webbing and extending from edge to edge of the sides of said front body-member at the bottom and having its ends connected with said front to rear bottom edges of the front body-member and adapted to pass under the instep.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

HENRY JAMES COLLIS.

Witnesses:

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JOS. REED LITTELL.