Dec. 25, 1951 E. L. DUBÉ 2,580,085

BANDAGE

Filed June 17, 1949

Fig. 1.

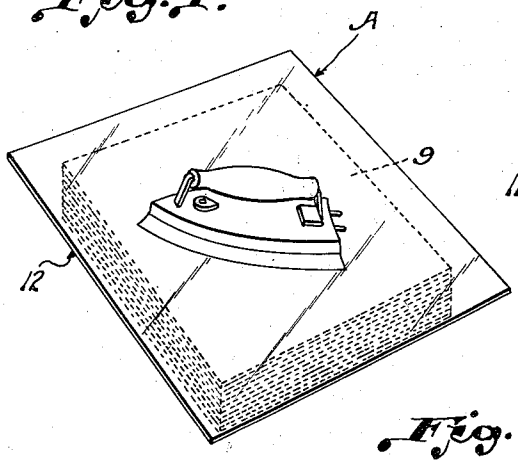


Fig. 2.

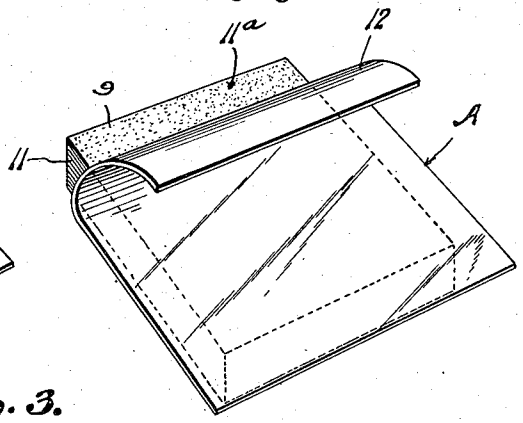
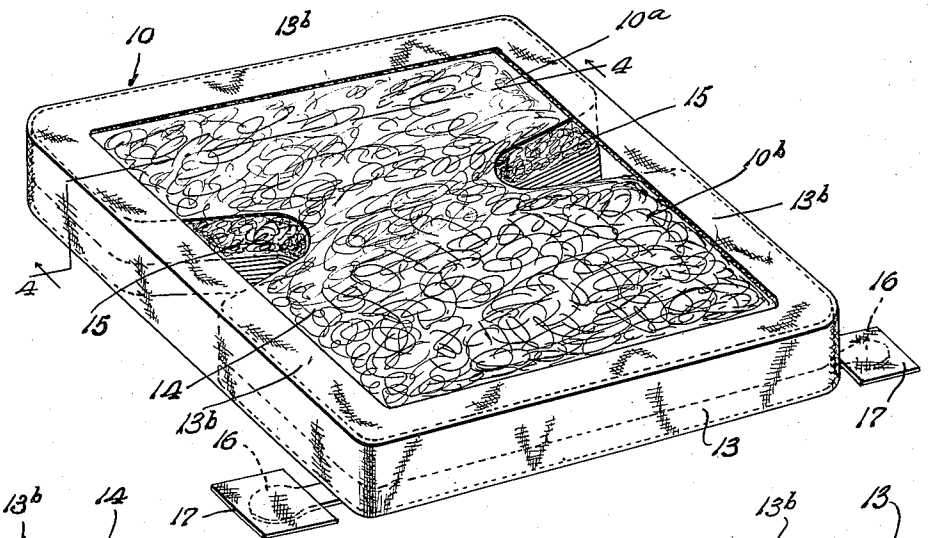


Fig. 3.



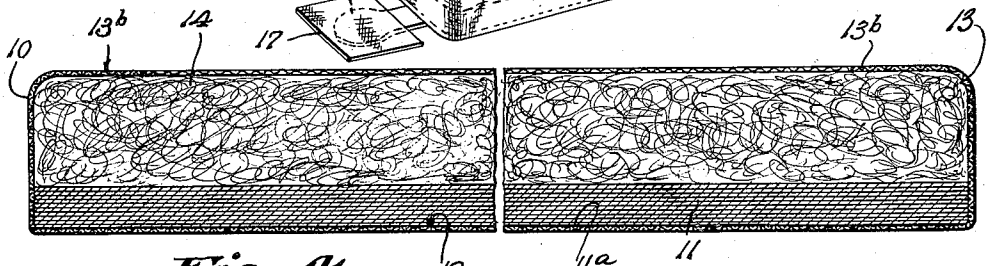


Fig. 4.

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BANDAGE

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2 Claims. (Cl. 128—287)

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My invention relates to improvements in bandages and method of waterproofing the same, and although it has particular reference to surgical bandages including top dressings, etc., diapers, pads and catamenial bandages come within my inventive concept.

