April 28, 1964 A. H. HIRSCHBERG 3,131,036

SHOE DRYING DEVICE

Filed May 10, 1961 2 Sheets-Sheet 1

FIG. 1

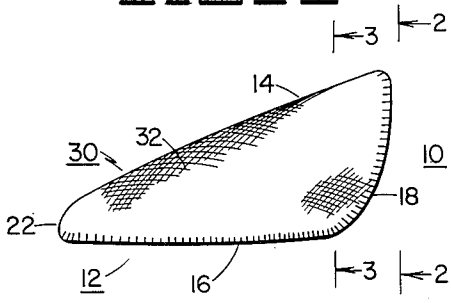

FIG. 2

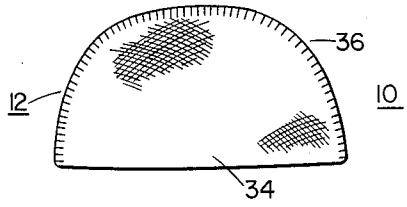

FIG. 4

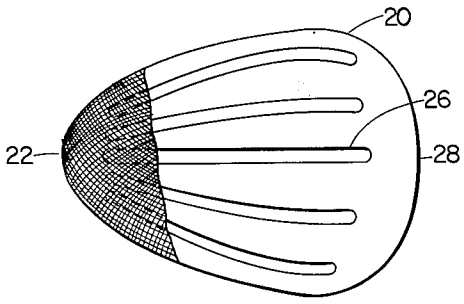

FIG. 3

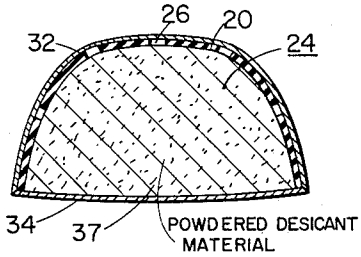

FIG. 5

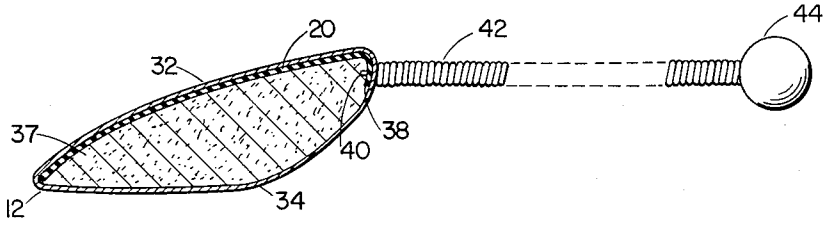

FIG. 8

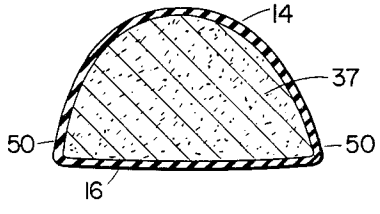

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FIG. 6

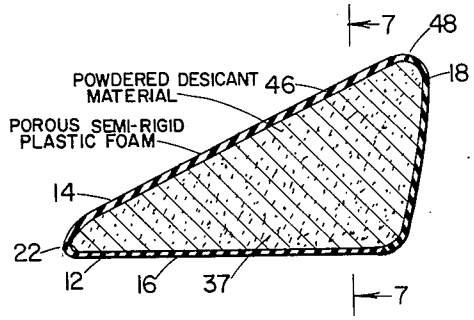


FIG. 7

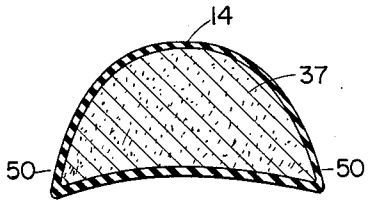


FIG. 9

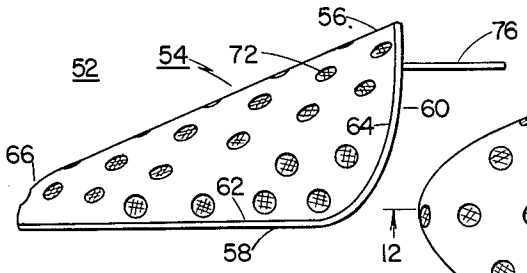


FIG. 10

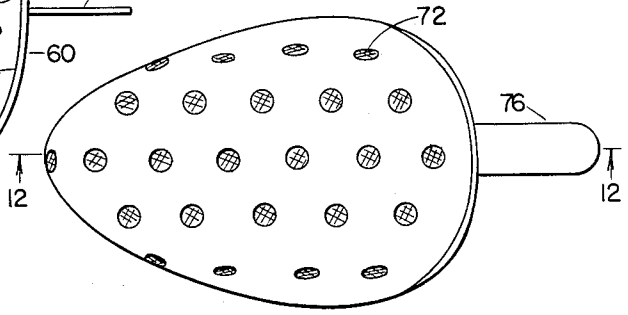


FIG. 12

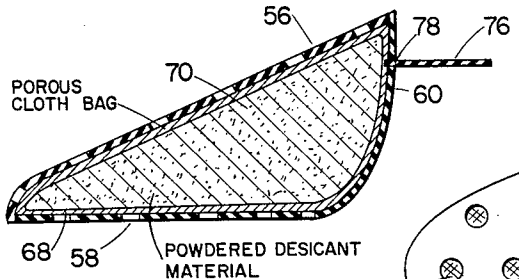
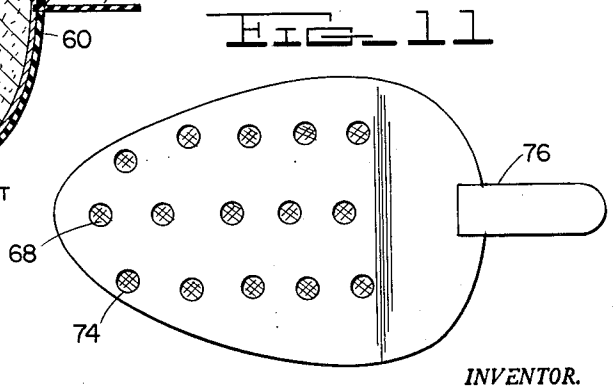


FIG. 11



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United States Patent Office

3,131,036
Patented Apr. 28, 1964

3,131,036

SHOE DRYING DEVICE

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Filed May 10, 1961, Ser. No. 109,175
3 Claims. (Cl. 34—95)

This invention relates generally to a device adapted for removable insertion in the interior of the toe portion of a shoe for drying the same.

Shoes frequently become damp or moist due to perspiration of the wearer's foot or the exposure to damp conditions and it is well known that shoes are deleteriously affected by such dampness unless properly and promptly dried. Various devices for drying the interior of shoes have been proposed, however to the best of the present applicant's knowledge, such devices have not been either satisfactory or commercially successful, due primarily to their lack of moisture absorbing capacity and their cost.

It is accordingly an object of my invention to provide an improved device for drying shoes.

Another object of my invention is to provide an improved shoe drying device having greater moisture absorbing capabilities than prior devices.

A further object of my invention is to provide an improved shoe drying device characterized by its simplicity and relatively low cost.

