

[54] SUPPORTING BANDAGE

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[58] Field of Search 128/166, 156, 157, 166.5, 128/155, 75, 87, 89, 90, 82

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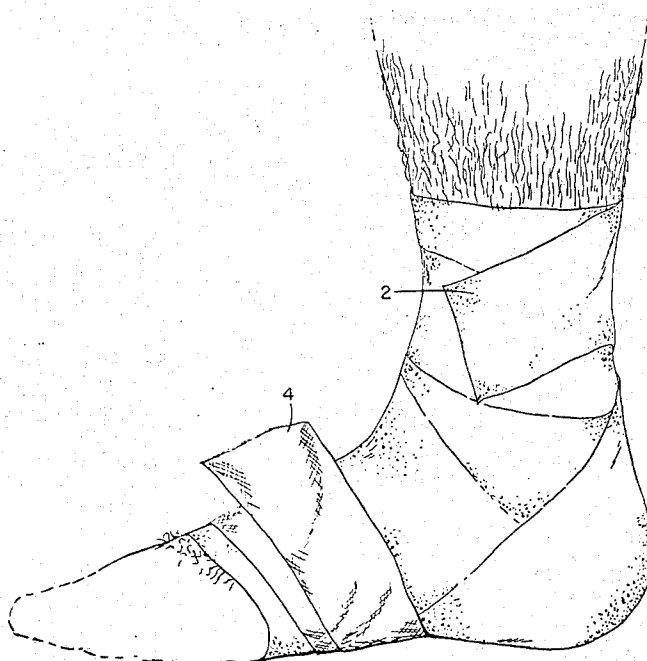
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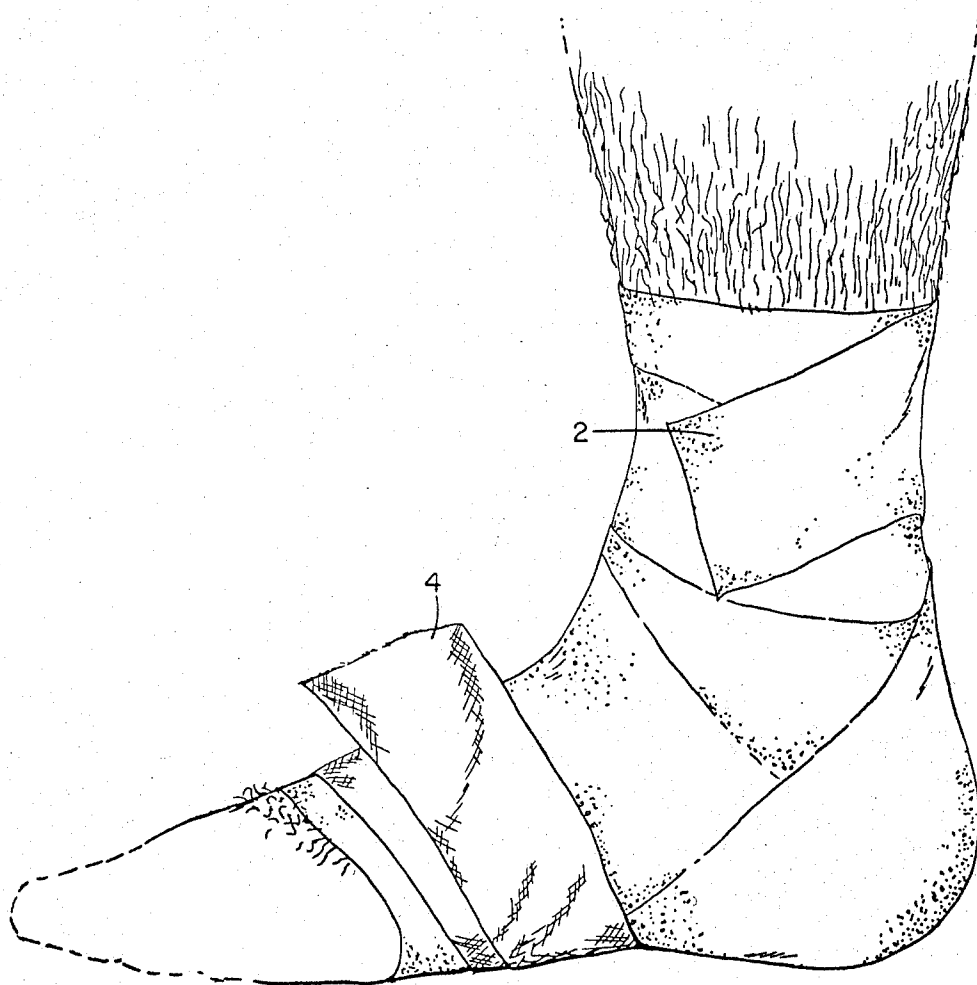
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[57] ABSTRACT

