March 14, 1967 H. ZIMMON 3,308,562

SANITARY SHOE COVER OF THE TYPE HAVING A CONDUCTIVE SOLE

Filed June 22, 1964

Fig. 1.

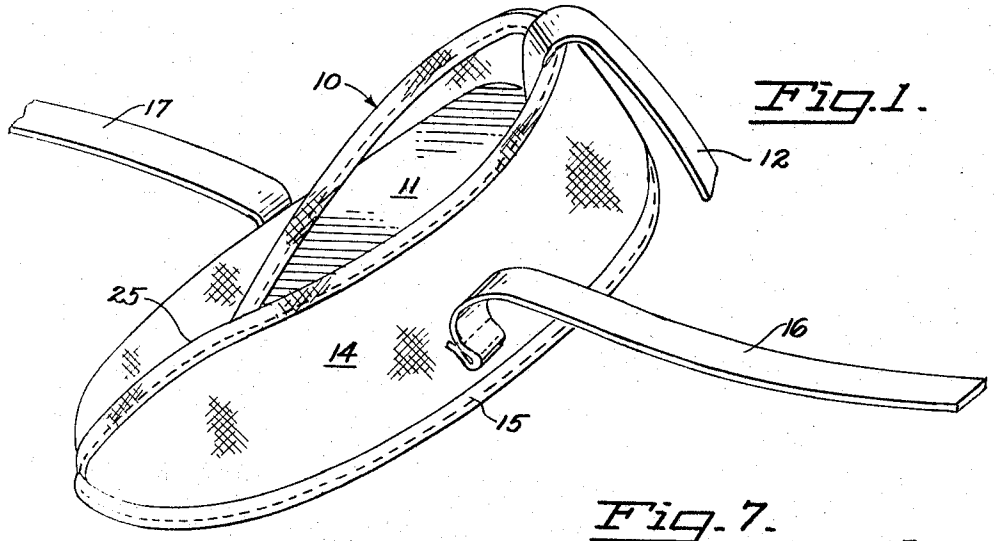


Fig. 2.

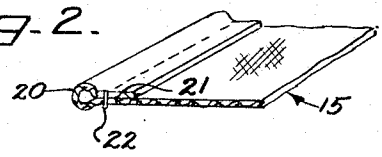


Fig. 3.

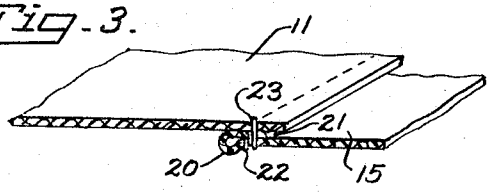


Fig. 4.

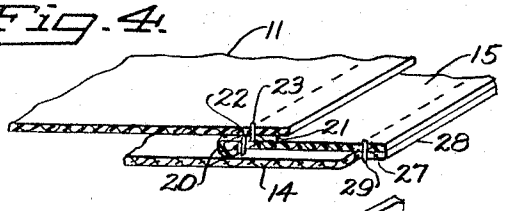


Fig. 5.

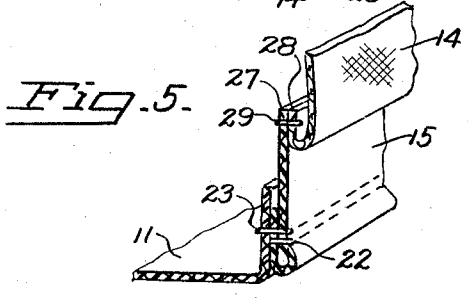


Fig. 7.

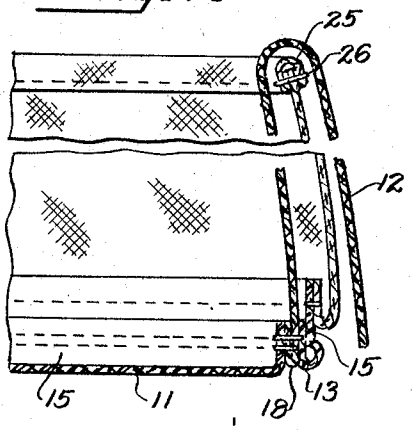
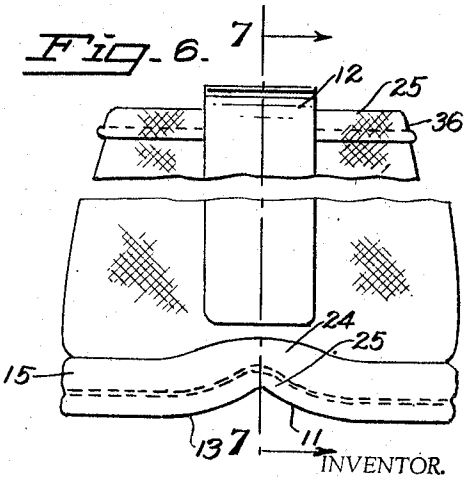


Fig. 6.



