P. M. SMITH & T. W. PROSSER.

HOSIERY DRYING APPARATUS.

APPLICATION FILED SEPT. 1, 1917.

1,253,994.

Patented Jan. 15, 1918.

4 SHEETS—SHEET 1.

Fig. 1.

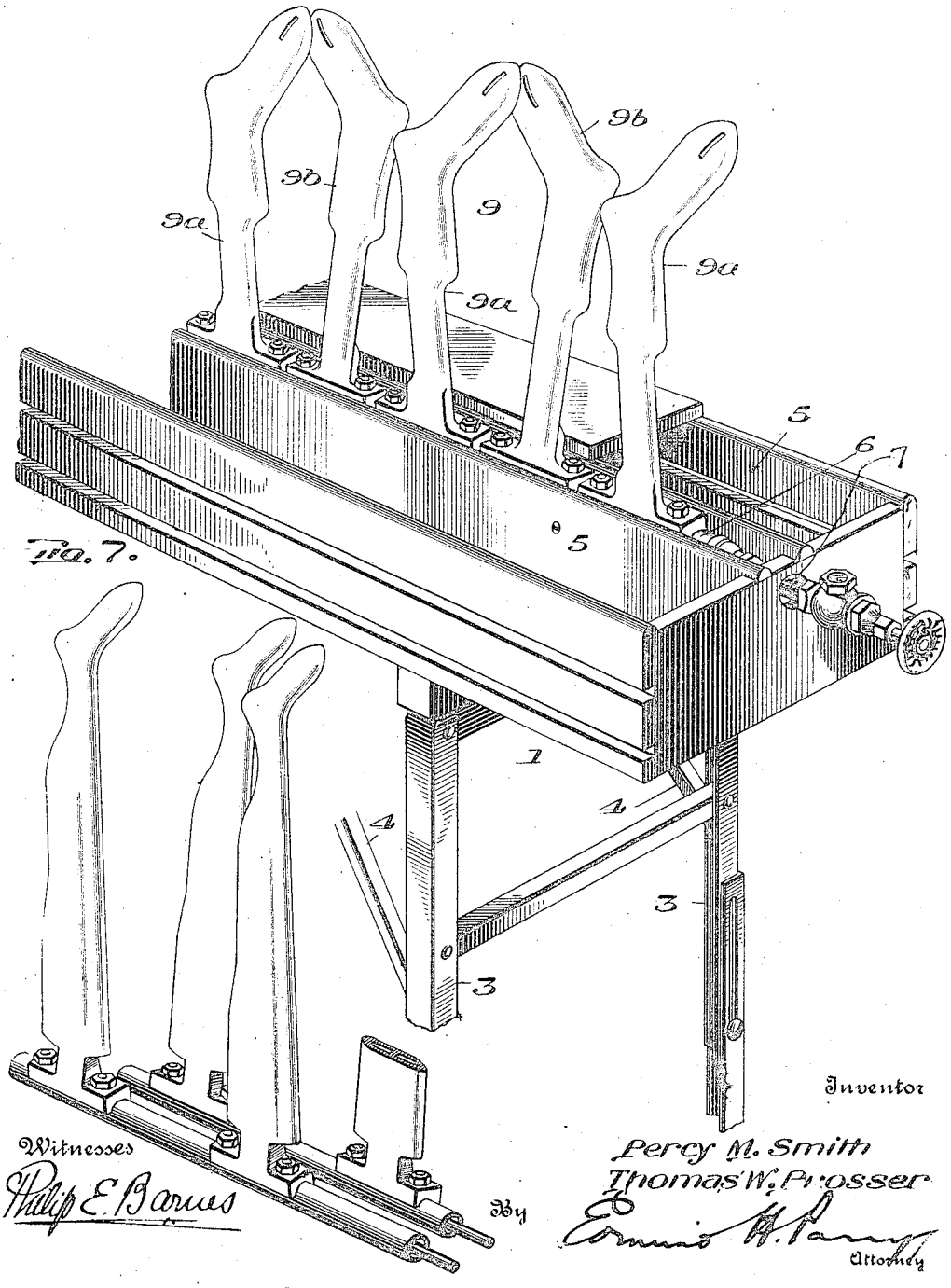


Fig. 7.

