

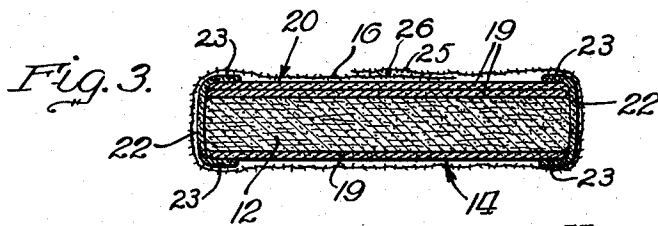
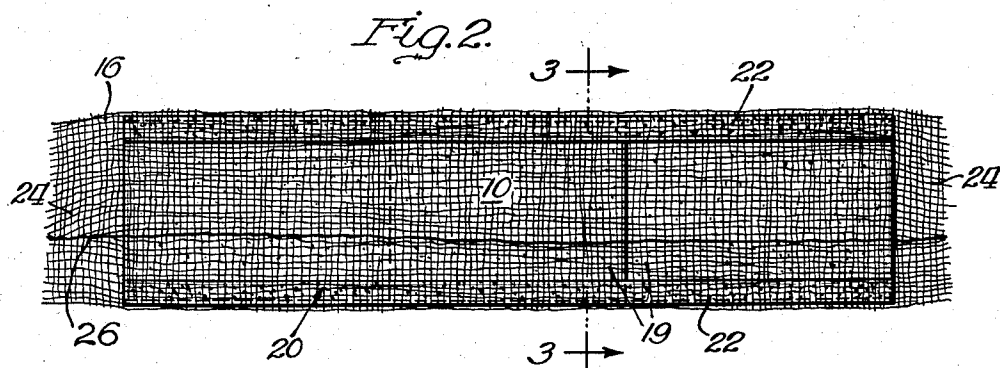
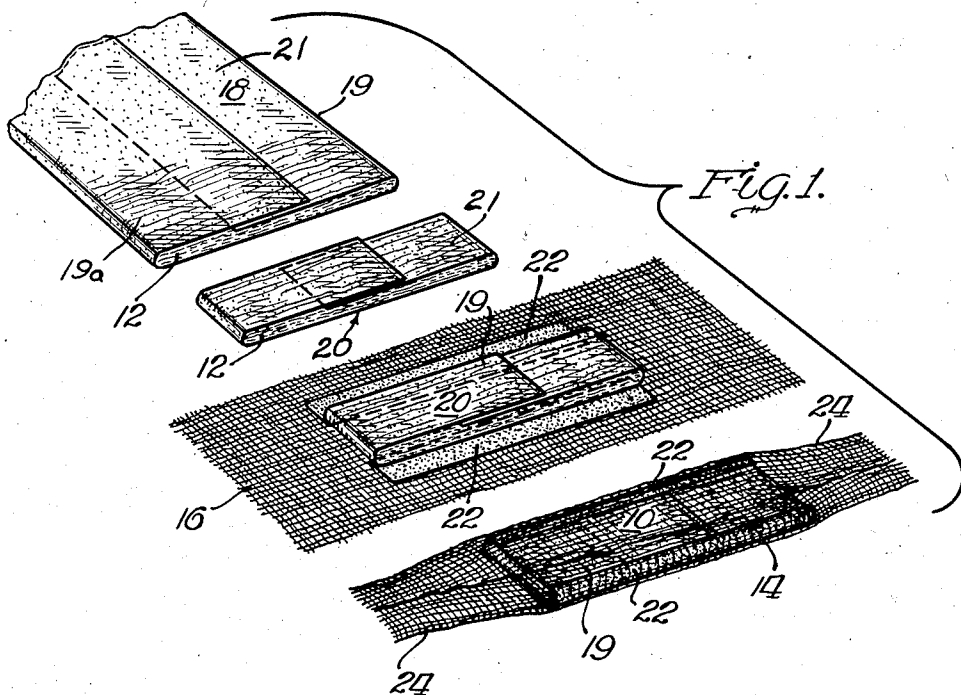
March 11, 1958