The invention finds a particular field of utility in connection with bandages or the like having artificial cotton fillers although in nowise limited thereto. Artificial cotton has been a rival of "natural" cotton as a surgical bandage filler for many years and is produced from paper makers' wood pulp and from other fibrous material. Aside from being less expensive than "natural" cotton, artificial cotton is in many ways a more desirable bandage filler than is "natural" cotton. For instance, artificial cotton has a higher absorptive capacity than natural cotton, is just about as light, and can be more readily purified and maintained in a sterile condition. Furthermore, it is easier to handle than natural cotton as it comes in thin sheets, usually stacked into a thick pad. Thus, a bunch of sheets for a filler of desired thickness can be conveniently removed from the stack or pad and then readily cut to whatever size and shape is required.

However, since artificial cotton, and for that matter gauze or natural cotton, quickly becomes permeated by drainage or wet-bandage liquid when used as a surgical bandage filler, very frequent bandage changes are necessary to keep contact linens from being soiled—that is, unless a rubberized material outer wrapping is disposed about the outer filler-retaining gauze wrapping of the bandage. The use of an outer wrapping of rubberized material makes a bandage (especially of the "wet dressing" type) unduly heavy, and furthermore, especially in hemorrhage cases (the rubberized covering not being transparent) the surgeon or nurse has to frequently remove such rubberized material covering to determine how much hemorrhaging is going on or has taken place.

Having in mind the foregoing, one of the primary objects of my present invention is to provide a light, inexpensive waterproofed bandage, preferably although not necessarily employing artificial cotton as a filler, and which will obviate the necessity of using an outer wrapping of rubberized material or the like, the nature of the waterproofing of my bandage being such that the nurse or attending surgeon can observe the progress of the hemorrhage without disturbing the bandage.

Additionally, the invention contemplates the

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moistureproofing of a bandage by simple and novel method steps without necessitating the use of scarce materials and without requiring any special experience on the part of the bandage maker.

Still further, it is an aim of the invention to produce a transparently waterproofed bandage which will compare favorably as to flexibility with an unwaterproofed bandage, will be absolutely sterile, and will not produce in the finished bandage an objectionable odor.

Additionally, the use generally of bandages according to my invention will reduce laundry bills by protecting contact linens from drainage.

Many other advantages will be obvious or will be pointed out in the detailed description to follow dealing with certain examples of my improved bandage and method of making the same.

In accordance with the requirements of the patent statutes, I have illustrated in the accompanying drawings certain presently preferred examples of my inventive concept and method of producing the same. However, it is to be understood that the invention is susceptible of other mechanical or commercial expression within the scope of the subjoined claims.

In the drawings, wherein the same reference characters have been used to designate the same parts wherever they appear in the several views—

Fig. 1 illustrates a perspective view of a pad which may be composed of multiple or stacked plies of artificial cotton or the like and upon which has been inverted, moisture-proofing side down, the sheet A, there being illustrated a hot iron which is used to "iron" the moisture-proofing onto the top surface of the top ply of the subjacent pad;

Fig. 2 illustrates the second step in the waterproofing or moisture-proofing process, namely, the step of removing the moisture-proofing applicator sheet after the moisture-proofing composition has been "ironed" onto the top surface of the top ply of the pad;

Fig. 3 is a perspective view of a diaper cut from the pad illustrated in Figs. 1 and 2 but with the moisture-proofed ply disposed downwardly instead of upwardly as in Figs. 1 and 2; a gauze covering or envelope having been applied to the diaper as indicated; and

Fig. 4 is a cross sectional view, partly broken and drawn to enlarged scale, taken on the line 4—4 of the diaper of Fig. 3.

Referring to the drawings by reference characters and dealing first with the method of moisture-proofing a bandage or pad, the letter A in

Fig. 1 indicates a sheet of paper which is substantially non-porous. It may be the kind of glossy paper that drug stores employ for wrapping packages and which is also employed to "line" shelves. Painted onto the lower surface of the sheet of paper A is a coating of waterproofing which preferably comprises four parts wax (or paraffin) and one part mineral oil. The mineral oil serves as a vehicle for the wax and the mixture will preferably be hot when painted onto the paper A.

It should be noted here that the film of waterproofing 12 can be applied to the paper A in other ways than by painting it onto the same. For that matter, the paper A may be a long sheet and the moisture-proofing 12 may be applied thereto by rollers or the like as the sheet of paper A is passed therebetween. Or, the moisture-proofing composition could be sprayed onto the paper A.

After the moisture-proofing 12 has been painted or otherwise applied to the paper A the same is inverted, coating side 12 down, onto the pad 9 of stacked artificial cotton sheets shown in Fig. 2. Thereupon, the paper is subjected to a brisk ironing operation, preferably with a hot iron, so as to transfer the moisture-proof coating to the top surface of the top ply 11*a* of the artificial cotton sheet-provided pad. The ironing operation causes the transfer or impregnation of the moisture-proofing 12 into the top surface of the top ply 11*a* of the pad, as indicated, to seal the pores thereof. It will be understood, of course, that in lieu of "ironing," as above explained, the coated paper and pad 9 can be passed between heated rolls such as are used for "ironing" in laundries.

