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[54] **DISPOSABLE STUMP SOCK**
 8 Claims, 5 Drawing Figs.

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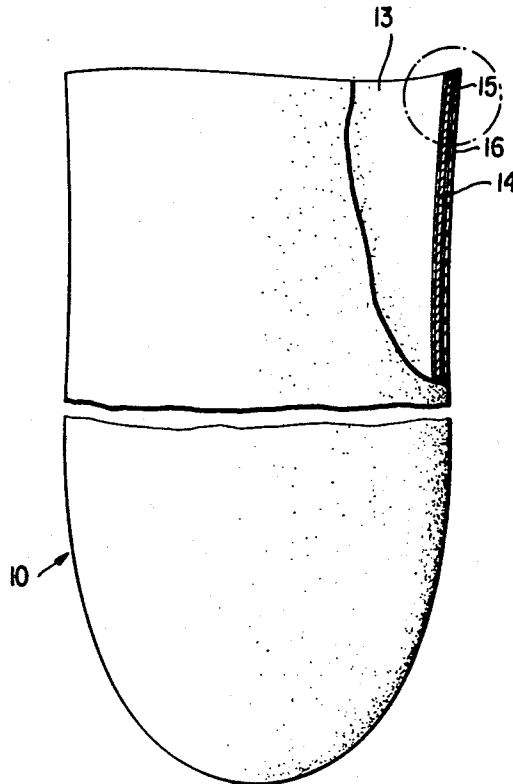
[50] Field of Search..... **3/17-19;**
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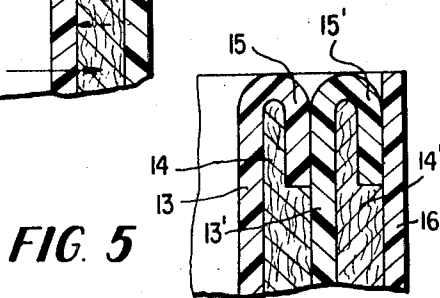
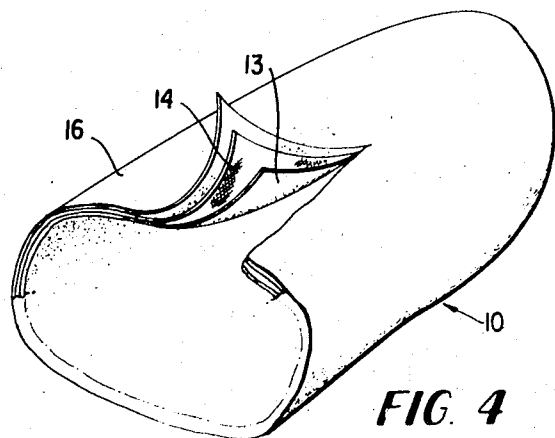
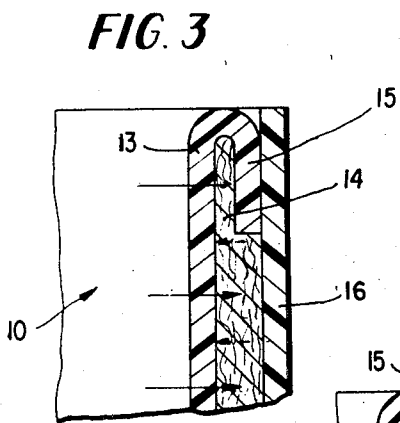
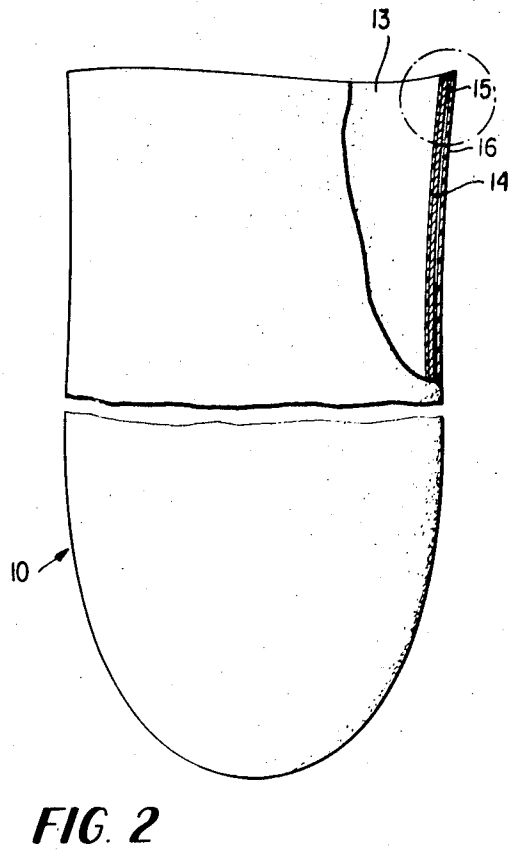
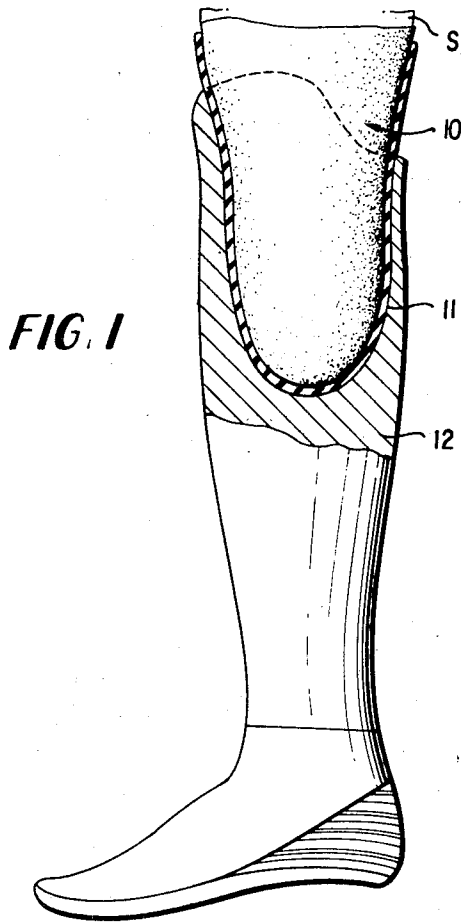
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ABSTRACT: The instant invention comprises a laminated cushioning means disposed between the skin of an amputee's leg and the encompassing cupped wall of the appliance, the inner side of said means remaining soft, pliable and dry at all times while transferring latent moisture away from the skin of the amputee and storing same in spaced relation thereto and to said wall. Said means may be readily removed from the appliance as well as the stump and disposed of and replaced by a new one with the minimum of trouble and expense.





