

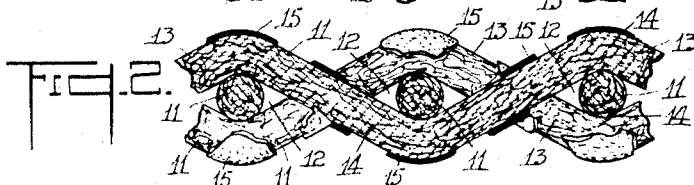
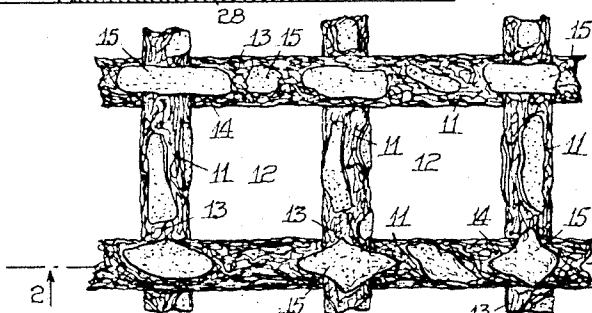
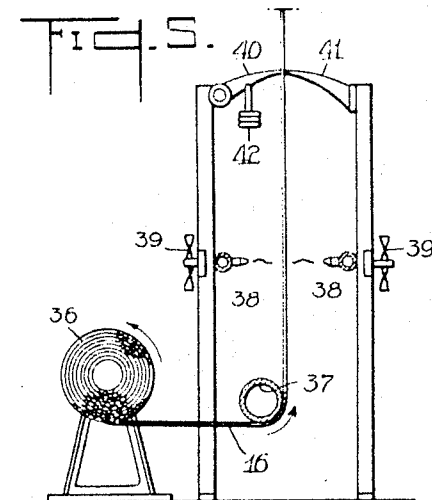
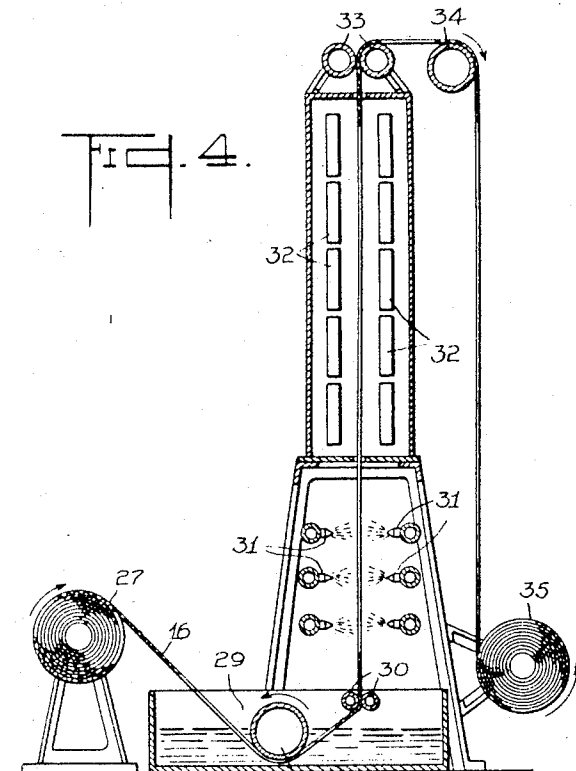
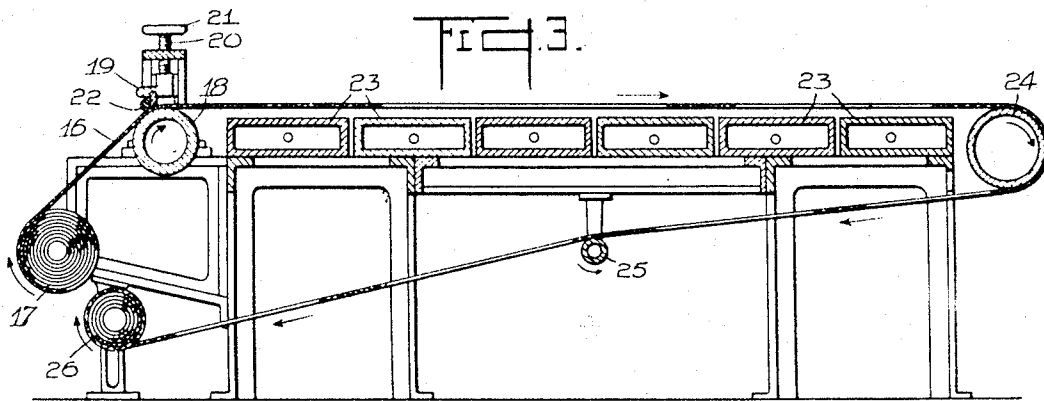
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A. BAITZ ET AL

