Oct. 23, 1945. H. J. STUART 2,387,416

TAPE AND METHOD OF REINFORCING

Filed Dec. 3, 1942

Fig. 1.

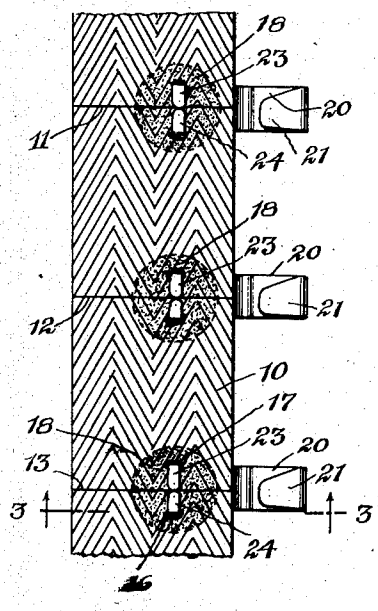


Fig. 2.

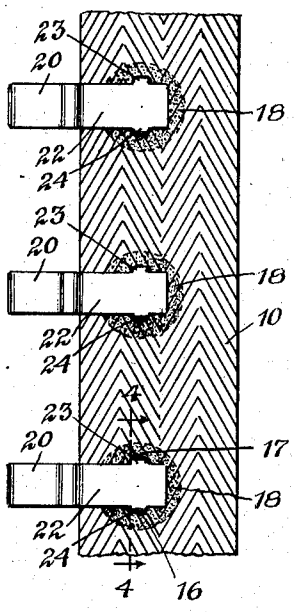
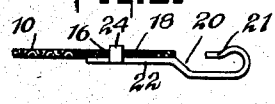


Fig. 3.



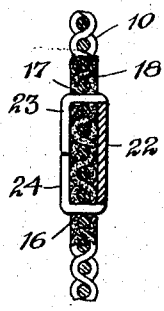


Fig. 4.

Fig. 5.

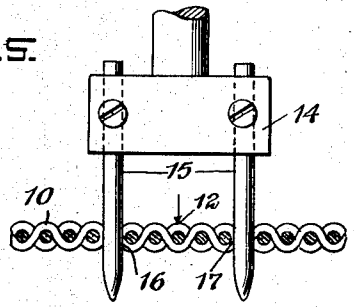
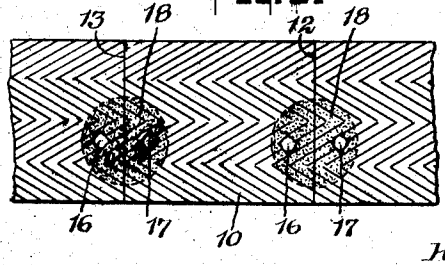


Fig. 6.



WITNESSES

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TAPE AND METHOD OF REINFORCING

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7 Claims. (Cl. 2—265)

This invention relates to tapes and the method of reinforcing the same, and more particularly to tapes adapted to bear hooks or other fastening elements which may be subjected to considerable stress and strain.

There are a great many applications where fastening elements are attached to a flexible tape or band before being placed in finished articles, such as garments. Certain uses such as in the manufacture of corsets, these tapes bear lacing hooks which are subject to considerable strain and stress and which, unless firmly fixed in the tape, have a tendency to pull out or tear the fabric. In order to avoid this, hooks have sometimes been set in metal or other stronger materials, but this deprives them of the flexibility desired and makes them more objectionable for that reason.

An object of this invention is to provide a tape and method of reinforcing it whereby the hooks may be placed in the tape and the tape used in the normal way.

A further object is to provide a tape which will be fully flexible and yet which will be strengthened at the desired points in order to avoid pulling out of the hooks or the parting or straining of the fabric.

A further object is to provide a tape in which the areas under stress will be reinforced while the intermediate areas will maintain their original flexibility.

In order to carry out the purpose of my invention, any material which will cement together all the threads of any fabric to which it is applied, will do. There may be a number of materials which will satisfactorily perform this function; however, the material should be one which is not affected by perspiration or laundering, particularly where the tape is to be used in a garment.

