J. D. McLEAN.

Machine for Stretching, Dipping and Drying Fabrics.

No. 207,192. Patented Aug. 20, 1878.

Fig: 1.

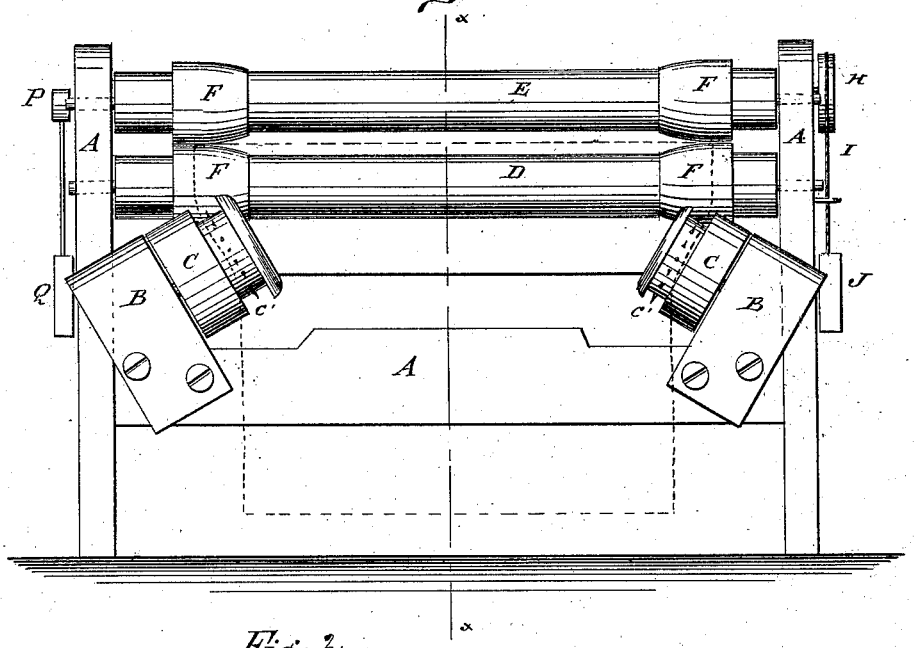
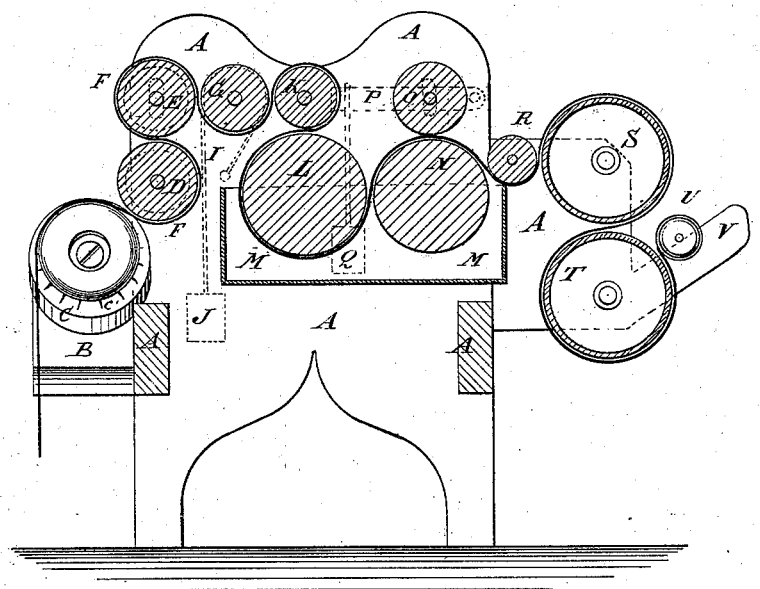


Fig: 2.



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JOHN D. McLEAN, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR STRETCHING, DIPPING, AND DRYING FABRICS.

Specification forming part of Letters Patent No. **207,192**, dated August 20, 1878; application filed February 12, 1878.

To all whom it may concern:

Be it known that I, JOHN D. McLEAN, of the city, county, and State of New York, have invented a new and useful Improvement in Machines for Spreading, Stretching, Squaring, Dipping, and Drying Knit or Woven Goods, of which the following is a specification:

Figure 1 is a front view of my improved machine. Fig. 2 is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine simple in construction, inexpensive in manufacture, and effective in operation for straightening, stretching, and spreading fabrics in handling and finishing them.

A is the frame of the machine, to the lower end parts of the front of which are attached inclined bearings B, in which revolve the journals of the tentering-wheels C, so that the said wheels may stand at such an angle as will give sufficient spread to the goods as they pass forward. The wheels C are made with one or more rabbets, in which are secured pins, teeth, or hooks *c'*.

