United States Patent [19]

Keedwell

[11] **3,900,027**

[45] **Aug. 19, 1975**

[54] **PROCESS FOR PREPARING INTEGRAL ABSORBENT PAD BANDAGES AND PRODUCT**

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[52] **U.S. Cl.** **128/268;** 128/156; 128/284

[51] **Int. Cl.** **A61f 7/02;** A61l 15/00

[58] **Field of Search** ..... 128/156, 132, 268, 296, 128/155, 290 R; 156/209, 220, 219

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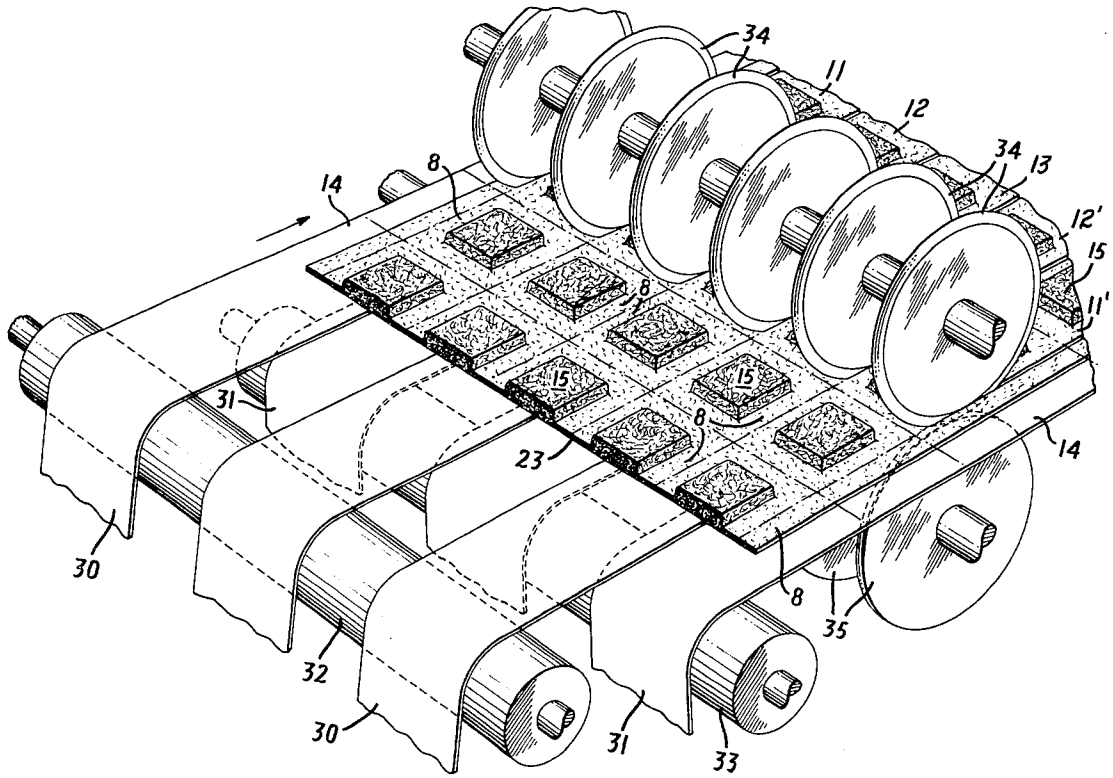
Primary Examiner—Aldrich F. Medberry

[57] **ABSTRACT**

A process is provided for making integral absorbent pad bandages from nonwoven thermoplastic fibrous sheet material, compressing the sheet in selected portions to reduce thickness and porosity and delimit an absorbent pad portion having a greater thickness. The resulting sheet material has a plurality of juxtaposed integral absorbent pad bandages, which can be cut off to obtain individual bandages.

The individual bandages are in one piece, and can have adhesive applied thereto if desired.