Witnesses

Phillip E. Barnes

By

Inventor

Percy M. Smith

Thomas W. Prosser

Edmund W. Parry

Attorney

P. M. SMITH & T. W. PROSSER.

HOSIERY DRYING APPARATUS.

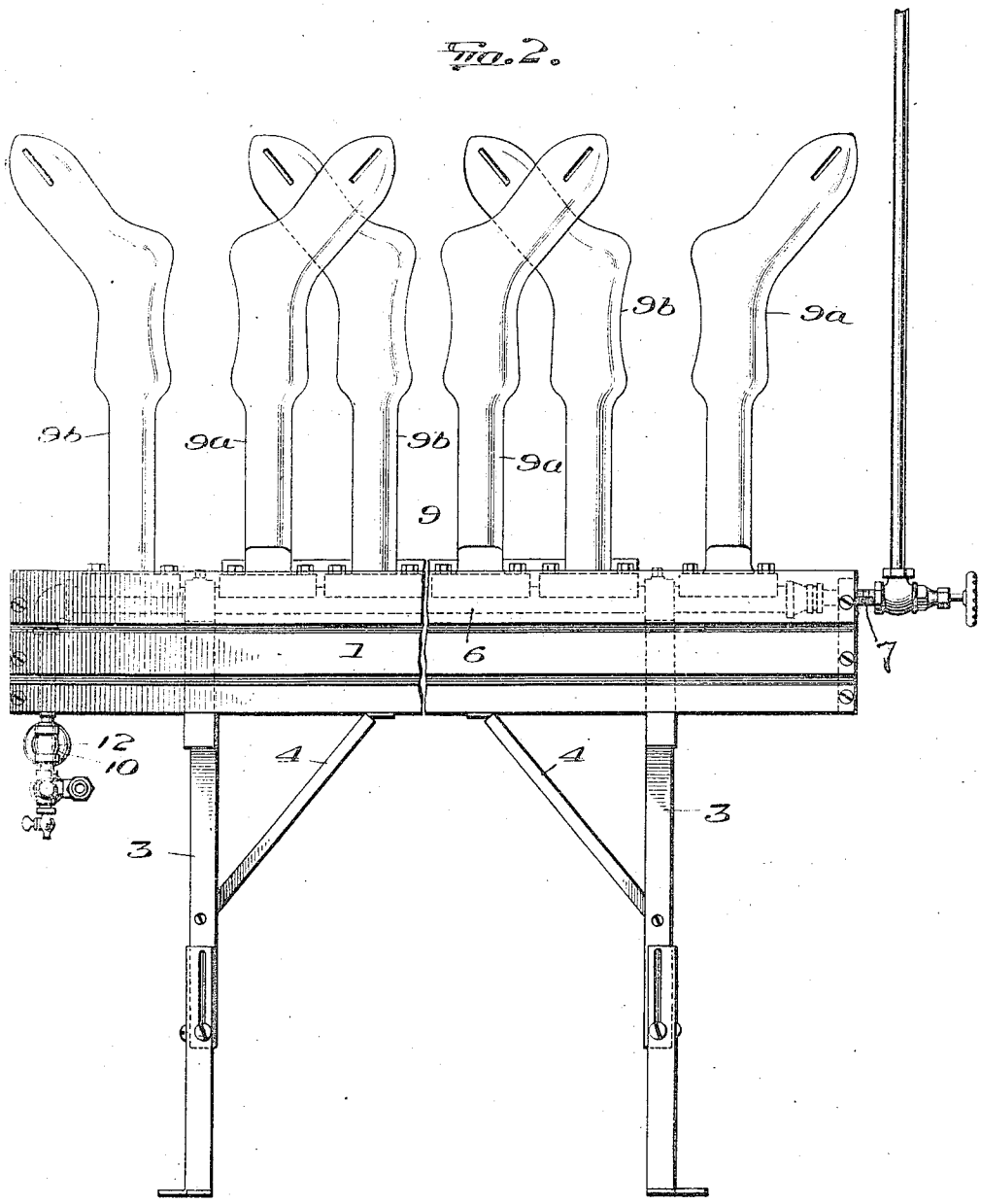
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses

Philip E. Barnes

Inventor

Percy M. Smith

Thomas W. Prosser

By Edmund H. Lamy

Attorney

P. M. SMITH & T. W. PROSSER.

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4 SHEETS—SHEET 3.

