

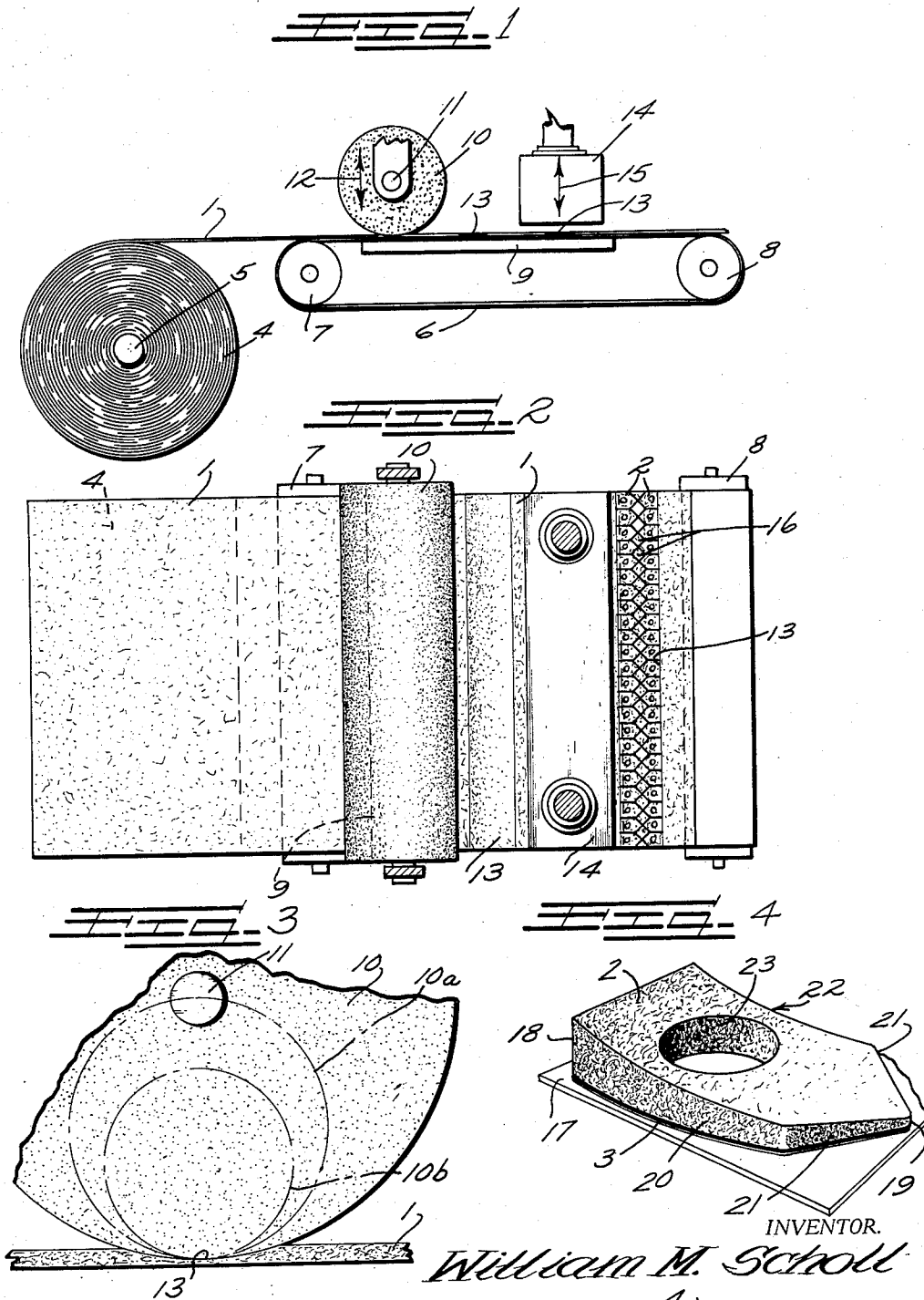
April 5, 1966

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3,243,877

METHOD OF MAKING A SURGICAL PAD

Filed April 14, 1964



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3,243,877

METHOD OF MAKING A SURGICAL PAD
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 Filed Apr. 14, 1964, Ser. No. 359,733
 7 Claims. (Cl. 29—419)

This invention relates to improvements in a surgical pad and method of making the same, and more particularly to a pad of the general character utilized for the alleviation of corns, callouses, bunions, and similar afflictions, and to an economical and rapid method of making such pads, although the invention may have other uses and purposes as will be apparent to those skilled in the art.

While corn, callous, bunion pads, and similar surgical pads are made from various materials, there are occasions when, by the nature or location of an affliction or circumstances surrounding that affliction the use of a pad having a body at least made of felt or equivalent material is indicated or deemed more desirable. There are also many cases where a pad that is thicker at one end than at the other is indicated. In the past, it has been found exceedingly irksome and objectionably expensive to carve or cut felt or equivalent cushioning material into a desired shape, and more particularly form a pad from such material that is thicker in one location than it is in another. While felt has been beveled and also cut so as to provide a fine bounding edge, it has always been easier to work with felt in the form of a flat sheet, and in no instance in which I am aware have wedge-shaped pads been produced with felt as the main cushioning medium.