8 Claims, 9 Drawing Figures



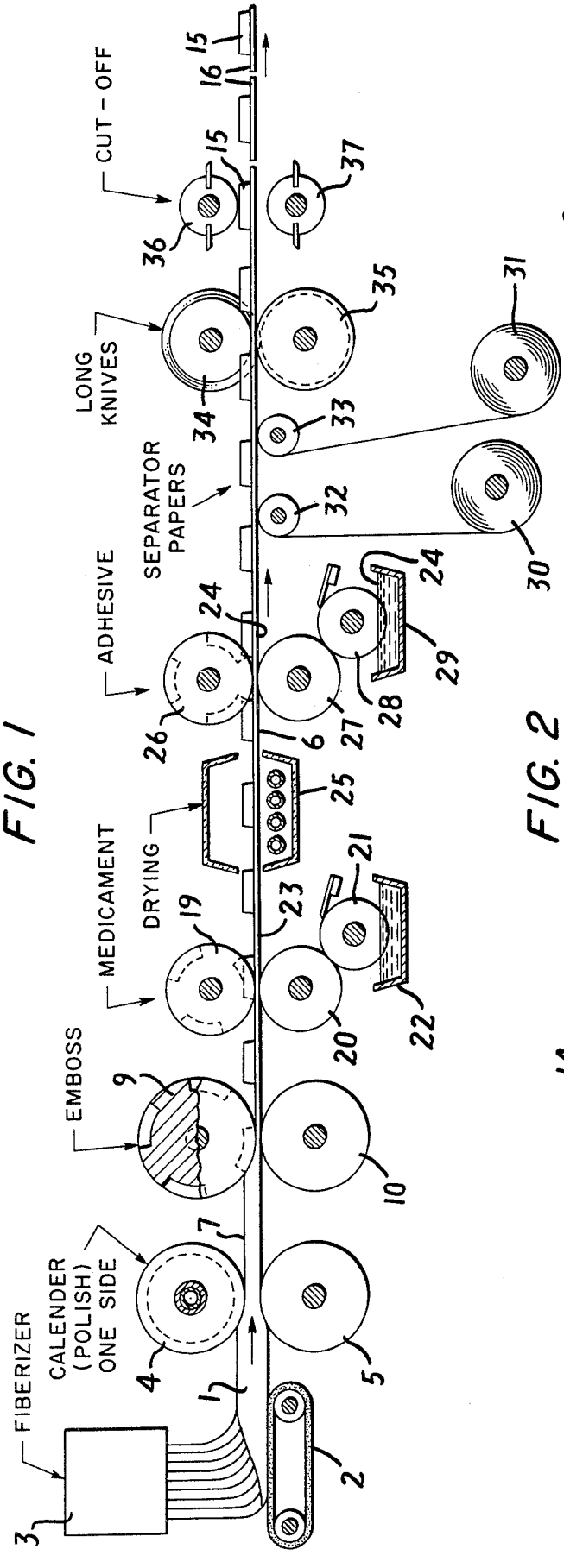

FIBERIZER
CALENDER (POLISH) ONE SIDE
EMBOSS
MEDICAMENT
DRYING
ADHESIVE
SEPARATOR PAPERS
LONG KNIVES
CUT - OFF

FIG. 1

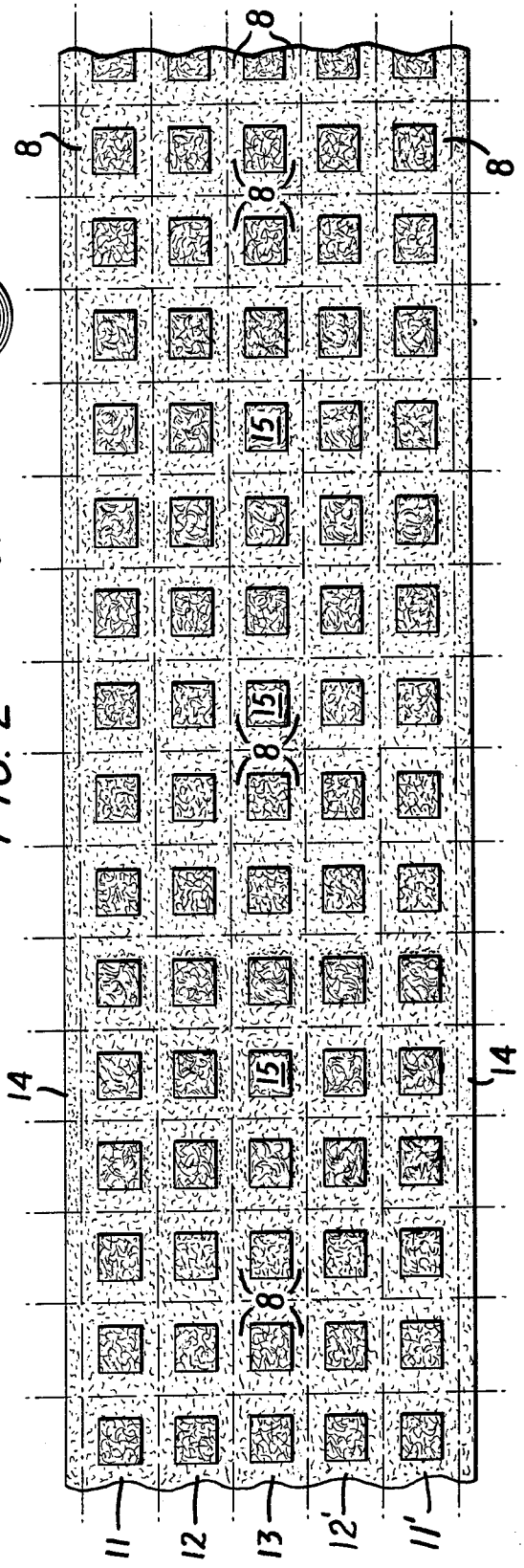


FIG. 2

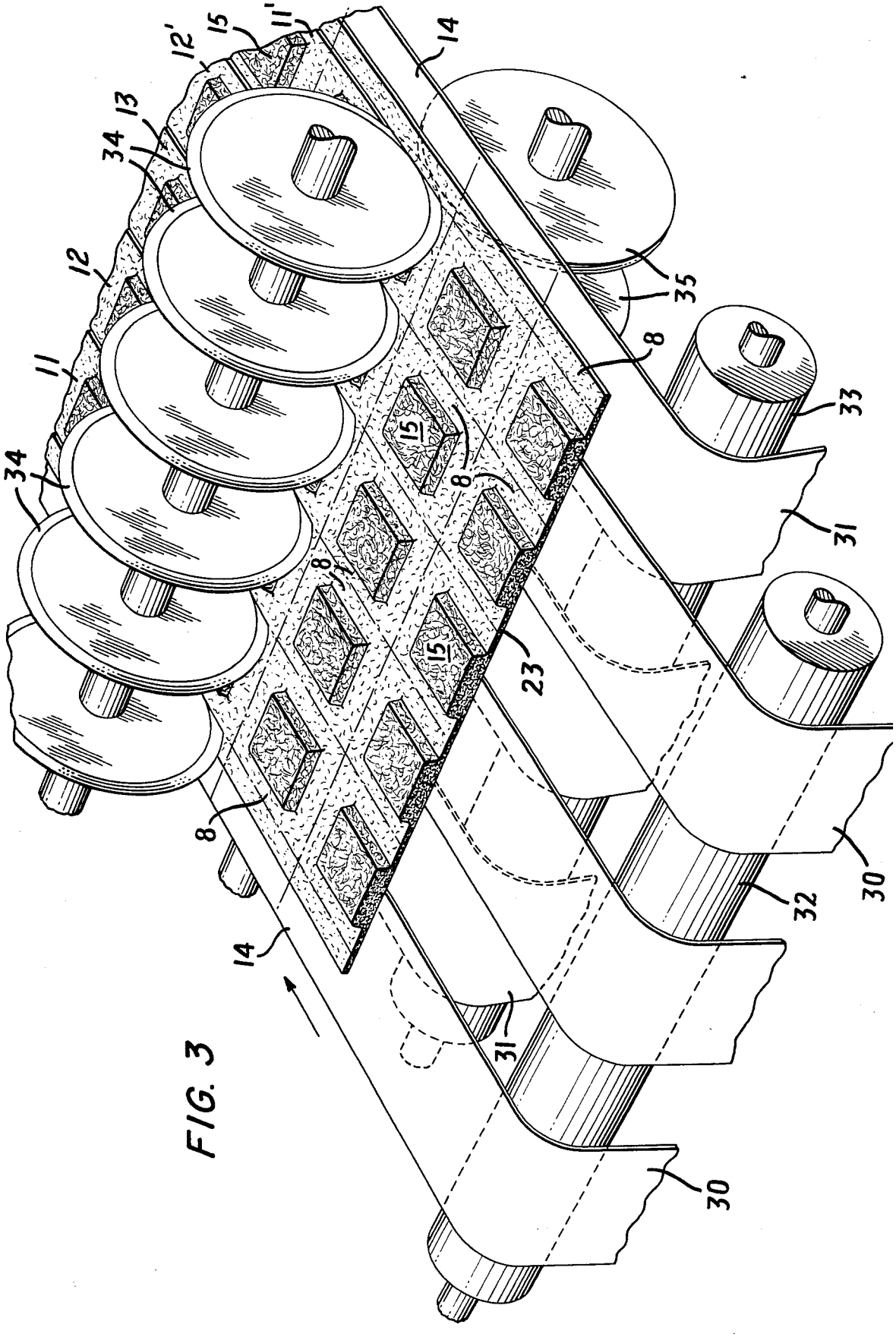


FIG. 3

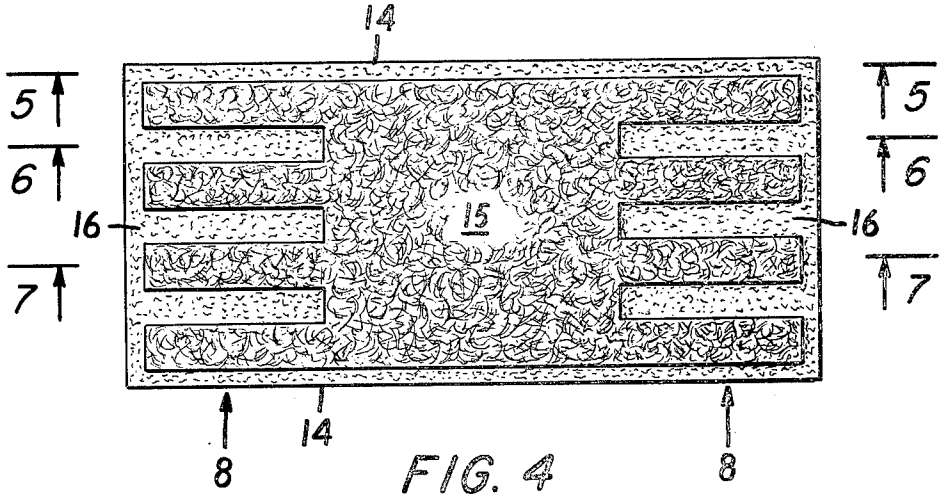


FIG. 4



FIG. 5

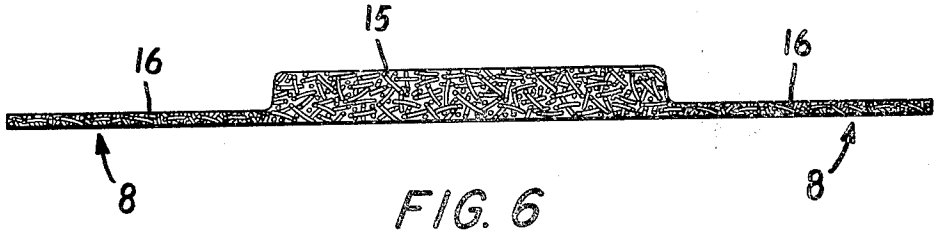


FIG. 6

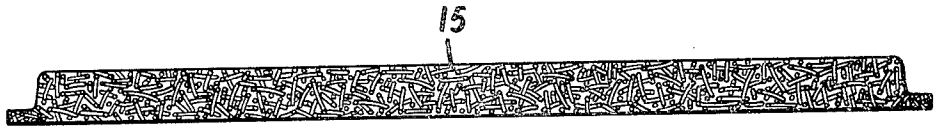


FIG. 7

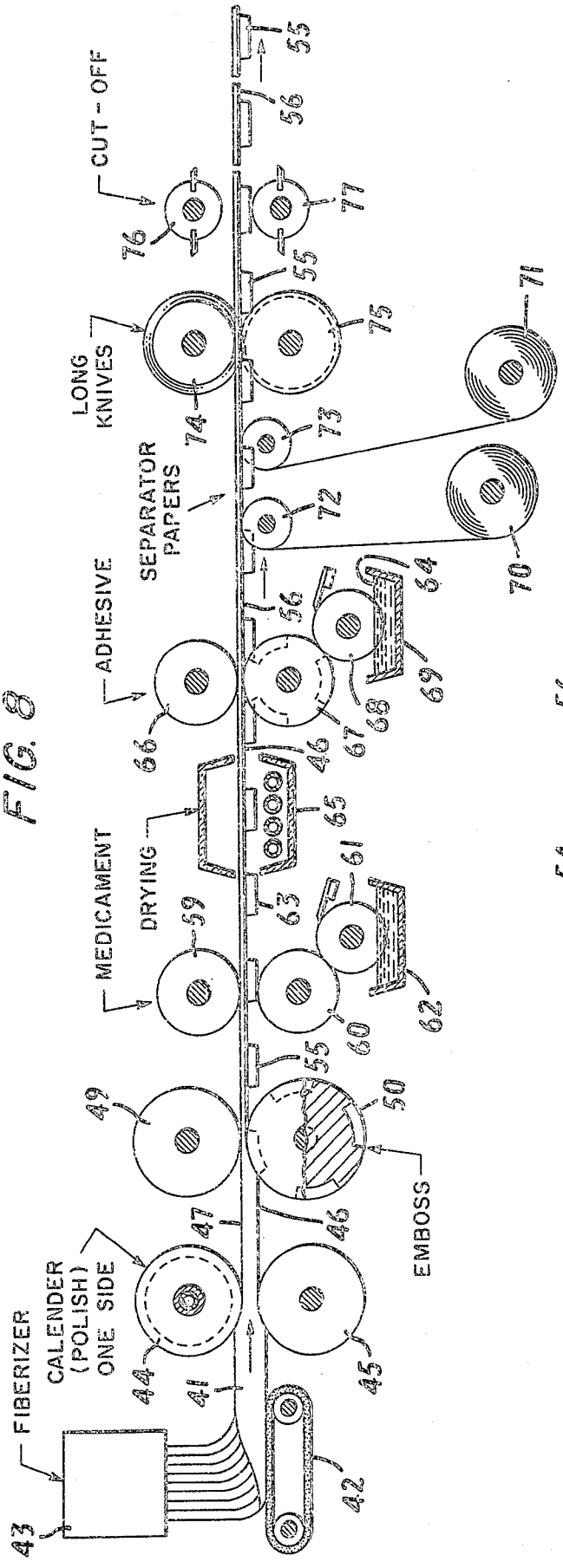

FIBERIZER
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ADHESIVE
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CUT - OFF

FIG. 8

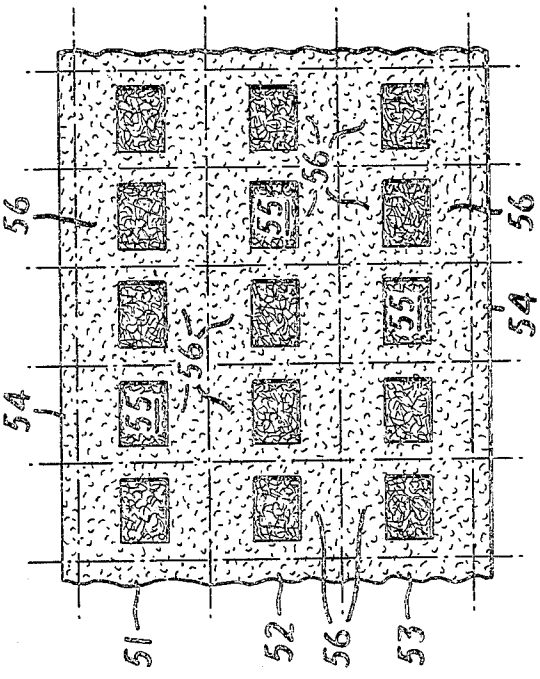


FIG. 9

PROCESS FOR PREPARING INTEGRAL ABSORBENT PAD BANDAGES AND PRODUCT

It is surprising that with the development of modern technology for manufacturing and processing nonwoven fibrous webs, no one has developed a process for manufacturing absorbent pad bandages that combine pad and bandage in one piece. The available materials are composed of gauze