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W. M. SCHOLL

3,062,210

MEDICATED PAD OR BANDAGE AND METHOD OF MAKING THE SAME

Filed Aug. 21, 1958

2 Sheets-Sheet 1

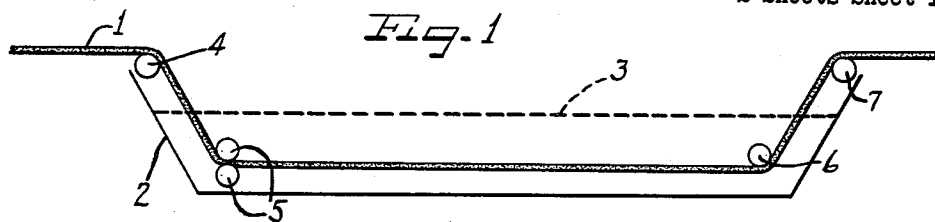


Fig. 2

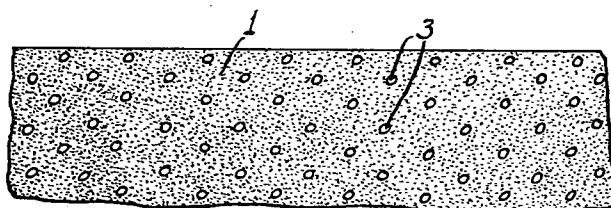


Fig. 3

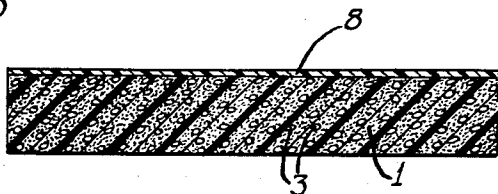


Fig. 4

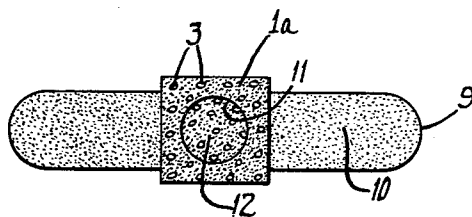
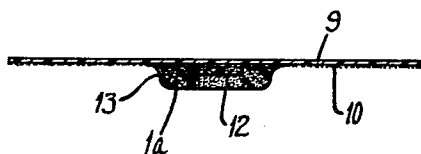


