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2,787,266

LAMINATED STRETCHABLE CUSHION MATERIAL

Filed Sept. 20, 1954

FIG. 1

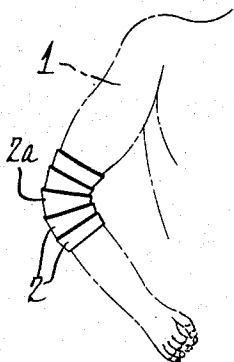


FIG. 2

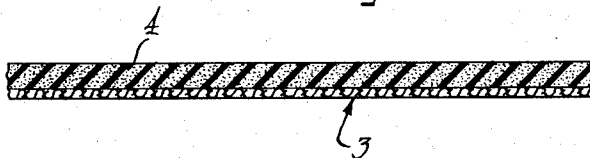


FIG. 3

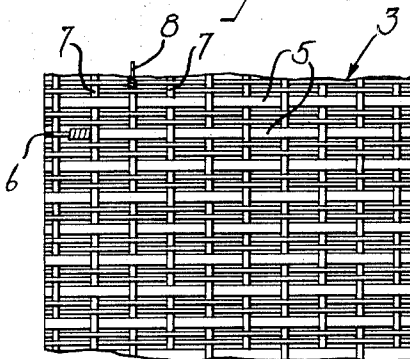


FIG. 4

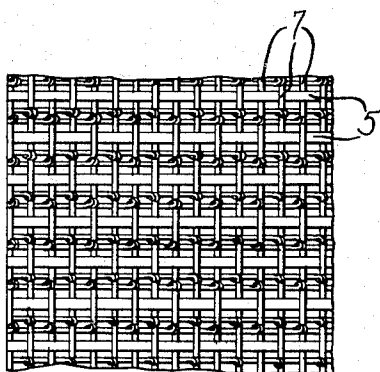
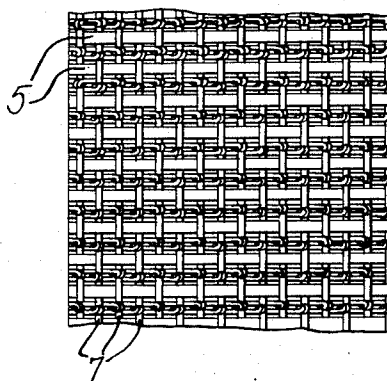


FIG. 5



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LAMINATED STRETCHABLE CUSHION MATERIAL

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3 Claims. (Cl. 128—156)

This invention relates to improvements in a laminated stretchable cushioning material, and more particularly to a material highly desirable for use as an elastic surgical bandage for relief of swellings, strains, sprains, varicose veins, and various other afflictions that require pressure bandaging, although the invention will have other uses and purposes as will be apparent to one skilled in the art.

In the past, many and various stretchable fabrics have been developed, and many and various stretchable bandages have been utilized where pressure bandaging is necessary on the human body. However, these formerly known bandages and materials did not satisfy all requirements to a desired degree, particularly where soft contact with the skin was desired, and especially where a soft contact with the skin was desired with a fabric stretchable in at least two directions, and preferably in all directions. Stretchable bandages, stockings, and the like, heretofore developed were subject to the objection of not maintaining uniform contact with the body especially when applied over joints and during the flexing or bending of the joint. In addition, stretchable bandages and the like heretofore developed were not as easily applied to the human body in substantially any desirable location and in substantially any direction of wrapping, with uniform pressure after application.

With the foregoing in mind, it is an important object of the instant invention to provide a stretchable cushioning material highly desirable for use as a surgical bandage, and which comprises a two-way stretch fabric carrying thereon a sheet of rubber-like material stretchable with the fabric.

Also an object of the invention is the provision of a stretchable cushioning material comprising a fabric stretchable in all directions, and carrying a thicker sheet of foam latex secured over one face of the fabric and stretchable with the fabric.

It is also an object of this invention to provide a stretchable porous cushioning material comprising a fabric backing stretchable in a plurality of directions, and a sheet of foam latex or equivalent material cured or vulcanized directly to one face of the fabric.

It is also a feature of this invention to provide a stretchable material comprising a fabric having rubber-like filaments in both directions embodied in the threads thereof, and a sheet of porous foam latex firmly attached over one face of the fabric, and stretchable therewith.

Still another object of the invention resides in the provision of a stretchable cushioning material comprising a fabric stretchable in all directions, with a sheet of foam latex firmly secured to one face of the fabric, the foam latex having greater stretchability than the fabric, and being more easily rupturable by overstretching than the fabric, whereby the fabric limits the stretch of the foam latex to a safe amount.