Fig. 4.

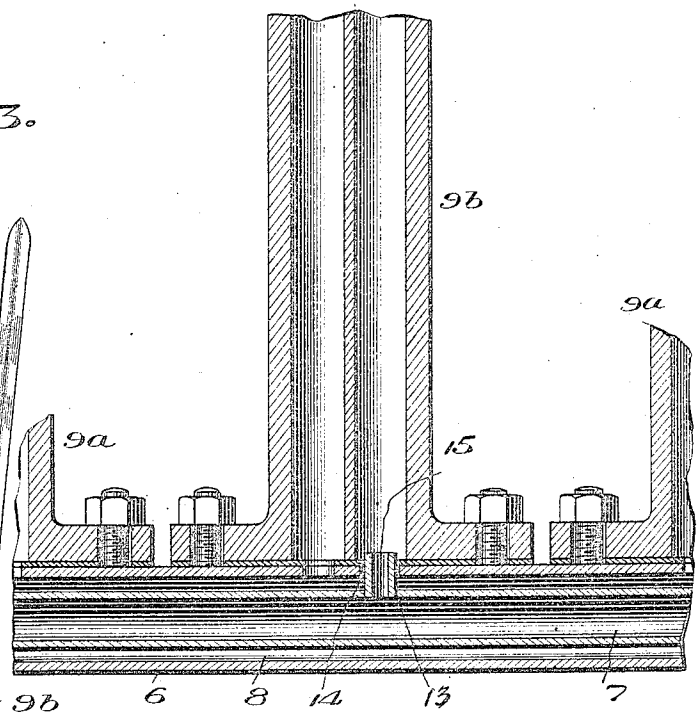
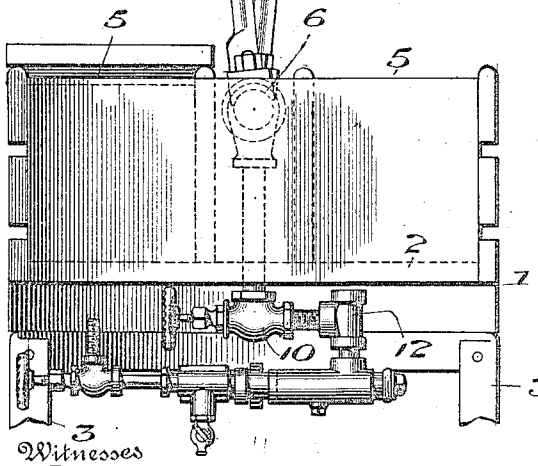


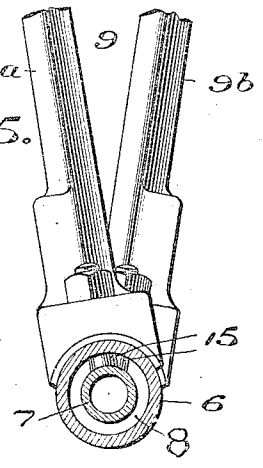
Fig. 3.



Witnesses

Philip E. Barnes

Fig. 5.



Inventor

Percy M. Smith

Thomas W. Prosser

By Edmund H. Lang

Attorney

P. M. SMITH & T. W. PROSSER.

HOSIERY DRYING APPARATUS.

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4 SHEETS—SHEET 4.

