

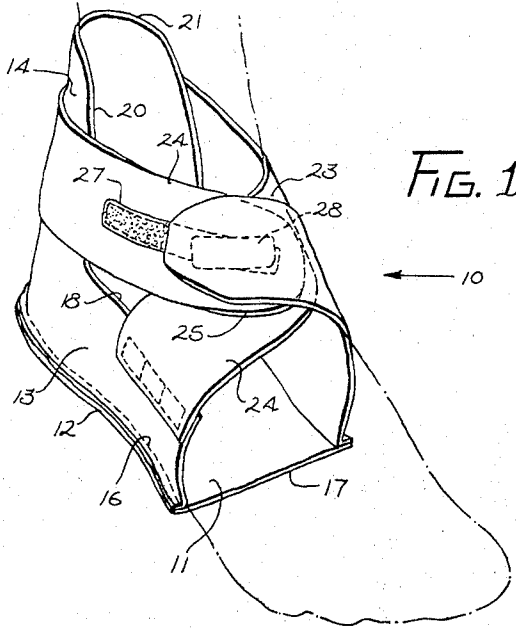
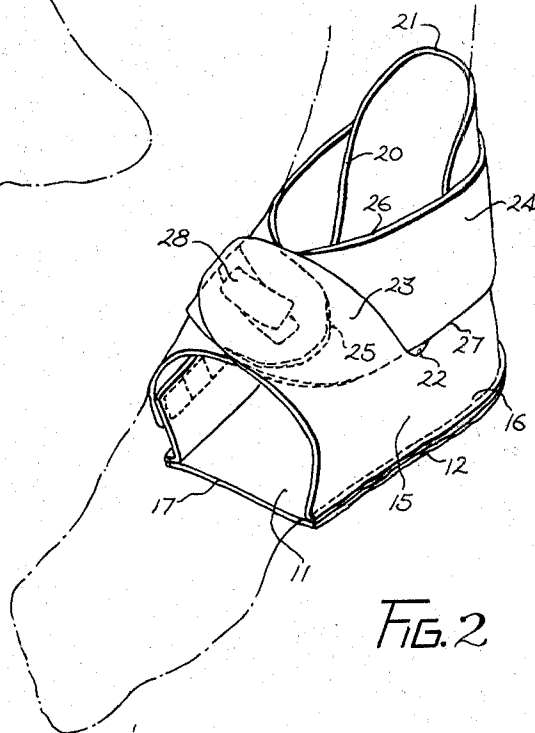
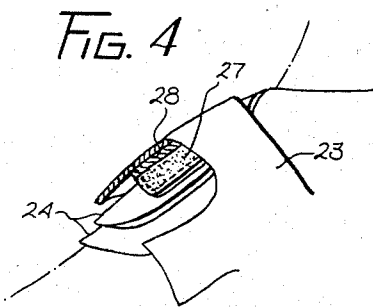
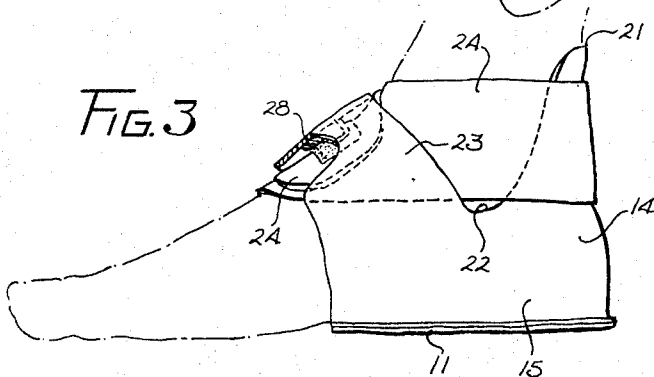
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ANKLE SUPPORT

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ANKLE SUPPORT
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This invention relates to an ankle support and more particularly to a novel ankle support in the form of a pre-formed heel from which opposing lateral bands extend which can be wrapped around the ankle and fastened about the arch in order to brace the ankle and the instep of the foot.

Conventional types of ankle supports and braces generally consist of some form of elastic material which either fits over the heel and ankle of the wearer or which fits over the arch and instep. Generally, the elastic material is sewn to firmer or more stiffened material such as leather for example. Such conventional arrangements are disclosed in U.S. Patents No. 3,028,861 and No. 1,731,276. However, it is necessary when employing ankle supports of these conventional types to carefully lace or string the stiffened material or the elastic material about the ankle and instep to provide a tightly tensioned and confining pressure about the foot.