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3,308,562

SANITARY SHOE COVER OF THE TYPE HAVING A CONDUCTIVE SOLE

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2 Claims. (Cl. 36—7.1)

This invention relates to an improved sanitary shoe cover of the type having a conductive sole. The use of such shoe covers in surgical operating rooms and in chemical works is by now well known, a particularly good one being described in the patent application by Saron A. Pence, Ser. No. 827,992, filed July 15, 1959. The present invention relates to improvements in this Pence shoe cover.

Typically, these shoe covers have a sole of cloth-reinforced elastomer containing graphite so that the sole is conductive; the walls and portions which cover the shoe have typically been made of strong cloth that is sewn to the sole and overlaps enough to protect the shoe from body fluids and other staining agents. The covers can be used, washed, re-used, rewashed and used again for many cycles, their life largely being limited by wear. An important aspect of wear has been the stitching which joined the canvas or fabric top to the conductive rubber sole. In early designs the stitching was located in accordance with ease of manufacture and simplicity, and the result was that the user walked directly on the stitching. Whether the stitching was ordinary thread or special thread, it soon wore out, and the shoe cover had to be discarded.

This wear problem was apparently solved by the provision of a welting that protected the stitching, the welting being stitched to the sole and the top being stitched to the welting. This construction located the stitching where it could not be directly walked on. However, this welting projected out laterally all around the foot, as a flat rim surrounding the shoe sole and imparting a peculiar appearance to the wearer, like a web foot. More significantly, this outward projection of the welting has been found to constitute a safety hazard, because the surgeons and nurses tended to step on their own or another's welting, with resultant tripping, stumbling and other awkwardness. Of course, awkwardness cannot be tolerated in laboratories or in surgical operating rooms, where these shoes are commonly used, for the slightest unsureness of hand and the slightest unbalance or slipping may cause serious injury to the patient or even to the other doctors and nurses present.

Consequently, it is an object of this present invention to provide a novel shoe cover that has a connective rubber sole and in which long wear is obtained by a novel structure which is not conducive to awkwardness and is not a safety hazard. An intermediate welting between the shoe cover and the sole is so arranged that it raises the stitching for the sole away from the plane of the sole and holds it vertically above the sole. The structure of this invention provides the user with a more dressy appearance while at the same time accomplishing the far more important effect of safety.

Other objects and advantages of the invention will appear from the following description of a preferred form thereof.

In the drawings:

FIG. 1 is a view in perspective of a sanitary shoe cover with conductive sole embodying the principles of this invention.

FIG. 2 is an enlarged fragmentary view in perspective showing an initial stitching of the welt to itself.

FIG. 3 is a similar view showing the welt stitched to the sole.

FIG. 4 is a similar view showing the shoe upper stitched to the welting subsequent to the step of FIG. 3.

FIG. 5 is a fragmentary enlarged view of a portion of the completed connection between the sole, the welting and the cover or top.

FIG. 6 is a view in rear elevation of the shoe cover.

FIG. 7 is a fragmentary view in elevation and in section taken along the line 7—7 in FIG. 6.

FIG. 1 shows a shoe cover **10** embodying the principles of the invention and having a conductive rubber sole **11** with a conductive rubber strip or tongue **12** extending from the heel **13** of the sole **11** up inside the cover **10** and beyond it and ready to be tucked inside the user's shoe for grounding the user's body to the conductive rubber sole **11**. A shoe-encasing textile sidewall **14** is provided by a single piece with overlap, and a welting **15** connects the sidewall **14** to the sole **11**. A pair of ties **16, 17** enable the user to tighten the cover **10** on his shoe after inserting the shoe in the cover **10**.

The conductive sole **11** is cut out to shape from sheets of cloth-reinforced conductive rubber; it may simply be a long oval. The strip or tongue **12** may be integral with it, but preferably is a separate rectangular strip with its end **18** folded over and placed against the heel **13** of the sole **11** and then stitched to it at the same time that the welting **15** is stitched to the sole **11** and by the same stitch.

