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CONDUCTIVE SURGICAL SHOE COVER

Filed June 3, 1963

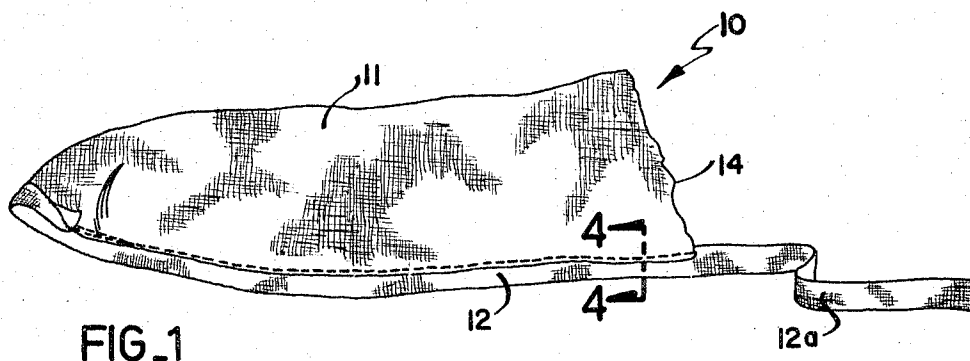


FIG. 1

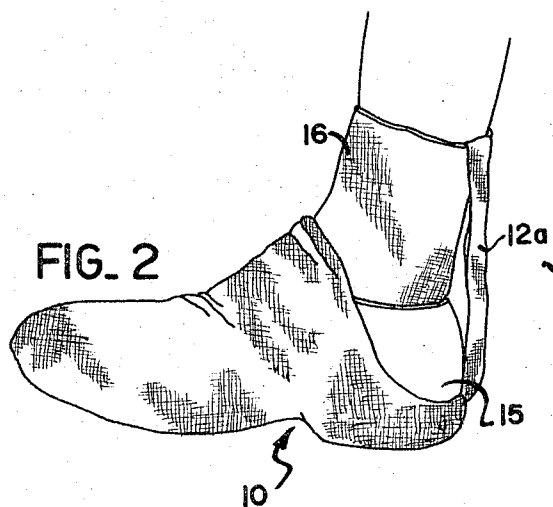


FIG. 2

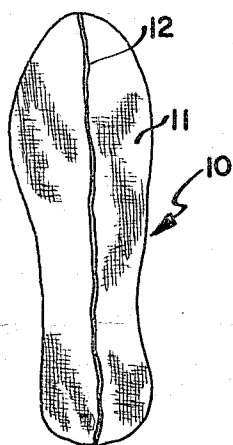


FIG. 3

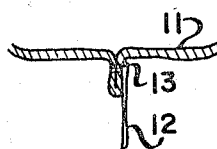


FIG. 4

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CONDUCTIVE SURGICAL SHOE COVER

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2 Claims. (Cl. 317-2)

The present invention relates as indicated to a surgical shoe cover, having particularly advantageous use in operating rooms or similar environments in hospitals and the like. In such hospital operating rooms there are often employed anesthetics which are highly explosive, cyclopropane being one example, and it is therefore necessary to practice the utmost caution during operations using such anesthetics to prevent static electrical discharges or sparks which might explosively ignite the anesthetics with disastrous results.

In order to avoid, to the extent possible, all controllable hazards, surgeons and attendants are usually required to wear conductive footgear of some type in order to prevent sparking during their presence in the operating room. Such conductive footgear commonly takes the form of shoe covers which can be slipped over the shoes of those persons in the operating room, such shoe covers having conductive soles and conductive straps connected thereto, the latter for tucking inside the socks of the person wearing the same to directly contact the skin.

The conductive shoe covers presently in use are relatively expensive, thereby making it an economic necessity that the same be reused, and accordingly a further considerable expense in both time and money is involved in cleaning and sterilizing such shoe covers before further use. The shoe covers, because of the conductive sole material, are relatively difficult to launder and such laundering causes the soles to deteriorate, as well as frequently tearing or severing the conductive straps from the conductive soles. Yet another disadvantage of presently manufactured conductive shoe covers is that they must be provided in a number of different sizes in order to fit the varying shoe sizes of the persons using the same, so that a rather extensive inventory is required, thereby further adding to the expense of using the same.

With the above in mind, it is a primary object of the present invention to provide a highly simplified surgical shoe cover which can be manufactured for but a fraction of the cost of manufacturing such presently known shoe covers, such greatly reduced cost enabling the shoe covers to be disposed of subsequent to use and thereby eliminating the further cost of laundering and sterilizing incurred in the use of presently existing types.

A further object of the present invention is to provide such a disposable surgical shoe cover which is highly expandable for slipping over any size shoe thereby eliminating the necessity of maintaining a large inventory of different size shoe covers.

Still another object is to provide such a disposable surgical shoe cover having a strip of conductive material the free end of which can be easily grasped and tucked inside the sock of the wearer against the skin to render such wearer conductive.

These and other objects and advantages of the present invention will become more apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features herein-after fully described and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but certain of the various ways in which the principle of the invention may be employed.