Fig. 5



Inventor

William M. Scholl

By Hill, Sherman, Mann, Kass & Singh Attys

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W. M. SCHOLL

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Fig. 6

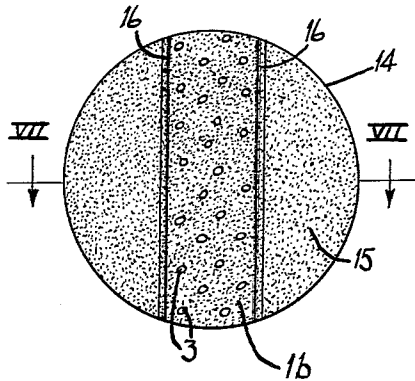


Fig. 7

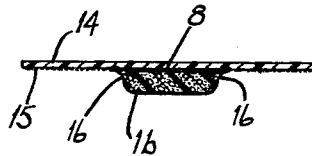


Fig. 8

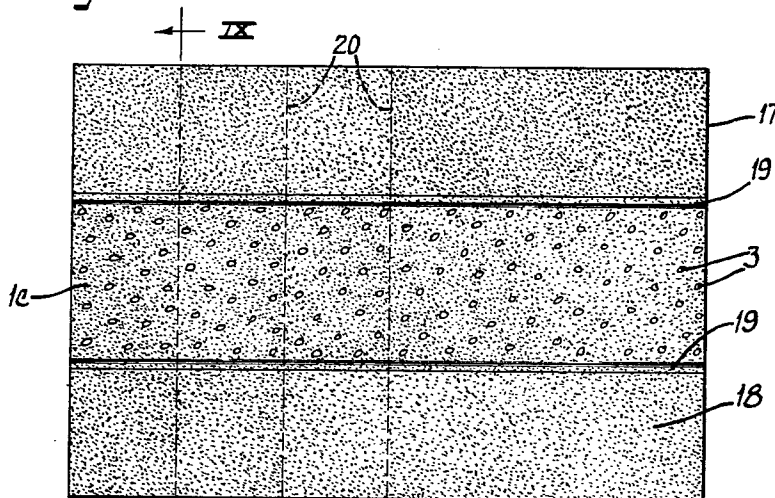
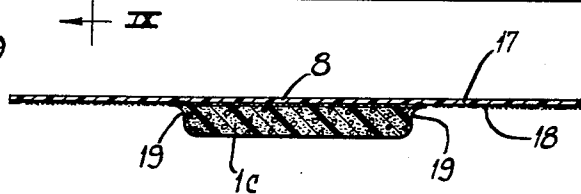


Fig. 9



Inventor

William M. Scholl

by Lee, Sherman, Muns, Greenleaf, Attys

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MEDICATED PAD OR BANDAGE AND METHOD OF MAKING THE SAME

William M. Scholl, 211-213 W. Schiller St., Chicago, Ill.

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7 Claims. (Cl. 128-156)

This invention relates to improvements in a medicated pad or bandage and to a method of making the same, the invention being directed more particularly to a pad or bandage highly desirable for the treatment of corns, callouses, and like afflictions, although the device may also be made in the form of a finger bandage for minor cuts and abrasions, all as will be apparent to one skilled in the art.

With certain types of afflictions, such as corns, callouses, warts, and the like of which it is desired to effect complete removal, treatment has often been indicated in the past by way of the application of a medicament for a period of a time directly to the affliction, such medicament being of a character as to cause deterioration or loosening of the affliction so that it gradually disappears or is subject to removal. In other instances, the application of medicament to cuts, abrasions, and like minor injuries has also been indicated. In the past, many and various types of corn and callous pads, plasters, and bandages have been developed, wherein the cushioning or pad portion of the plaster or bandage was either treated with a medicament or else a medicated disc could be attached or inserted in a cavity in the plaster or bandage. In many cases, however, with devices of this character heretofore developed it was sometimes difficult to apply the medicament directly to the affliction, and perhaps of more importance it was extremely difficult to control the amount of medication used in any particular application.

In other instances, difficulty was experienced in maintaining medication in a plaster or bandage over a period of time against loss by evaporation, wetting, or for some other reason, so that application of the desired and indicated amount was in most cases unknown or impossible. In other instances, these formerly known devices did not provide adequate cushioning or relieving of pressure from apparel of the affliction, while at the same time applying medicament to the affliction.

With the foregoing in mind, it is an important object of the instant invention to provide a medicated device for attachment to the human body over an affliction, which comprises a cushioning body part containing a medicament for direct application to the affliction, the medicament being so associated with the body part of the device as to enable substantial predetermining of the amount of medicament.

Another object of the instant invention is the provision of a medicated device for attachment to the human body over an affliction, which device not only alleviates pressure of wearing apparel from the affliction by transferring the pressure to healthy tissue around the affliction, but also directly applies a medicament to the affliction.

Also a feature of this invention is the provision of a medicated plaster or bandage embodying a body part of foam material impregnated with a congealed medicament.

Still another object of the instant invention is the provision of a medicated plaster or bandage embodying a body part impregnated with congealed medicament and which is so constructed as to prevent the loss of medicament or the soiling of apparel by escaping medicament in a direction other than towards the affliction.

Still another object of the instant invention resides in

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the provision of a new and novel method of making a medicated plaster or bandage.

Also a feature of the instant invention is the provision of a method of making a medicated pad, plaster, or bandage, in which a cushioning foam member is caused to absorb a melted medicament, and so become fully impregnated therewith, after which the medicament is permitted to stiffen or congeal inside the cushioning member whereupon it can be retained indefinitely and full control established over the amount of medicament reaching an affliction with each application of the device.

