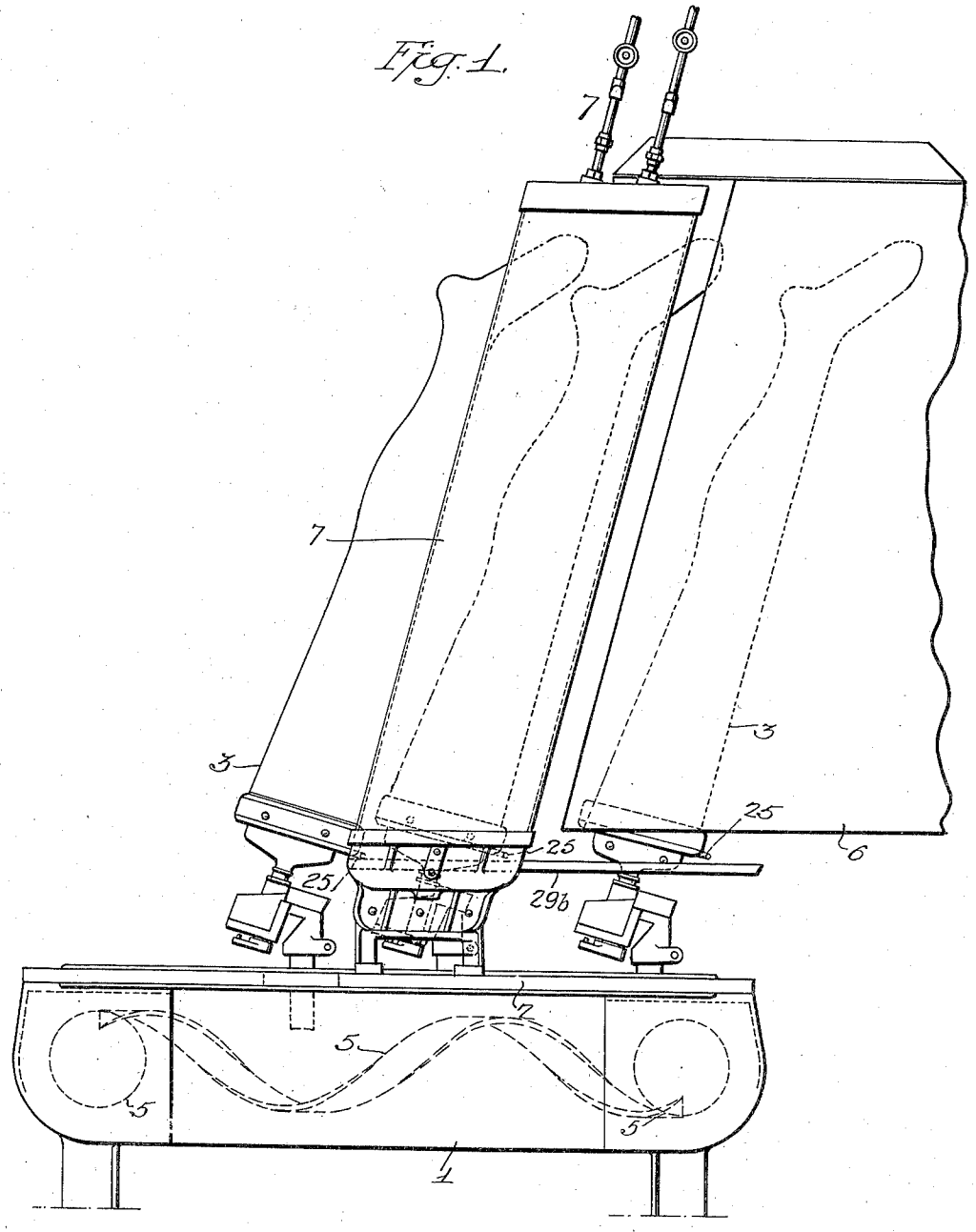
Nov. 15, 1938. W. M. SCHWARTZ 2,136,526

DRAIN FOR HOSIERY FORM

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Fig. 1.



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Fig. 7.

