

W. M. ROSSITER.
TEXTILE ROLLS.

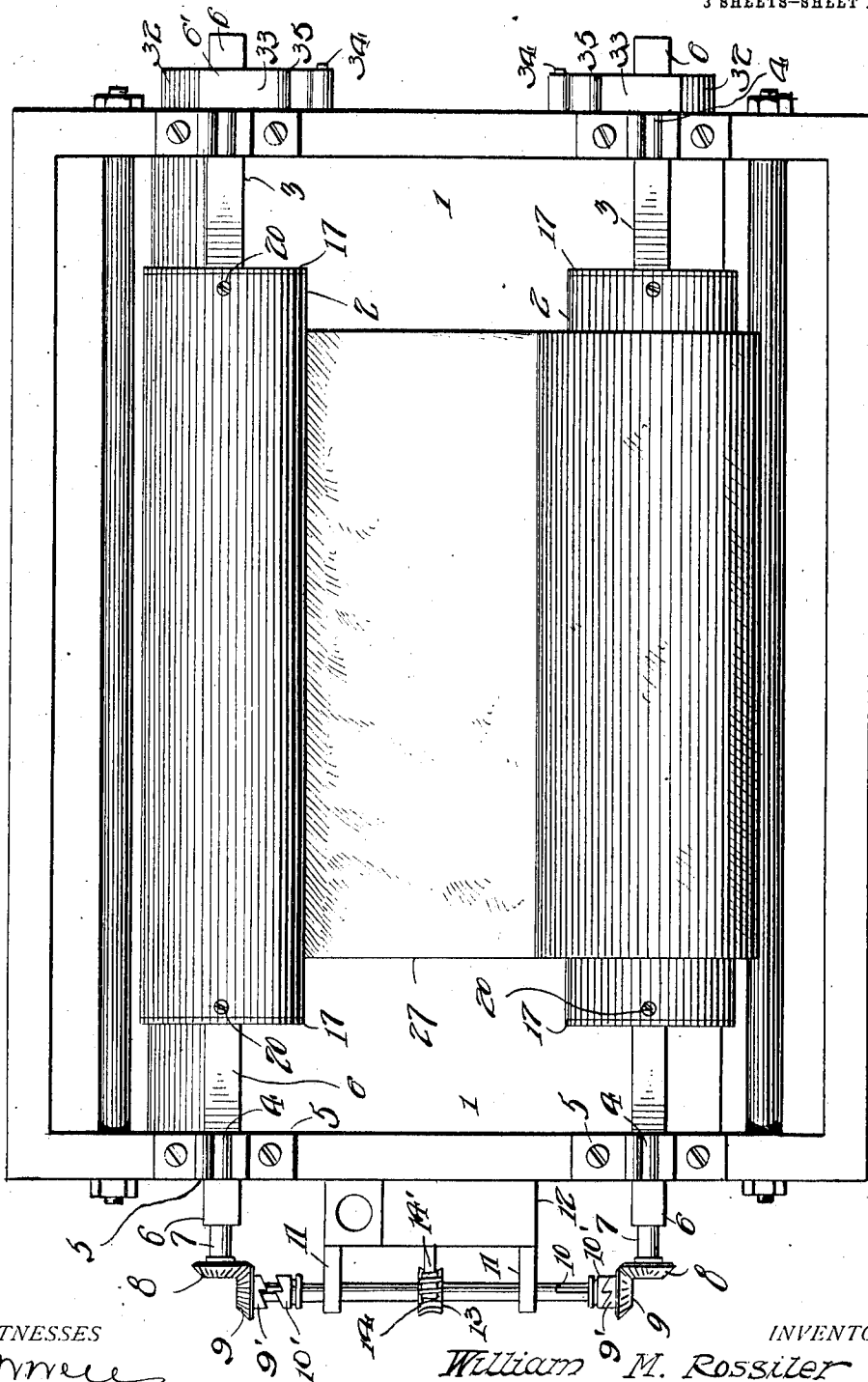
APPLICATION FILED AUG. 11, 1911.

Patented May 14, 1912.

1,026,226.

3 SHEETS-SHEET 1.

Fig. 1.