While some of the more salient features, characteristics and advantages of the instant invention have been above pointed out, others will become apparent from the following disclosures, taken in conjunction with the accompanying drawings, in which

FIG. 1 is a diagrammatic illustration showing in general the important steps in my novel method of providing a medicated element for attachment to the body;

FIG. 2 is a greatly enlarged fragmentary face view of the material making the element following the procedure indicated in FIG. 1;

FIG. 3 is a greatly enlarged fragmentary vertical sectional view through the structure of FIG. 2, indicating a further step in the method;

FIG. 4 is a bottom plan view of a completed plaster or bandage embodying improvements of the instant invention;

FIG. 5 is a transverse vertical sectional view through the structure of FIG. 4, showing the same in upright position;

FIG. 6 is an enlarged bottom plan view of another form of plaster or bandage embodying principles of the instant invention;

FIG. 7 is a transverse vertical sectional view through the structure of FIG. 6, taken substantially as indicated by the lines VII-VII of FIG. 6, looking in the direction of the arrows;

FIG. 8 is a bottom plan view of a strip of composite materials indicating the procedure utilized in the making of finger bandages and the like involving principles of the instant invention; and

FIG. 9 is a transverse vertical sectional view taken substantially as indicated by the line IX-IX of FIG. 8, showing the structure in upright position.

As shown on the drawings:

The instant invention may have a number of resultant shapes and sizes, depending upon the various afflictions for which the structure is made. To this end, in FIGS. 4 and 5 I have illustrated a structure highly suitable for the treatment of corns or callouses wherein it is desired to place the bandage around a digit, although the same structure might be utilized to treat warts on the hand or the like. In FIGS. 6 and 7, I have illustrated a circular plaster embodying principles of the instant invention which may be utilized for corns, callouses, warts, and other such afflictions, and attached to substantially any portion of the human body.

In FIGS. 8 and 9, I have illustrated the instant invention in the form of what is commonly termed a finger bandage or the like. These various embodiments of the invention are not by way of limitation, but merely by way of example to indicate that the resultant medicated device may be made in substantially any size and shape desired.

Each form of the invention preferably includes a body or pad part of foam material, and preferably the foam material is a thermoplastic foam, polyvinyl chloride foam being highly satisfactory, which foam has intercommunicating cells therethrough, provides a high cushioning effect in that the material is highly resilient and

has great shock absorbing power, as well as being extremely light in weight. Such material might also be heat sealed to join the same to a thermoplastic backing member, such as a polyvinyl chloride unsupported film or a cellulose acetate film, etc. It is not essential that the instant invention have a thermoplastic film as a backing member or a cover for the body or pad part of the device, but in some instances such may be preferable. Where an impervious cover is desired, such might also be made of fabric with a pyroxylin coating, or any other moisture-impervious material that is found suitable.

In making the pad or body part of the device, it should be noted that while the individual piece going to make up such body part or device and cut to size might be utilized individually, it is far more economical in manufacture to utilize a sheet of foam material of indefinite size, such sheet being designated by numeral 1 in FIG. 1. Preferably a suitable container 2 which may be in the form of a flat tank is filled to a predetermined level with melted medicament as indicated by the dotted line 3 in FIG. 1. For corns, callouses and the like, the medicament may be an amount of salicylic acid carried by a suitable vehicle, and for other afflictions the medicament may be what is usually indicated for the treatment of the particular affliction, all as is apparent to one skilled in the art. Preferably the bath of medicament is maintained at sufficiently an elevated temperature to keep the medicament in a liquid state, or melted. As viewed in FIG. 1, the sheet 1 of foam material is moved from left to right by an suitable mechanism. As the sheet enters the tank, it passes over a guide roll 4, then between a pair of squeeze rollers 5 which materially compress the sheet. Near the opposite end of the tank is a guide roll 6 and at the top another guide roll 7, by which the impregnated sheet is moved. When the sheet is compressed by the rollers 5, it is immediately allowed to expand while immersed in the melted medicament, thereby absorbing a quantity of the medicament in itself by virtue of the inter-communicating cells in the foam material. This medicament remains in the sheet, and after the sheet leaves the bath of medicament it is either subjected to definite chilling or permitted to cool to room temperature, whereupon the medicament contained in the sheet sets, stiffens, or congeals to such an extent that it will remain in a solid or semi-solid condition within the sheet.