Further objects and advantages of my invention will become apparent by reference to the following description and the accompanying drawing, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

My invention in its broader aspects comprises a hollow, self-supporting body shaped generally to conform to the interior of the toe of a shoe and to engage the same, the body having powdered desiccant material therein and the walls of the body having porous material thereby permitting the desiccant material to absorb moisture from the interior of the shoe.

In the drawings:

FIG. 1 is a side elevational view of one embodiment of my improved shoe drying device;

FIG. 2 is an end view taken along the line 2—2 of the device of FIG. 1;

FIG. 3 is a cross-sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a top view of the device of FIG. 1 showing the covering partly removed;

FIG. 5 is a cross-sectional view showing another embodiment of my invention;

FIG. 6 is a cross-sectional view showing another embodiment of my invention;

FIG. 7 is a cross-sectional view taken along the line 7—7 of FIG. 6 showing the initial cross-sectional configuration of that embodiment;

FIG. 8 is a cross-sectional view taken along the same line as that of FIG. 7 showing the cross-sectional configuration of the embodiment of FIG. 6 when inserted in a shoe;

FIG. 9 is a side elevational view of the preferred embodiment of my invention;

FIG. 10 is a top view of the embodiment of FIG. 9;

FIG. 11 is a bottom view of the embodiment of FIG. 9; and

FIG. 12 is a cross-sectional view taken along the lines 12—12 of FIG. 10.

Referring now to FIGS. 1 through 4 inclusive of the drawing, one embodiment of my improved shoe drying device, generally identified at 10 comprises a body 12 shaped generally to conform to the interior of the toe portion of a shoe and to engage the same; body 12 has a top wall 14, a bottom wall 16 and a rear end wall 18.