After a certain period of ironing, the length of which will be determined by experience, the paper A is stripped off of the pad 9 as indicated in Fig. 2. At this point it should be noted that the paper A will preferably be slightly wider or longer than the pad so that the free edge of the paper can be readily grasped by the fingers and rolled back as indicated in Fig. 2.

When the paper A has been removed, it will be found that a thin, even film of moisture-proofing 12 will have been compressed into the outer surface of the top ply 11*a* of artificial cotton and if the coating 12 is fairly thick there will be some penetration through said top ply 11*a* to the next inner ply 11 of the same. However, the thickness of the waterproofing film 12 with which the top ply 11*a* of the pad is impregnated is not so great as to prevent hemorrhage drainage to be observed from without the pad when same is formed into a bandage or other dressing and applied to a wound or the like.

Waterproofed pads or bandages in diaper form may readily be produced from an artificial cotton pad, waterproofed as above described, and such a diaper 10 is illustrated in Figs. 3 and 4. There the waterproofed pad 9 of Figs. 1 and 2 has been inverted to dispose the moisture-proofed surface 11*a*, 12 downwardly (see Fig. 4) and the pad 9 now providing the base of the diaper 10 has been incorporated in a gauze covering 13. In this instance it will be noted that there is a layer of "natural" cotton 14 disposed on top of the plies 11 of artificial cotton and that the inturned upper gauze edges 13*b* overlap the cotton 14.

In carrying out the diaper phase of the invention it will be noted that leg openings 15 have been cut in each side to provide front and rear transverse panels 10*a*, 10*b*, respectively. The rear panel 10*b* has projecting from opposite sides the tabs 16 having upwardly disposed adhesive-carrying surfaces which are preferably originally covered by gauge pieces 17.

When the diaper is applied to an infant lying on the tabbed rear panel 10*b*, the untabbed front panel 10*a* is lifted upwardly to cover the lower frontal torso portion of the infant. Then the tab coverings 17 of rear panel 10*b* are removed and the adhesive tabs 16 secured to the outer surface of the front panel 10*a* so as to maintain the diaper 10 on the infant.

Referring to the surgical bandage phase of the invention, the pad 9 of Figs. 1 and 2 may be considered to be the bandage filler and, if the pad 9 is of diaper size as indicated in the drawings, it may be cut to provide a plurality of bandage fillers, assuming that fillers are desired of comparatively small size. The cutting of the pad 9 may be accomplished either before or after the application of the waterproofing 12. The waterproofing 12 is non-tacky at room temperatures and the bandage filler pads, after having been cut from the pad 9, may be stacked one upon the other and tied up in bundles until they are used.

While I have referred herein to a pad 9 comprised of stacked sheets of artificial cotton, it is to be understood that other fibrous material may be used for the pads, including gauze which is the material most commonly used at present.

The proportion of wax in the moisture-proofing composition can be varied, and it will frequently be desirable to reduce the amount of wax relative to the oil so as to achieve greater flexibility in the bandage filler or diaper at the exterior surface of same.

As intimated earlier herein, the use of my waterproof bandage is a great time saver, as bandage changes need be made with much less frequency than otherwise. Also, the moisture-proofing of the bandage protects contact linens, sheets, pillow cases, etc., thus greatly reducing laundry volume which is always a problem in hospitals.

Having thus described my invention, what I claim is:

1. In a bandage or the like, a substantially flat, highly flexible and compressible pad comprising a stack of thin, substantially uniform, tear-resistant fibrous sheets of high moisture-absorbing capacity, the outer sheet of the outer side of the pad including a thin preformed and transparent film of flexible-when-dry, moisture-proofing composition comprising a melted wax-like material dissolved in a minor quantity of mineral oil as a vehicle, whereby to moisture-proof said outer surface of said pad while leaving the pad substantially as flexible at said surface as at other points, and admitting of blood or other drainage to be viewed therethrough.

2. A diaper comprising a substantially flat, highly flexible and compressible pad comprising a stack of thin, substantially uniform, tear-resistant fibrous sheets of high moisture-absorbing capacity, the outer sheet of the outer side of the pad including a thin film of flexible-when-dry moisture-proofing composition whereby to moisture-proof said outer surface of said pad while leaving the pad substantially as flexible at said surface as at other points, a cotton batting-like layer disposed upon the unmoisture-proofed top of said pad, a gauze outer covering for said pad and having marginal portions lapped over the cotton batting-like layer, and said gauze outer covering of one of said panels having sidewardly projecting adhesive tabs adapted for engagement

with the gauze covering of the front panel to retain the diaper in place about the lower torso of the infant.

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