The welting **15** is a very important part of the invention. It comprises textile fabric, such as a canvas duck, having an elastomer (synthetic rubber) filling or coating; it could be called a rubberized cloth. It is important to note that plastic welting strips do not work; they do not have the desired stiffness and hence tend to sag into the webfoot-like projections which caused the problems already mentioned. Nor do ordinary cloth welting strips work satisfactorily. The stiffness of the rubberized cloth welting **15** used in this invention enables it to retain its initially-imparted vertical attitude when properly sewn into place. The important thing is that it does not sag and fall down and form a horizontal extension of the foot.

This welting **15** is a single strip and the first step in making the assembly is to turn it over at a fold **20** along one edge **21** and stitch to itself by stitches **22** (FIG. 2) to provide extra stiffness at the fold **20**, which now becomes the edge of the welting and also makes it easier to handle later.

Next (FIG. 3), the welting **15** is stitched to the conductive rubber sole **11** by stitches **23**, which directly overlie the first line of stitching **22** for the sake of both appearance and structural rigidity. The welting strip **15** is brought up in the back at **24** and **25** on both sides (see FIG. 6), so that it overlaps, while raising itself up above the heel level **13** at this point, securing it both to the sole **11** and to the conductive rubber strip **12** and securing the strip **12** to the sole **11** at this point.

The textile portion **14** is cut out in a blank from a single piece of cloth, and preferably a fabric welting **25** is sewn to the top edge thereof by a stitch **26**. Then the portion **14** is placed around the sole-welting assembly so that the portion **14** overlaps on the front, and its lower margin **27** is then sewn to the welting **15** adjacent the edge **28** by a second line of stitching **29**, which is spaced about one-half inch from the lower line **22, 23**, this being most of the width of the welting **15**. Then the cover portion **14** is folded over as in FIG. 5.

The finished structure provides a pleasing appearance and structural rigidity, and it raises the sole seam **23** and welt seam **22** away from the floor. The overlap of the portion **14** at the front acts to fully encase a shoe, so that the dropping of body fluids onto the shoe is intercepted by the shoe cover **10**.

Preferably, the ties **16, 17** are sewn to the opposite

sides of the textile portion **14** either before or after the portion **14** is stitched to the welting **15**.

In use, the person puts the cover **10** on his shoe while the ties **16**, **17** are loose, there being plenty of slack for this, and then he takes the long free strip or tongue **12** and tucks it down inside his sock. This gets direct contact with the skin and acts to ground his body to the conductive sole **11** and thence to the floor. With this on, the ties **16**, **17** are then tied with a simple bowknot, thereby both securing the article to the shoe and ensuring coverage of the shoe by the fabric.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. A sanitary shoe cover comprising a normally flat sole having a peripheral edge bent vertically upward, a textile cover portion for enclosing the upper portion of a shoe, having a reversely, inwardly bent bottom edge, a welting of textile fabric filled with a filler to import bodily stiffness thereto while leaving a measure of flexibility, said welting having one edge hemmed with a first line of stitching to form a hem to receive said filler and being sewn adjacent said hemmed edge to said peripheral edge of said sole along a horizontal second line of stitching which substantially overlies said first line of stitching and being sewn adjacent its other edge to said bottom edge of said cover portion along a horizontal third line of stitching, said cover portion having an outer periphery spaced outwardly beyond said peripheral edge of said sole and of said welting, said welting extending vertically all around said sole between said peripheral edge of said sole and said bottom edge of said cover portion.

2. A method of making a sanitary shoe cover of the type having a sole and a textile cover portion for enclosing the upper portion of a shoe, comprising the steps of hemming one edge of a welting strip of textile fabric filled with a filler to impart bodily stiffness thereto while leaving a measure of flexibility, sewing said hemmed edge of said welting strip to the peripheral edge of said sole, and sewing the other edge of said welting strip to said cover portion with said cover portion extending under said sole and directed inwardly toward the center of said sole, and then erecting said cover by pulling said cover portion outwardly and upwardly to vertical position, bending said peripheral edge of said sole upward relative to said sole, bending the bottom edge of said cover portion reversely inward, and erecting said welting strip with said first mentioned edge downward and said welting strip vertically upward, said cover portion being the peripherally outermost portion of said cover.

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