

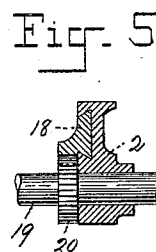
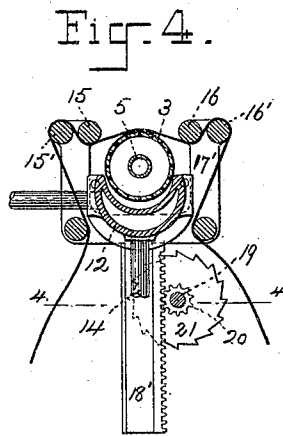
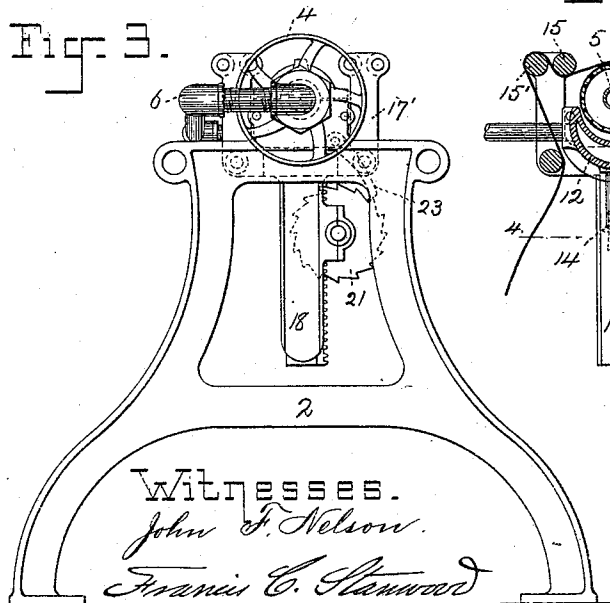
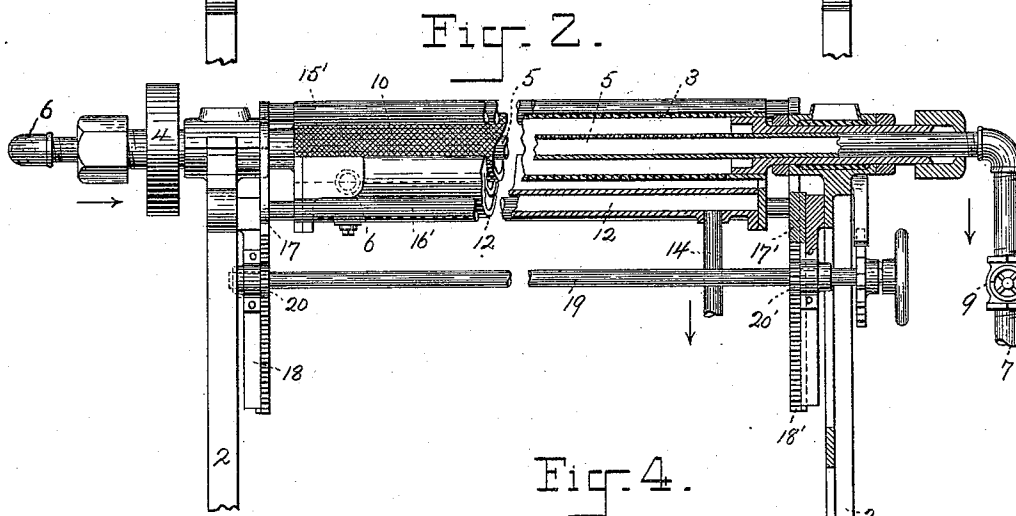
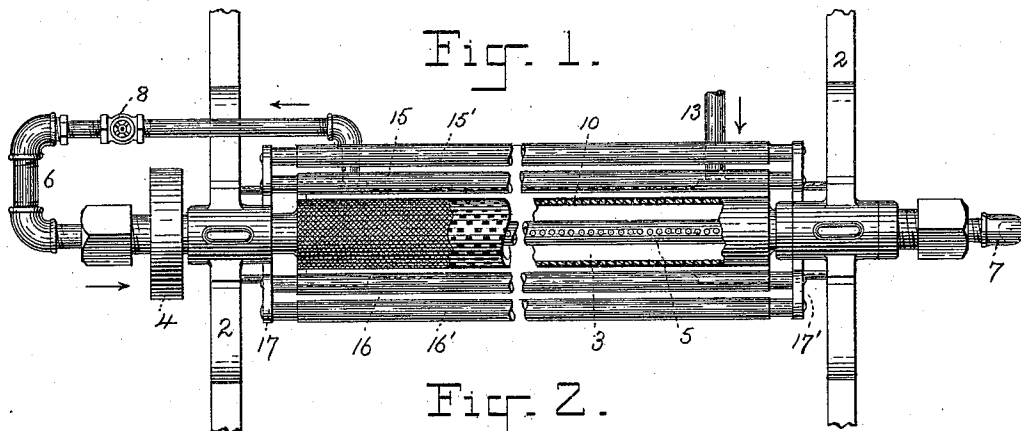
(No Model.)