In the embodiment of FIGS. 1 through 4 inclusive, a self-supporting shaping member 20 is provided formed of relatively thin sheet material, such as any suitable plastic material. Shaping member 20 is outwardly convex in cross section and merges smoothly generally to a point at the front or toe end 22 of body 12 thereby defining cavity 24 open at the bottom and at its end remote from end 22. Shaping member 20 preferably has a plurality of elongated apertures or slots 26 formed therein extending from the toe end 22 toward its other end 28 although it will be readily understood that apertures having other configurations, such as round holes may be provided in the shaping member 20. It will be observed that shaping member 20 by virtue of its formation from relatively thin material possesses some resilience to permit it to conform to a particular shoe in which the device is inserted.

A covering 30 of suitable thin porous material, such as cloth is provided, covering 30 comprising a first section 32 which covers shaping member 20 and a second section 34 which is attached to the first section 32 in any suitable manner as by stitching 36, and which closes the bottom and end of cavity 24 thereby to define bottom wall 16 and end wall 18 of the body 12.

Cacity 24 is completely filled with a suitable powdered desiccant material and it will thus be seen that by virtue of the porous covering 30 and the apertures 26 in shaping member 20, the desiccant 24 will absorb moisture through the porous covering 30. I have found that a suitable desiccant material is one manufactured by the Wyandotte Chemical Corporation of Wyandotte, Michigan, under the trademark "Value," this material having the following chemical composition:

	Percent
Moisture loss at 105°	2.00
Loss on ignition at 892° C.	4.30
Total alkalinity of ash as Na_2O	0.03
Silicon dioxide	69.90
Aluminum oxide	14.50
Iron oxide	5.40
Calcium oxide	0.93
Magnesium oxide	0.86

The above material consists entirely of montmorillonite clay calcined at approximately 1300° F. This material is chemically inert and provides no hazard when allowed to contact the skin or when applied to footwear. This material will absorb up to 95% of its own weight in moisture and can be rapidly dried out for reuse.

Referring now to FIG. 5, for best drying efficiency, it is desirable for the body 12 of the previous figures to be in intimate engagement with the interior surfaces of the toe portion of the shoe and it is further desirable that the shoe be maintained in a stretched condition during drying to prevent its curling up. The device 10 of the previous figures lends itself well to the incorporation in a shoe tree as shown in FIG. 5. Here, with like elements being indicated by like reference numerals, a de-

pending tab 38 is formed on shaping member 20 at the rear end thereof and approximately in the center of the rear wall 18. To this tab 38 is attached one end 40 of an elongated coil spring 42 which thus extends axially outwardly from the rear wall 18 of the body 12. A conventional ball 44 is attached to the other end of spring 42 for engaging the heel of the shoe. It is thus seen that the arrangement shown in FIG. 5 will not only force the body 12 into intimate engagement with the interior surfaces of the toe portion of the shoe, but will also prevent curling up of the shoe during drying.

Referring now to FIGS. 6, 7 and 8, in which like elements are again indicated by like reference numerals, the body 12 again comprises a top wall 14, a bottom wall 16 and a rear wall 18. Here, the top and bottom walls 14 and 16 are integrally formed of relatively thin self-supporting semi-rigid porous plastic foam material 46. The rear wall 18 is similarly formed of the same relatively thin porous foam plastic material and is heat-joined to form an integral junction with the top and bottom walls 14 and 16 as at 48. The cavity thus formed by the top, bottom and end walls 14, 16 and 18 is again filled with suitable powdered desiccant material 37.

The top wall 14 of the embodiment of FIGS. 6, 7 and 8 is again outwardly convex in cross section and tapers smoothly to generally a point at front end 22. In this embodiment, the bottom wall 16 is initially concave, as shown in FIG. 7. Thus, when the device is inserted in a shoe, the side portions 50 of top wall 14 are compressed inwardly in turn forcing the bottom wall 16 outwardly into engagement with the sole of the shoe, as seen in FIG. 8.

The device shown in FIGS. 6 through 8 inclusive is preferably constructed by making a mold with a cavity having the configuration of the top and bottom walls 14 and 16. A core is constructed smaller than the cavity by the desired wall thickness and is positioned within the cavity as is well known to those skilled in the art. The plastic material and foaming agent are then poured into the space surrounding the core and the mold cavity thus forming the top and bottom walls 14 and 16. The core is then removed and the desiccant 37 packed into the cavity defined by the top and bottom walls 14 and 16. The plastic material and foaming agent are then spread or otherwise deposited on the top and the mass of desiccant and the resulting rear wall 18 is then heat sealed to the top and bottom walls 14, 16.

There are many semi-rigid plastic foams known to the trade which possess the necessary porosity and thus need not be further described.