The ankle support of the present invention obviates the difficulties and problems encountered with conventional supports and includes a pre-formed heel and opposing lateral bands which will fit different size feet while still covering the ankle and portions of the foot in order to brace the ankle joint. The device has a pre-formed heel which follows the normal and natural contour of the wearer's heel which keeps the ankle support in proper location on the foot and prevents it from creeping upwardly on the back of the leg. By employing a lateral band which extends from one side of the heel portion, the band may be wrapped around the ankle and terminated at its free end with a second lateral band which crosses over the bridge of the foot. The pre-formed heel and the opposing lateral bands are joined by a sole so that an integral pre-formed unit is achieved. By utilizing a hook and pile tape commonly known in the trade by the trademark Velcro, it is possible to tightly fasten the opposing bands about the ankle and to lock the bands in the most convenient position on the arch of the foot since it is not necessary to line up female and male members of snaps or other types of fastening devices or to select the nearest buckle opening in the strap. Also, the device of the present invention can be utilized either on the left or right hand depending upon which ankle is to be reinforced.

The subject invention is particularly suitable for bracing the ankle and instep during playing of various sports, such as in bowling and in golf. However, it is to be understood that the device is useful for support for injured or sprained ankles and that the ankle support of the present invention may be worn in addition to the usual shoes and stockings utilized by the wearer.

Therefore, it is a primary object of the present invention to provide a novel adjustable ankle support offering resistance to normal ankle movement but relatively ineffective to hamper or impair normal movement.

Another object of the present invention is to provide a novel adjustable ankle support for application to a weak or otherwise vulnerable ankle to reinforce it for athletic activity in lieu of the customary binding of the foot and ankle with adhesive tape or other bandage type devices.

Still another object of the present invention is to provide a novel ankle brace having a form fitting heel portion which cooperates with a pair of opposing lateral straps

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or bands that wrap around the ankle and fasten together over the arch to form an integral ankle supporting unit.

Still a further object of the present invention is to provide a novel ankle support including a first lateral strap that wraps about a portion of an integral form fitting heel and the ankle to terminate with a second lateral strap so that a constant tension is applied around the ankle and in the area of the instep.

Yet another object of the present invention resides in a novel ankle support which may be worn over a foot stocking and which may be fitted into a conventional shoe so that the support effectively supplements the supporting functions of the overlying shoe without appreciably impairing freedom for normal action of the ankle.

Another object of the present invention resides in the fact that the ankle support provides a novel wrap around arrangement employing oppositely oriented lateral straps so that the same amount of tension is present at all points engaged by the straps and that when the straps tighten down the entire support is tightened evenly about the wearer's foot.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings in which:

FIGURE 1 is a perspective view of the novel ankle support of the present invention illustrated as worn on a foot and taken from one side thereof;

FIGURE 2 is a perspective view of the ankle support shown in FIGURE 1 as taken from the other side thereof;

FIGURE 3 is a side elevational view of the ankle support of FIGURES 1 and 2; and

FIGURE 4 is an enlarged fragmentary view of a portion of the ankle support of FIGURES 1 and 2 illustrated as being partially broken away to expose the lateral strap fastening means.

Referring to FIGURES 1 and 2, a novel ankle support or brace in accordance with the present invention is shown in the direction of arrow 10. The support includes a half sole 11 having a continuous edge marginal region 12 which is shaped to substantially conform to the natural outline of the heel and instep of a foot. The sole 11 is employed for mounting a body portion of fabric material which comprises a side 13, a pre-formed heel 14 and an opposite side 15. The body portion is secured to the edge marginal region 12 of the sole by means of stitching as indicated by numeral 16 which progresses about the lower periphery of the body portion from one end of a forward edge 17 of the sole around the heel to the other end of the forward edge 17.

The side 13 of the body portion extends upwardly from the sole only a relatively short distance to terminate in an upper edge 18 that extends rearwardly to form with an edge 20 which defines the upper limits or extent of the heel portion 14. The heel 14 is pre-formed so as to register with the tendon of Achilles in the ankle when the support device is to be worn. Heel edge 20 raises sharply from edge 18 to a high point 21 located above the ankle bone of the foot and then lowers sharply to terminate with a co-extensive edge 22 which may be referred to as the top edge of side 15 as seen more clearly in FIGURE 2.