Fig. 6

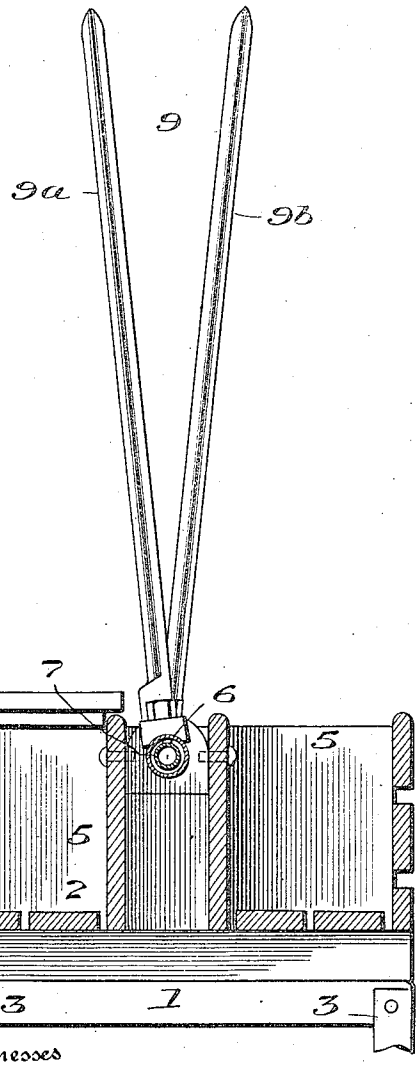
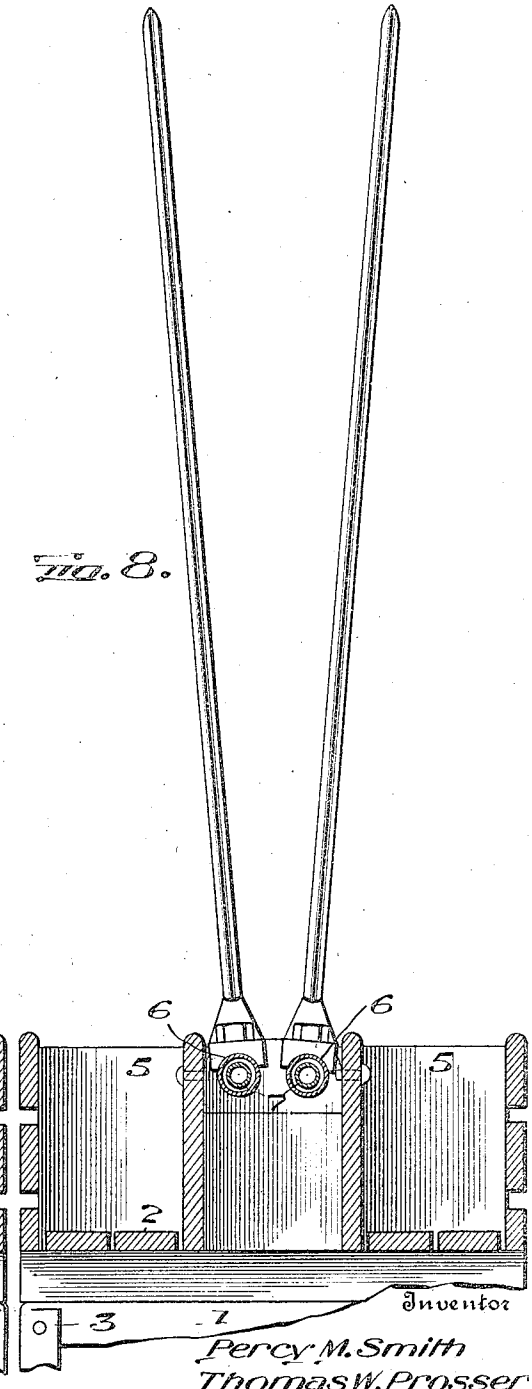


Fig. 8.



Witnesses

Philip E. Barnes

Inventor

Percy M. Smith

Thomas W. Prosser

By Edmund Adams

Attorney

UNITED STATES PATENT OFFICE.

PERCY M. SMITH, OF HAMILTON, ONTARIO, CANADA, AND THOMAS W. PROSSER, OF BEAVER DAM, WISCONSIN, ASSIGNORS TO PARAMOUNT HOSIERY FORM DRYING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

HOSIERY-DRYING APPARATUS.

1,253,994. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed September 1, 1917. Serial No. 189,270.

To all whom it may concern:

Be it known that we, PERCY M. SMITH and THOMAS W. PROSSER, citizens of the United States, the former residing at Hamilton, in the Province of Ontario, Dominion of Canada, and the latter residing at Beaver Dam, in the county of Dodge and State of Wisconsin, have invented certain new and useful Improvements in Hosiery-Drying Apparatus, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to drying apparatus and has more especial reference to a compact and simplified structure for simultaneously drying and shaping hosiery by a single operation as distinguished from the two-step operation quite generally practised for many years in hosiery mills.

The object of the invention is to provide a novel arrangement of the hosiery-drying and shaping forms—constituting a component of the apparatus—whereby a very considerable saving of floor-space in a mill is effected without at all reducing the capacity of the apparatus and with resulting economies of piping, steam, etc.

