

(No Model.)

W. McALLISTER.
Dyeing Machine.

No. 238,514.

Patented March 8, 1881.

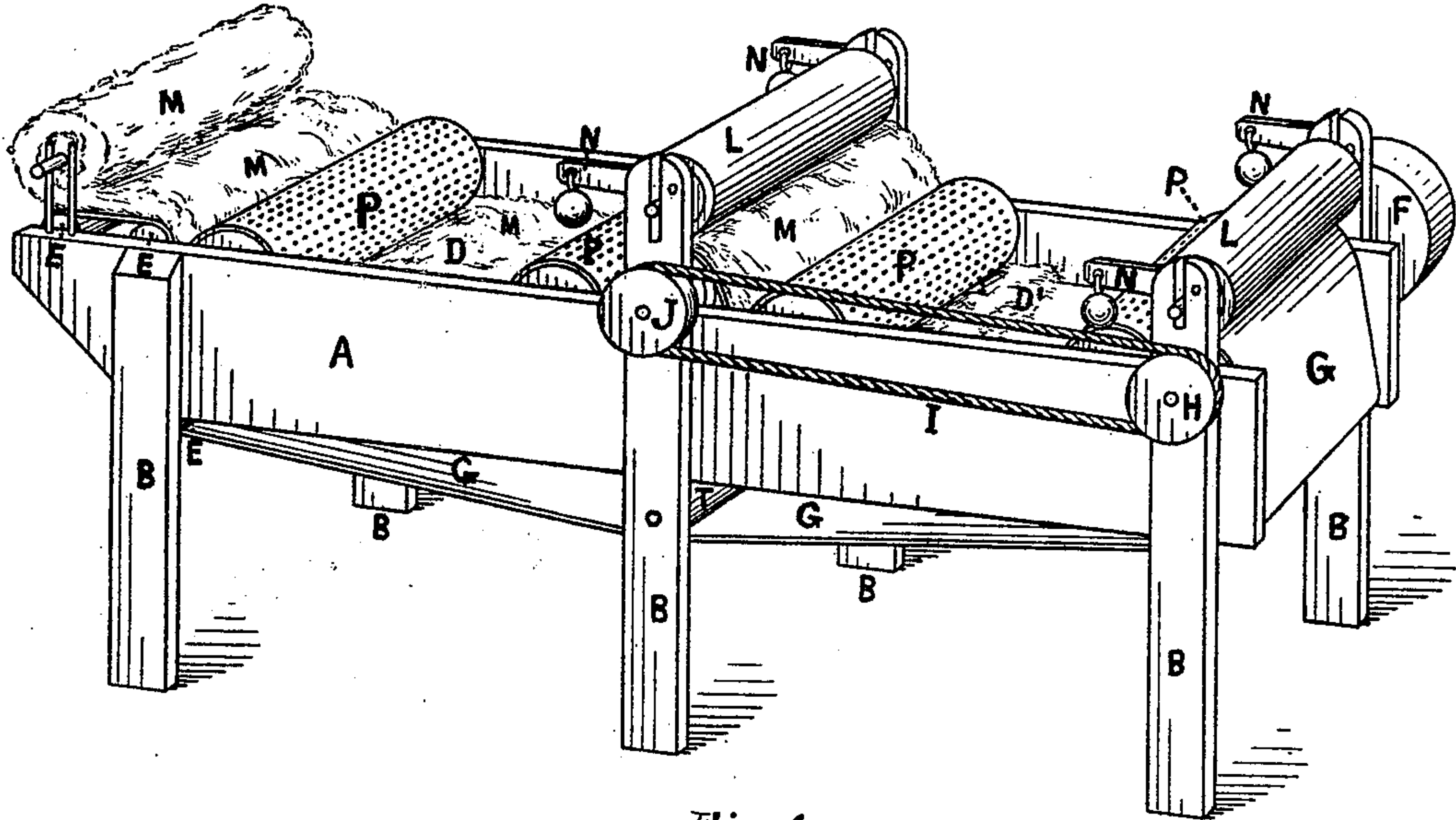


Fig. 1.

