

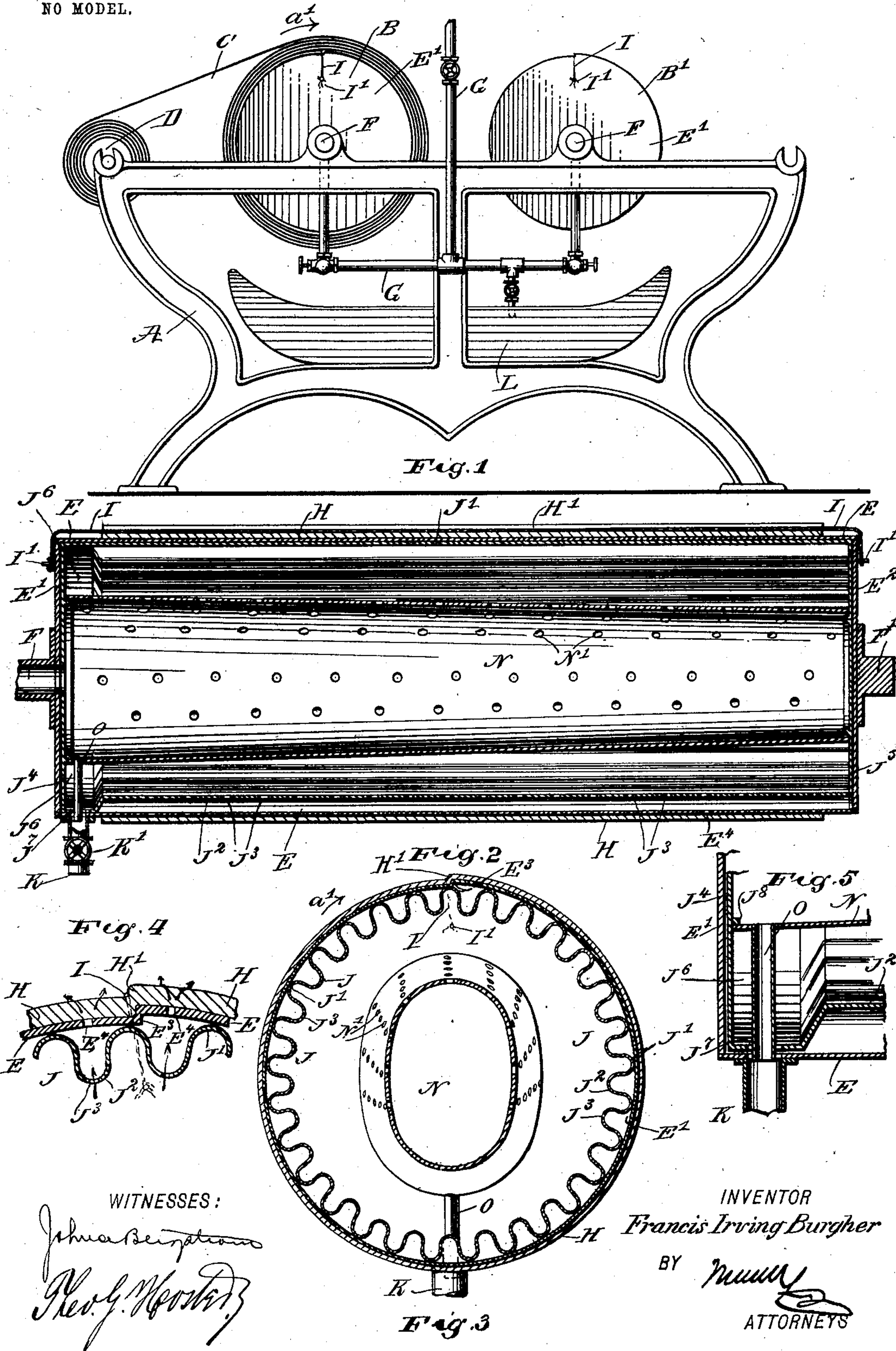
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F. I. BURGHER.
STEAMING APPARATUS FOR CLOTH.