With the foregoing in mind, it is an important object of the instant invention to provide an economical surgical pad having a wedge-shaped cushioning body of felt or similar material.

Another object of this invention is the provision of a surgical pad having a body part of felt or similar material which varies in thickness.

A further desideratum of this invention is the provision of a surgical pad having a body of felt or similar cushioning material and which is shaped to a desired configuration and contour and which varies in thickness.

A further important object of the instant invention resides in the provision of an economical method of making a surgical pad with a body of felt or similar material having a shaped contour.

Another object of this invention is the provision of an economic and rapid method of shaping felt or similar cushioning material.

Also a feature of this invention is the provision of an economical method of making wedge-shaped surgical pads from felt or similar cushioning material in quantity.

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

FIGURE 1 is a fragmentary side elevational view illustrating in general the method embodied in the instant invention;

FIGURE 2 is a fragmentary plan view of the structure of FIGURE 1;

FIGURE 3 is a fragmentary greatly enlarged side elevational view of a portion of the structure of FIGURES 1 and 2; and

FIGURE 4 is a perspective view, greatly enlarged, of a pad embodying principles of the instant invention and made under the method also embodied in this invention.

As shown on the drawings:

In view of the fact that each individual component of the apparatus used in performing the instant method is

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well known in the art, the apparatus itself has been diagrammatically illustrated in the drawings.

The felt 1 or similar cushioning material from which pad bodies 2 are ultimately cut is first provided with a spread of pressure sensitive adhesive 3, FIGURE 4, over its undersurface and then formed into a stock or supply roll 4. The felt 1, in the form of a flat strip of uniform thickness, may be of any desired thickness, $\frac{1}{8}$ to $\frac{1}{4}$ inch being satisfactory for most usages. The felt strip may also be of any desirable or suitable width. In some instances, it may be deemed more advisable to use a strip four feet or better in width and cut pads entirely across the strip at successive locations, while in other instances it may be desirable to use a strip $3\frac{1}{2}$ or 4 inches in width and sever a given number of pads thereacross at a time which may be then scraped upon a facing sheet for individual packaging.

In performing the method, the stock roll 4 of adhesived felt 1 is mounted on a suitable shaft or axle 5. The felt is unwound and anchored by the adhesive undersurface to a conveyor 6 mounted on opposed rolls 7 and 8, one of which rolls may be intermittently turned by hand or intermittently driven mechanically. This conveyor 6 is preferably an endless piece of belting, sheet metal, or any other suitable material but must be provided with a release outer surface so that the finished pads and waste material of the adhesived felt may readily be removed from the conveyor. Such release surface could be a silicone compound, polytetrafluoroethylene, or any other suitable material. Notwithstanding the release coat, after a reasonable portion of the felt 1 has been adhesively associated with the conveyor, there will be sufficient adherence for the conveyor to draw the felt off the supply roll 4. The upper reach of the endless conveyor passes across the top of a bed plate 9 which provides adequate backing for the plurality of cutting operations performed upon the felt.

At the first operative station, the felt is acted upon by a driven grinding roll 10 which rotates at relatively high speed. This grinding roll is mounted on a shaft 11 which may be driven by any suitable mechanism such as an electric motor, and the roll may be driven continuously or intermittently as may be deemed most expedient. The roll is either molded or else surfaced with a suitable abrasive substance preferably of a fine character such as emery dust for example, silicon carbide or other suitable material. This roll 10 is periodically elevated to allow advancing of the felt between grinding operations as indicated by the arrow 12 in FIGURE 1.

As seen best in FIGURE 3, when the grinding roll is brought down upon the sheet of felt 1, it forms a concave groove 13 in the felt which may be to whatever depth is desired. The width of the groove depends upon the desired length of pads to be made from the particular run of felt, and that width is determined by the diameter of grinding roll used. In FIGURE 3 I have indicated how different widths may be made by substituting grinding rolls 10a and 10b for the roll 10, the substitute rolls being of smaller diameters than the illustrated roll 10 and consequently provide narrower grooves. Of course, grinding rolls of larger diameter than the roll 10 may also be utilized.

At the next operation station, the grooved felt passes under a die housing 14 which reciprocates vertically as indicated by the arrow 15 in synchronism with the advancement of the felt 1. This die housing may move simultaneously with the movement of the roller 10 or independently of the up and down motion of that roller as may be deemed most efficient. The die housing contains suitable die elements of the kind used in the past to sever pads from strips of felt and the like and these

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die elements are shaped to sever confronting pads 2 leaving diamond-shaped pieces 16 of waste therebetween. As seen in FIGURE 2, the pads are pointed at one end and are cut with the points of adjacent pads toward each other, two rows of pads being cut across the felt strip in each of the grooves 13. It is preferable in many cases owing to the closeness of the successive grooves in the felt to space the die mounting 14 from the grinding roll 10 a distance so that one or more of the grooves 13 will be visible therebetween to facilitate easy inspection and leave room for changing rolls or dies.