R. C. MORAN.

APPARATUS FOR STEAMING AND SPONGING CLOTH.

No. 532,474.

Patented Jan. 15, 1895.



Witnesses.
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UNITED STATES PATENT OFFICE.

ROBERT C. MORAN, OF SHERBROOKE, CANADA, ASSIGNOR OF ONE-HALF TO
ALEXANDER L. COUTTS AND ROBERT B. ROBINSON, OF SAME PLACE.

APPARATUS FOR STEAMING AND SPONGING CLOTH.

SPECIFICATION forming part of Letters Patent No. 532,474, dated January 15, 1895.

Application filed July 28, 1894. Serial No. 518,806. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. MORAN, a citizen of the Dominion of Canada, residing at Sherbrooke, in the county of Sherbrooke and Province of Quebec, Canada, have invented certain new and useful Improvements in Apparatus for Steaming and Sponging Cloth; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to mechanism for steaming or sponging cloth during its progress in the finishing department of woolen mills.

The purpose of my improvements is primarily to prevent condensation and thereby avoid spots or streaks on the goods; secondly, to produce uniform steaming, and prevent currents of air from interfering with the proper effects of the vapor of the steam which causes irregular and unsatisfactory results. A further advantage is obtained in the construction by which the pile or nap on the goods continues to lie flat and presents as smooth a finish after, as before the process of steaming took place.

The primary features of my invention comprise a revoluble foraminated cylinder covered with a woven fabric or a jacket formed with fine interstices and interiorly steam supplied. In connection with this cylinder is a hollow metal shell or heater so shaped as to partly inclose the cylinder. This heater is under steam pressure also, and its function is to prevent condensation on the cylinder. Furthermore I provide a series of cloth-conveying rollers adapted to be adjusted with respect to the cylinder and thereby regulate the amount of contact which the cloth shall have about the cylinder, or the cloth may simply pass above the cylinder as circumstances dictate.

Other characteristic features and the mode of operating the various parts as well as the advantages which accrue will be hereinafter fully described.

The drawings represent in Figure 1 a sectional plan. Fig. 2 is a sectional elevation of a cloth-steaming apparatus embodying my invention. Fig. 3 is an end view. Fig. 4 is a transverse section. Fig. 5 is a section on line 4-4, Fig. 4.

In the above drawings 2, 2, represent twin stands, or housings adapted to support the assemblage of parts which comprise my invention. Transversely between them is mounted a hollow cylinder or steamer 3, the periphery of which is pierced with fine holes. This cylinder is adapted for rotation and is operated by means of the pulley 4 to some prime motor. Longitudinally and centrally of the bore of this cylinder extends a steam pipe 5. This latter is formed with a series of apertures along its upper surface and is supplied with steam which is directed upwardly against the portion of the cylinder nearest the cloth or upon which the cloth may contact. This pipe is stationary and fitted with pipes 6, 7, respectively supply and exhaust, at each end, said pipes having valves 8, 9 to regulate the steam passing therethrough.

Exteriorly about the steamer 3 is placed a jacket 10. Preferably this is made from some knit or woven woolen fabric, and is placed there in order to break up the numerous steam jets and compel the steam to spread out and pass uniformly through the jacket. Hence every portion of the cloth in process is subjected to the vapor of the steam in the same degree and no spots or streaks occur.