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2,826,200

ABSORBENT BANDAGE

Filed Feb. 25, 1954



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ABSORBENT BANDAGE

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Application February 25, 1954, Serial No. 412,560

6 Claims. (Cl. 128—290)

This invention relates to an absorbent bandage for surgical, maternity and similar uses and is particularly concerned with such a bandage having an absorbent pad body consisting wholly or partially of finely comminuted material. The comminuted material may comprise wood pulp fiber randomly disposed in a layer of the desired length, breadth, and thickness to provide the required area of coverage and absorption capacity. Such cellulosic fibers are often referred to as "fluff," and such fluff is well adapted to the purpose of making absorbent pads because it is relatively inexpensive and easily disposable, because it produces a pad which is soft and readily conformable to the body, and because a pad of this material has a very high fluid absorbing capacity.

The use of such fluff for making bandages of the character indicated is, however, attended with some difficulty because the fluff is very loosely integrated and usually embodies a considerable amount of very short length fibers or fines which tend to "dust" out of the fluff layer, that is to say, the fiber, especially the fines, tend to separate from the pad and to float out into the surrounding atmosphere and thence settle, or to remain on the body of the wearer of the pad. Such "dusting" occurs as an incident to handling of the material during production of the pad and as an incident to handling of such pads for packaging and other purposes and when applying the pad (as a bandage component) to a person's body, and it is quite objectionable because it makes it very difficult to maintain clean working conditions and further because "dust" may enter open wounds.

It would appear to be a very simple matter to enclose the desired layer of fluff in a pervious retentive wrapper to prevent such dust, but practical commercial considerations in reference to the production of such an enclosed fluff layer together with practical considerations relative to preserving the softness and conformability of the layer, its disposal after use, and its accessibility to fluid to be absorbed, present problems which may possibly be solved in numerous ways with varying degrees of perfection.

It is an object of the present invention to provide an improved absorbent bandage containing an absorbing medium made wholly or partially of finely comminuted material, for example, fluff, and in which "dusting" is largely prevented. Other objects of the invention are to provide a bandage of the character indicated which may easily be formed by high speed, continuously operating mechanism; to provide a method whereby such a bandage may be manufactured economically and at low cost; to provide a bandage of the character indicated which will embody the desired softness and conformability and freedom from chafing effects and which will be readily disposable after use; and other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawing, wherein:

Fig. 1 is a representation of a series of steps in the production of a bandage embodying a selected form of the invention;

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Fig. 2 is a plan view of the improved bandage; and Fig. 3 is a cross-sectional view on the line 3—3 of Fig. 2, Fig. 3 being on an enlarged scale relative to Fig. 2 and thicknesses of certain sheet material elements being exaggerated for illustrative purposes.

The embodiment of the improved bandage selected for illustration, is a hospital maternity type of sanitary napkin which is sterilized and is adaptable for use as a surgical dressing for wounds. The napkin designated 10 in its entirety, comprises an absorbent filler or body 12 of fluff material, which may be wood pulp fluff, cotton fibers, synthetic fibers, or combinations thereof, which is collected in a low density, loosely integrated layer having a high capacity for fluid absorption, a pervious envelope 14 disposed around the fluff body or filler 12, and including a pair of edge strips 22, and a gauze or other suitable wrapper 16.

The filler 12 may be all fluff material or a sandwich combination of fluff and wadding or any other suitable absorbent material. For the purpose of this invention the filler 12 must extend to the four edges of the pad so as to impart the necessary softness to the pad.