While some of the more salient features, characteristics and advantages of the instant invention have been above pointed out, others will become apparent from

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the following disclosures, taken in conjunction with the accompanying drawing, in which—

Figure 1 is a fragmentary elevational view of a portion of the human body showing material embodying principles of the instant invention wrapped thereon in the nature of a surgical bandage;

Figure 2 is a fragmentary enlarged vertical sectional view through the material itself;

Figure 3 is a greatly magnified, somewhat diagrammatic view of a face of the fabric illustrating in general the construction of the fabric, and showing the fabric stretched in one direction;

Figure 4 is a face view of the fabric showing the same stretched in the opposite direction; and

Figure 5 is a greatly magnified face view of the fabric in relaxed condition.

As shown on the drawings:

By way of illustrating an example of the use of the present invention, I have shown the same in Fig. 1 of the drawings in the form of a surgical bandage wrapped around the elbow joint of a human arm 1. The bandage material is presumably put upon the arm under some tension, and in the form of adjacent wraps 2. It will be noted that the wrap 2a immediately covering the joint itself is stretched laterally to a greater width than the adjacent wraps. While all of the wraps are stretched lengthwise of the bandage strip, the wrap 2a is stretched considerably in a direction transversely to the length of the bandage strip, and is also stretched to a lesser extent in numerous other directions so as to snugly fit over the joint regardless of the flexing of the joint. When the arm is straightened the bandage will be of equal tension over the joint as when initially applied. Thus, the joint is bandaged under substantially uniform pressure at all times regardless of movement of the wearer.

As seen best in Fig. 2, the material itself comprises a fabric backing or lamination generally indicated by numeral 3, and to this fabric backing a much thicker sheet or stretchable rubber-like material is attached. Preferably this sheet of material 4 is foam latex of the porous type having intercommunicating cells therein. This material is exceedingly light in weight, has great restorative powers, and provides an exceptionally soft clinging contact with the skin.

In laminating the fabric and latex sheet 4, the preferable procedure is to spread the latex upon one surface of the fabric in an uncured condition, and then curing or vulcanizing the latex directly to and over the fabric face. With that construction, no portion of the latex contacting the fabric ever loses its bond with the fabric, regardless of sudden jerks or stretchings in any direction.

The fabric itself is a two-way stretch material somewhat of the character used for elastic stockings. As seen in Fig. 3, certain cross threads 5 of the fabric are each in the form of a composite thread including a rubber filament core 6 around which thread-like filaments may be wound to provide the composite thread. Likewise, certain threads 7 extending in the opposite direction or along a plane perpendicularly intersecting the plane of the cross threads 5 are each provided with a rubber filament core 8 in substantially the same manner, although the rubber filament threads in one direction may be larger than those in the other direction, if so desired. Fig. 3 shows the fabric stretched laterally, there being greater space in this figure between the composite threads 7 than appears in Fig. 5 which shows the fabric in its relaxed condition.

Fig. 4 illustrates the fabric stretched in the opposite direction, there now being greater spacing between the composite threads 5 than is the case with the showing in Fig. 5.

It is to be understood, however, that the fabric as well

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as the latex will stretch in substantially any direction by virtue of criss-cross threads, and not just in accordance with the direction of the composite threads 5 and 7.

It will be noted that where the rubber-like material 4 is foam latex, the latex will be much more delicate and subject to rupture than the fabric itself upon direct or positive pull stretching the fabric in some direction. The latex obviously will stretch along with the fabric in any direction, but the fabric stretch is limited by virtue of its weave, and thus the fabric prevents any stretching of the latex sheet 4 to a rupture point.

The bandage may be applied to the body of the user with either side outermost, but it is preferably to apply the latex side next to the skin for better fitting and comfort. Since both the fabric as well as the latex sheet are preferably porous, the bandage may be saturated with a medicament, if so desired, and there will be some circulation of air to the skin through the bandage.

From the foregoing, it is apparent that I have provided a novel laminated stretchable cushioning material which is highly desirable for use as a stretchable bandage, and it is important to note that the laminated structure is stretchable in substantially any direction, so that when it is applied to the body of a user over a joint or the like, flexing of the joint does not interfere with the uniform tension or pressure provided by the bandage. The entire structure is highly durable, may be repeatedly used, may be laundered when desired, and is economical to manufacture. Storage of the bandage does not interfere with retention of its elastic powers.

It will be understood that modifications and variations

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may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. In a cushion bandage, a two-way stretch fabric having rubber filaments in certain threads extending along perpendicularly intersecting planes of the fabric, and a sheet of foam latex secured over one face of the fabric, said latex sheet being much thicker than said fabric.

2. In a cushion bandage, a fabric stretchable in all directions, said fabric having rubber filaments in certain threads extending along perpendicularly intersecting planes of the fabric, a thicker layer of foam latex laminated to said fabric and stretchable therewith, said latex being more easily ruptured than said fabric by overstretching, and said fabric having less stretch than the latex to prevent rupture of the latex sheet.

3. In a cushion bandage, a fabric stretchable in all directions, elastic filaments in a number of criss-crossed threads of said fabric, and a layer of foam latex laminated to said fabric, said fabric having less stretch than the latex layer to prevent rupture of the latex layer by overstretching.

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