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BANDAGE

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BANDAGE

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2 Claims. (Cl. 128—156)

The present application is a continuation-in-part of the co-pending U. S. application Ser. No. 147,420 filed June 10, 1937.

This invention relates to an improved bandage for surgical and analogous purposes and to the process of manufacture of such bandage.

Known bandages made of crepe rubber alone, or crepe rubber combined with fabric, will cohere when superposed, but such bandages are non-absorbent, are not as pliable as fabric bandages, and have other disadvantages.

The object of this invention is to provide a bandage which will cohere when superposed, which will not adhere to skin or hair, and which is absorbent and is as pliable as ordinary fabric bandages.

An improved bandage according to this invention consists of gauze, cheese-cloth, butter-muslin, or other suitable pliable absorbent textile material (hereinafter called base material) on one or both surfaces of which small spaced fragments of raw rubber, which does not adhere to human skin or hair, are deposited in such manner that the capillary interstices within the individual threads of the base material are kept open and the absorptive property and pliability of the base material are not impaired.

In order that this invention may be more readily understood, an improved bandage material according to the invention and several methods for manufacturing the same will now be described with reference to the accompanying diagrammatic drawing in which:

Fig. 1 is a diagrammatic plan view of a part of a bandage according to the invention on a greatly enlarged scale;

Fig. 2 is a sectional view of the same bandage taken on line 2—2 of Fig. 1;

Fig. 3 is a sectional elevation of an apparatus for preparing bandage material of the type shown in Figs. 1 and 2 according to one method;

Fig. 4 is a sectional elevation of apparatus for preparing bandage material according to the invention by a modified process;

Fig. 5 is a sectional elevation of apparatus for preparing bandage material according to the invention in a further modified process.

Referring to the drawing, and first to Figs. 1 and 2 thereof, 11 denotes the interwoven textile threads which form the gauze or cheese cloth serving as base material for the bandage according to the invention. 12 are the relatively large spaces or pores between the individual threads 11. Each thread 11 consists of numerous small filaments or fibres 13 which leave between them

a great number of small capillary interstices 14. The presence of these capillary interstices 14 within the individual threads is responsible for the absorptive properties of the base material. Small spaced fragments 15 of a tacky adhesive which does not stick to the human skin or hair, preferably of raw rubber, are deposited on the outer surfaces of the fabric and on the outside of the individual threads 11 in such a manner as to leave the capillary interstices 14 within the individual threads entirely open and unobstructed, whereby the absorptive property and pliability of the base material are substantially preserved.

The bandage material shown in Figs. 1 and 2 may be produced by any suitable method or apparatus.

In the method illustrated in Fig. 3, gauze or other suitable base material 16 travels from a supply 17 over a roller 18 adjacent to which is a spreader blade 19. Means such as a screwed stem 20 and a hand wheel 21 are provided to enable the spreader blade 19 to be adjusted relatively to the roller 18, to control the quantity of rubber which remains on the material 16. A viscid mixture or plastic mass comprising raw rubber mixed with a solvent, of such viscosity that it will not percolate into the capillary interstices 14 within the individual threads 11 of the base material, is arranged in front of the spreader blade 19. As the base material is travelled relatively to the spreader blade, the rubber mass is caused to revolve in contact with the travelling base material 16 in the form of a plastic roller 22. Small fragments of the rubber mass which adhere to the surface of the gauze 16 are constantly torn off the roller and are deposited in spaced relationship on the outside of the individual threads without any of the rubber mass entering the capillary interstices 14 within the threads. In this manner, a sufficient quantity of rubber is deposited on the upper surface of the gauze in the form of small spaced fragments arranged on the outside of the individual threads to enable this surface to cohere with another similarly treated surface with which it may be brought into contact. The blade 19 removes any surplus rubber mixture.