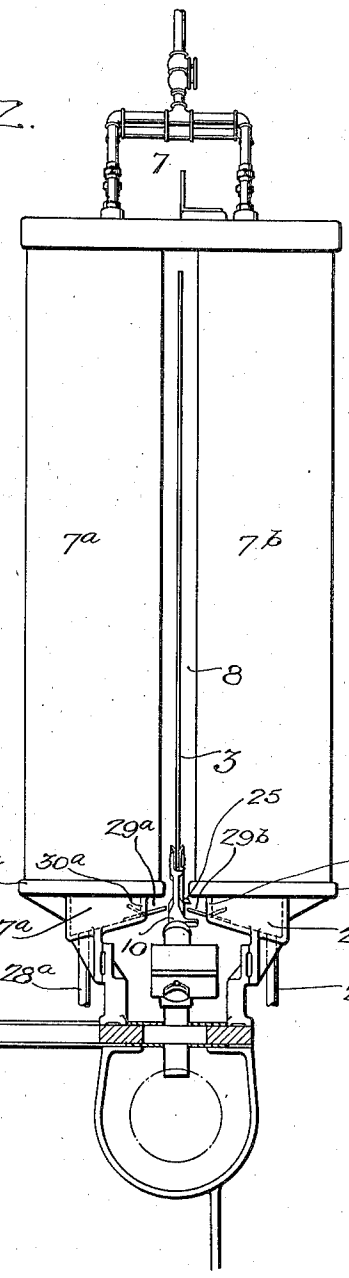


Fig. 4.

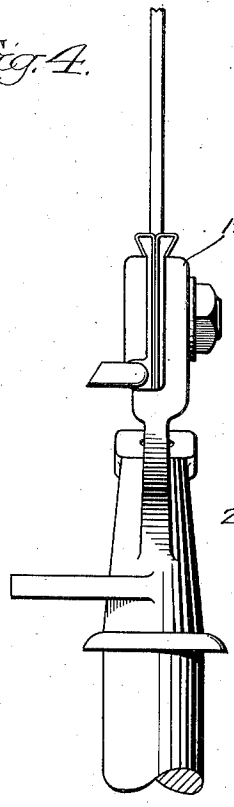
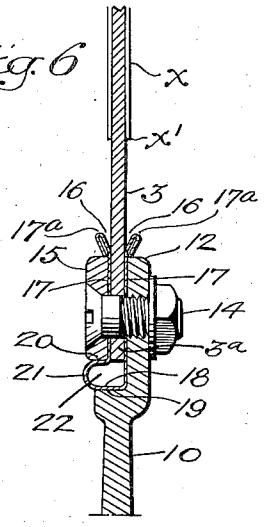


Fig. 6



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Fig. 5.