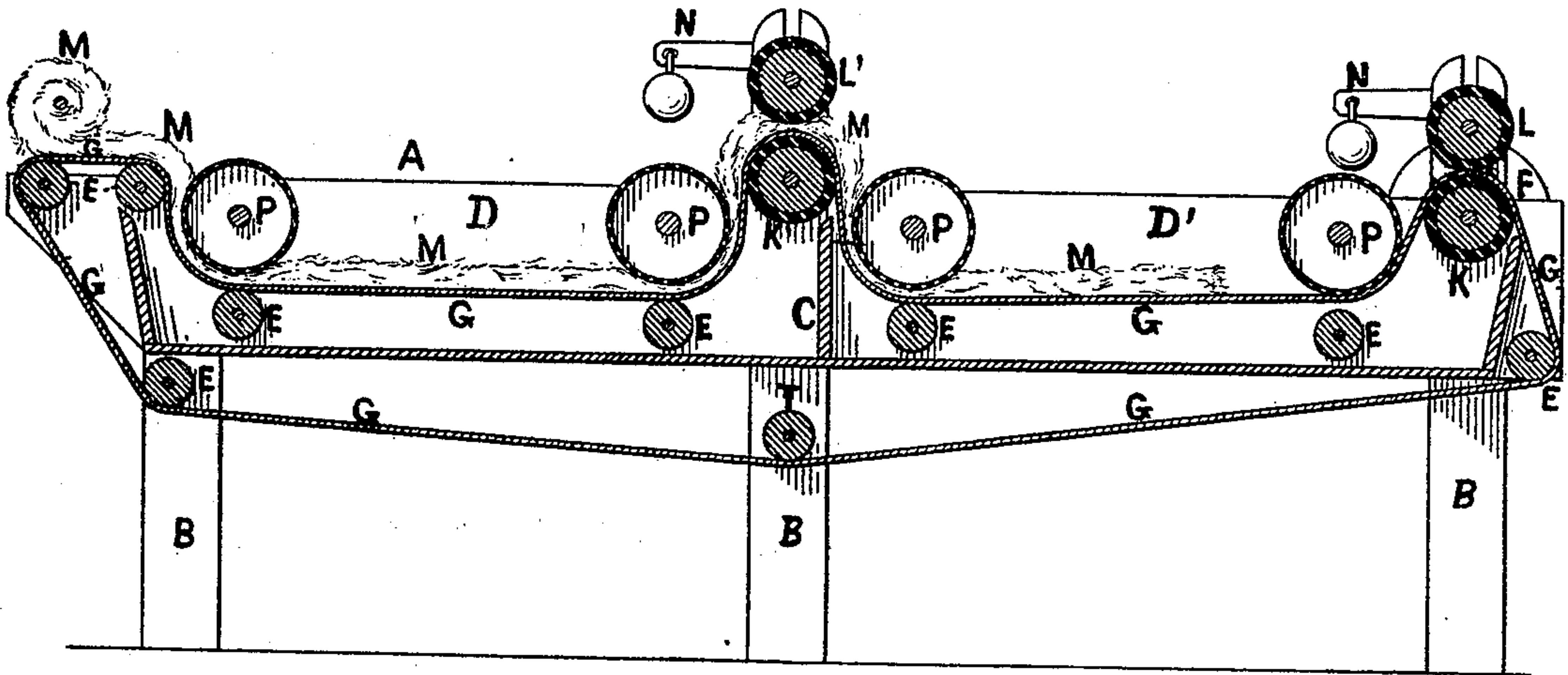


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM McALLISTER, OF LAWRENCE, MASSACHUSETTS.

DYEING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 238,514, dated March 8, 1881.

Application filed December 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McALLISTER, of Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Dyeing Laps, Raw Wool, Raw Cotton, &c., of which the following is a specification.

The objects of my invention are to provide a machine which shall receive the laps or raw wool or raw cotton and carry it through mordants and dyes by means of a feed-apron mounted upon suitable rollers, which carry the material being dyed through the dye-box containing suitable mordants, then through suitable pressure or squeeze rolls, and thence through the dye, and then through pressure-rolls to remove the surplus dye, and thus avoid the slow and tedious process of dipping the material into the mordants and dyes by hand, as heretofore employed for the purpose; and it consists, essentially, in the construction, combination, and arrangement of an endless feed-apron passing within the mordants or dye in the dye box or boxes and through the same in any suitable manner, so as to carry the material being dyed forward to pressure or squeezing rolls located above the mordant or dye, and thence between a set or pair of rolls, to remove the surplus dye or mordant as the material leaves the same at the opposite end of the machine; and it further consists in perforated cylinder-rolls arranged within the mordant and dye within the dye box or boxes in such manner as to carry the material beneath the mordant or dye and keep it in contact with the feed-apron as it moves through the same; and it further consists in the employment of a rubber or elastic adjustable pressure-roll arranged so as to bear upon the upper surface of the material after it has passed into and through the mordant or dye, and yield or automatically adjust itself to the inequalities of the material passing between said roll and the underneath one, as herein-
after more fully described and set forth.