WITNESSES

J. M. Cady
E. W. Cady

INVENTOR

William M. Rossiter

By E. C. Vrooman, Attorney,

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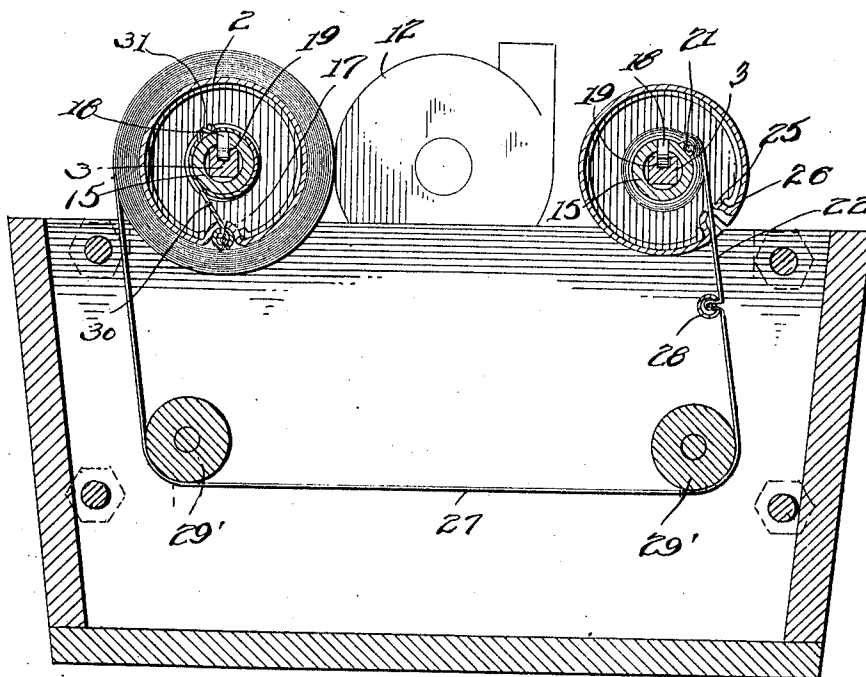
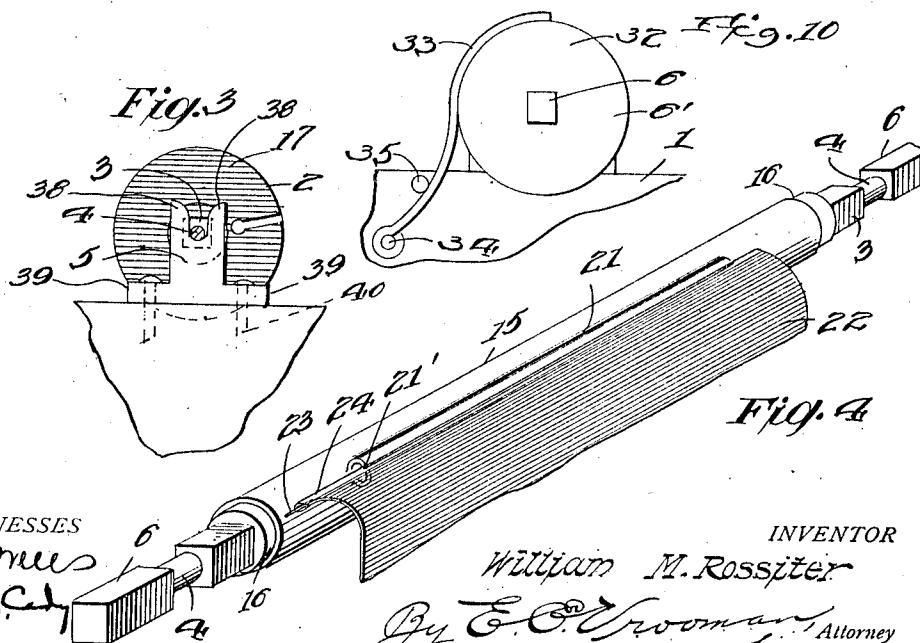


Fig. 2.



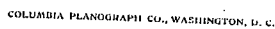
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3 SHEETS-SHEET 3.



UNITED STATES PATENT OFFICE.

WILLIAM MORRIS ROSSITER, OF SUNBURY, PENNSYLVANIA.

TEXTILE ROLL.

1,026,226.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed August 11, 1911. Serial No. 643,572.

To all whom it may concern:

Be it known that I, WILLIAM M. ROSSITER, a citizen of the United States, residing at Sunbury, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Textile Rolls, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to dyeing apparatus and has especial reference to that class of dyeing apparatus in which the material to be dyed is carried over rollers located in a vat containing dyeing liquid. Heretofore the material to be dyed was connected at its ends to rollers mounted on top of the vat by means of linen strips which were wound upon the rollers with the dyed material. The objection to this construction is that the 20 linen which was passed through the dye retained considerably more dye than the material which was being dyed so that after the linen was wound upon the rollers and the material being dyed was wound over the linen, the surplus dye in the linen penetrated a number of thicknesses of the wound material and they being dyed thereby caused the ends of said material to become darker than the rest of the piece which involved a loss of a number of yards of the material being dyed.

25 The object of the invention is to provide rollers so constructed that linen or cords used in connection with the material to be dyed will not be wound upon the rollers and the material to be dyed not wound upon the linen wound upon the rollers but the linen will be drawn inside of the roller so that the material being dyed will be wound 40 upon the roller out of contact with the linen which is located within the roller.

45 The invention therefore has for its object to provide a roller that will allow the silk, cotton, wool, or other fabrics to be dyed its entire length and of a uniform color.