The method of providing support for a portion of the human body which consists of the steps of underwrapping with at least one layer of a thin, highly conformable and extensible polyurethane foam sheet, impenetrable to adhesives and having a pitted, mechanically lightly self-adhering surface and easily tearable into lengths as desired so that it may be wound at high speed around the limb under tension and will so remain when released; and application over the underwrap sheet of at least one layer of self-adhering supporting material, such as conventional adhesive tape.

4 Claims, 1 Drawing Figure





SUPPORTING BANDAGE

This application is a continuation of Ser. No. 10,790, filed Feb. 12, 1970, now abandoned, entitled "Supporting Bandage."

This invention relates to a method of flexibly supporting a portion of the human body.

The problem of providing a flexible supporting bandage for limbs and joints of the human body, especially for ankles, is of great importance to athletes and trainers. In that field there is a high premium upon ease of application and removal and upon attaining a supporting bandage which will be comfortable and nonirritating under repeated flexing in the presence of moisture.

Heretofore, prior to the application of the conventional adhesive tape bandage, the area to be bound was first shaved and then an open weave gauze underwrap was utilized to limit the extent to which the adhesive stuck to the skin, so that the bandage could be removed without removing a layer of skin with it. Even with such expedient, however, in addition to shaving the skin areas to be bound prior to applying the gauze underwrap, removal of the bandage was frequently painful.

In addition, after applying the underwrap under the desired tension, it usually became loose before the adhesive tape overwrap could be applied by the trainer. When such occurred, the effectiveness of the supporting bandage was reduced to a significant extent. Any attempt to prevent such loosening tended to increase the time needed to complete the wrapping, and, since speed of wrapping is important, this produced undesirable compromises. In addition, such gauze did not tear easily into strips of the desired length, which further increased the time needed for its application.

Accordingly, it is a major object of the present invention to provide a novel method of producing a flexible supporting structure for the human body which is not only easy to apply without the necessity of shaving and painless to remove and which is comfortable to wear, but also which may be applied at high speed and without looseness, so that it is more effective than previously known structures.

The invention features a method of providing support for a portion of the human body and a limb supported thereby, which method consists of the initial step of underwrapping directly against the skin of the portion of the body to be supported with at least one layer of a thin, highly conformable and extensible polymeric foam sheet, impenetrable to adhesives such as are present on adhesive tape and having a pitted, mechanically lightly self-adhering surface solely by the foam sheet substance when tensioned and extended and easily tearable into lengths as desired so that it may be wound at high speed around the limb under tension and will so remain when released. Thereafter, while the underwrap is maintained under tension by its mechanical self-adherence, there is applied over the underwrap sheet at least one layer of self-adhering supporting material, such as conventional adhesive tape.

The method according to the invention is thus practiced by employing an underwrap and an overwrap whose features combine to achieve the objects set forth above, providing a supported limb having a plurality of tensioned turns of a foam sheet underwrap lightly self-adhered to itself and a plurality of turns of an adhesive

tape overwrap having an adhesive mass on one side thereof for self-adherence of the adhesive tape to itself, the foam sheet being impenetrable to the adhesive mass so that the underlying skin is kept free therefrom for easy and painless removal of the bandage.