It will be obvious to one skilled in the art that pads of various shapes may be cut from the felt, and for the differently shaped pads differently shaped dies are substituted.

In practice the method of producing the pads is extremely rapid and economical. Once the felt is connected with the conveyor 6, and the first two or three grooves have been ground out by the roll 10, the operation is virtually continuous except for the fact that the felt strip moves intermittently to permit the grinding roll and dies to act. Thereafter at each increment of motion of the felt strip, a new groove is ground out of the felt, and a double row of pads are cut through a previous groove transversely of the strip. The pads after passing from beneath the die housing are available for easy removal of waste stock and the pads may be readily scraped from the conveyor and mounted on suitable facing sheets either made entirely of a release material or having a release coating thereon to protect the pads while packaged and until they are put to use. In the showing of FIGURE 4, such a facing sheet is illustrated at 17, it being understood that when the pad 2 is to be applied to the body of the user, the facing sheet is removed and discarded.

Cutting a double row of pads across the felt 1 in a groove with like end portions of the pads in each row confronting each other results in the provision of a wedge-shaped pad 2. In the illustrated instance this pad has a thicker back wall 18 and a thin front wall terminating in a point 19 connected on each side of the pad by a straight side wall 20 and a diagonal front wall 21 which converges with a similar front wall 21 on the opposite side of the pad. The side wall 20 and the corresponding converging wall 21 gradually lessen in height from the rear wall 18 to the point 19. As a result of cutting the pad in the groove, the upper surface of the pad will have a slight curvature or in other words be slightly concave as indicated at 22 in FIGURE 4. If desired, an affliction receiving opening 23 may be provided in each pad at the time the pad is cut from the felt strip.

The pad forming the illustrated embodiment of this invention will be disposed on the body with the point 19 or thin end of the pad forwardly toward the ends of the toes, and thereby the pad is enabled to eliminate shoe pressure gradually toward the thicker rear end which is the most effective way of accomplishing such pressure relief. The concave upper face of the pad will enhance his relief of pressure, because when the pad is bulged slightly by way of the curvature of the foot, the upper face will become more nearly flat so that shoe pressure is relieved in an even and effective manner. It will be understood, however, that other shapes of pads may be cut in the same manner but will result in the wedge formation from the forward end toward the rear.

From the foregoing, it is apparent that I have provided a simple, rapid and economical method of providing corn, callous, bunion and similar surgical pads having a body portion of felt or equivalent cushioning material, and the resultant pads are of a shape designed to provide a gradual even and substantially uniform relief of pressure from an affliction protected by a pad.

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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 cutting pieces from felt and similar material, including the steps of cutting a concave groove in a sheet of felt of substantially uniform thickness to a desired depth, and then die-cutting wedge-shaped pieces from opposite sides of said groove, each piece extending from a side edge of the groove to approximately the center line of the groove.
2. The method of cutting pieces from felt and similar material, including the steps of cutting a concave groove transversely across a strip of felt to a desired depth, and then die-cutting two rows of confronting pieces along the half-portions of said groove to provide wedge-shaped pieces thinner at one end than the other.
3. The method of cutting wedge-shaped pieces from felt and similar material including the steps of grinding a concave groove in a strip of felt of substantially uniform thickness to a desired depth, and then die-cutting parallel rows of confronting pieces along said groove with each row being cut from substantially a half-portion of the groove.
4. The method of cutting wedge-shaped surgical pad bodies each having a slightly concave upper face from one end to the other, including the steps of grinding a concave groove to a desired depth and of a width approximately twice the length of a pad body in a sheet of felt, and then die-cutting two confronting rows of pad bodies along opposed half-portions of said groove.
5. The method of cutting wedge-shaped surgical pad bodies each having a slightly concave upper face from one end to the other, including the steps of grinding a concave groove to a desired depth and of a width approximately twice the length of a pad body in a sheet of felt, then die-cutting two confronting rows of pad bodies along opposed half-portions of said groove, and cutting an affliction receiving opening in each said pad body.
6. The method of cutting wedge-shaped surgical pad bodies each having a slightly concave upper face from one end to the other, including the steps of intermittently moving a strip of felt having pressure sensitive adhesive on its underface along a predetermined path, grinding a concave groove in the strip to a desired depth and of a width approximating twice the length of a pad body at each stoppage of the strip, and severing dual rows of confronting pad bodies along each such groove at each stoppage of the strip.
7. The method of cutting wedge-shaped pieces from a sheet of felt and similar material, including the steps of cutting a groove having a sloping wall in a sheet of felt, and severing a row of pieces from said sheet along the sloping wall of said groove.

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