After the sheet 1 leaves the bath and is subjected to cooling, the medicament 3 is congealed within the sheet and is substantially uniformly distributed throughout the sheet, as indicated diagrammatically at 3 in FIG. 2, although it will be appreciated that such impregnation cannot adequately be illustrated in the drawings, and there will be a much more uniform content of medicament within the sheet than is exemplified in the disclosure.

In certain instances, it may be desirable to utilize the medicated sheet or a piece thereof as is, and attach it to the body of a user over an affliction by any suitable means. It is preferable, of course, to take some steps to prevent exudation of the medicament away from the affliction where it may soil articles of apparel, and to this end I have illustrated in FIG. 3 the application of a thin impervious cover 8 over the sheet. The cover, as stated above, may be of any suitable material such as a waterproofed fabric, or a thermoplastic film and may be secured to the sheet in any suitable manner such as by a cementitious material.

After the impregnation of the sheet 1, and with or without the application of the cover 8, the sheet may be severed by suitable die means to provide pad or body portions for various types of plasters or bandages of the desired sizes and shapes.

In FIGS. 4 and 5, I have illustrated a form of corn plaster or small bandage designed to encircle a digit and cushion the particular affliction as well as medicate the same. In this instance, the structure consists of an elongated backing sheet 9 having a pressure-sensitive adhesive

under surface 10 thereon. A severed block of the sheet 1, designated 1a, is attached to the backing strip in an intermediate location, and in this instance the pad or body part 1a is provided with a central recess or aperture 11. Within that aperture a piece of foam material 12 in the form of a disc, thinner than the pad or body 1a but treated the same way, is disposed and it may be held in position by side wall friction or by the adhesive under surface of the backing sheet. The use of this thinner disc of material is to provide ample room for the reception of the affliction within the body part 1a. A preferred way of assembling the structure shown in FIGS. 4 and 5 is not to rely upon the adhesive under surface of the backing strip to retain the pad or body part 1a, but to heat seal the body part to a backing strip of thermoplastic film, as indicated at 13 in FIG. 5. The heat seal seam is preferably such that it will cause a curvate margin on the body part or pad 1a, thereby rendering it better fitting when the device is applied to a digit, and the extended portions of the backing strip wound around that digit to secure the pad in place over the affliction.

In FIGS. 6 and 7 I have shown a form of structure in the nature of a corn, callous, or wart plaster. In this instance, a thin backing strip 14 is utilized which is of substantially circular configuration and which may be supplied with an adhesive under surface extending entirely over the under face of the backing sheet, or on that under face with the exception of a diametral strip. A piece of impregnated cushioning material 1b is mounted on the backing member 14 and extends diametrically thereacross, as seen best in FIG. 6, leaving adhesive faced side portions of the backing disc exposed for contact with the skin of the user. In the event the backing member has adhesive entirely over its under surface and is not of a thermoplastic film, the pad or body portion 1b may be attached thereto by the adhesive under surface. When the backing strip or sheet is of thermoplastic film, it is preferable to attach the pad or body part 1b by way of heat seal seams 16—16 on each side of the pad.

In FIGS. 8 and 9, I have illustrated how the present invention may be incorporated in bandages of the type commonly referred to as finger bandages. In this instance a backing sheet 17 of indefinite size may be provided with an adhesive under surface 18. An elongated strip 1c severed from the aforesaid impregnated sheet 1 may be disposed substantially centrally of the backing sheet 17 and secured thereto either by the adhesive under surface, or in the event that backing strip is of thermoplastic film, the cushion element 1c may be secured thereto by opposed heat seal seams 19—19. Finger bandages may then be severed from the structure along lines 20 as shown in FIG. 8. Such assembly, without the impregnation of medicament as set forth in this application, is more fully set forth in claimed in my copending application entitled, "Finger Bandage and Method of Making the Same," filed September 6, 1957, Serial No. 682,554, now Patent No. 3,025,854.