Referring now more specifically to FIGURE 2, it is to be noted that side 15 incorporates an integral band or strap 23 that is arranged to extend across the upper bridge of the arch to terminate on the opposite side of the foot. However, side 13 is employed for mounting

an elongated band or strap 24 which extends immediately across the bridge beneath the band 23 and then rearwardly to encircle the heel 14 about the outer surface thereof to forcibly urge the heel into conformity with the heel shape. The band 24 terminates at its end 25 which lies on top of the beginning portion of the band immediately beneath the terminating end of the opposite band 23. The band 24 therefore incorporates a continuous upper edge 26 which passes around the foot in the area of the ankle bone from one side of the foot to its opposite side and further includes a lower edge 27 which lies adjacent the upper edge of side 15 and the edge 18 of side 13 respectively.

To fasten the terminating ends of bands 23 and 24 together, a suitable fastener of the hook and pile type is employed. Preferably, this type of fastener is composed of the commercial material known as "Velcro" marketed by Creative Products, Inc. of Boston, Mass., consisting of, for example, a fabric pad 27 presenting on its outer face, a plurality of minute interlaced plastic monofilament loops or blights and a strip 28 presenting on a cooperative face a plurality of minute plastic monofilament hooks adapted when pressed against the loops on pad 27 to engage them and hold the parts firmly but separately in any position in which they are brought together. The pad 27 is of substantially greater length than the strip 28 and is preferably fixedly secured to the outer surface on one side of the terminating end of band 24. The strip 28 is suitably fixed to the underside of the terminating end of band 23.

With reference to FIGURE 4, the hook and pile fastener construction employed in the present invention is more clearly illustrated as well as the overlapping arrangement of bands 23 and 24 with respect to the upper bridge of the foot.

It will be evident that the ankle supporting device of the present invention may be worn either inside or over a stocking within an athletic or other shoe without discomfort and that it embodies to an enhanced degree many advantages. Although in the present instance, the supporting device is designed to be worn in connection with a shoe, it is to be understood that the particular shoe may be of either the low or high type as desired. The ankle support device of the present invention maintains a snug fit while providing lateral support for the ankle bones and ligaments at all points with the result that the ankle support offers a complete range of motion for normal activity and restricts only those abnormal or excessive motions most likely to cause injury or tissue damage in a healthy ankle or to aggravate the condition of an already injured one.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and detail of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention; therefore, it is intended that the invention be limited only by the scope of the following claims:

What is claimed is:

1. An ankle support comprising:

a half sole adapted to lie under the instep and heel of the foot;

a heel and instep embracing body portion carried about the peripheral edge marginal region of said sole; a heel portion integrally formed with said body portion at the rear thereof and adapted to fit about the tendon of Achilles of the wearer; a pair of opposing lateral bands carried by said body portion on opposite sides thereof; one band of said pair being of substantially longer length than the other of said bands and being adapted to cross over the bridge of the foot and to encircle the ankle thereof and terminating at its free end at the bridge of the foot; and the shorter band of said pair adapted to cross over the terminating end of said other band and to detachably secure therewith.

2. The invention as defined in claim 1 wherein said longer band wraps around the outside surface of said heel portion so as to forcibly urge said heel portion into a contour conforming relationship with the heel of the foot.

3. The invention as defined in claim 2 wherein said longer band is effective to apply tension about the ankle and wherein said shorter band is effective to apply tension about the instep.

4. The invention as defined in claim 3 wherein said body portion includes substantially spaced apart parallel sides and wherein one end of said longer band is attached to a selected one of said sides while said shorter band is integrally formed with the other of said sides.

5. The invention as defined in claim 4 wherein said bands, said heel portion and said body portion apply substantially the same amount of tension over the instep and around the ankle.

6. The invention as defined in claim 5 wherein said sole, said bands, said heel portion and said body portion are composed of a soft and pliable fabric-like material adapted to conform to the contour of the foot when applied thereto under tension.

7. The invention as defined in claim 6 including a fastening means for detachably joining the free ends of said pair of bands together for holding said bands at a desired tension about the foot.

8. The invention as defined in claim 7 wherein said fastening means includes a pair of members secured on said bands respectively wherein one of said fastening members comprises a layer of hook material and the other fastening member comprises a layer of pile material; and said materials being interlocked and fastened together by the application of pressure therebetween.

9. The invention as defined in claim 8 wherein the lower edge of said longer band is located above the upper edge of said respective body portion sides as said longer band extends about the ankle.

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