With the aforesaid material, I have found that a thickness of on the order of ⅛ inch for the walls 14, 16 and 18 provides a body 12 having requisite resilience, desiccant storing capacity, and moisture-absorbent properties. It will be observed that when completed, the embodiment shown in FIGS. 6, 7 and 8 comprises an integral desiccant-enclosing body having no seams. It will be readily seen that the device of FIGS. 6, 7 and 8 may be incorporated in a shoe tree arrangement in much the same manner as that shown in FIG. 5.

Referring now to FIGS. 9 through 12 inclusive, the preferred embodiment of my shoe drying device, generally indicated at 52 comprises a hollow self-supporting body 54 formed by an integral top wall portion 56 and integrally formed bottom and rear wall portions 58 and 60. The bottom and rear wall portions 58 and 60 are integrally joined to the edges 62 and 64 of the top wall portion 56, respectively, as will be hereinafter more fully described. The top wall 56 and the bottom and rear walls 58, 60 are preferably formed of relatively thin plastic material having some resilient properties, such as an acetate burate or polyethylene and mutually define a cavity as best seen in FIG. 12. As in the case of the previous embodiments, the top wall 56 is generally outwardly convex in cross section and merges generally to a point at its forward end 66 remote from the rear wall 60.

A porous cloth bag 68 containing powdered desiccant material 70 is positioned in the cavity defined by the top wall 56 and the bottom and end walls 58, 60 and is in engagement with at least top wall 56 and bottom wall 58, as seen in FIG. 12. The top wall 56 and the bottom wall 58 have a plurality of closely spaced holes or apertures 72 and 74 respectively formed therein communicating with the cavity and the cloth bag 68 thus permitting the desiccant material 70 to absorb moisture from the interior of the shoes.

In order to facilitate removal of the shoe drying device 52 from the interior of the toe portion of the shoe, a tab 76 formed of the same plastic material of which the walls are formed is provided integrally joined to the rear wall 60, being seated in a suitable notch 78 therein, and extends rearwardly therefrom, as shown.

In the manufacture of the device 52 of FIGS. 9 through 12 inclusive, top wall 56, and bottom and rear walls 58, 60 may be injection molded, the bag 58 of desiccant material positioned within the top wall 56, and the bottom and rear walls 58, 60 then positioned in engagement with the edges 62 and 64 respectively of the top wall 56 and heat-sealed thereto. Tab 76 is likewise heat-sealed in the notch 78 in the rear wall 60.

In an actual device constructed in accordance with FIGS. 9 through 12 inclusive, top wall 56 and bottom rear wall 58, 60 have a thickness of approximately 1/16 inch and apertures 72 and 74 have a diameter of approximately ¼ inch. It will be readily apparent that both the body 54 and the cloth bag 68 may be made in different attractive colors. I have found that while the acetate burate of which the top wall 56 and bottom and rear walls 58, 60 are formed is in and of itself quite flexible, the provision of the rear wall 60 contributes considerable rigidity to the device while nevertheless providing sufficient resilience to permit insertion of the device into the toe portion of the shoe and its conformance to the shape of the interior thereof.

It will be readily apparent that the embodiment of FIGS. 9 through 12 is also suitable for use as a part of a shoe tree in the manner shown in FIG. 5.

While I have illustrated and described specific embodiments of my invention, further modifications and improvements will occur to those skilled in the art and I desire therefore in the appended claims to cover all modifications which do not depart from the spirit and scope of my invention.

What is claimed is:

1. A device for drying the interior of the toe portion of a shoe comprising a self-supporting hollow body preformed generally to conform to and fill the interior of said toe portion and to engage all surfaces of the same, said body comprising two parts each formed of relatively thin semi-rigid plastic material, one of said parts forming a top wall portion and the other forming bottom and rear wall portions of said body, respectively, said parts being secured together mutually to define a cavity, said top wall portion being outwardly convex in cross-section and merging smoothly to a point at one end thereof remote from said rear wall portion, and a bag formed of porous cloth containing powdered desiccant material positioned in said cavity and in engagement with said top and bottom wall portions, said top and bottom wall portions have a plurality of closely spaced apertures formed therethrough thereby permitting said desiccant material to absorb moisture from the interior of said shoe.

2. The device of claim 1 further comprising an elongated resilient member having one end secured to said body and extending axially therefrom, said resilient member having means formed at its other end for engaging the heel portion of said shoe thereby to force said body into intimate engagement with said toe portion and to inhibit curling of said shoe during drying thereof.

3. The device of claim 1 further comprising a tab rigidly secured to said rear wall portion of said body and extending outwardly therefrom for inserting and removing said device from said toe portion of said shoe.

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