April 23, 1935. W. M. HOUCHIN ET AL 1,998,872

APPARATUS FOR DRYING AND SHAPING HOSIERY

Filed July 9, 1931

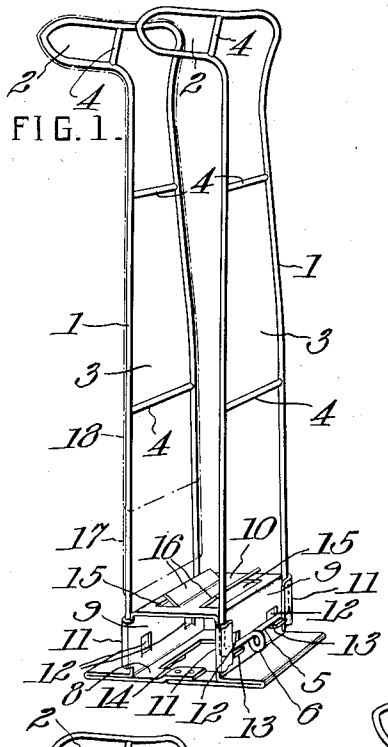


FIG. 1.

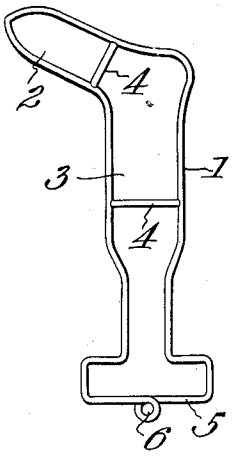


FIG. 2.

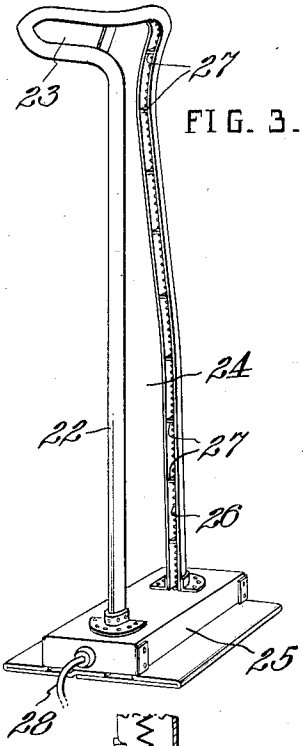


FIG. 3.

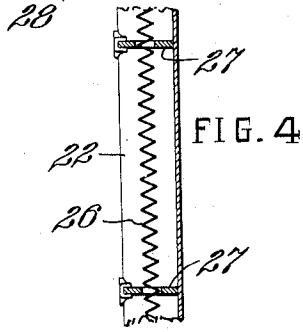


FIG. 4.

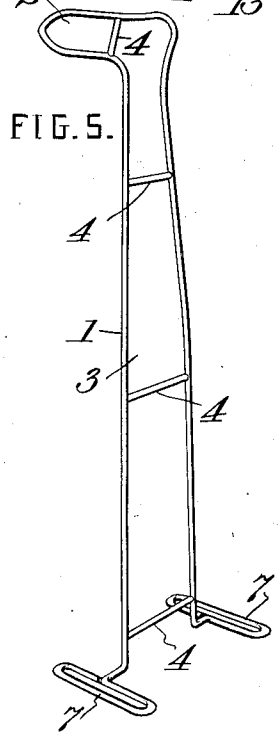


FIG. 5.

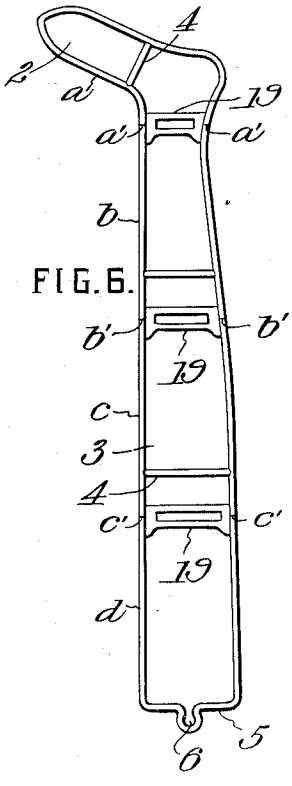


FIG. 6.

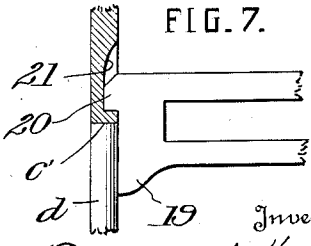


FIG. 7.

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APPARATUS FOR DRYING AND SHAPING HOSIERY

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6 Claims. (Cl. 223—17)

The object of this invention is to provide a method whereby hosiery may be rapidly, effectively and economically dried and shaped, and in apparatus whereby the method may be carried out.

The apparatus hereinafter described is adapted primarily for domestic use, and embodies structural and other features which enhance its usefulness in the home.