The filler 12 is preferably wrapped to form continuous length batt 18 as shown in Fig. 1. The batt 18 is made by depositing the fluff in a layer along the longitudinal intermediate portion of a sheet 19 of one or more plies of pervious material, such as cellulose wadding, more specifically, very porous and fluid permeable creped tissue paper. The sheet 19 is considerably wider than the fluff layer 12 which is deposited on the sheet, and the longitudinal marginal side portions of the creped wadding sheet are folded around the sides and over the top of said fluff layer. As shown in Fig. 1, the sheet 19 is of such width that when its side margins are folded over as above mentioned, they overlap on the top face of the fluff layer, the area of overlap being disposed more or less centrally of the width of the batt but preferably somewhat nearer to one side than to the other. The sheet 19 thus forms a longitudinally continuous jacket 21 around the fluff layer. The batt 18 is made so that its width corresponds to the required length of the absorbent pad for the bandage being made. The lines of creping in the sheet 19 extend transversely of the length of the batt as indicated at 19a, so that said lines of creping will extend lengthwise of individual filler pads cut from the end of the batt.

The batt 18 is severed transversely at successive spaced intervals to form absorbent filler pads 20 of the desired width for the individual bandages. This method of forming the individual pads 20 is readily adaptable to high speed forming operations, and results in a pad of the desired size having an open ended tubular sleeve or jacket which covers both faces and one pair of edges of the absorbent fluff component. In the specific embodiment, the jacket 21 encircles the length of the pad, so that the open ends of the jacket are at the longitudinal sides of the pad. Furthermore, the jacket 21 is applied to the filler in close relationship thereto, so as to dimension the latter and confine the filler to a predetermined area during the normal handling and use of the pad.

In order to substantially eliminate "dusting" from the pad, a pair of side strips 22 are placed along the sides of the filler pad 20. These edge strips 22 may also be made of pervious crepe tissue, they may be made of material which is formed or treated so as to be less pervious than the sleeve material, they may be made fluid resistant or repellent by sizing or other treatment, although this is not necessary, or they may be made even more pervious than the jacket 21. These strips 22 preferably extend substantially the entire length of the pad and are wide enough so that longitudinal margins of said strips

may overlap the margins of the jacket or sleeve along both faces of the pad, as shown at 23 in Fig. 3. These strips 22, which should adhere to the jacket 21, cooperate with said jacket to completely enclose the fluff layer so that "dusting" is effectively prevented. In addition, the side strips 22 serve to further dimension the filler 12 in each pad. As a practical matter, said strips 22 may terminate short of the ends of the pad, say about 1/2 inch from said ends. This will avoid a tendency, which may occur with the use of some types of filling material and for other reasons, for undesirable bulges or wrinkles to form in the end portions of said end strips incident to flattening or thinning of the ends of the fluff layer. Such flattening or thinning tends to occur as an incident to the folding of the sheet 19 around the fluff layer and perhaps from other causes. When such thinning occurs the edges of the face covering portions of the sleeve are brought so closely together at the pad ends that any opening which remains at the ends of the pad sides is but an insignificant source of fluff leakage and "dusting." When said edge strips 22 are made of creped wadding, they are so made that the lines of creping extend transversely of the pad edges, although they may be made with the crepe lengthwise of the pad.

The outer wrapper 16 is wrapped around the pad 20 and serves to hold the jacket 21 and the edge strips 22 in place around the insert 12. The wrapper is preferably longer than the pad in order to provide the usual attaching tab end portions 24, and said wrapper is folded around the pad so as to effect overlapping of margins of the wrapper, as shown at 25 (Fig. 3) on the face of the pad on which the ends of the jacket sheet 19 are lapped. Hence, the opposite face of the pad, which is the preferred body-engaging face of the bandage, has but a single thickness of jacket and wrapper material over the absorbent fluff. Hence, on this face of the pad there is a minimum obstruction to the passage of fluid into the absorbent fluff layer. However, the pad may be worn with either face next to the body with satisfactory results, the permeability of the wrapper and jacket material being such that the overlapped portions thereof do not produce an objectionable baffling effect.

The overlapped wrapper margins 25 may be suitably sealed together, for example, by means of an adhesive bearing thread 26 interposed between said margins. Such a seal is sufficient to hold the wrapper in place, but is easy to break when it is desired to open the wrapper in the course of disposing of the pad or for other purposes. The described bandage construction affords all of the advantages of a fluff filler, i. e., high absorption capacity, softness and conformability, and ready disposability, while also substantially eliminating "dusting" of the fluff fibers. Furthermore, the described construction is very simple and is capable of automatic manufacture at high production rates.

