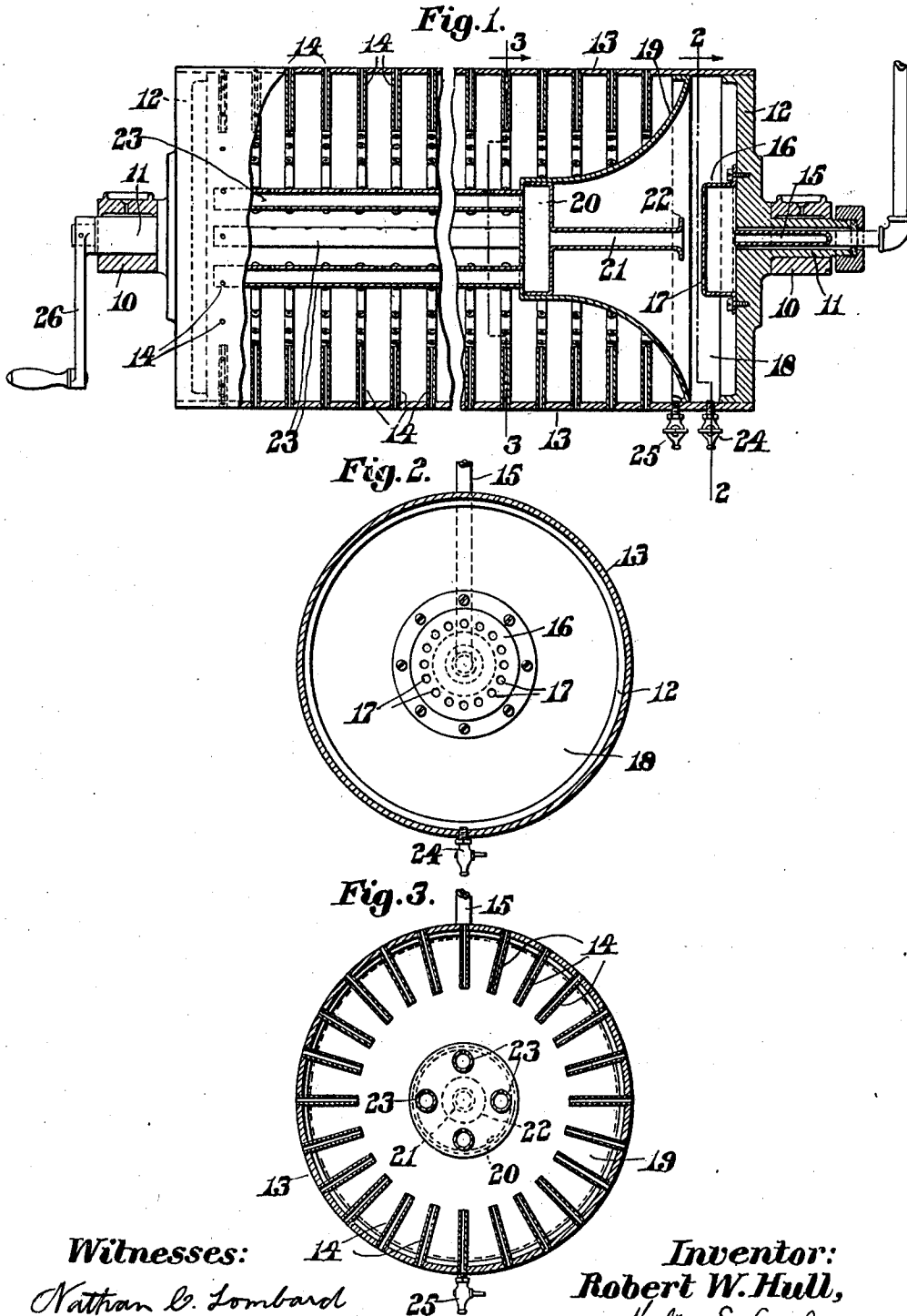


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STEAM CYLINDER FOR CLOTH SPONGING AND FINISHING MACHINES.
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UNITED STATES PATENT OFFICE.