APPLICATION FILED MAR. 25, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

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STEAMING APPARATUS FOR CLOTH.

SPECIFICATION forming part of Letters Patent No. 745,321, dated December 1, 1903.

Application filed March 25, 1902. Serial No. 99,870. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS IRVING BURGHER, a citizen of the United States, and a resident of the city of New York, (Stapleton, borough of Richmond,) in the county of Richmond and State of New York, have invented a new and Improved Steaming Apparatus for Cloth, of which the following is a full, clear, and exact description.

The invention relates to a machine for shrinking and finishing cloth and other fabrics; and its object is to provide a new and improved apparatus for steaming the fabric during the shrinking and finishing process, the apparatus being simple and durable in construction, very effective in operation, and arranged to prevent the formation of creases in the piece and to provide a perfect draining and carrying off of the water of condensation to prevent the water from passing to the fabric and to allow only very dry steam to act on the fabric.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is an enlarged transverse section of one of the steam-cylinders. Fig. 3 is a sectional side elevation of the same. Fig. 4 is an enlarged sectional side elevation of part of the cylinder, and Fig. 5 is an enlarged cross-section of the water-discharge end of the cylinder.

The steaming apparatus shown in the drawings is mounted on a suitably-constructed frame A, in which are mounted two steam-cylinders B B', alike in construction, the piece of fabric C being first wound onto the cylinder B from a reel D. After the fabric is subjected to the action of dry steam on the cylinder B, as hereinafter more fully described, it is then wound in a reverse order onto the other cylinder B' to be again subjected to the action of dry steam to insure a thorough and dry setting of the fibers of the fabric throughout the length thereof. Each cylinder B B' consists, essentially, of a shell E, having heads

E' E², provided with trunnions F F', journaled in suitable bearings on the frame A and of which the trunnion F is hollow and connected with a valved steam-supply pipe G common to both cylinders, connected with a boiler or other steam-supply.

The shell E is covered on its peripheral face with a covering H of a suitable fabric material, and on said peripheral face is formed a longitudinally-extending shoulder or offset E³, into which is pressed the overlying portion of the covering H by means of a string I or like device, extending lengthwise of the cylinder and fastened at its ends to pins I' or similar means held on the heads E' and E² of the cylinder E. By the arrangement described a shoulder or offset H' is formed in the covering, as plainly shown in Figs. 2 and 4. Now in starting to wind the fabric C onto a cylinder the edge of one end of the fabric is abutted against the shoulder or offset H', and the cylinder is then turned in the direction of the arrow a' (see Figs. 1 and 3) to wind the fabric onto the covering. Now the shoulder H' is about of a height corresponding to the thickness of the fabric, and hence the second layer of the fabric passes smoothly over the end of the fabric at the shoulder H', and hence a crease is not formed in the fabric at the contact of the second layer with the edge of the fabric. In cylinders as heretofore constructed such a crease was invariably formed in a piece of fabric being treated, and as such a creased portion is defective it is evident that it had to be cut off from the fabric, and a very material loss was the result, especially when high-priced woolen cloth, for instance, and the like were treated.

The shell E is provided with perforations E⁴ for the passage of dry steam to the covering H and the fabric C wound thereon, and in order to strengthen the shell E and to prevent water of condensation from passing through the said perforations E⁴ and the covering and cloth I provide a tubular stiffener J, formed with lengthwise corrugations, of which the outer bends J' abut or rest against the inner surface of the shell E, and the inner bends J² are provided with perforations J³ for the passage of the steam to the perforations E⁴, located diametrically opposite, in that portion of the shell E extending

between adjacent outer bends J'. (See Fig. 4.) The tubular stiffener is made of sheet metal and is provided with heads J⁴ J⁵, fitting against the inside of the heads E' E², respectively, the corrugations extending lengthwise of the stiffener-rim from the head J⁵ to within a short distance of the head J⁴, the portion of the stiffener extending from the termination of the corrugations to the head J⁴ being cylindrical in shape to form an annular draining-chamber J⁶ at this end of the cylinder. The draining-chamber J⁶ is provided with an outlet-opening J⁷, opening into a valved discharge-pipe K, attached to the shell E and serving to discharge the water of condensation accumulating in the draining-chamber into a drip-pan L, carried by the frame A. The pipe K extends downwardly at the time the cylinder B or B' is at rest and in a steaming position.