Another important feature of my invention is that, with the use of such a substance, the nature of the fabric employed is not of terrific importance, since whether it is loosely or tightly woven, is strengthened sufficiently to securely carry fastening elements.

In the accompanying drawing—

Fig. 1 shows one side of a tape embodying my invention;

Fig. 2 shows the opposite side of the same tape;

Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a cross sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a sectional view showing a step in the manufacture;

Fig. 6 is a view of a section of the tape during manufacture.

As has been previously stated, the nature of the fabric used is not important, and while I have shown a herring bone tape 10, any other type of material may be used.

In describing my invention, I will use certain measurements, dimensions and steps. These measurements, dimensions and steps are not critical and will be varied to suit the particular need for which the tape is to be prepared.

The tape shown is one in which it is desired to have the hooks spaced an equidistance apart, and on the actual drawing, the center of the hooks are an inch and a half apart. To facilitate the process, the tape is run through a conventional marking machine which places marking lines 11, 12 and 13 an equidistance apart. The tape may then be run through a foot press arranged to drop a spot 18 of enamel or cementing material astride each of the marking lines. Any suitable material may be used. I have found that a pyroxyline enamel consisting of about 75% solvents and about 25% solids is an efficient material for the purpose. The tape may then be allowed to dry and the fastening elements attached by a suitable machine. Holes may then be punched in the tape with a conventional round needle-point punch 14 which straddles the marking line. This punch is provided with needle members 15 which do not cut or destroy any of the threads, but go through the material, spreading a pair of holes 16 and 17 at a desired distance.

In the accompanying drawing I have shown a lacing hook 20 having the usual bill 21, back member 22 and lugs 23 and 24. The lugs 23 and 24 are inserted through the holes 16 and 17 and fastened to the tape 10 in a conventional manner.

While I have described a particular process, it will be appreciated that the essence of my invention rests in the opening of the holes 16 and 17 and the coating of the surrounding material to cement the threads and fibres together and the placing of a fastening element or similar item thereon so that any stress or strain borne by the element is distributed over a substantial area of the tape rather than to the area immediately adjacent the lugs or clamps by which it is held.

It will thus be seen that the strain is spread over an area without materially decreasing the flexibility of the tape, and after completion, the tape may be rolled, washed or otherwise handled without injury, while the ability of the fastening

elements to withstand stresses and strains is materially increased.

I claim:

1. A woven tape, apertures in said tape made by spreading the fabric, said tape being impregnated with a cement immediately around said apertures of a character unaffected by temperatures normally employed in ironing fabrics, and an element fastened to said tape through said apertures.

2. A flexible tape having a pair of apertures therethrough, the area immediately surrounding said apertures being impregnated with relatively non-flexible material, and a fastening element having lugs inserted through said apertures.

3. A flexible tape having certain areas thereof reinforced by impregnation with a relatively stiff cement such as proxyline enamel, and fastening elements attached to said tape in said areas.

4. A method of manufacturing reinforced tape which consists of marking said tape at predetermined portions thereof, impregnating the area immediately surrounding said markings with a cement, forming apertures in said area and fixing fastening elements having lugs through said apertures.

5. A flexible tape having fastening means secured thereto in reinforced areas located at spaced intervals along the tape, the sole reinforcing means for said areas comprising an impregnation of the tape with a relatively inflexible cement.

6. A flexible piece of porous material for a garment part having a fastening means secured by one or more parts piercing the material, the area immediately surrounding the piercing being impregnated with a cement applied thereto as liquid which penetrates through the material and hardens as a relatively inflexible mass.

7. A method of securing garment fastening elements to a strip of porous material, which comprises applying to small areas suitably spaced a cement of a character adapted to penetrate relatively deeply into said material and to harden into a relatively inflexible mass with strands of the material embedded therein, and securing said fastening elements in said areas by rigid clamping parts penetrating through the material.

HENRY J. STUART.