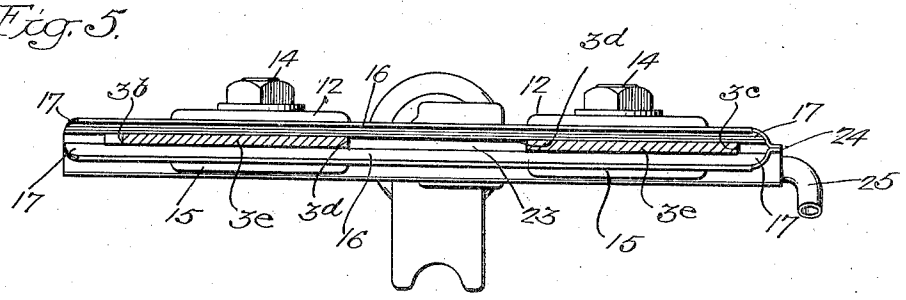
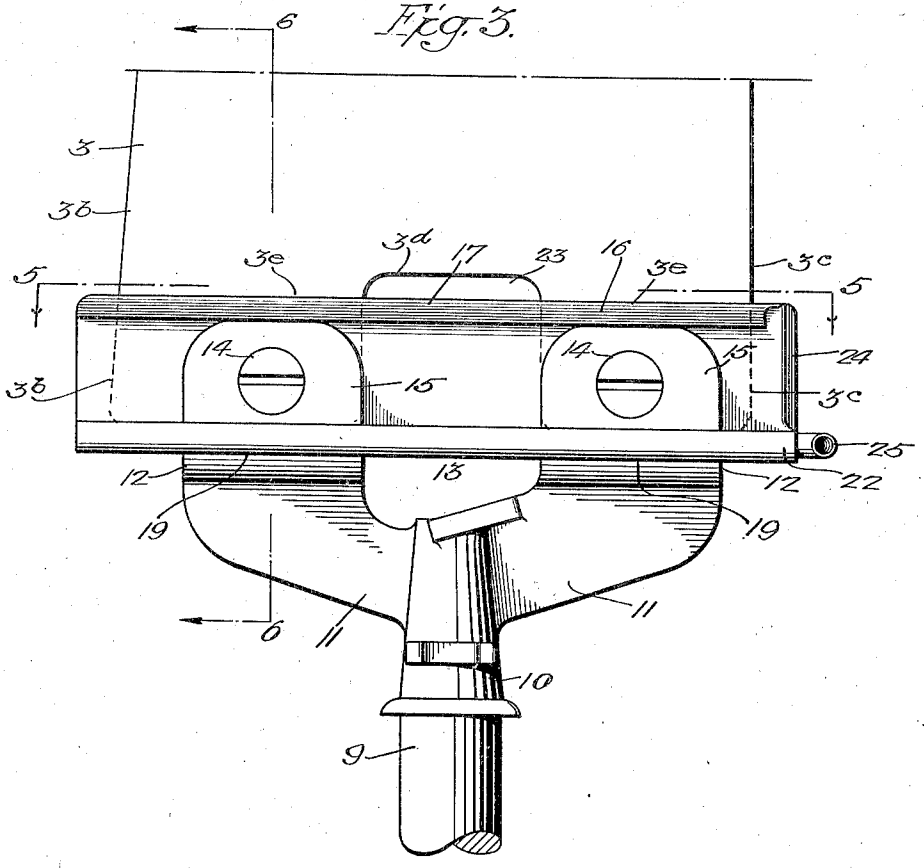


Fig. 3.



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UNITED STATES PATENT OFFICE

2,136,526

DRAIN FOR HOSIERY FORM

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Application March 3, 1936, Serial No. 66,944

14 Claims. (Cl. 223—76)

This invention relates to hosiery driers, particularly automatic driers such, for example, as those of the type disclosed in U. S. Letters Patent No. 1,112,320, dated September 29, 1914, and especially when such a drier is equipped with a device of the type disclosed in U. S. Letters Patent No. 1,576,333, dated March 9, 1926, or that disclosed in U. S. Letters Patent No. 2,006,501, dated July 2, 1935 for spraying or otherwise moistening hosiery after the stockings have been placed on drying forms and prior to the entrance of the forms into the drying chamber.

In an apparatus of the above type, it has been found that in some instances after the stockings have been moistened a portion of the moisture runs down and accumulates at the bottom of the form and after the form passes into the drying chamber this moisture drips onto the underlying operating parts of the drier, resulting in the mechanism of the drier becoming rusted, frequently to an extent where the operation of the mechanism is impaired.

The object of the present invention is to eliminate the above noted condition by providing suitable drains for catching the excess moisture, preferably by providing each form with a suitable catch drain or gutter below the lowermost edge of the stocking and providing each catch drain with a spout arranged to communicate with and discharge the moisture into a stationary trough running parallel to the path of movement of the form from the moistener to and through at least a portion of the drying chamber, said trough in turn being connected to a suitable drain by which the moisture in the trough is carried away from the machine.

The construction and operation of the mechanism forming the subject of the present invention will be fully disclosed hereinafter, reference being had to the accompanying drawings, of which:

Fig. 1 is an end view of an automatic hosiery drier equipped in accordance with the principles of the present invention;

Fig. 2 is a front elevation partly in section and showing the relation of the spraying device, a form and the drain trough;

Fig. 3 is a side elevation of the lower portion of a hosiery drying form equipped with a catch drain in accordance with the principles of the present invention;

Fig. 4 is an edge view of the form shown in Fig. 3;

Fig. 5 is a sectional plan view taken on the line 5—5, Fig. 3; and

Fig. 6 is a vertical section taken on the line 6—6, Fig. 3.