ROBERT W. HULL, OF HINGHAM, MASSACHUSETTS.

STEAM-CYLINDER FOR CLOTH SPONGING AND FINISHING MACHINES.

980,268.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, ROBERT W. HULL, a citizen of the United States of America, and a resident of Hingham, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Steam-Cylinders for Cloth Sponging and Finishing Machines, of which the following is a specification.

This invention relates to sponging and finishing cylinders for machines adapted to steam, shrink, and finish woolens, worsteds, and other cloths.

The object of the present invention is to provide a cylinder which will give a uniform shrinkage and a firm permanent finish to any material passed over the surface thereof.

The object of the invention is primarily to dissipate the steam entering at one end of the cylinder so that the most of the moisture is eliminated from the steam before it passes into the main chamber of the cylinder and through the open-ended tubes extending into the interior thereof through the outer wall.

The invention consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 represents a section through a cylinder embodying the features of the present invention, a portion of one end thereof being shown in elevation. Fig. 2 represents a transverse section through the same, the cutting plane being on line 2—2 on Fig. 1, and Fig. 3 represents a transverse section of the same, the cutting plane being on line 3—3 on Fig. 1.

Similar characters designate like parts throughout the drawings.

In the drawings, 10 represents suitable bearings forming a part of a cloth finishing machine. Resting in these bearings are the trunnions 11 formed upon the cylinder heads 12. The cylinder heads 12 fit into the opposite ends of a cylinder 13. Extending through the wall of this cylinder from its outer face are a plurality of open-ended tubes 14 the inner ends of which terminate at some distance from the inner wall of said cylinder thereby preventing, in the rotation of the cylinder, any water which may accumulate therein from passing through said

tubes to the exterior operating face of the cylinder.

One of the trunnions 11 has an opening therethrough through which extends an inlet pipe 15 and opposite the discharge outlet of said pipe and secured to the inner face of a cylinder head is a cylindrical box 16 having near its edges a plurality of perforations 17. As the steam enters this box from the pipe 15 it will impinge against the imperforate portion of said box opposite to the discharge outlet and be partially dissipated finally passing therefrom through the openings 17 into a compartment 18 formed by the cone-shaped partition 19 having at its small end a chamber 20 from which a tubular member 21 extends toward the center of the box 16 and terminates a short distance therefrom in a flaring end 22, the flanges of said flaring end serving the purpose of preventing any water from passing through this tubular member into the chamber 20. From the chamber 20 extends a plurality of perforated pipes 23 toward the opposite cylinder head.

A cock 24 communicates with the chamber 18 and a cock 25 communicates with the main chamber of the cylinder 13. In the operation of the invention two cylinders are usually used, the cloth to be finished being wound upon one cylinder as it is rotated by means of a handle 26 or some similar rotating device and as the cloth is thus wound upon the cylinder it is thoroughly steamed by the steam passing through the plurality of open-ended tubes extending into the interior.

When all of the cloth has been wound upon one cylinder it is reversed and wound upon a second cylinder, thereby giving a uniform shrinkage to the entire piece of material and a firm permanent finish.

By means of the trap, consisting of the box 16, the tubular member 21, partition 19, and chamber 20, all of the water is collected in the compartment 18 and only dry steam is permitted to enter the main chamber of the cylinder and pass through the tubes 14 to the goods being operated upon. This prevents the goods from becoming wet during the process of finishing. The only water that can possibly get into the main chamber of the cylinder is that which is condensed from the steam and as the tubes 14 extend some little distance inwardly from the wall

of the cylinder, it is an impossibility for this water of condensation to pass into the open inner ends of these tubes.