If desired, the wheels C may be made without rabbets, and hooks may be attached to the ends of the said wheels at a little distance from the circumference of the said ends.

To the frame A, in the rear of and a little above the wheels C, are two rollers, D E, upon one or both of which are formed, or to them are attached, raised parts or collars F, the inner parts of which are inclined or tapered. These collars may be of metal, leather, or rubber, and may be made stationary or adjustable, as desired.

The thickness of the collars F varies with the kinds of goods and the size of the rollers D E, their diameter for light cotton goods being to the diameter of the said rollers as five to four. The width of the collars F may be three-quarters of an inch or more.

The collars F may be applied to one, two, or more rollers, as desired.

In the rear of the upper roller, E, is a stretching-roller, G, to one of the journals of which is attached a pulley, H, to receive a cord, I, one end of which is attached to the frame A, and from its other end is suspended a weight, J, to act as a drag to retard the movement of the roller G and cause it to stretch the goods.

In the rear of the roller G is pivoted the guide-roller K, below which is pivoted the large roller, L. The roller L revolves in the vat M, that receives the starch or other substance to be applied to the goods.

In the rear of the roller L, and also within the vat M, is pivoted another large roller, N, above which is pivoted the squeezing-roller O, the journals of which revolve in slots in the frame A, and upon them ride the levers P. One end of each of the levers P is pivoted to the frame A, and from their outer ends are suspended weights Q, which may be adjusted to hold the roller O down with more or less force, as may be required.

Behind the rear large roller, N, is pivoted a guide-roller, R, in the rear of which is pivoted a large hollow metal cylinder, S. Below the cylinder S is journaled a large hollow metal cylinder, T. The cylinders S T are the drying-cylinders, and they are heated by steam introduced through their hollow journals. The cylinders S T may be geared together, and they are driven by power applied to a pulley attached to one of their journals. The rollers receive motion from the goods passing around and between them.

U is the cloth-roller, which revolves upon inclined arms or brackets V, attached to or formed upon the frame A, so that it may rest against and receive motion from the lower heating-cylinder, T.

All the rollers may be made of wood or other suitable material, and may be covered with cloth or any suitable fabric. The squeezing-rollers should be made of rubber or covered with it.

In using the machine, the end of a piece of goods is drawn through the machine by means of tapes that have been run through by hand, and is wrapped around the cloth-roller U. Steam is then let into the cylinders S T. Two attendants are stationed at the tentering-wheel C, and the machine is started. As the goods are drawn forward through the machine, the attendants guide the selvages upon the smooth faces of the said wheels C, which selvages, as they pass over the inclined edges of the wheels

C, are caught by the pins, teeth, or hooks *c'*, and the goods are stretched by the inclination of the wheels C. From the wheels C the goods pass beneath and over the roller D and over the roller E, the selvages running upon the collars F, and traveling at a greater speed than the center of the piece, but, having a greater distance to travel, reach the point of delivery at about the same time, thus counteracting any difference of shrinkage or stretch between the selvages and the center of the goods. When one selvage runs ahead of the other it runs off the collar F until the difference is overcome, when it goes back upon the collar, and moves forward at the same speed as the other. The strain upon the goods in passing around the rollers D E will generally be sufficient in light goods to stretch the center equal to the selvages in length at the point of delivery; but this strain may be increased, when necessary, by friction or by the stretching roller G, which may be retarded by a drag. From the roller E the goods pass under the stretching-roller G, over the guide-roller K, under the roller L, where they become saturated by the liquid in the vat M, and over the roller N, where the surplus liquid is pressed out by the roller O. From the rollers N O the goods pass under the guide-roller R, over the heating-cylinder S, under the heating-cylinder T, and are wound upon the cloth-roller U. When the roller U becomes full it is removed and replaced by an empty one. When the end of one piece of goods is reached the end of another piece is sewed to it, and the operation is continued.

In case the goods do not require to be starched they may be rolled or folded directly after leaving the stretching-roller G, the tank, the squeezing-rollers, &c., being removed.

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

1. The combination of the inclined wheels C, having hooks or pins *c'*, and the rolls D E, having raised inclined collars F, as and for the purpose specified.

2. The combination of the tentering-wheels C and the compensating-rollers D E, one or more, provided with the collars F, with each other, and with the stretching and squeezing rollers and the drying-cylinders of a machine for spreading, stretching, squaring, dipping, and drying knit or woven goods, substantially as herein shown and described.

3. The rollers E D, with collars F, in combination with the stretching-roller G, drag-wheel H, and weight J, as and for the purpose specified.

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Witnesses:
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