By having the lines of creping in the jacket 21 extend lengthwise of the napkin pad as aforesaid, there is provided an important fluid distributing effect, i. e., fluid applied to a face of the bandage in a localized area will tend to be distributed lengthwise of the bandage by the crepe wadding jacket 21, and thus transmitted along the length of the absorbent layer 12 for absorption thereby, instead of being more or less confined to said localized area. Hence, more of the absorption capacity of the pad will be utilized and fluid will be fairly uniformly absorbed throughout the length of the pad.

The side strips 22, even though not made of fluid repellent material, have a tendency to prevent fluid absorbed by the fluff from flowing out of the side edges of the pad, and this function may be somewhat improved by making the strips fluid repellent. However, for some purposes the addition of certain types of moisture-proofing agents is undesirable. These side strips also present soft and smooth surfaces along the edges of the pad and cover the cut edges of the jacket 21, and thereby pre-

vent chafing or irritation of the portion of the body which may be contacted by the side edges of the pad.

It is important that the side strips 22 adhere closely to the side edges of the jacket 21, to form an enclosure therewith which prevents the aforementioned "dusting" and to prevent displacement of the edge portions 22 during use of the pad. Preferably, the strips 22 are disposed in marginal overlapping relation to the edges of the jacket to further insure a close fit between the two. If desired, these two portions might be sealed together by an adhesive or the like, although such is not necessary when material such as creped wadding is used wherein the materials tend to adhere to each other without the use of an adhesive.

The enclosing of the fluff material in the described manner not only prevents "dusting" during the necessary handling in manufacturing, sterilizing, shipment, and the subsequent functional use. The "dusting" problem is particularly troublesome in hospitals where there is considerable handling of the pads, as during sterilization, with little or no means for controlling the "dust." The enclosing of the insert is also an important factor in the efficiency of the bandage and its comfort characteristics.

It is advantageous that the ends and that one of the faces of the pad be covered by single thicknesses of jacketing material, and further that the jacket 21 be formed of a continuous sheet of material with its ends overlapped on a face of the pad adjacent the longitudinal center of the pad. In this way, there are no hard or sharp, cut wadding end edges or end seams, and also, there are no open ends or end seams. Moreover, the wrapping of the jacket 21 endwise of the pad provides additional material at the ends of the pad for impeding the passage of fluids from the absorbent filler.

The disposition of the side strips 22 in the overlapping relation to the margins of the longitudinal edges of the pad on its opposite faces present a pair of laterally spaced elongated areas of crepe wadding adjacent each edge of the pad on each face thereof, which are of double thickness and, consequently, somewhat less pervious than the intermediate portion of the jacket material. Lateral flow of fluid along the surface of the pads toward its side edges is somewhat impeded by these areas of double thickness and there is less likelihood of surface fluid reaching the side edges of the pad before it is absorbed by the fluff filler.

In one satisfactory maternity pad made as described, the jacket 21 and the edge strips 22 were made of four-ply crepe tissue paper but this is not a critical detail. The extent of overlap of the ends of the sheet which forms said jacket may be greatly varied, and in some instances said overlap may be reduced or eliminated, as wherein the ends abut each other. The wrapper material was gauze but other wrapper materials, for example, non-woven fabrics and thread reinforced pervious webs, may be employed. Also, the length and width of the pad may be varied considerably from the proportions shown.

It should be understood that for surgical dressings the tab ends 24 of the wrapper 16 could be eliminated. Furthermore, if the edge strips 22 are adequately secured to the jacket 21 to insure the prevention of "dusting" or the escape of foreign particles from the pad, the wrapper 16 may be entirely eliminated from such dressings.

Although described with respect to the use of wood pulp fluff as the absorbing medium for the pad, it should be understood that such use is merely illustrative of one example, wherein it is important that finely divided particles be effectively confined within an absorbent body. Other instances of the use of comminuted material within a surgical dressing or sanitary napkin or like bandage will be readily apparent to those skilled in the art, as will be the application of the present invention. For example, it has been proposed to place discrete particles of deodorant material in the absorbent fillers of sanitary napkins. In either case, the principles of the present in-

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vention to which the appended claims are directed, can be advantageously employed in order to retain such discrete particles in the filler.