layers for the bandage part and fabric pads or mats attached to the bandage as a separate layer where absorbency of body fluids such as blood is required. A familiar product of this type is the Band-Aid, which has a layer of adhesive tape, a layer of gauze, and a pad, all bonded together. Such products are costly to manufacture, and require a number of assembling and bonding operations, with meticulous placement of the component parts to be bonded together, to be sure that they are in the right locations.

Lindquist et al U.S. Pat. No. 3,665,918 patented May 30, 1972 propose to prepare a bandage tape from polyurethane foam. Since polyurethane foam is inherently a rather weak material, Lindquist et al compress it throughout, to strengthen the web and make it split resistant, so as to prevent splitting of the web when it is attempted to be removed. The edge portions are compressed to a greater extent than the central portion. Strengthening resins or binders can be added to the foam to assist in improving resistance to splitting, and a backing material such as a film of polyethylene can also be applied to the resin surface, to improve strength.

Garcia U.S. Pat. No. 3,551,557 proposes a bandage made of fabric of isotactic polypropylene fibers, which have been impregnated with a disinfectant, antiseptic or bactericidal composition.

In accordance with the invention, a process is provided for preparing adhesive bandages from nonwoven thermoplastic fibrous mats. These mats if desired can be laid down from a fiberizer or fiber-spinning apparatus, forming the nonwoven mat as a preliminary step in the process. The nonwoven fibrous mat is then shaped so as to define absorbent pad portions and tab portions. This forms the bandage in one piece, and avoids having to superimpose layers of other materials and bond them together. In order to increase the strength of the nonwoven mat in the tab areas of the bandage, the mat is compressed to a lesser porosity in these portions. Surface porosity on one or both sides also can be reduced by surface fusion of the fibers.