The invention contemplates a method of drying hosiery which includes the steps of arranging the hosiery on suitably shaped light open-work forms in such manner that it is distended, and in applying a drying medium, preferably heated air, in such manner that it will be presented both to the inside surface and to the outside surface of the hosiery, thereby providing for very rapid evaporation of the moisture from the hosiery and ensuring even and rapid drying thereof, the shape of the forms being such as to ensure giving to the hosiery the proper shape when dried. And the invention contemplates further, an open-work form of such construction as to necessitate only a slight surface contact of the hosiery therewith while being dried; in a support for such form, or a plurality of same; and in various modifications of such drying form, including a form adapted to be electrically heated, all as will be explained hereinafter more fully and finally claimed.

In the accompanying drawing illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a perspective view illustrating two drying forms mounted upon a base or support, the forms shown being of a size and shape adapted for women's stockings as indicated in broken lines. Fig. 2 is a side elevation of a form having such structural characteristics as enable it to be used with the base or support of Fig. 1 and of such shape as to make it suitable for the drying of men's socks. Fig. 3 is a perspective view illustrating a stocking form embodying the characteristics of the invention, and provided with means whereby it may be electrically heated, and with a base whereby it may be supported in advantageous drying position. Fig. 4 is a fragmentary longitudinal section of one of the frame members of the form of Fig. 3 illustrating, upon a larger scale, the arrangement of an electrical heating element therein. Fig. 5 is a perspective view of a modified type of form similar to those illustrated in Fig. 1, but provided with offset portions which serve for supporting it in upright position. Fig. 6 illustrates, in side eelvation, a further modification in which the form is made in sections so joined as to be taken apart and nested, thus requiring less storage space than the forms illustrated in the figures previously described. Fig. 7 is an enlarged fragmentary sectional elevation of one of the separable connections of the sections of the form illustrated in Fig. 6.

The method of the invention, as hereinbefore pointed out contemplates the arrangement of the hosiery upon the forms, while moist, in such manner that they are stretched to the proper shape and have their tops so spread or distended as to provide an opening and their juxtaposed leg and foot portions so separated as to provide an extension of this opening throughout the length of the leg and foot of the stocking, thus making provision for the passage of a heating medium, preferably heated air, not only over and around their exterior surfaces, but through the opening and over and around their interior surfaces, thereby making possible the dissipation of the moisture by currents of the heated air from the inside and outside of the hosiery simultaneously, and the presentation of such currents of heated air to the hosiery in such manner that it may thus act upon the inside and outside surfaces thereof simultaneously. By this method of drying, it will be seen that the heating medium is evenly distributed over the hosiery fabric, and the moisture rapidly and effectively carried off. Moreover, a relatively small amount of heat is required, for the reason that there being very little contact between the hosiery and the forms, as will later appear, the drying medium can act directly upon the fabric of the hosiery and does not have to heat the forms.

Referring now to the drawing, and particularly to Figs. 1, 2, 5 and 6 thereof, it will be seen that the open framework forms are preferably made of relatively small diameter but stiff wire or rod 1 bent to such shape as to provide a foot portion 2 and a leg portion 3 braced in proper position by cross braces 4 welded or otherwise suitably affixed. The leg portions of the forms illustrated in Figs. 1, 2 and 6 are provided at their ends with cross members 5 having eyes 6 by which the forms may be suspended, if desired.

In Fig. 5, the ends of the members of the leg portions are provided with offset portions 7 which may serve to support the forms in upright position over any appropriate source of heat.

In Fig. 1 there is shown a base member having a bottom 8, sides 9 and a top 10. The sides 9 are provided with clips or pockets 11 and with open-

ings 12, the material punched out of the sides to form these openings furnishing stops or supports 13 upon which the cross members 5 of the forms may rest when the forms are mounted upon the base by insertion of the lower parts of their leg portions in the clips or pockets 11. The base member, with a form or forms bearing stockings carried thereby is adapted to be positioned over any appropriate source of heat such as a gas burner, radiator or other household or the like heat producer, and in order that the heat may rise and be directed into desired drying relation to the hosiery mounted on the forms carried by the base, the bottom 3 is provided with an opening 14, and the top 10 is provided with openings 15 having baffles or deflectors 16. As indicated in broken lines, the tops 17 of stockings 18 mounted upon the forms will terminate in such proximity to the openings 15 and their baffles 16 that currents of heated air issuing through the openings 15 will be directed into the distended openings of the tops of the stockings and will pass upwardly through and within the stockings as well as over their outer surfaces. Moreover, currents of heated air will issue also through the openings 12 in the sides of the base and through the open ends of the base and will pass upwardly over the exterior surfaces of the stockings.

Thus, the base, in addition to supporting a form or forms and the stockings mounted thereon will serve to direct the heating medium in such manner that the method contemplated by the invention will be accomplished.

As shown, the base may be cheaply and readily constructed of one piece of sheet metal properly punched, bent and connected to provide the characteristics and elements described.

Obviously, a number of forms may be held in reserve, as desired, and supplied with washed stockings and inserted in the base in rotation, thus making it possible to dry a number of stockings by using one base and without removing the base from its position relatively to the source of heat.