As shown in Fig. 1 of the drawings of the present case and in the drawings of the patents above noted, the automatic hosiery drier comprises a base structure 1 having a track 2 arranged in a rectangular course and on which ride the form-supporting carriages. The carriages and the forms respectively supported thereby are propelled along the track 2 by spiral cams 5, or equivalent mechanism, mounted in the base 1.

Above the base 1 and extending along and above the rear run of the track 2 thereof is a drying chamber 6 into which the drying forms pass in succession, the drying chamber being provided with an entrance slot through which the forms 3 pass.

In front of the drying chamber and in the present instance supported by the base 1 is a spraying device 7 which, as shown in Fig. 2, comprises a pair of box-like structures 7a and 7b spaced apart laterally to provide a channel 8, through which the forms 3 pass.

Each of the structures 7a and 7b encloses spraying or other moistening mechanism such as disclosed in the last two above noted patents and which forms no part of the present invention. The moistening devices 7a, 7b direct a body of moisture toward each of the opposite sides of the form 3 respectively for moistening the stockings carried on the forms 3, 3 as the forms pass through the channel 8 on way to the drying chamber 6.

As shown in Figs. 3 to 6, each form is supported by a bracket 10 which includes a spindle portion 9 which is rotatably mounted in the form-supporting carriage as shown in said patents.

The upper end of the spindle 9 is provided with a pair of laterally extending arms 11, 11, each arm being provided at its outer end with a vertically extending ear 12, said ears being disposed in a common vertical plane and spaced laterally from each other to provide an open space 13 therebetween.

The form 3 is normally secured in position against one face of the ears 12, 12 by bolts 14, which pass through said ears, through the form, and through clamp plates 15, 15 which correspond in shape to the upper ends of the ears 12, 12 respectively.

In the present instance, each form 3 is provided with a catch drain or gutter 16, at each of its opposite sides, and which extend across the full width of and beyond the side edges 3b

and 3c of the lower portion of the form 3, between the upper edges of the ears 12 and clamp plates 15 and the lower edge x^1 of the stocking x on the form, whereby any moisture running down the form from the stocking will be caught by the drain gutters 16, 16.

In the present instance, these gutters 16, 16 are formed by flaring the upper ends or edges 17a, 17a of plates 17, 17 outwardly from the planes of the opposite sides respectively of the form 3.

The plates 17, 17 extend downwardly between the inner faces of the ears 12 and one face of the form 3, in one instance, and between the inner faces of the clamp plates 15 and the opposite face of the form 3 in the other instance, said plates being held firmly in contact with the opposite faces of the form 3 by clamp bolts 14.

One of the plates 17, that is, the one bearing against the ears 12, is longer than the other plate which latter terminates at the lower ends of the clamp plates 15 and the substantially coinciding lower edge 3a of the form 3, the longer of the two plates being bent substantially at right angles to the plane of the body of the plate as indicated at 18 with said right angle portion resting on a shoulder 19 provided on the form-supporting ears 12, 12. The other of the plates 17 bends outwardly substantially at right angles to the plane of the body thereof, as indicated at 20, said right angle portions 19 and 20 of the plates 17, 17 being substantially parallel and spaced one above the other and connected by semi-circular portion 21 which provides a horizontally extending channel 22 below the lower edge 3a of the form 3.

As shown in Figs. 3 and 5, the plates 17, 17 extend laterally beyond the side edges 3b and 3c of the form 3. It will also be noted in Fig. 3 that the lower end of the form 3 is cut out as indicated at 3d providing depending portions 3e, 3e which are clamped between the ears 12 and plates 15 and which provides an open space 23 therebetween which is of a width substantially equal to the width of the space 13 between the ears 12, 12.