Centrally within the stiffener J extends a steam-chamber N, preferably made in the form of a hollow frustum of a cone, having perforations N' in its periphery, the ends of the steam-chamber being secured to annular shoulders J⁸, secured on the heads J⁴ and J⁵ of the stiffener J. As shown in the drawings, the perforations are confined to the sides and top of the chamber N, the bottom being imperforate. A small pipe O leads from the base end of the chamber N through the opening J⁷ into the pipe K, so that the water of condensation in the said steam-chamber N and flowing down to the base end of the chamber readily passes through the pipe O into the pipe K and from the latter to the pan L.

The hollow trunnion F opens centrally into the base end of the receiving steam-chamber N, so that when the fabric is wound on a cylinder steam is admitted to the steam-chamber N from the trunnion F and the steam-supply pipe G; but this steam is first relieved of any water of condensation in the chamber, so that comparatively dry steam passes through the perforations N' into the tubular stiffener J, in which the steam is again relieved of moisture, so that only very dry steam finally passes through the perforations J³ E⁴ into the covering H and the fabric wound thereon. The water of condensation in the chamber N flows down the inclined non-perforated bottom thereof to the pipe O, and the water of condensation in the stiffener J flows down the corrugations of the stiffener to the chamber J⁶, to be finally discharged from the latter from time to time, together with the water passing down the pipe O, on the operator opening the valve K' in the said pipe K.

It is understood that the steam is not turned on until after the fabric C has been wound onto the cylinder B or B', and when the fabric is finally wound on a cylinder the latter stands at rest during the steaming process, as indicated in Figs. 2 and 3.

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

1. A steaming apparatus, having a cylinder, formed on its peripheral face with a longitudinal shoulder or offset, as set forth.
2. A steaming apparatus having a cylinder, formed on its peripheral face with a longitudinal shoulder or offset, a covering of flexible material for the said cylinder, and a fastening device engaging the covering lengthwise, opposite the said shoulder, as set forth.
3. A steaming apparatus, having a cylinder, formed on its peripheral face with a longitudinal shoulder or offset, a covering of flexible material for the said cylinder, a string in contact with the covering, opposite the said shoulder, and means at the heads of the shell for receiving the ends of the said string, as set forth.
4. A steaming apparatus, comprising a cylinder formed on its peripheral face with a longitudinal shoulder or offset, a covering of flexible material for said cylinder, a corrugated tubular stiffener within the cylinder, the stiffener and cylinder having registering perforations for the passage of steam, and a perforated steam-receiving chamber within the said stiffener, as set forth.
5. A steaming apparatus, comprising a cylinder formed on its peripheral face with a longitudinal shoulder or offset, a covering of flexible material for said cylinder, a corrugated tubular stiffener within the shell and having heads engaging the heads of the shell, the portion of the stiffener adjacent to one head being non-corrugated to form an annular water-draining chamber, the stiffener and shell having registering perforations for the passage of steam, and a perforated steam-receiving chamber within the said stiffener, as set forth.
6. A steaming apparatus provided with a steaming-cylinder, comprising a shell formed on its peripheral face with a longitudinal shoulder or offset, a covering of flexible material for said shell, a corrugated tubular stiffener within the shell, one end of the stiffener being non-corrugated to form an annular water-draining chamber, a perforated steam-receiving chamber within the stiffener and connected with a steam-supply, the said chamber being in the form of a hollow frustum of a cone, a drain-pipe on the shell and opening into the said annular water-draining chamber, and a pipe leading from the steam-receiving chamber to the drain-pipe, as set forth.

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

FRANCIS IRVING BURGHER.

Witnesses:

THEO. G. HOSTER,
EVERARD BOLTON MARSHALL.