

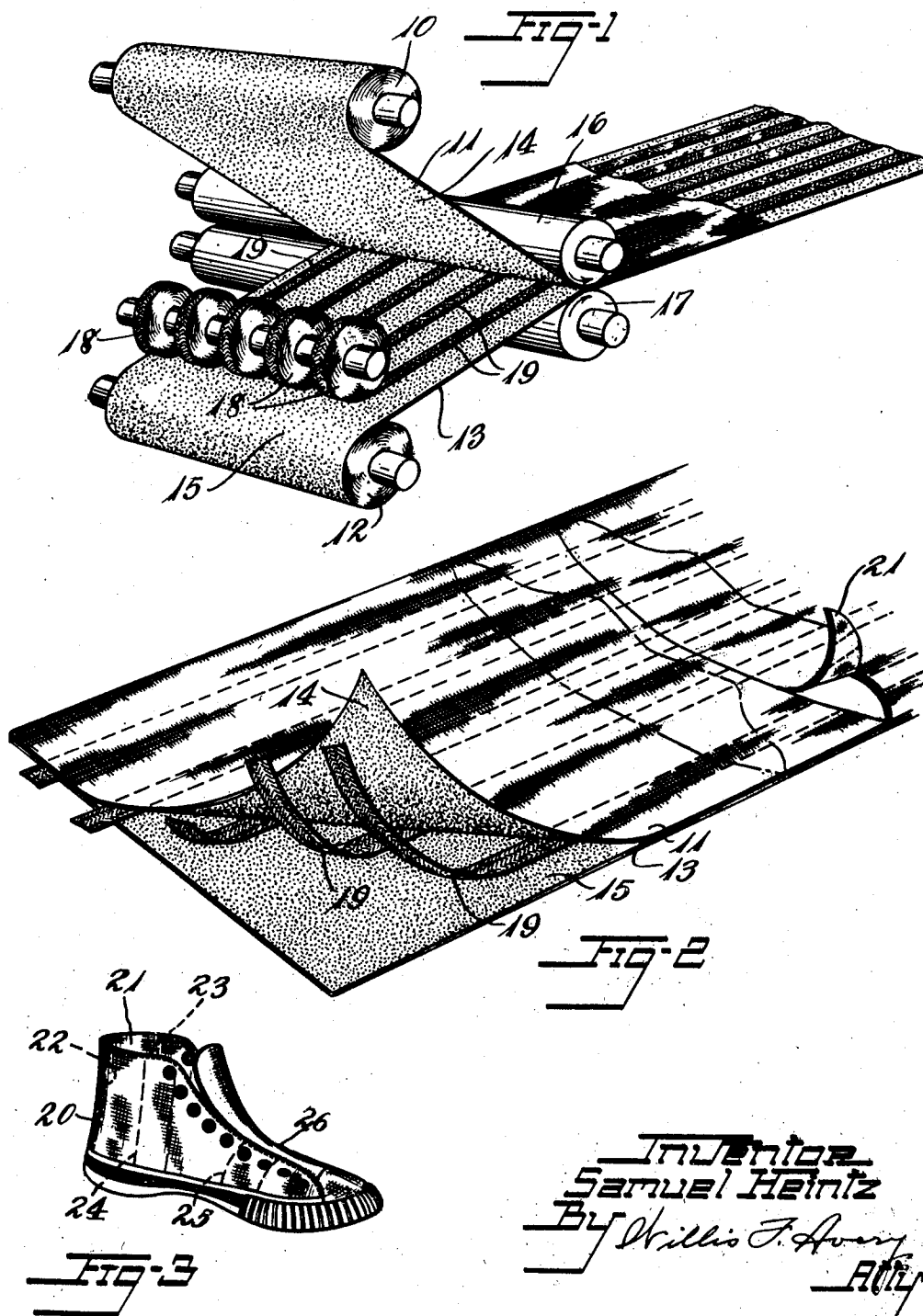
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REINFORCED FABRIC ARTICLE

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REINFORCED FABRIC ARTICLE

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1 Claim. (Cl. 154—46)

This invention relates to reinforced fabric articles and to methods of making the same and is particularly useful where it is desired to reinforce fabrics in one direction.