Referring more particularly to the drying and shaping frame shown in Figs. 6 and 7, it will be seen that it is made in four sections *a, b, c* and *d*, separable on the lines *a'*, *b'* and *c'*, so that the form may be nested and its normal length thus shortened for packing and storage. Adjacent to the lines of separation *a'*, *b'* and *c'*, the sections *b, c* and *d* are provided with similar struts 19 having lugs 20 which engage with notches 21 in the contiguous portions of the members 1 of the adjacent sections *a, b* and *c*, respectively. These lugs 20 and notches 21 form the complemental elements of separable fastening devices whereby the several sections may be connected in longitudinal rigidity.

In Figs. 3 and 4, the form is shown as composed of a channel member 22 shaped to provide a foot portion 23 and a leg portion 24, and the ends of the leg portion are preferably rigidly attached to a base 25. Within the channel member 22, and preferably extending throughout the entire extent of the open framework form produced thereby, is an electrical heating element 26, preferably a coiled resistance, supported in spaced relation to the channel member 22 by a plurality of suitably spaced insulating members 27. The two ends of the heating element 26 terminate within the base 25 and are there connected with the two wires of a drop cord or other suitable electrical conductor 28 which may be provided, if desired, with a switch (not shown).

The cross-sectional contour of the channel member 22 is preferably elliptical or parabolic, so that the heat may be reflected from its inner surface into the interior of a stocking mounted upon the form. If desired, the inner surface of the member 22 may be plated or polished or otherwise appropriately treated to provide a good reflecting surface.

In all of the drying and shaping forms contemplated by the invention, it will be seen that there is relatively very little of the surface of the form in contact with the hosiery mounted upon it, and that, therefore, the heating medium (heated air, preferably) is free to circulate through and in contact with both the inside and outside surface of the hosiery free of any material obstruction or interference by the form. Moreover, the rods or wires or channel members of which the forms are made are relatively so light that while they will maintain the hosiery distended with juxtaposed surfaces out of contact for free circulation of air they will produce no appreciable marking of the hosiery where they contact therewith and, furthermore, they absorb very little of the heat and hence do not detract appreciably from the drying effect.

Although the apparatus of the invention has been described particularly as for domestic or household use, it will be apparent that it may be so modified or mounted as to adapt it for factory, laundry and other industrial uses.

Various changes and modifications are deemed to be permissible within the spirit of the invention and the scope of the following claims.

What we claim is:—

1. A stocking drying and shaping apparatus, comprising an open framework form made in separable detachable foot and leg sections, and a strut arranged adjacent to each of the lines of separation of such sections, said struts furnishing means of connection for assembling said sections.

2. A stocking drying and shaping apparatus, comprising an open framework form made in separable sections shaped to conform to the foot and leg portions of a stocking, a strut in each section spanning the line of separation between such section and the next adjacent section, each of said struts provided with one element of a separable fastening device for the sections, the complemental element of such fastening device being carried by the contiguous portion of the adjacent section.

3. Apparatus for drying and shaping hosiery, including an open framework form having foot and leg portions adapted to support hosiery in distended condition with the hosiery top held open, and a base for mounting such form in inverted position with the foot portion uppermost, said base adapted to be arranged upon means for producing a drying medium and having means for permitting the issuance of such medium, said means including apertures for passing portions of such medium exteriorly and interiorly of said hosiery, the apertures for passing heating medium interiorly of the hosiery including members substantially alined with the open hosiery top for directing said medium into the interior of said hosiery.

4. Apparatus for drying and shaping hosiery, including a base adapted to be operatively positioned with respect to a source of heated air, said base provided with means for detachably mounting a hosiery drying form, said form adapted to support the hosiery in inverted position with the

foot uppermost and the top held open, said base provided with means including apertures for permitting issuance of the heated air therefrom in proximity to the hosiery, certain of said apertures provided with deflectors arranged in substantial alignment with the open hosiery top and functioning to direct a portion of the heated air into the interior of the hosiery through the open top thereof.

5. Apparatus for drying and shaping hosiery, including a base adapted to be operatively positioned with respect to a source of heated air, said base comprising a sheet metal member provided with clips for supporting open framework hosiery forms thereon, said base provided with a plurality of apertures for permitting the escape of heated air therefrom in proximity to hosiery mounted upon said forms in distended condition with their foot portions uppermost and their tops held open, certain of said apertures provided with deflectors located in proximity to and below the open tops of the hosiery and so arranged as to direct portions of the heated air into the interior of the hosiery through the open tops thereof.

6. Apparatus for drying and shaping hosiery, including a base adapted to be operatively positioned with respect to a source of heated air, said base comprising a member including bottom and top portions arranged in spaced relation and connected by side portions, clips connected with said side portions and adapted to detachably support open framework hosiery forms upon which hosiery may be mounted in distended condition with their tops held open and adjacent to the top of said base, the side and top portions of said base provided with apertures for the passage of heated air in proximity to said hosiery, the apertures in said top portion provided with deflectors terminating adjacent to the open tops of the hosiery and functioning to direct a portion of the heated air into the interior of the hosiery through the open tops thereof.

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