Since the cylinder is constantly under the influence of steam and in order to prevent condensation of the latter a hollow metallic shell or heater 12 is provided. This is trough-shaped on the upper side in order to partly inclose the steamer and is heated by steam under a high pressure. The steam supply is at 13, the exhaust at 14, while the pipe 6 interconnects the heater with the pipe 5, the valve 8 regulating the supply necessary for the proper steaming of the cloth. Thus by keeping the heater at a high temperature the jacket placed about the cylinder and above the heater is kept hot, thereby overcoming the disadvantages which arise from condensation arising from cooling due to free exposure to the air.

In the operation of the above parts and in

order to properly conduct the cloth to the cylinder and convey it away, as likewise to subject it more or less to the influence of the steamer, dependent upon the quality of the goods, groups of rolls 15, 15': 16, 16' are provided. These rolls are arranged in parallelism with the steamer, but laterally thereof in pairs as shown, and have rotation of their own to cause the cloth to travel over or partially about the steamer or cylinder 3. These groups of rolls are furthermore mounted at each end on twin carriages 17, 17' adapted for vertical rise or fall upon the standards. The pendent arms 18, 18' from each carriage engage in undercut grooves in said standards to maintain them in proper position. To permit equal and simultaneous adjustment of the rolls, racks are formed upon the arms while a shaft 19 carries toothed wheels 20, 20' which engage the racks. A hand wheel, crank, or other mechanism may be employed to adjust the position of the rollers. To hold this group of parts in position against the effects of gravity a ratchet wheel 21 and pawl 23 are provided, the ratchet being affixed upon the shaft 19 before alluded to.

The method of operating the above various instrumentalities is as follows:—Steam is first allowed to pass into the heater, while the supply valve 8 is opened to allow proper steam admission into the perforated pipe 5 and thus fill the cylinder or steamer 3, the vapor finally escaping through the interstices in the jacket. After these various parts have been properly heated, the condensed water being discharged through the pipes 7 and 14, the rollers 15, 16 are adjusted in position according to the quality of the goods to be steamed or sponged. In conducting the cloth through the apparatus it is passed through in the direction of or with the nap, and since in the use of this revolving steamer the goods are in contact with and traveling with the cylinder the position of every fiber on the face of the goods remains undisturbed, the fabrics leaving the steamer as they went on, thereby giving the goods a beautiful finish. In ordinary steaming apparatus where open or free steaming occurs, the steam lifts the pile or nap causing a rough appearance. This is obviated by my mechanism. Moreover spots and streaks are avoided since all vapor which escapes from the revolving steamer is

conducted directly against the goods and no condensed steam is allowed to collect elsewhere to damage the goods should the latter come in contact with such condensations. A further advantage is secured by this apparatus that the most delicate or the heaviest of fabrics can be treated, the goods coming in contact with the cylinder thereby becoming for the time being a part of the cylinder. Hence they must be steamed uniformly, the goods receiving every vapor of steam while no air currents can intervene, to cause irregular steaming attended by cloudy or uneven places on the fabric.

What I claim is—

1. The combination with a cylinder having a foraminated periphery, a porous jacket to inclose the same, means for directing steam within the cylinder, and means for revolving the same, of a hollow steam heated shell partially inclosing the cylinder, and groups of rollers adjustable with respect to the cylinder but in parallelism therewith, substantially as stated.

2. In apparatus for steaming cloth, a stationary heater, a perforated cylinder in part inclosed by the heater, a fibrous jacket thereabout to be subjected to heat from the heater, combined with a series of cloth-carrying rollers in parallelism with the cylinder, twin carriages which support said rollers for vertical movement, mechanism for holding said carriages in any position and means for revolving the cylinder, substantially as set forth.

3. In apparatus for steaming cloth, the combination with a suitable standard, a foraminated cylinder, a stationary pipe within the cylinder and formed with a series of apertures longitudinally disposed on one side, and means for revolving the cylinder of a fixed heater adapted to partially inclose the cylinder, a group of cloth-conveying rollers having vertical up and down movement, means for controlling the steam supply within the cylinder and heater, together with mechanism for positioning the rollers, substantially as specified.

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

ROBT. C. MORAN.

Witnesses:

JAS. F. MORKILL,
M. KIMPTON.