The process of the invention accordingly comprises compressing selected portions of a strip of nonwoven thermoplastic fibrous sheet material having a porosity within the range from about 50 to about 98% to reduce thickness and porosity in a manner to define a portion of greater thickness constituting an absorbent pad delimited by compressed edge and tab portions, thereby outlining a plurality of absorbent pad bandages on the strip, adapted for separation from the strip as integral individual absorbent pad bandages.

The product of this process is an integral absorbent pad bandage comprising a nonwoven thermoplastic fibrous sheet material having compressed adhesive portions having a reduced thickness and a porosity below 50% delimiting a usually noncompressed absorbent pad portion of greater thickness having a porosity within the range from about 50 to about 98%.

Preferred embodiments of the process and product of the invention are illustrated in the drawings, in which:

FIG. 1 is a schematic representation in flow sheet form of one embodiment of the process of the invention;

FIG. 2 is a top view of a strip of narrow absorbent pad bandages obtained in the process of FIG. 1 as it appears just prior to encountering the longitudinal knives in the cutting section;

FIG. 3 is an isometric view of the strip just prior to encountering the longitudinal knives in the cutting section, showing the separator papers and longitudinal knives relative to the position of the narrow absorbent sections of the bandages;

FIG. 4 represents a top view of another embodiment of wide individual absorbent pad bandage, cut off from a strip similar to that of FIG. 2;

FIG. 5 is a longitudinal section taken along the line 5—5 of FIG. 4;

FIG. 6 is a longitudinal section taken along the line 6—6 of FIG. 4;

FIG. 7 is a longitudinal section taken along the line 7—7 of FIG. 4;

FIG. 8 is a schematic representation in flow sheet form of another embodiment of the process of the invention; and

FIG. 9 is a top view of a strip of absorbent pad bandages obtained in the process of FIG. 8.

The process of the invention is applicable to any nonwoven sheet material made of thermoplastic fibers. A nonwoven mat is a long sheet of thermoplastic fibers entangled in a random or heterogeneous mass and built up by superimposition of the fibers to the desired thickness. Such mats are normally prepared by collecting in sheet form a multiplicity of individual thermoplastic fibers emitted continuously from a fiberizer or spinning die or spinnerette with an array of orifices. A rotary spinning process can be used, but the spinnerette can also be stationary, and arranged in a battery which is held in a fixed position with respect to the surface on which the nonwoven fibers are collected in the form of a mat. The fibers and the mat may both be endless, if the fibers are emitted and laid down continuously, or the fibers may be long but discontinuous as a result of natural attenuation and breakage between the spinnerette and the collection point.

Such fibers are normally spun as a hot melt, and then attenuated to reduce diameter, and as they solidify are collected on a flat surface or on a rotating mandrel. If the fibers are slightly tacky at the time they come into contact with each other, they well be self-adherent. However, it is not necessary that the fibers in the mat be bonded together prior to application of the process of the invention, since they can be bonded together in the course of the process, by application of pressure and heat or a solvent or an adhesive or bonding agent.

The thermoplastic fibers can be made of any thermoplastic polymeric material or mixture thereof to provide differential melting points, such as polyvinyl chloride, polyamide, polyisobutylene, polymethylpentene, polypropylene, polyethylene, copolymers of ethylene and propylene, polyvinylidene chloride, polyacrylonitrile, polyesters such as ethylene glycol-terephthalic acid copolymers, copolymers of vinyl chloride and vinyl acetate and mixtures of polymers such as polymethylpentene and polyamide.

The fibers can be formed into a nonwoven sheet of any desired thickness and surface area. The thickness

of the mat determines the thickness of the absorbent pad, which can be within the range from about 0.5 mm to about 150 mm, and is preferably within the range from 1 to 25 mm.

The thickness of the mat can of course be considerably higher than 150 mm, if its thickness is reduced in the absorbent pad portion. However, although the density of the mat is not critical, the mat should have a voids volume in the absorbent pad portion within the range from about 50 to about 98%, and thus a solids content within the range from about 2 to about 50%. Thus, the mat can be as much as 300 mm thick, which even when compressed 50% gives a rather thick absorbent pad. The preferred mat thickness is within the range from 5 mm to 25 mm.

During compressing, the thickness of the mat is reduced considerably in selected areas in order to reduce porosity. The porosity can be eliminated entirely, i.e., the mat can be brought to 100% solids, in the non-absorbent pad portions. Such portions of the mat, having been reduced in effect to a film, no longer retain the character of a nonwoven web, but have the strength and other properties of a nonporous film. It is not necessary however that the porosity be eliminated entirely. It may be desirable to retain some porosity for breathing purposes. For improved strength, the voids volume in the compressed portion should be less than 50% and preferably within the range from 0 to 35%.

The porosity is reduced in the areas abutting the absorbent pad areas so as to limit the spreading of fluids absorbed in the pad portion, and confine the fluids there. Consequently, the edge portions of the adhesive bandage are normally compressed to a low porosity. The tab portions abutting the pad portion also are compressed in this way. Compression prevents fraying of the nonwoven fibrous web at the edges.

In order to further increase absorbency, particularly in the tab portions, which are used for bonding purposes, the intermediate sections between the edges can be uncompressed, either entirely or in selected block portions, such as along broad lines constituting ribs. These ribs would normally extend longitudinally, along the length of the nonwoven web, but they also can extend crosswise of the strip, depending upon how the bandage is oriented on this strip.