At one side of the form 3, the plates 17, 17 are bent toward each other and secured together as by welding or soldering, as indicated at 24 in Figs. 3 and 5, and at the lower part of the connected edges 24 of the plates 17, 17, and communicating with the channel 22, and projecting laterally from the form 3, is a spout 25.

With the mechanism so far described moisture running down the form 3 will be trapped by the drain gutters 16, 16 and will run along the said gutters toward the closed end 24 of the drain structure and out through the spout 25, by reason of the inclination of the forms as illustrated in Fig. 1.

The moisture running along the one portion 3e of the form most distant from the spout 25 will pass into the opening 23, then downwardly between the plates 17, 17 into the channel 22, which extends the full width of the form and beyond the side edges thereof and below the lower edge 3a of the form, to the spout 25.

The moisture running along the other portion 3e of the form, that is, the portion nearest the spout 25, will pass inwardly around the edge 3c of the form and run down between the plates 17, 17, between the edge 3c of the form and the closed end 24 of the drain structure.

Any moisture running down the edge 3b of the form will pass downwardly between the plates 17, 17 and under the lower edge 3a of the form and into and along the channel 22.

Thus it will be seen that regardless of what portion of the form the moisture may run down it will be trapped by the drain device and directed into the spout 25 before it has an opportunity to drop onto any of the mechanism above which the form may pass.

The base portions 26a, 26b of the moistening or spray box structures 7a and 7b are hollow as indicated at 27a and 27b respectively for collecting moisture which runs down the inside of the moistener housings 7a and 7b, said moisture being drained from the hollow bases 27a and 27b by suitable drains 28a and 28b respectively which carry the moisture away from the machine.

In order to trap any moisture that may fall through the channel 8 at opposite sides of a form 3 positioned in the channel during the moistening operation, the bases of the spray boxes 7a—7b are provided with horizontally extending troughs 29a and 29b respectively, the inner edges of which are spaced apart just sufficiently to permit the spindle structure 10 of the form 3 to pass therebetween.

In the present instance, the troughs 29a and 29b extend parallel to the path of movement of the forms 3 from the hollow bases 27a, 27b of the moistening device 7 to the place where said forms enter the drying chamber 6, and the trough 29b which is disposed at that side of the form toward which the spout 25 projects, extends rearwardly from the moistening device to a position beyond the rear edge of the underlying housing 1, whereby any moisture passing out of the spout 25 will be caught by the trough 29b and carried back into the hollow housing 27b of the structure 7b, passing into said hollow base through a passage 30b, whereby the moisture may pass away from the machine through the drain 28b. The trough 29a communicates with the hollow base 27a through a corresponding opening 30a.

The trough 29a is shorter than the trough 29b for the reason that the forms 3 after passing into the drying chamber 6 move in a direction at right angles to the direction in which they move into the drying chamber. Consequently, the trough 29b is used for receiving the moisture from the spouts 25 of the driers.

If desired, the trough 29b may be provided with a lateral extension which may extend below the ends of the spouts 25 as the forms move in said right angle direction through the drying chamber from the one end to the other end thereof, but it has been found that before this right angle movement of the forms begins the excess moisture from the stockings on the forms has in normal cases been evacuated from the forms. Hence it is necessary to extend the trough 29b only to the rear edge of the housing 1.

I claim:

1. The combination of a hosiery form adapted to support a moist stocking vertically, and a drain structure comprising a plate bent around the lower edge of the form and extending upward along and parallel to the opposite faces respectively of the form with the upper edges of the upwardly extending portions of the plate spaced from said opposite faces of the form to catch moisture passing down said form.

2. The combination of a hosiery form adapted to support a moist stocking vertically, and a drain structure comprising a plate bent around and spaced from the lower edge of the form to form a channel below the form and having the opposite ends of the plate extending upward along and

parallel to the opposite faces respectively of the form with the upper edges of the upwardly extending portions of the plate spaced from said opposite faces of the form to catch moisture passing down said form and to direct said moisture into said channel.