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DISPOSABLE STUMP SOCK

DISCLOSURE OF INVENTION

The invention comprises a laminated paper and plastic disposable stump sock.

This invention relates to the art of stump sock for enclosing and cushioning and more particularly to an absorbent paper stump sock which is particularly constructed and shaped to completely enclose, cushion and protect that usually fleshy end portion of the leg which remains after an amputation and which must fit snugly within the cupped upper nonabsorbent relatively rigid cupped end of an artificial limb. My disposable stump sock is constructed to absorb any and all perspiration within the fibrous layers thereof without discomfort from moisture, irritation or chafing of the part enclosed and cushioned thereby.

It is a further object of my invention to provide means which comprises a specially constructed and shaped paper and plastic laminated stump sock structure whereby exceptional comfort may be had by the wearers thereof even after considerable absorption of perspiration.

A further object of my improved laminated paper and plastic stump sock which will not only give exceptional comfort and wear even after absorption of considerable moisture but which may be readily removed and economically discarded for replacement by a fresh new one.

While it is a primary purpose of my disposable stump sock to render maximum dryness and comfort to the wearer of an artificial limb it is of equal importance to preserve the finish and the material of the supporting cupped upper end of the appliance which receives the stump. In the drawings:

FIG. 1 is a side view of a human stump having thereon the removable stump sock of this invention, the disposable paperlike sock being snugly seated in the socket of an artificial leg appliance;

FIG. 2 is a view of one of the disposable stump socks shown in FIG. 1. The said stump sock being made in various lengths is so indicated by the transverse broken lines and the laminated structure thereof by the broken away wall part shown in section;

FIG. 3 is a greatly enlarged view of the upper encircled portion of FIG. 2 with parts broken away and in section;

FIG. 4 is an end prospective view longitudinally cut and spread apart to better show the components of the laminated wall structure illustrated in greatly enlarged section in FIG. 3; and

FIG. 5 is another greatly enlarged view showing in exaggerated form and relationship the several layers of my modified laminated paper and plastic stump sock which provides more cushioning and packing when needed.

In FIG. 1 and for purposes of illustration only, I have shown a human stump S, resulting from a below the knee amputation and the stump being enclosed in the disposable stump sock 10 of this application, the sock covered stump being shown fitted snugly into the socket 11 of an artificial thigh device 12, hereafter referred to as an appliance 12. In FIG. 2 I have shown this disposable stump sock alone having a portion broken away and in section to show the inner plies thereof and in FIG. 3 a very much enlarged and exaggerated view of just that end of the sock enclosed by a circle in FIG. 2.