We claim:

1. A bandage comprising an elongated absorbent pad body having comminuted particles therein, a pervious sheath covering said body, said pervious sheath having a main elongated sheet portion extending lengthwise around said body and having its ends joined at a position intermediate the ends of the pad on a face thereof, and a pair of elongated strips of fluid permeable sheet material disposed lengthwise along the pad in covering relation to the side edges thereof, and a permeable wrapper encasing said sheath-covered pad body, said wrapper being folded into open ended tubular form about said pad body and being folded around said strip-covered edges of said body so as to hold said strips in place.

2. A bandage comprising an elongated absorbent pad body having comminuted particles therein, a pervious sheath covering said body, said pervious sheath having a main elongated sheet portion extending lengthwise around said body and having its ends joined at a position intermediate the ends of the pad on a face thereof, and a pair of elongated strips of fluid permeable sheet material disposed lengthwise along the pad in covering relation to the side edges thereof, a permeable wrapper encasing said sheath-covered pad body, said wrapper being folded into open ended tubular form about said pad body and being folded around said strip-covered edges of said body so as to hold said strips in place, said wrapper also being so folded as to cause marginal portions thereof to be lapped one over the other on the face of said pad on which said sheath ends are disposed.

3. A bandage comprising an elongated absorbent pad body having comminuted particles therein, a fluid pervious sheath of creped cellulosic material covering said body, said pervious sheath having a main elongated sheet portion extending lengthwise around said body and having end portions in mutually lapping relationship intermediate the ends of the pad on a face thereof with the lines of creping extending generally longitudinally of said elongated pad body, and a pair of elongated strips of fluid permeable, cellulosic sheet material disposed lengthwise along the pad in covering relation to the side edges thereof, said side strips comprising creped material having the lines of creping extending generally longitudinally of said pad body, and a permeable wrapper encasing said sheath-covered pad body.

4. A bandage comprising an elongated absorbent pad body having comminuted particles therein, a pervious sheath covering said body, said pervious sheath having a main elongated sheet portion extending lengthwise around said body to present an open-sided tubular covering and

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having its end portions in mutually lapping relationship intermediate the ends of the pad on a face thereof, and a pair of elongated strips of sheet material disposed lengthwise along the pad in covering relation to the side edges thereof, said main elongated sheet portion and said strips comprising creped cellulosic material arranged so that the crepe lines therein extend generally longitudinally of said elongated pad body, and a permeable wrapper encasing said sheath-covered pad body, said wrapper being folded into open ended tubular form about said pad body and being folded around said strip-covered edges of said body so as to hold said strips in place, said wrapper also being so folded as to cause marginal portions thereof to be lapped one over the other on the face of said pad on which said sheath end portions are overlapped.

5. A bandage comprising an elongated absorbent pad body having comminuted particles therein, a fluid pervious sheath covering said body, said fluid pervious sheath having a main elongated sheet portion extending lengthwise around said body and having its ends joined at a position intermediate the ends of the pad on a face thereof to present an open-sided tubular covering, and a pair of elongated strips of sheet material disposed lengthwise along the pad in covering relation to the open side edges thereof, said strips having margins folded over the adjacent margins of said main sheet portion on both faces of the pad, and a fluid permeable outer wrapper encasing said sheath-covered body.

6. A bandage comprising an absorbent pad body having comminuted particles therein, a fluid pervious sheathing covering said body, said pervious sheath having a main elongated sheet portion extending around said body in one direction and having its ends joined at a position on one face of the pad to thereby present an open-sided tubular covering for the pad, a pair of strips of sheet material disposed along the open side edges of the pad in covering relation thereto, and a permeable wrapper encasing said sheath-covered pad body, said wrapper being folded into open ended tubular form about said pad body and being folded around the strip-covered edges of said body so as to hold said strips in place.

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