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In said annexed drawings:

FIG. 1 is a side elevation view of the surgical shoe cover of the present invention when not in use;

FIG. 2 is a perspective view of the surgical shoe cover of FIG. 1, showing the same slipped over the shoe of the wearer;

FIG. 3 is a bottom view of the surgical shoe cover when the same is in use as illustrated in FIG. 2; and

FIG. 4 is a sectional view taken on line 4-4 of FIG. 1, showing the manner in which the conductive strip is secured to the body of the shoe cover.

Referring now more specifically to the drawing, wherein like parts are designated by like reference characters, the surgical shoe cover of the present invention is generally indicated at 10 and includes an elastic expandable tubular body portion 11 and a conductive strip portion 12 which is sewed to the body portion 11 by thread 13, as shown in FIG. 4. The shoe cover in its marketed or non-use condition is flat whereby a great number of such covers can be stored in a minimum of space.

The body portion 11 of the shoe cover is constructed in much the same manner as a sock with one end being reduced in size and closed to provide a closed end within which the toe of the shoe can be positioned during use. The body 11 of the shoe cover 10 is preferably made from an elastic stretchable commercially obtained cotton material commonly referred to as "stockinette," although it will be apparent that other suitable stretch material may also be employed. The body 11, of course, opens at its opposite end 14 whereby the shoe cover may readily be slipped over the shoe 15 of the user and pulled toward the back of the shoe to assume the position indicated in FIG. 2.

The electrically conductive strip 12 is relatively narrow, being approximately one inch wide, and is preferably made from silver-impregnated nylon fabric, although it will be apparent that any suitable conductive strip material, e.g., carbon-impregnated rubber, may be employed. The conductive strip 12 has a free end portion or extension 12a which extends outwardly from the body portion 11 of the shoe cover to be tucked inside the sock 16 of the wearer in direct contact with the skin. The conductive nylon tape is thin and flexible and accordingly relatively comfortable. Furthermore, since it may be at least as flexible as the stockinette body portion it does not form an appreciable ridge along the underside of the latter or interfere with rolling, folding, or packaging of the shoe cover.

The manner in which the shoe cover 10 is used will be readily apparent from the above description and from the drawing. The user merely slips the shoe cover over the shoe and slides the same rearwardly until the shoe 15 tightly fits therewithin. The cotton stockinette material employed for the body 11 of the shoe cover is highly expandable and readily adapts itself to any size shoe. After the cover 10 has been positioned snugly around the shoe, the conductive strip 12 is grasped by the user and tucked inside the sock 16 in contact with the skin, whereby the user is rendered conductive for safe movement within the operating room. It will of course be understood that shoe covers 10 are provided for both feet of the user.

While the elastic stockinette is stretchable and thereby expandable to enable the same to be pulled on over and snugly to fit various sizes of shoes, it is, of course, important that the conductive extension 12a should not be pulled out of the wearer's sock due to contraction of the cover in use and this is effectively prevented by securely attaching the tape or strip 12 to the length of stockinette fabric so that the latter is not in fact substantially longitudinally stretchable in the region of such tape. The shoe cover is held in place principally by the elasticity of the stockinette tube but the extension 12a may also be of

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assistance in this respect when securely tucked into the sock of the wearer. Strip or tape 12 will ordinarily preferably be stitched along one edge only to the stockinette.

With the termination of use of such surgical shoe covers, the user merely removes the same from his feet whereby the same may be disposed of in any suitable manner. It will be noted that neither the slipping on nor the removing of the shoe covers requires the tying of any strings or the like. To remove the shoe covers, all that is required is that the strap 12 be grasped and merely moved under the heel and toward the front of the shoe whereby the shoe cover is readily stripped from the shoe 15.

It will, accordingly, be seen that the surgical shoe cover of the present invention is highly simplified, and is characterized by the ease with which the same may be slipped over and subsequently removed from the shoe of the wearer. The cotton stockinette material provided for the body portion 11 of the shoe cover is highly expandable whereby a single size shoe cover readily adapts itself to any size shoe and extensive inventories of varying sizes are not required. The simplified construction enables the shoe cover to be manufactured at an extremely low cost so that they may be disposed of subsequent to use, thereby additionally saving heretofore necessary laundering and sterilizing costs. 20

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims or the equivalent of such be employed. 30

I therefore particularly point out and distinctly claim as my invention:

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1. A conductive surgical shoe cover for rendering electrically conductive the wearer thereof comprising a textile material having a substantially closed end and an opposite, open end, said material being elastically stretchable to expand over and snugly fit the shoe of such wearer, and a relatively narrow elongated strip of electrically conductive material secured lengthwise at least from the toe to the heel areas of said cover when said cover is snugly fitted over the wearer's shoe to contact the surface upon which the wearer is standing, said strip having a portion extending freely beyond the open end of said cover adapted to be tucked within the sock of the wearer and thus in direct contact with the skin of such wearer.

2. The shoe cover of claim 1 wherein said textile material is cotton stockinette, and said conductive strip is made from silver-impregnated nylon stitched to said stockinette material along one edge only of said strip.

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