Figure 1 is a perspective view of my invention. Fig. 2 is a vertical longitudinal section of the same.

A represents an oblong or rectangular box, constructed with suitable legs, B, to adapt it to the desired height. This box A may have

a partition, C, about mid-length thereof, so as to form two compartments, D D'. Into the box or compartment D may be placed the mordant, and into the next compartment or box, D', may be placed the dye; or both may be placed into a single box or compartment, if desired; or the number of boxes or compartments may be increased as the circumstances may require.

The box or boxes D, or dye and mordant receptacles, are provided with a series of horizontal guide-rolls, E, at the ends, within and beneath the same, in such positions as to serve as bearings and aid in guiding the endless belt or carrying-apron G, which receives motion from the driving shaft and pulley F, the opposite end of which shaft may be provided with a pulley, H, and belt I, connecting and passing over pulley J, so as to impart motion to the elastic pressure-roll K, which also serves as a driving-roll, in connection with the upper elastic adjusting pressure-roll, L, held down upon the material, M, being dyed as it passes along upon the said endless apron G by a lever or levers and weights N; or, if desired, the pressure may be regulated by springs, or in any manner to allow the said rolls K L to adjust themselves to the inequalities of the laps, raw cotton, or wool being dyed, which also passes under the large perforated rolls or cylinders P, the perforations of which permit them to fill partially with the liquid dye or mordant, which is carried upward somewhat by their rotation, and thereby forced through the perforations on the forward or opposite side thereof, which action washes or frees the outer surface of the said perforated cylinders P from any particles or pieces of the material M, and thereby prevents its clogging or catching larger quantities of the same as it passes through the dyeing-machine, and is received at the opposite end from which it entered into any receptacle desired.

It will be understood that the elastic pressure-rolls serve to remove any surplus mordant or dye not required in the said operation, and that they may be prepared with rigid surfaces, if thought desirable, and that instead of two sets or pairs of pressure-rolls, K L and K' L', one set or pair may be dispensed with, as also may be omitted two of the perforated cylin-

ders P, or the central group, thus rendering the machine single instead of duplicate as to the rolls, cylinders, and boxes, as shown.

The laps, raw cotton, or wool M being placed
5 or brought into contact with the endless apron G, as shown at the left-hand end of the machine in the drawings, it passes, with the carrying or endless apron G, beneath the perforated roll or cylinder P within the dye or
10 mordant placed in the dye box or receptacle D, and thence through the machine, when the operation of dyeing is completed. The endless apron may be adjusted to the proper tension by an adjustable binding-roll, T, as here-
15 tofore.

Having thus described my invention, what I claim is—

1. The combination of the endless apron G, guide-rolls E, and rubber pressure-rolls L N
20 with the mordant-box D and dye-box D', whereby the material being dyed may be carried through a mordant in said box D, thence between elastic pressure-rolls located above the liquid, and thence through a dye in said box
: D', and thence between elastic pressure-rolls,

to remove the surplus dye at a single continuous operation, substantially as described, as and for the purposes set forth.

2. The combination, with a dye box or receptacle having an endless apron mounted
30 upon driving-rolls, of perforated cylinders adapted to bear upon the material within the liquid, so as to hold the same in contact with said apron as it is carried through the machine, substantially as described, as and for the pur-
35 poses set forth.

3. The combination, with a dye box or receptacle having an endless apron mounted
40 upon driving-rolls, of perforated cylinders adapted to bear upon the material within the liquid, and elastic pressure-rolls for removing any surplus thereof as the material is carried between the same in its passage through the machine, substantially as described, as and for the purposes set forth.

WILLIAM McALLISTER.

Witnesses:

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