

(No Model.)

L. N. D. WILLIAMS.
MANUFACTURE OF STOCKINGS.

No. 502,941.

Patented Aug. 8, 1893.

FIG. 1.

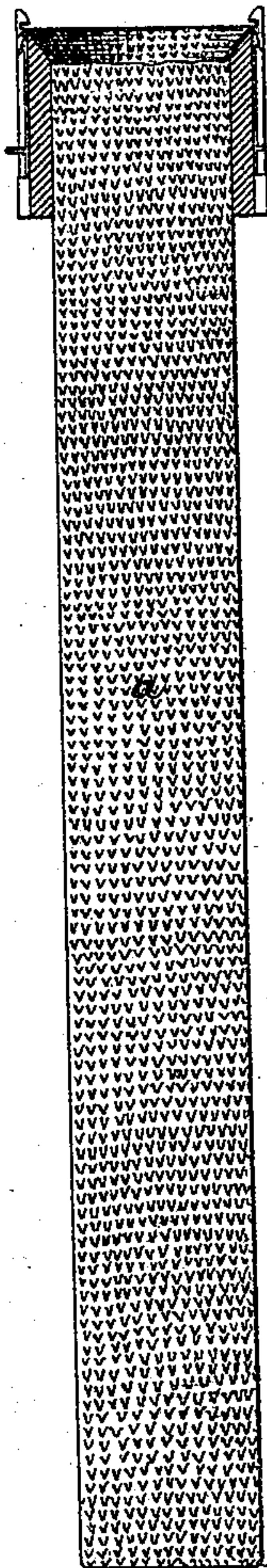
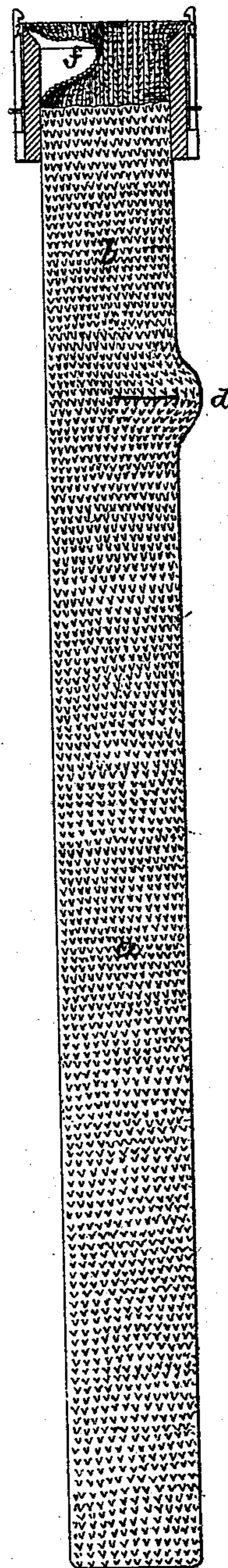


FIG. 2.



Witnesses:

Alex. Barkoff
A. V. Groupe

Inventor:

Louis N. D. Williams
by his Attorneys
Howson & Howson

UNITED STATES PATENT OFFICE.

LOUIS N. D. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO ROBERT W. SCOTT, OF SAME PLACE.

MANUFACTURE OF STOCKINGS.

SPECIFICATION forming part of Letters Patent No. 502,941, dated August 8, 1893.

Application filed December 19, 1892. Serial No. 455,637. (No model.)

To all whom it may concern:

Be it known that I, LOUIS N. D. WILLIAMS, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in the Manufacture of Stockings, of which the following is a specification.

The object of my invention is to facilitate the manufacture of stockings having long legs and seamless feet, that is to say, feet having the toe and heel portions shaped by narrowing and widening in what are known as seamless machines. This object I attain by making the leg portion of the stocking upon an ordinary circular machine intended for the production of plain tubular web, and after the proper length of tube has been produced upon the needles of the cylinder of said machine, removing the cylinder, with the work upon it, and applying the same to another machine of the seamless type by which the foot portion of the stocking, with its seamless heel and toe pocket, is produced, or, if desired, the operations may be reversed, that is to say, the cylinder of the seamless machine, after having had formed upon it the foot with its seamless toe and heel pockets, can be removed from the machine and applied to an ordinary circular machine by which the leg tube is knitted. By this means the leg tube can be knitted at a much more rapid rate than tubular web can be produced on the seamless machine such as forms the foot with its heel and toe pockets, for the circular machine which makes the leg may have a number of feeders, so as to produce a number of courses of stitches for each rotation, whereas the seamless machine upon which the foot is produced is limited to a single feeder, at least during that part of the time when the toe and heel pocket is being formed; moreover, stripes, fancy stitches, or reinforced portions can be produced in the leg tube of the stocking by reason of the number of feeders employed in the circular machine upon which said leg tube is produced and because of the facility for introducing, reinforcing or splicing threads in said machine.

In the accompanying drawings:—Figure 1, represents a sectional view of the cylinder of

a circular knitting machine with the leg tube *a* formed thereon; and Fig. 2, is a similar view of the same cylinder, after the foot tube *b* with its seamless heel pocket *d* and toe pocket *f* has been formed upon it.

In practice a series of automatic seamless machines for making the foot portions with their heels and toes may be located adjacent to one or more power driven circular machines upon which the leg tubes are to be produced, and, as soon as the proper length of tube is finished in one of said circular machines, the cylinder is removed, either by the same operator who attends to the seamless machines, or by a special operator, and placed in position for ready insertion into one of the seamless machines as soon as the completion of the foot therein has been effected and the web has been cast off, the cylinder being removed from the seamless machine and inserted in the circular machine.

By means of my invention the leg portions of the stockings can be made of single or inferior strands or yarns and of any degree of tightness or slackness and the foot can be of double or heavier strands or yarns and of a degree of slackness or tightness different from that of the leg.

I am aware that it has been proposed to form a leg tube for a stocking upon one machine and after the completion of the tube to cast it off of the needles of said machine and apply the loops around the end of the tube to the needles of another machine upon which the foot of the stocking is to be formed, but my invention is distinct from this in that there is no casting off of the tube from one machine or running of the stitches of the same onto the needles of another machine, the transfer being effected by transferring the cylinder with the work upon it, an operation which, it is manifest, can be performed in much less time and with much less expenditure of labor than the plan above referred to. Moreover, a leg tube having a series of threads forming a series of courses of stitches in each round cannot be readily transferred onto the needles of a separate machine for forming the foot because such leg tube would not present a continuous course of stitches around the

end for application to the needles of such seamless machine.

Having thus described my invention, I claim and desire to secure by Letters Patent—

5 The mode herein described of making stockings having feet with seamless heel and toe portions, said mode consisting in forming the leg tube upon an ordinary circular machine
10 and the foot portion with its seamless heel and toe pockets upon a circular seamless machine,

by transferring the cylinder of one machine, with the partially formed stocking upon it, to the other machine for the completion of the stocking, substantially as specified.

15 In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS N. D. WILLIAMS.

Witnesses:

FRANK E. BECHTOLD,

JOSEPH H. KLEIN.