Another object of the invention is to provide a table formed with hosiery-supporting surfaces and provided with a plurality of steam-heated, hosiery-drying forms and a steam-pipe disposed between the surfaces and common to all of the forms which are mounted thereon in oppositely inclined relation, whereby the table is made comparatively narrow and, thus, conserves floor-space in a very large measure and to a very desirable degree.

Another object within the contemplation of our invention is to provide a single pipe on which a plurality of steam-heated hosiery-drying and shaping forms are mounted, these forms being alternately disposed thereon in oppositely-inclined relation so that the entire series is supplied with steam from the pipe and in order that one form may radiate heat to its companion forms and thereby effect an application of heat to the external surface of hosiery on these forms to supplement the drying action of the forms while they directly apply heat to the internal surface of such hosiery.

Still another object is to change the direction of inclination of these forms from that at which they have heretofore generally been disposed, so that the manual manipulation of the hosiery on the forms by the operator—or "boarder" as he is usually designated—is necessarily changed and a more careful action by the boarder is insured to produce a better finish of the goods.

In general, it may be stated that the present invention involves an improvement upon the table-structure disclosed in United States Letters-Patent No. 1,207,494 and contemplates a novel and simplified disposition of the hosiery drying and heating forms therein disclosed: In that patent, the table is provided with two longitudinal troughs juxtaposed to each other, there being two series of forms, each mounted, on a form-supporting, steam-supplying pipe disposed longitudinally of but in front of the troughs. In practice, this has been found to be an efficient structure; but it requires considerable floor-space, two distinct steam-supplying pipes and adjunctive connections, valves, etc. By our construction, we have reduced the floor-occupying limits of the table by a half, approximately, so that, in a given area, more than twice the number of tables may be arranged. Moreover, in lieu of the two pipes, we provide only one and mount thereon two series of forms, each series being operated from opposite sides of the table. Furthermore, instead of forming the troughs at the rear of the row of forms, these troughs are placed in front of the forms. This is handier for the operator and reduces the danger of his burning his hands and arms on the forms in reaching into the troughs for the hosiery to be stretched on the forms. Another feature of our construction is that the forms are made to incline and lean toward the operator instead of away from him, as heretofore was the practice. It has been found, as a result of this new way of mounting the forms, that the operator is of necessity obliged to manipulate the goods differently and more carefully than when boarding goods on forms which lean away from him.

The foregoing are all results which have been demonstrated in actual practice on apparatus embodying our invention which has now gone into extensive and successful use.

In order that the invention may be readily comprehended, we have shown it in the

accompanying drawings which, however, are merely illustrative of a preferred embodiment and are not to be taken as indicative of any precise form or arrangement. As a matter of practice, our construction is susceptible of a wide range of modification without departing from the principles and advantages of our invention.

In these drawings:

Figure 1 is a fragmentary view in perspective of the structure;

Fig. 2 is a view in front elevation thereof;

Fig. 3 is a view in end elevation of the same;

Fig. 4 is a fragmentary view in longitudinal section showing the pipe-within-a-pipe arrangement, etc.;

Fig. 5 is a view (also more or less fragmentary) in transverse section thereof;

Fig. 6 is a fragmentary view in vertical transverse section of the structure shown in Figs. 1 and 2;

Fig. 7 is a fragmentary view in perspective of a modification which includes two sets of hosiery forms mounted on a double piping; and

Fig. 8 is a view in vertical transverse section of this structure.

Referring to the drawings, the reference-character 1 designates the table, generally, which in this instance comprises bottom-portions or surfaces 2, supporting legs or standards 3 secured thereto, braces 4 connected to the standards, and longitudinally-extending parallel hosiery-receiving troughs or receptacles 5 formed in part by the surfaces 2.

Preferably and as shown, these troughs 5 are in this instance formed at the front of each side of the table and, thus, are more immediately accessible to the operator.

Extending longitudinally of the table and intermediate the troughs 5 is a form-supporting conduit shown in this instance as a pipe 6. Preferably and as shown, this pipe is securely anchored to the standards 3 so as to provide rigidity to the entire structure. Within this pipe is a second or steam-supplying pipe 7 of less diametral dimensions than the pipe 6 so as to provide a drain-passage 8 between the pipes for carrying off steam and water of condensation from the hosiery-drying elements or forms (designated, generally, by 9 and presently to be described) of the structure. This drain leads to a suitable place of discharge, there being a valve 10, a pet-cock 11, etc., adjacent the end of the table for controlling the drain and for opening up the passage 8. A trap 12 is also provided in proximity to the valve 10.