In the course of the compression, it is desirable to bond the fibers together, and this can be done due to the thermoplasticity of the fibers by application of heat during the application of pressure for compression. The nonwoven web should be heated to a temperature above its softening temperature, so that the fibers can be integrated and bonded together during the application of pressure. In the case of a mixture of fibers the lesser of the softening temperatures must be exceeded.

Further to limit the spreading of fluids absorbed in the pad portion, it is desirable to surface-polish the side of the nonwoven web corresponding to the outer side of the bandage so as to reduce or eliminate porosity in such surface portions. This will minimize leakage of fluids from the bandage and provide an outer surface which is more durable and dirt-repellent than the unpolished material. Some slight porosity can be left in order to permit breathing. The polishing can also be carried out with application of some heat and slight pressure, so as to soften and integrate the fibers together in the polished portion, and reduce the mat thickness slightly.

The fibers can also be bonded and integrated together by application of a solvent for the polymer of which the fibers are made, so as to soften them and make them sticky, prior to application of pressure. Solvent can be applied during surface polishing, as well as during compression of the edge portions and any ribs.

Porosity can be reduced and the fibers bonded together in selected portions by application of an adhesive or bonding agent, or by application of an impregnating composition which fills the pores and bonds the fibers together. Any conventional bonding agent or adhesive for the polymer used can be employed.

By application of pressure, together with heat and/or solvent and/or bonding agent, the nonwoven mat is brought into the shape desired for the finished bandage or dressing section. The shaped section will have a thicker, usually noncompressed, absorbent pad portion, compressed peripheral or edge portions, and a compressed strip region serving as a tab. To the pad portion, usually from the non-surface-polished side, there can be applied a medicament, such as a bactericide, ointment, antibiotic, antiseptic or like material. Adhesive can also be applied to the tab portions which are to hold the absorbent pad portion to the body. If an adhesive is used, separator papers may be applied to protect the adhesive and keep the medicated pad clean prior to application of the bandage.

It will be apparent, because of the unlimited surface area dimensions in which nonwoven fabrics are available or can be prepared, and the relatively small dimensions of most bandages or dressings, that the process of the invention makes it possible to prepare a long strip containing a plurality of absorbent pad bandages. Individual bandages can be cut off this nonwoven web. If the nonwoven sheet is wide enough, a number of rows of bandage sections extending longitudinally of the strip can be superimposed, one beside the other, during shaping of the web, and these rows can then be separated from the web in longitudinal strips, and the individual bandages cut off the strips crosswise as shown in FIG. 2.

If an endless nonwoven web is formed continuously, particularly if the nonwoven web is prepared by spinning or fiberizing continuously from thermoplastic material, the process is susceptible of continuously manufacturing endless strips of shaped and formed bandages. These strips can be rolled up, and the individual bandage sections cut off the strips when needed. The strips can also be cut up into individual bandages or small sections and packaged as such.

The operating stages of one embodiment of this continuous process are illustrated in FIG. 1. The process shown in FIG. 1 is arranged to use an endless strip of nonwoven web material 1, laid down on a conveyor 2 from a fiberizer or spinnerette 3.

The nonwoven web is stripped off the end of the conveyor and moved forward into the nip of the polishing rolls 4, 5. Roll 4 is heated and roll 5 is cold, so that the upper side 7 of the web 1 is polished and the fibers in the surface bonded together, considerably reducing the porosity in the surface layer to approximately 10% of the original porosity.

The web next passes through the nip of the embossing rolls 9, 10 where upper surface 7 of the web is shaped. As best seen in FIG. 2, the upper surface 7 of the web is embossed by the rolls 9, 10 so as to define five continuous longitudinal parallel strips 11, 12, 13,

12', 11', side by side, of adhesive bandages juxtaposed side by side, crosswise along the strips. At this point the web has the appearance of the cross-section shown in FIG. 3, but each bandage may also have the more complex embossing shown in FIGS. 4, 5, 6 and 7. At the edge portions 14, the web is compressed virtually to 100% solids. The central portions 15 are uncompressed or slightly compressed, thus constituting an absorbent pad portion. The tab portions 8 may be flat as shown, or have embossed ribs 16 as in FIGS. 4 to 7, in which rib portions the web is compressed to the same thickness as the edge portions 14. The remainder of the nonwoven web is not compressed, having the same thickness as the absorbent pad 15, as seen in FIGS. 6 and 7.

Each individual bandage on the strip is now completely formed. At this stage, a medicament can be applied to the pad portion 15, using the roll applicators 19, 20, 21, feeding medicament from the reservoir 22 to the underside of the nonwoven web 23. The medicament solution is then dried as the web passes through the oven 25, depositing the medicament in the absorbent portions of the bandage or dressing.

Adhesive 24 then is applied to the compressed tab portions 8, using the adhesive applicator rolls 26, 27, 28, drawing adhesive from the reservoir 29. The adhesive is applied also to the underside 6 of the nonwoven web.

To protect the adhesive prior to use of the bandage, separator papers 30, 31 are applied in overlapping manner (see FIG. 3) from roll storage using pressure rollers 32, 33. These apply the paper to the coated tab sections 8, and the adhesive 24 holds the paper to the underside 6 of the web. However, the paper is only temporarily adherent to the adhesive, and can readily be removed, leaving the adhesive in place on the web, at the time the bandage or dressing is to be applied to the skin.

The web then passes through the longitudinal knife cutters 34, 35, which cut the strip longitudinally into five narrower strips, each constituting a long endless strip of individual adhesive bandages laid side by side. These long strips can be rolled up, and the adhesive bandage sections cut off when needed one by one.