Obviously, the method set forth herein results in the production of a plaster or bandage having a shock-absorbing pad or body portion impregnated with and containing a known quantity of medicament which will be preserved indefinitely. Consequently, it is a simple expedient to apply the plaster or bandage with the pad or body part disposed over an affliction, and the medicament will be directly applied thereto, and complete control may be exercised over the amount and duration of the application of medicament. Equally as obviously, the plaster or bandage herein set forth may be extremely economically manufactured, the cost of manufacture being even less than was necessitated heretofore where separate medicated tabs had to be used with various types of corn and callous pads and plasters. At the same time, by this invention a medicated bandage of the so-called finger bandage type may be provided with a definite and known

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quantity of medicament as distinguished from the practice heretofore of providing a folded gauze pad which had been subjected to a wetting by mercurochrome or a similar substance, and then permitted to dry, whereupon the amount of effectual medication remaining was utterly unknown.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. The method of making a medicated plaster or bandage, including the steps of squeezing a layer of plastic foam and permitting said layer to expand while immersed in a melted medicament, removing the foam layer from the medicament, cooling the now impregnated foam layer to harden the medicament sufficiently to be retained by the foam layer, and securing the foam layer in its expanded condition to an adhesive surfaced backing member for ultimate attachment thereby to the body of a user.

2. The method of making a medicated plaster or bandage, including the steps of passing a sheet of plastic foam through a bath of melted medicament, compressing the foam sheet as it enters the bath and permitting it to expand while in the bath, cooling the sheet after removal from the bath to set the medicament in the foam, cutting a piece of desired size from the impregnated sheet, and attaching said piece in expanded condition to a backing member.

3. The method of making a medicated plaster or bandage, including the steps of causing a piece of plastic foam having intercommunicating cells to absorb a quantity of warm melted medicament, cooling the now impregnated piece to set the medicament therein, covering one face of the impregnated piece with a thin impervious cover, and connecting the covered piece to a backing member with the uncovered face exposed for ultimate attachment to the body of a user.

4. The method of making a medicated device for attachment to the body of a user, including the steps of causing a piece of plastic foam having intercommunicating cells to absorb a quantity of warm melted medicament, cooling the now impregnated piece to set the medicament therein, covering one face of the impregnated piece within a thin impervious cover and then securing the cover intermediately to an adhesive surfaced backing strip.

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5. The method of making a medicated device for attachment to the body of a user, including the steps of causing a piece of plastic foam having intercommunicating cells to absorb a quantity of warm melted medicament, cooling the now impregnated piece to set the medicament therein, and heat sealing the impregnated piece to a cover of thermoplastic film.

6. In a medicated pad for bandage, a cushion body of thermoplastic foam of the type that may be electronically heat sealed and has intercommunicating cells, said body being compressible but immediately assuming fully expanded condition in both a wet and dry state when pressure is removed, a congealed medicament in the cells of said body throughout the same, a thin impervious cover comprising a thermoplastic film overlying said body, spaced heat seal seams uniting said body and cover in an intermediate location with respect to said cover, said body forming a part of the heat seal seams and curving toward the seams, and said cover extending beyond said body to hold the body in place over an affliction.

7. A medicated device for attachment to the human body over an affliction, comprising a resilient body of thermoplastic foam which while compressible immediately assumes fully expanded condition in both a dry and wet state when pressure is removed, said foam having intercommunicating cells therein, a congealed medicament in the cells of said body throughout the same, a cover sheet of thin material of greater area than said body overlying said body and having an adhesive undersurface to attach the device to the skin of a user, said body having an opening therein to receive an affliction, a thinner piece of the same foam as said body in said opening, and a congealed medicament in the cells of said thinner piece throughout the same.

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