Due to the many changes in weight, balance and stance of the wearer, to be taken into consideration after an amputation is performed, it is highly important that the ease and comfort in the vicinity of his stump be given particular consideration. To this end it has been customary to provide a stump sock which encloses and cushions the flesh of the stump by what is referred to in the trade as a stump sock composed heretofore of a knitted material usually cotton and of the general shape and size of the one shown in FIG. 2. Such a stump sock while serving many of the necessary functions required of such an accessory has nevertheless failed to provide for certain comforts believed essential under many normal conditions of use

such as long periods of continuous wear particularly in warm weather or climates. Under such conditions of use it has been found that the knitted stump socks are not changed often due to the expense involved. Further a knitted sock becoming soaked with perspiration would cause the material to shift and sag but will always retain the moisture in contact with both the skin of the stump and the lining of the socket. Under such conditions, which may occur too often for comfort, I have found that much relief may be had through frequent change made possible by the economical construction of my paperlike disposable stump sock. To this end and with other advantages in comfort I have found that a certain material known to be a highly porous and hydrophobic paper, such as is sold by the Rohm & Hass Company, and identified as B-15, and has been found to possess such qualities and comprises 1.5- to 3-denier rayon and to contain approximately 20-35 percent of thermoplastic binder (as for example, copolymers of an ester of acrylic acid) and having a weight of about 15-19 grams per square yard. The material 13 may be molded or cut and seamed to produce a hollow stump cover such as is shown at the inner side of the disposable stump sock shown in FIGS. 1 and 2 which may be of any one of the desired number of sizes agreed upon. As shown in this FIG. 1 but better in FIG. 3 an absorbent wadding 14 is laminated to the outer side of the hydrophobic paper lining 13 as will later be explained. As the paperlike stump sock of this application is intended as a one use device, costs determine many items and uses. For instance the amount of wadding to be employed may be varied considerably depending on conditions of use and the locations of use, but in most instances only the disposable nature of the product after absorbing a fair amount of perspiration from the relatively small extent of leg skin, is involved and must be considered. Hence, the highly absorbent lamination 14 may preferably comprise the equivalent of several layers of tissue having a basic weight (air dry) of 13-15 lbs. per ream of 3,000 square feet before creping. The absorbent wadding 14 should comprise about 60 percent crepe, the percent crepe being equal to about 100 times the quotient of the reduction in length of the tissue before creping. This wadding is then molded or otherwise shaped to overlay the inner hydrophobic layer 13 and is preferably adhesively united to said layer 13 by a waterproof adhesive particularly around the upper edge portion of the wadding 14 where the inner shaped hydrophobic layer overlaps the edge of the wadding forming a hem 15 which prevents wicking when wet as will be understood. The hem 15 also provides a positive and convenient gripping means to assist the wearer in removing the wadding layer with the much stronger inner layer 13 from the outer waterproof stump-shaped layer 16 for subsequent flushing such disintegratable materials down a water closet. The outer thin and flexible layer 16 is essentially waterproof and as it must be a very light and strong material, I have preferred to use a plastic such as polyethylene which may be molded or cut from sheet material and seamed to produce the enclosing bag-shaped enclosure 16 which closely receives the absorbent intermediate layer of wadding material 14 but is preferably not permanently adhesively connected thereto because as stated said outer layer is composed of a very strong, light and waterproof material which may be readily disposed of in a wastebasket but should not be flushed down a water closet with the inner layers of readily disposable materials.

As my paperlike disposable stump sock comprises a readily separable and inner layer which as shown in FIG. 3 usually lays against the inner side of the outer waterproof plastic layer 16 with the turned over upper hemmed end 15 of the hydrophobic inner layer 13 merely engaging the outer layer 16, it is a relatively simple job therefor to merely increase the packing. Consequently the cushioning between the relatively rigid sidewall of the cup 11 and the stump 5 may be increased when shrinkage occurs as by merely adding another cushioning layer or so of the wadding 14 by telescoping two inner parts as shown in FIG. 5.

While materials other than those herein disclosed as found very suitable for the purposes intended may be substituted without departing from the invention herein disclosed as covered by the following claims.

I claim:

1. A disposable stump sock composed of an inner tubular stump-shaped layer of hydrophobic paper closed at the bottom, open at the top and adapted to embrace the skin of an amputee's stump, said hydrophobic paper layer being highly porous and being surrounded by a layer of absorbent material, and an outer layer of waterproof material surrounding said layer of absorbent material, whereby said inner layer will remain dry while transferring moisture from the skin of said stump to said absorbent material.

2. The disposable stump sock of claim 1 in which said absorbent layer is adhesively attached to the outer side of said highly porous inner layer.

3. The disposable stump sock of claim 1 in which the inner hydrophobic layer is turned over and adhesively connected to the upper edge of said absorbent layer.

4. The disposable stump sock of claim 3 in which a stump-

shaped layer of waterproof material frictionally engages said absorbent layer and is readily separable therefrom.

5. The disposable stump sock of claim 1 in which said inner layer is stump shaped and composed of an extremely thin and tough layer of hydrophobic porous paper to the outer side of which is adhesively attached a similarly shaped layer of absorbent material.

6. The disposable stump sock of claim 1 in which the stump-receiving lining is composed of a porous hydrophobic paper which is covered on one side by a pad composed of creped cellulose.

7. The disposable stump sock of claim 2 in which the absorbent material comprises a pad composed of creped cellulose wadding.

8. A disposable stump sock comprising a plurality of tubular layers of highly flexible paperlike materials which are adhered together, said layers being all open at the top and closed at the bottom, the outer layer of which is waterproof, the inner layer of which is hydrophobic and porous and the intermediate layer is highly absorbent.

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