The pipe 7 connects with a suitable source of steam-supply (not shown) whereby live or exhaust-steam is led into and through the pipe for furnishing a heating medium to the hollow forms 9 for heating them from within whereby they radiate their heat to the internal surface of the hosiery superposed upon them and, thus, effect a simultaneous drying and shaping of such hosiery. The pipe 7 is provided with a series of apertures 13 which register with similar apertures 14 in the supporting pipe 6. In the apertures 13 are disposed nipples or couplings 15 which extend through and project beyond the apertures 14.

Mounted on the pipe 6, in spaced-apart relation, are the forms 9. In this instance, there are two distinct series of these forms, these being designated in Figs. 1, 3 and 4 as 9^a and 9^b, respectively. It will be understood that the steam-supplying pipe 7 is, however, common to both series, as is their supporting-pipe 6. In effect, therefore, there is but a single pipe for the two series of forms. This is a radical departure from prior practice and posseses distinctly new and important advantages.

As shown, each alternate form 9^a constitutes one of a series, and between these are interposed the forms which constitute the 9^b series. Because of the disposition of the pipe 6 to the rear of each trough and, thus, between the two troughs, each series of the forms, themselves, is mounted to the rear of its respective trough.

As already mentioned, it has been the practice heretofore to connect the forms to two separate supply pipes and in front of the troughs. In this prior practice, also, the forms inclined backwardly and, thus, overleaned the rearwardly-formed troughs. We have found it of distinct advantage to reverse the direction of inclination and to arrange them so as to lean toward the operator: In the first place, this new arrangement brings the upper portion of the form nearer the operator so that it shortens the reach in stretching the hosiery onto each form and in stripping it therefrom. This is particularly important where women boarders are employed and who are now being utilized to a large and increasing extent by reason of the national war emergency. Because of the nearness of the upper portion of each form of a series to the eye of the operator, she is enabled to adjust the hosiery-article on the form and more readily position it for perfect boarding and, especially, the foot-portion thereof. Moreover, the change in angle of the forms in respect to the operator requires a very different use of the thumbs and fingers in stretching down the top of the article toward the base of the form. In other words, the boarder so arranges her fingers and thumbs about the form as to present a larger area thereof to the surface of the fabric with the result that she more effectually and uniformly stretches the article. The product proves this. In addition, this new arrangement facilitates

the stripping of the hosiery from the form; first, because the pull is more in the direction of the operator, whereas formerly, it was a pushing-away action; and, secondly, because the operator, in taking off the second, third and other hosiery holds them at the heels and toes and, as she successively strips the articles, they remain in suspension from the point at which the operator grips them, whereas, before, each successively-stripped article would swing toward and contact with the previously-stripped article with the result that there was a greater tendency to wrinkle, etc.

It is another feature of our invention to incline adjacent forms in opposite directions with the result that the two series occupy a V-form position. This makes for compactness of structure, convenient accessibility, and the employment of a single supporting instrumentality for the two series of forms and, thus, of a single steam supplying and exhaust pipe. Besides, the juxtapositioning of one series of forms to another results in the one radiating its heat to the hosiery on adjacent forms and, thus, applying heat externally thereto simultaneously with the application by the form to the internal surface of the hosiery, which provides a double heating of the article and a quicker drying thereof.

From the foregoing, it will be perceived that a table is presented in which a double series of forms are mounted and steam supplied with only about half of width of the table heretofore required. Moreover, a single line of steam supply is sufficient here for both series of forms, instead of two lines, as heretofore. Such are the economies resulting from this arrangement that it is rapidly meeting with favor and being quickly adopted.

What we claim is:

1. Hosiery drying apparatus including a form-supporting, fluid-conveying conduit and a plurality of hosiery drying forms thereon arranged in transversely spaced-apart relation and inclined one away from another, with the upper portions of the forms farthest apart.

2. Hosiery drying and shaping apparatus including a form-supporting, fluid-conveying conduit and a plurality of series of drying forms mounted thereon, the forms of one series being inclined away from those of the other, the upper portions of the forms being farthest apart.