When the cloth has been rolled upon one of the cylinders, the rotation of the cylinder is stopped with the cocks 24 and 25 in their lowermost positions as indicated in the various figures and these cocks are then opened and any water that may be contained either within the compartment 18 or the main chamber of the cylinder is withdrawn and the cocks are then again closed. Then the cloth is unrolled from the cylinder either onto another cylinder or is prepared for the market, as may be desired.

The devices for dissipating the steam as it enters one end of the cylinder and removing from the live steam all of the moisture before it is permitted to pass into the perforated pipes within the body of the cylinder form a great improvement in cylinders of this class, as greatly improved results are obtained thereby.

Having thus described my invention, I claim:

1. In a device of the class described, the combination with suitable bearings; of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a cone-shaped partition at one end of said cylinder forming a separate compartment; a plurality of perforated pipes secured to the inner end of said partition and extending lengthwise of said cylinder; a steam inlet pipe extending through one trunnion into said compartment; and a cock communicating with said compartment.

2. In a device of the class described, the combination with suitable bearings; of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a partition at one end of said cylinder forming a separate compartment and provided with passages therethrough into said cylinder; a steam inlet pipe extending through one trunnion into said compartment; and a shallow cylindrical box centrally positioned within said compartment with an imperforate portion opposite said inlet and having a plurality of perforations near its edge through which the steam is adapted to pass into said compartment.

3. In a device of the class described, the combination with suitable bearings, of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a partition at one end of said cylinder forming a separate compartment and provided with passages therethrough into said cylinder;

a steam inlet pipe extending through one trunnion into said compartment; a cylindrical box centrally positioned within said compartment opposite said inlet and having a plurality of perforations near its edge; and a tubular member extending from said partition toward said cylindrical box.

4. In a device of the class described, the combination with suitable bearings; of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a partition at one end of said cylinder forming a separate compartment and provided with passages therethrough into said cylinder; a steam inlet pipe extending through one trunnion into said compartment; a cylindrical box centrally positioned within said compartment opposite said inlet and having a plurality of perforations near its edge; and a tubular member extending from said partition toward said cylindrical box and terminating in a flaring end.

5. In a device of the class described, the combination with suitable bearings; of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a conical partition at one end of said cylinder having a central opening; a tubular member extending from said opening toward the inlet end of the cylinder; a perforated cylindrical box secured to the cylinder head; and a steam inlet extending through the cylinder head into said box.

6. In a device of the class described, the combination with suitable bearings; of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a conical partition at one end of said cylinder having a central opening; a tube extending from said opening toward the inlet end of the cylinder; an inclosed chamber on the opposite side of said partition to said tube, having a plurality of discharge openings therefrom into the main chamber of said cylinder; a perforated cylindrical box secured to the cylinder head; and an inlet extending through the cylinder head into said box.

7. In a device of the class described, the combination with suitable bearings; of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a conical partition at one end of said cylinder having a central opening; a tube extending from said opening toward the inlet end of the cylinder; an inclosed chamber on the opposite side of said partition to said tube,

having a plurality of discharge openings therefrom into the main chamber of said cylinder; a pipe communicating with each discharge opening and having a row of discharge perforations; a perforated cylindrical box secured to the cylinder head; and an inlet extending through the cylinder head into said box.

8. In a device of the class described, the combination with suitable bearings, of a revoluble cylinder having trunnions resting in said bearings; a plurality of open-ended tubes extending through the peripheral wall of said cylinder into the interior thereof; a conical partition at one end of said cylinder having a central opening; a tube extending from said opening toward the inlet end of

the cylinder; an inclosed chamber on the opposite side of said partition to said tube, having a plurality of discharge openings therefrom into the main chamber of said cylinder; a pipe communicating with each discharge opening and having a row of discharge perforations; a perforated cylindrical box secured to the cylinder head; an inlet extending through the cylinder head into said box; and a cock from the main chamber.

Signed by me at 4 Post Office Sq., Boston, Mass., this 10th day of March, 1910.

ROBERT W. HULL.

Witnesses:

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