The principal objects of the invention are to provide great strength in one direction of the article without the employment of sewing, to provide strength without objectionable sacrifice of breathability of the fabric, and to conceal the strengthening members.

These and other objects will appear from the following description and the accompanying drawing.

Of the drawing:

Fig. 1 is a perspective view illustrating one method of assembling the parts of the fabric article, parts being broken away to show the construction.

Fig. 2 is a perspective view of the sheet of fabric showing the material disassembled in part to disclose its construction, and also showing the cutting of shoe parts therefrom.

Fig. 3 is a perspective view of a tennis shoe having a one piece upper embodying the invention.

Referring to the drawing, the invention generally comprises adhesively securing together a pair of sheets of fabric by adhesive material with reinforcing strips of webbing or other narrow fabric therebetween in parallel spaced relation, the spacing preferably being such that articles, such for example as shoe uppers cut therefrom will be definitely reinforced in desired zones. The assembly of the materials is illustrated in Fig. 1 which shows a roll 10 of fabric 11, and a roll 12 of fabric 13 supported on parallel axes. Fabric 11 has a coating 14 and fabric 13 has a coating 15 of pressure adhesive material, preferably a composition of rubber. The sheets 11, 13 of fabric, are drawn into the nip of the pressure rolls 16, 17 with their adhesive coated faces toward each other. A series of rolls 18 of tape or narrow fabric, preferably a webbing material are supported in spaced relation so as to deliver the tapes 19 between the sheets 11 and 13. The squeeze rolls 16, 17 press the fabric sheets and the tapes into permanent adhesive engagement.

Where it is desired to have the resulting fabric breathable, the coatings 14 and 15 may be printed upon the fabric in discontinuous areas as for instance in dots or in gridiron form, or one of the sheets may be given a very thin discontinuous adhesive coating by spraying, so as to be adhesive but not impervious and the other may be printed with a heavy discontinuous coating.

The tapes 19 are employed to give greater strength to the fabric in one direction thereof

and are preferably placed at such spacing as to provide extra strength in desired zones of an article cut therefrom. As an example, the tennis shoe 20 of Fig. 3 has a canvas upper 21 reinforced by a back stay 22, quarter stays 23, 24, and instep stays 25, 26, all of which may be provided in the manner herein described. The upper 21 may be cut as shown in Fig. 2 crosswise of the compound sheet by the use of suitable dies, and the spacing of the tapes 19 may be so made as to provide the stays at the proper position with respect to the upper. The vertical disposition of the stays shown provides desirable reinforcement of the shoe against the severe stresses of use on the foot and effective strength is provided to prevent tearing of the upper when the shoe is pulled on the foot forcefully, and the reinforcement is provided without detracting from the appearance, flexibility and weight of the shoe.

While various adhesives may be used in compounding the sheet material, because of its flexibility, resistance to moisture, and elasticity, a composition of rubber is preferred as the adhesive material. Also, while it is preferred to use textile material, such as webbing, for the reinforcements 19, other materials not necessarily of textile nature may be used.

These and other modifications may be made without departing from the invention as it is defined by the following claim.

I claim:

Composite porous sheet material suitable for wearing apparel, said material comprising a plurality of layers of textile material adhered to each other in face to face relation, and a plurality of flat, relatively thin strips of substantially inextensible flexible webbing adhered to the layers throughout the width of the strips and extending therebetween in one direction thereof and in spaced relation to each other providing flexibility of said material in a direction transverse to the strips by virtue of the intervals between the strips, said layers and said strips being adhered together by a discontinuous layer of rubber composition with substantial uniformity throughout the extent of said material, said strips providing said material with increased strength and resistance to stretch in the direction in which they extend as compared with the other direction of the material without substantially decreasing the flexibility of the material, and said discontinuous layer of rubber composition holding said layers and said strips in assembled relation while maintaining breathability and uniformity of appearance of the material.

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