To evaporate surplus liquid and to suitably condition the rubber, the treated material is subjected to heat by, for example, being travelled adjacent to a series of steam chests 23 after which it passes over guide rollers 24 and 25 to a winding roller 26. The material is then treat-

ed on the other face by again passing it through the machine with the untreated face uppermost.

In the method illustrated in Fig. 4, the material passes from a supply 27 under a roller 28 which dips into a bath 29 containing an oily volatile liquid such as benzine, and then between rollers 33 which gently squeeze out the surplus liquid but leave the capillary interstices still filled with benzine. A dilute aqueous dispersion of rubber latex is then distributed on the wetted travelling material by means of rows of spray nozzles 31. The fineness of the spray is regulated in such a manner that numerous small spaced drops of rubber dispersion are deposited on the outside of the individual threads 11 on both surfaces of the base material 16. The rubber dispersion can not penetrate into the capillary interstices 14 within the individual threads 11 of the base material 16, because, at this stage of the process, the interstices 14 are still filled with the oily volatile liquid which does not mix with water and, therefore, acts as a repellant for the aqueous rubber dispersion. One suitable aqueous dispersion of rubber latex comprises equal parts of water and a 60 per cent concentration of rubber latex.

To evaporate the wetting agent and the aqueous content of the latex dispersion the treated material is subjected to heat by causing it to travel between heating elements 32 after which it passes between pressing rolls 33 and over a guide roll 34 to winding roller 35. After evaporation of the oily volatile liquid and of the water, the rubber adheres to the outside of the individual threads 11 in the form of small spaced fragments, while the capillary interstices 14 within the threads 11 are once more open and unobstructed.

In the method illustrated in Fig. 5, base material from a supply 36 passes over a roller 37 and then between rows of nozzles as 38 through which raw rubber mixed with a solvent in liquid or semi-liquid state is extruded in the form of fine semi-solid threads or filaments which are directed on to the base material 16 by air currents from fans 39. The threads or filaments are firmly fixed on the fabric by any suitable pressing means such as a pair of blades 40, 41. One blade (40 for example) may be movable and be provided with means as a weight 42 to exert the desired pressure while the other blade (41 for example) is fixed. The treated material is wound on to a roller (not shown) as before described. The semi-solid rubber threads are disposed on the outside of the individual fabric threads 11 in the form of small spaced fragments none of which enters the capillary interstices 14 within the individual threads so that the interstices 14 remain entirely open and unobstructed.

The base material may be of any suitable colour (such as flesh colour) or suitable colouring may be incorporated in the fluid mixture. Antiseptic and/or aromatic substances and/or any suitable agent to promote healing of a wound may be incorporated in the mixture or be applied to the base material at any stage.

The treated material is cut in known manner into strips of suitable width to form bandages. A bandage which will more readily follow the contour of the member on which it is wound may be formed by cutting treated woven fabric on the bias, at an angle of 45 degrees for example, or knitted fabric may be used.

If so desired, the whole or any part of a bandage may be treated with talcum powder or french chalk or like material so that it will not cohere with other parts of the bandage.

In use, it is only necessary to overlap the windings of the bandage sufficiently to enable a treated portion of a winding to cohere with a treated portion of contiguous winding. The free end of a bandage may be secured by causing it to cohere with a treated part of one or more windings and if the said free end is cut diagonally to a point, or is torn unevenly, it will cohere so firmly that it will not readily be loosened or displaced. Any loose parts of a bandage may be pressed or moulded so they will cohere, ensuring a neat and continuous external surface and obviating undesirable loose ends or the like.

What we claim is:

1. A bandage comprising a strip of pliable absorbent textile base material including interwoven textile threads, and spaced small fragments of raw rubber deposited exclusively on the outside of the individual threads on one surface of said base material, the capillary interstices within the individual threads being open and unobstructed, whereby said surface adheres only to itself and the absorptive property and pliability of the base material are substantially preserved.

2. A bandage comprising a strip of pliable absorbent textile base material including interwoven textile threads, and spaced small fragments of raw rubber deposited exclusively on the outside of the individual threads on both surfaces of said base material, the capillary interstices within the individual threads being open and unobstructed, whereby superposed layers of the base material cohere while its absorptive property and pliability are substantially preserved.

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