Alternatively, as shown, the sections can be cut by the cross knives 36, 37 and the resulting sections can then be packaged in stacks or in any desired manner. The finished product has the appearance shown in FIG. 3 or FIGS. 4 to 7, and is ready for use.

The operating stages of another embodiment of this continuous process are illustrated in FIG. 8. The process shown in FIG. 8 is arranged to use an endless strip of nonwoven web material 41, laid down on a conveyor 42 from a fiberizer or spinnerette 43.

The nonwoven web is stripped off the end of the conveyor and moved forward into the nip of the polishing rolls 44, 45. Roll 44 is heated and roll 45 is cold, so that the upper side 47 of the web 41 is polished and the fibers in the surface bonded together, considerably reducing the porosity in the surface layer to approximately 10% of the original porosity.

The web next passes through the nip of the embossing rolls 9, 10 where lower surface 46 of the web is shaped. As best seen in FIG. 2, the lower surface 46 of the web is embossed by the embossing rolls 49, 50 so as to define three continuous parallel strips, side by side, of adhesive bandages 51, 52, 53, juxtaposed side by side, crosswise, along the strip. At the edge portions 54, the web is compressed virtually to 100% solids. The downwardly extending central portions 55 are uncompressed or slightly compressed, thus constituting an absorbent pad portion. The tab portions 56 are flat, and the web is compressed to the same thickness in the tab portions as in the edge portions 54. The remainder of the nonwoven web is not compressed, having the same thickness as the absorbent pad 55.

Each individual bandage on the strip is now completely formed. At this stage, a medicament can be applied to the pad portions 55, using the roll applicators 59, 60, 61, feeding medicament from the reservoir 62 to the pads 55 on the underside of the nonwoven web 63. The medicament solution is then dried as the web passes through the oven 65, depositing the medicament in the absorbent pad portions 55 of the bandage or dressing.

Adhesive 64 then is applied only to the compressed tab portions 56, using the embossed or engraved adhesive applicator rolls 66, 67, 68, drawing adhesive from the reseroir 69. The adhesive is applied also to the underside 46 of the nonwoven web.

To protect the adhesive prior to use of the bandage, separator papers 70, 71 are applied in overlapping manner (see FIG. 3) from roll storage using pressure rollers 72, 73. These apply the paper to the adhesive-coated tab sections 56, and the adhesive 64 holds the paper to the underside 46 of the web. However, the paper is only temporarily adherent to the adhesive, and can readily be removed, leaving the adhesive in place on the web, at the time the bandage or dressing is to be applied to the skin.

The web then passes through the longitudinal knife cutters 74, 75, which cut the strip longitudinally into three narrower strips, each constituting a long endless strip of individual adhesive bandages laid end to end. These long strips can be rolled up, and the adhesive bandage sections cut off when needed one by one.

Alternatively, as shown, the sections can be cut by the cross knives 76, 77 and the resulting sections can then be packaged in stacks or in any desired manner. The finished product has the appearance shown in dashed lines in FIG. 9, and is ready for use.

The following Examples in the opinion of the inventor represent preferred embodiments of the invention.

EXAMPLE 1

Using the process shown in FIG. 1, adhesive-coated absorbent pad bandages 15, 16 were prepared of polypropylene fibers. The polypropylene mat used as a nonwoven starting material has a thickness of 16 mm, was 30 inches wide, and had a voids volume of 95%.

The web was first surface-polished in the calendar rolls 4, 5 at a temperature just high enough to soften the surface of the polypropylene mat on the upper side, and bond the fibers together, reducing the thickness to 5 mm, the average porosity to 85% voids, and the local porosity on the polished side to 10% voids. The mat then went through the embossing rollers 9, 10, where it acquired a pattern corresponding to 10 long rows of absorbent pad bandages arranged side by side in rows. The thickness was reduced from 5 mm to 0.75 mm in the compressed portions 14, 16, and the porosity was virtually zero.

In this case, a medicament was not applied, but a pressure-sensitive tacky adhesive was applied to the compressed tab areas 8 using the applicators 26, 27,

28. Separator papers were applied, in this case, waxed paper, and the polypropylene strip then cut into 10 3-inch wide parallel sections, using the longitudinal knives. Five of these strips were rolled up. The other five were cut up by crosswise cuts into 1-inch wide individual bandages, 3 inches long, using the cutoff knives, and the resulting bandage strips stacked and packaged.

EXAMPLE 2

Using the process shown in FIG. **1,** a nonwoven mat of polymethylpentene (TPX) fibers, 12 inches wide, was surface-polished and shaped into an endless bandage strip composed of five 2-inch wide strips of absorbent pad bandages, each 4 inches long, and laid end to end. The polymethylpentene fiber mat was 15 mm in thickness. The thickness was reduced in the compressed portions **14, 16** to 0.133 mm, at which thickness the mat was reduced to a nonporous film.

In this case, the absorbent pad portion **15** was impregnated with an antibiotic, terramycin.

At the conclusion of the process, the mat was cut into five longitudinal strips, and these were rolled up, for dispensing of the bandages in tape dispensers, from which the bandages could be cut off one by one, as required, and applied to the skin merely by removing the protective papers from the pressure-sensitive adhesive portions.

The porosity of the polymethylpentene fiber mat at the beginning of the processing was 85%. The compression reduced the porosity in the compressed portions to zero, but the porosity in the absorbent pad portion was retained, because this portion was not compressed.