3. Hosiery drying and shaping apparatus including a plurality of series of drying and shaping forms, the forms of one series being inclined to the vertical and away from those of the other series, the upper portions of the forms being farthest apart, in combination with a fluid-supplying pipe common to all of the forms of the plurality of series.

4. Hosiery drying apparatus including a steam-supplying pipe and a plurality of series of drying forms connected therewith and provided with base-portions all alining one with another; the forms of one series being inclined at their upper portions away from those of the other so that said portions are farthest apart.

5. Hosiery drying apparatus including a form-supporting, steam-supplying pipe, a table in which said pipe is supported, a series of upstanding hosiery-drying forms on said pipe and inclined to the vertical and toward the front of the table, and a second series of forms also mounted on the same pipe and inclined in the opposite direction and toward the rear of the table.

6. Hosiery drying apparatus including a form-supporting pipe, and two series of oppositely-inclined forms connected thereto and supplied with steam thereby, the forms of one series alternating with those of the other.

7. Hosiery drying apparatus including a form-supporting pipe, and two series of oppositely-inclined forms connected thereto and supplied with steam thereby, the forms of one series alternating with those of the other; the upper portions of adjacent forms being in spaced-apart relation.

8. Hosiery drying apparatus including a form-supporting pipe, and two series of oppositely-inclined forms connected thereto and supplied with steam thereby, the forms of one series alternating with those of the other; the upper portions of adjacent forms being in spaced-apart relation while their base-portions aline one with another on the pipe.

9. Hosiery drying apparatus including a form-supporting pipe, and two series of oppositely-inclined forms connected thereto and supplied with steam thereby, the forms of one series alternating with those of the other, the adjacent forms presenting a V-form relation with the upper portions of the forms farthest apart.

10. Hosiery drying apparatus including a form-supporting pipe, a support therefor, a steam-supplying pipe within the supporting-pipe, and a plurality of series of inclined hosiery drying forms mounted on the supporting-pipe and communicating with the supplying-pipe.

11. Hosiery drying apparatus including a form-supporting pipe, a support therefor comprising a table provided with troughs arranged in parallelism with the pipe and spaced apart from each other, a steam-supplying pipe within the supporting-pipe, and a plurality of series of inclined hosiery drying forms mounted on the supporting-pipe and communicating with the supplying-pipe.

12. Hosiery drying and shaping appara-

tus, including a form-supporting pipe, a steam-supplying pipe within the supporting-pipe, and a plurality of series of drying and shaping forms mounted on the supporting pipe, each form of all the series being in steam-supplying communication with the supplying-pipe; adjacent forms being in oppositely-inclined relation.

13. Hosiery drying apparatus including a table having an approximately horizontal hosiery-supporting surface, a single steam-supplying pipe extending longitudinally thereof, and a plurality of hosiery-drying forms all positioned on and communicating with said pipe and inclined to the vertical and forwardly in relation to said surface.

14. Hosiery drying apparatus including a table having a single form-supporting, steam-supplying pipe extending longitudinally thereof, and two series of oppositely-inclined forms mounted on the pipe and upstanding from said pipe.

15. Hosiery drying apparatus including a table having a hosiery-storing trough, a single form-supporting, steam-supplying pipe extending longitudinally thereof along one side of the trough, and two series of oppositely-inclined forms mounted on the pipe and upstanding from said pipe.

16. Hosiery drying apparatus including a table having a pair of hosiery-storing troughs, a single form-supporting, steam-supplying pipe extending longitudinally thereof between said troughs, and two series of oppositely-inclined forms mounted on the pipe and upstanding from said pipe, each series of forms overleaning a trough.

17. Hosiery drying apparatus including a table having a pair of hosiery-storing troughs, a single form-supporting, steam-supplying pipe extending longitudinally thereof between said troughs, and two series of oppositely-inclined forms mounted on the pipe and upstanding from said pipe, each series of forms overleaning a trough at opposite sides of said pipe.

In testimony whereof I affix my signature in presence of two witnesses.

PERCY M. SMITH.

Witnesses:
W. J. WESTAWAY,
HENRY POPE.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS W. PROSSER.

Witnesses:
HENRY POPE,
J. H. KELLY.