3. The combination of a hosiery form adapted to support a moist stocking vertically, a drain structure comprising a plate bent around and spaced from the lower edge of the form to form a channel below the form and having the opposite ends of the plate extending upward along and parallel to the opposite faces respectively of the form with the upper edges of the upwardly extending portions of the plate spaced from said opposite faces of the form to catch moisture passing down said form and to direct said moisture into said channel, and a spout at one end of said channel for carrying said moisture away from said form.

4. The combination of a hosiery form adapted to support a moist stocking vertically, a drain structure comprising a plate bent around and spaced from the lower edge of the form to form a channel below the form and having the opposite ends of the plate extending upward along and parallel to the opposite faces respectively of the form and outwardly beyond the side edges of the form and joined together in spaced relation to at least one of said side edges with the upper edges of the upwardly extending portions of the plate spaced from said opposite faces of the form to catch moisture passing down said form and to direct said moisture into said channel, and a spout at one end of said channel for carrying said moisture away from said form.

5. The combination of a flat imperforate hosiery form adapted for supporting a moist stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, and a drain on the form below the stocking and above the support, for catching moisture passing down the form with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track.

6. The combination of a flat imperforate hosiery form adapted to support a stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for moistening the stocking on the form, and a drain on the form below the stocking and above the support for catching moisture passing down the form with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track.

7. The combination of a flat imperforate hosiery form adapted to support a moist stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for drying the stocking on the form, and a drain on the form below the stocking and above the support for catching moisture passing down the form at the beginning of said drying with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track.

8. The combination of a flat imperforate hosiery form adapted to support a stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for moistening the stocking on the form, means for drying the stocking on the form, and a drain on the form, below the stocking and above the support for catching moisture passing down the form during said moistening and at the beginning of said drying with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track.

9. The combination of a flat imperforate hosiery form adapted to support a stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for moistening the stocking on the form, means for drying the stocking on the form, means for passing the form through the moistening means into the drying means, and a drain on the form below the stocking and above the support for catching moisture passing down the form during said moistening and at the beginning of said drying with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track.

10. The combination of a flat imperforate hosiery form adapted to support a stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for moistening the stocking on the form, means for drying the stocking on the form, means for passing the form through the moistening means into the drying means, a drain on the form below the stocking and above the support for catching moisture passing down the form with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track, and a drain extending along the path of movement of said form and arranged to catch moisture passing from said form-carried drain during said moistening and at the beginning of said drying and while the form is passing from the moistening to the drying means.

11. The combination of a flat imperforate hosiery form adapted to support a moist stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, a drain carried by said form below said stocking and above the support for catching moisture passing down said form, with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track, a spout communicating with said drain and carrying said moisture away from said form, means for advancing the form and its support along a predetermined path, and means extending along said path for receiving the moisture from said spout enroute.

12. The combination of a flat imperforate hosiery form adapted to support a moist stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, a drain carried by said form below said stocking and above the support for catching moisture passing down said form with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing

said moisture from passing down to said swivel support and said track, a spout communicating with said drain and carrying said moisture away from said form, means for advancing the form and its support along a predetermined path, and a trough extending parallel to and at one side of the path of movement of said form, for receiving the moisture from said spout enroute.

13. The combination of a flat imperforate hosiery form adapted to support a stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for moistening said stocking on said form, means for advancing said form and its support along a predetermined path away from said moistening means, a drain carried by the form below the stocking and above the support for catching moisture passing down said form with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track, and a drain communicating with and extending from said moistening means along the path of movement of said form for receiving the moisture from the form-carried drain and returning said moisture to said moistening means.

14. The combination of a flat imperforate hosiery form adapted to support a stocking in a vertical position, a swivel support for the form, a track for supporting and guiding said swivel support, means for moistening said stocking on said form, means for advancing said form and its support along a predetermined path away from said moistening means, a drain carried by the form below the stocking and above the support for catching moisture passing down said form with the surface of the form providing an unobstructed passage for said moisture between the stocking and the drain, said drain preventing said moisture from passing down to said swivel support and said track, a drain communicating with and extending from said moistening means along the path of movement of said form for receiving the moisture from the form-carried drain and returning said moisture to said moistening means, and means for removing said drainage from said moistening means.

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