Other objects, features and advantages will appear from the following description of a preferred embodiment of the invention, together with the drawing.

Referring to the drawing, in the preferred form of practicing the invention there is employed a sheet 2 of an open-celled or reticulated polymeric material, such as polyurethane foam. The sheet is between 0.02 and 0.10 inch thick, preferably approximately one thirty-second to one-sixteenth inch thick and is in the form of a web, having a mechanically self-adhering pitted surface, wound into a roll. The web is wrapped under tension about a limb or joint directly against the skin, such as an ankle, to be supported, starting, for example, near the toe with a sufficient overlap so that the mechanically self-adhering characteristic of the pitted surface of the foam sheet solely by its substance when extended will operate to maintain the sheet under tension on the limb even though wrapping tension is momentarily released. After wrapping the area to be supported, the free end of the sheet is easily torn to provide the desired length and self-adhered to an underlying portion thereof to maintain its wrapped tension, leaving the trainer's hands free to pick up a roll of adhesive tape for the overwrapping step.

Such a sheet of urethane foam, being soft, highly conformable and extensible, as well as tearable, is an ideal underwrap to achieve the objects set forth above. Particularly important are its self-adhering when tensioned and extended and adhesive-impenetrable characteristics, the former making possible a highly-effective, tightly wrapped supporting bandage, and the latter making possible the painless removal of the bandage, even without the necessity of preliminary shaving.

The flexible polymeric cellular material used for the sheet 2 may comprise any one of a number of open-celled foams. One type of cellular polymeric material preferred is a polyurethane foam material. The nature of such polyurethane foam material is a somewhat irregular lattice of cells. Each cell is a three-dimensional network of interconnected strands which form junctions between the faces or walls of the cells of the foam body. Most so-called "open-celled" polyurethane foams possess thin membrane-like sheets of material across at least certain or some of the cell faces. Other cell faces are open by virtue of the membranous material at the face having been broken during the foaming operation.

A reticulated structure formed from a conventional open-celled foam which has been subjected to an after-treatment which removes the membranous material from substantially all of the faces of the cell, leaving only the integrally interconnected strands, is also a suitable structure for the sheet 2.

After the underwrapping is completed, an overwrap of adhesive tape 4 is applied using conventional taping techniques and patterns in a plurality of overlapped wrapped turns only upon the tensioned underwrapping, providing the final supported limb.

The resilient properties of the foam underwrap foam are an especially important feature when a joint is to be wrapped, since repeated flexing can be anticipated. In addition, the moisture absorbing nature of the foam is

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beneficial in relieving irritation at the point of wrapping caused by excessive perspiration under the tight adhesive overwrap.

Removal of the bandage is accomplished conventionally, but painlessly without the removal of skin or hair, since the foam urethane sheet 2 adheres to itself but lightly and not at all to skin and hair, and, being impenetrable to the adhesive mass on the adhesive tape overwrap 4, is not adhered to the directly underlying skin and hair thereby, since the adhesive mass does not touch the skin.

What is claimed is:

1. The method of providing flexible bandage support for a portion of the human body and for protecting the skin from irritation of the bandage which comprises the steps of wrapping under tension directly against the skin of said portion with a plurality of overlapped wrapped turns of at least one layer of an extensible, thin, conformable, polymeric foam sheet free from adhesive, lightly mechanically self-adhering solely by the

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foam sheet substance when tensioned and extended, of between about 0.02 and 0.10 inch thick under sufficient tension so that upon completion of said wrappings the underwrapping will be maintained in the desired position without slippage of said portion, and thereafter applying over said underwrapping free from contact with the skin, adhesive tape with sufficient tension to give the desired flexible support to said portion, said underwrapping functioning to maintain said adhesive tape in substantially its original position regardless of moisture on the skin and repeated flexing of said portion, said underwrapping protecting the skin from irritation of the adhesive tape.

2. The method of claim 1 wherein said sheet comprised a polymeric cellular foam material.

3. The method of claim 1 wherein said foam is a polyurethane foam.

4. The method of claim 1 wherein said foam is a reticulated foam.

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