EXAMPLE 3

Using the process shown in FIG. **8,** a nonwoven mat of polymethylpentene (TPX) fibers, 12 inches wide, was surface-polished and shaped into an endless bandage strip composed of three 1-inch wide strips of absorbent pad bandages, each 4 inches long, and laid side to side. The polymethylpentene fiber mat was 15 mm in thickness. The thickness was reduced in the compressed portions **54, 56** to 0.133 mm, at which thickness the mat was reduced to a nonporous film.

In this case, the absorbent pad portion **55** was impregnated with an antibiotic, terramycin.

At the conclusion of the process, the mat was cut into three longitudinal strips, and tear lines imposed crosswise along demarcation lines of the bandages. The strips were rolled up, for dispensing of the bandages in tape dispensers, from which the bandages could be torn off one by one, as required, and applied to the skin merely by removing the protective papers from the pressure-sensitive adhesive portions.

The porosity of the polymethylpentene fiber mat at the beginning of the processing was 85%. The compression reduced the porosity in the compressed portions to zero, but the porosity in the absorbent pad portion was retained, because this portion was not compressed.

EXAMPLE 4

Using a flat bed platen press, adhesive-coated absorbent pad bandages were prepared of polypropylene fibers. The polypropylene mat used as a nonwoven starting material has a thickness of 16 mm, was 30 inches wide, and had a voids volume of 95%.

The web was first surface-polished at a temperature just high enough to soften the surface of the polypropylene mat on the upper side, and bond the fibers together, reducing the thickness to 5 mm, the average porosity to 85% voids, and the local porosity on the polished side to 10% voids. The mat then was pressed in the press into a pattern corresponding to 10 rows of absorbent pad bandages, each having bandages laid end to end in the rows, with uncompressed pad portions upstanding. The thickness was reduced from 5 mm to 0.75 mm in the compressed tab portions, so that the porosity there was virtually zero.

Adhesive was then applied in a flat-bed printing press to the compressed tab portions only, and protective paper applied in overlapping manner to the adhesive surface. The individual bandages were then cut out, and packaged.

It will be apparent that the process of the invention is capable of producing individual absorbent pad bandages having any desired length and width including round, oval and various contours in addition to rectangular. If the individual bandages are oriented on the nonwoven mat so as to extend longitudinally of the mat there is in fact no restriction on the length of the individual bandages, and the only restriction on width is the width of the mat. If the individual bandages are oriented crosswise of the strip, the limit on length is the width of the mat, but there is no limit on width, in this event.

For greater efficiency and better utilization of the equipment, if the individual bandages are relatively short and narrow so that they can be oriented either lengthwise or crosswise, they are so oriented on the strip as to utilize the available surface area of the mat with a minimum waste of material. In general, it is easier to achieve this if the individual bandages are oriented end-to-end along the strip, with their greatest dimension longitudinally of the strip, rather than crosswise, and side-to-side, although this makes for difficulty in applying overlapping separator papers.

The nonwoven web can be shaped using any conventional technique. A continuous shaping can be achieved by using embossing or engraving rollers, as shown in FIGS. **1** and **8,** since there are capable of processing the web continuously, and compressing selected areas in any predetermined pattern. However, it will be appreciated that embossed or engraved rollers impose design limitations in that a repeating pattern cannot exceed the circumference of the roller. If the pattern is longer than this, it may be more practical to impose the desired shape on the web by a flatbed press, halting the advance of the nonwoven strip during each pressing operation. Other variations will be apparent to those skilled in this art.

The temperature and pressure applied to compress the selected portions of the web are in no way critical, and will depend upon the nature of the web, and its thickness. If engraved or embossed rollers are used, it will be apparent that the degree of compression is determined by the spacing of the rollers and not by the pressure applied, since the rollers would be spaced apart a sufficient distance to give a compressed portion of the desired final thickness from the starting web. The pressure applied would then be sufficient to achieve this, whatever that may be.

The temperature during compression is normally sufficient to soften the thermoplastic material of which the web is composed sufficiently to cause the individual fibers to adhere to one another, and be integrated to-

gether throughout the compressed area. In lieu of heat, a solvent can be used, as indicated, or an adhesive or bonding agent or impregnating agent can be applied, during, prior to, or after the compression.

While the Examples and drawings illustrate the preparation of absorbent pad bandages in which the absorbent portion is in one section, bandages in which the absorbent pad portion is subdivided into smaller areas can also be prepared, for special purposes and applications.

Having regard to the foregoing disclosure, the following is claimed as the inventive and patentable embodiments thereof:

1. An integral absorbent pad bandage that is all in one piece of shaped nonwoven monolayer thermoplastic fibrous sheet material, comprising a nonwoven thermoplastic fibrous sheet material the fibers of which are self bonded together to define a unitary sheet of fibrous material formed into compressed edge and tab portions having a reduced thickness and porosity below 50% delimiting an absorbent pad portion of greater thickness having a porosity within the range from about 50 to about 98%.

2. An integral absorbent pad bandage in accordance with claim **1** having an adhesive on the tab portions.

3. An integral absorbent pad bandage according to claim **1** having a medicament on the absorbent pad portions.

4. A long strip of nonwoven fibrous sheet material having formed thereon and integral therewith a plurality of absorbent pad bandages in accordance with claim **1.**

5. A long strip of nonwoven thermoplastic fibrous sheet material in accordance with claim **4** in which the bandages are juxtaposed along rows extending lengthwise of the strip for separation individually as well as in rows.

6. An absorbent pad bandage in accordance with claim **1** in which the thermoplastic fibrous sheet material comprises a polyolefin.

7. An absorbent pad bandage in accordance with claim **6** in which the polyolefin is polypropylene.

8. An absorbent pad, bandage or dressing in accordance with claim **6** in which the polyolefin is polymethylpentene.

* * * * *