Referring to the accompanying drawings:—Figure 1 is a plan view of a dye vat showing mounted on the top thereof and spaced apart from each other a pair of rollers on which the material to be dyed is wound. Fig. 2 is an end view in cross section of the vat and rollers. Fig. 3 is a detail view of a portion of the vat and the end of a roller supported thereon. Fig. 4 is an enlarged detail view in perspective of an internal roller showing a portion of the

means for suspending the material to be dyed detachably connected therewith. Fig. 5 is a view in longitudinal section of a portion of the vat and one of the rollers and a portion of the material to be dyed connected to the roller by suspending means. Fig. 6 is a detail view in perspective of a portion of one of the rollers with the end cap removed and the material to be dyed wound thereon. Fig. 7 is a detail view of a portion of one of the rollers with an end cap removed, and a portion of the material to be dyed connected by suspending means to a roller within said roller. Fig. 8 is a detail view in cross section of an internal roller, and a portion of one of the suspending means connected therewith. Fig. 9 is a fragmentary, sectional view of a tube containing a linen and a silk strip. Fig. 10 is a detail view of one end of one of the rolls and a part of its support, and a brake employed in connection therewith.

50 In the accompanying drawings 1 indicates a vat on the top of which, mounted and extending lengthwise thereof, are a pair of rollers 2 which are hollow and formed of brass or other suitable material. Each of the rollers 2 is mounted on a shaft 3, rectangular in cross section, and having adjacent to each end a cylindrical reduced portion 4 mounted in an open bearing 5 on the upper edge of the vat 1, the outer rectangular end 6 of each shaft 3 being provided with a brake 6'. The other square end 6 of each of the shafts 3 is provided with a stub-shaft 7 having a beveled gear wheel 8 which meshes with a beveled gear wheel 9 on the shaft 10, the shaft 10 being mounted in brackets 11 projecting from a casing 12 adapted to contain a motor for operating the rolls. The shaft 10 is provided between its ends with a worm gear wheel 13 which meshes with a worm 14 mounted on a shaft 14' projecting from a motor in the casing 12. Each of the gear wheels 9 is loosely mounted on each end of the shaft 10 and is provided with a clutch 9' adapted to be engaged by a clutch 10' splined to the shaft 10 and movable by any suitable means into and out of engagement with the clutch 9'. Each of the shafts 3 extends through a brass roller 15 located in the roller 2 and having shouldered ends 16, each of said shouldered ends fitting in an opening in a cap 17. The shaft 3 which may be slid into and out of the roller 15 is held therein

against endwise movement by means of a pair of spring clips 18 mounted on the roller which engage a recess 19 in the shaft 3. The caps 17 are detachably secured to the roller 2 by means of screws 20.

In order to lower the end of the silk or other material to be dyed into the dye, each end of the strip of silk or other material is connected with a roller 15 either by a linen strip or by cords. To illustrate the manner of employing the linen strip or cord one end of a strip of silk is shown as connected at one end by a strip of linen to one of the rollers 2 and the other end to the other roller 2 by cords. Where a strip of linen is employed the roller 15 is provided with suitable means for engaging one end of the strip of linen, as for example, by means of a tubular projection 21 mounted on the roller 15 and provided with a longitudinal slot 21' through which extends one end of a strip of linen 22 and held in the tubular projection 21 by means of a rod 23 extending through the end 24 of the linen strip 22 as shown in Fig. 4. The strip of linen 22 extends through a slot 25 in an internal longitudinal rib 26 formed by bending in the wall of the cylinder 2 which at the same time forms a longitudinal groove within the outer face of the roller. The end of the linen strip 22 and one end of a strip of silk 27 to be dyed are secured within a tube 28 having a longitudinal slot 28', the adjoining ends of the linen strip 22 and the silk strip 27 being passed through a slot 28' and folded together and extending over a rod 29 located within the tube 28. The strip of silk 27 extends over rollers 29' located at a suitable distance from the bottom of the vat so as to be immersed in the liquid dye, the other end of the silk strip 27 in practice being secured to a linen strip which in turn is secured to the other roller 2 in like manner as hereinbefore described in connection with the linen strip 22. But in order to show the use of the cords instead of a linen strip the other end of the silk strip 27 is shown as connected by cords 30 with the roller 15 in the other roller 2, the ends of said cords 30 being connected to the roller 15 in any suitable manner, and, as shown in Fig. 8, preferably by being passed through lugs 31, thereon, and knotted thereto. The cords 30 are preferably employed since they are cheaper and take up less dye.

The brake 6' consists of a wheel 32 mounted on the square end 6 of each shaft 3 and a spring arm 33 is secured at one end to the side of the vat by means of a pin 34 and bearing against the wheel 32 and held in place thereon by means of the pin 35 so as to have a frictional bearing thereon.

The clutches 10' may be operated by any suitable means such as a lever and are al-

ternately moved into engagement with the clutch 9' of each gear wheel 9 so that one of the gear wheels 9 will be in operative engagement with the shaft 10 while the other is idly mounted thereon, each of said gear wheels 9 being loosely mounted on the shaft 10 to rotate thereon.

To dye a piece of silk one of the gear wheels 9 is out of operative engagement with the beveled gear wheel 8 by removing the clutch 10' out of engagement with the clutch 9' on the beveled gear wheel 9 thereby when the power is applied transmitting it only to the other beveled gear wheel 9 which in turn transmits power to the roller 2 connected by a beveled gear wheel 8 therewith. One of the rollers 2 having power applied thereto as aforesaid the other roll is retarded in its rotation by its brake 6' as the silk is drawn toward the other roll. The brake so applied will cause sufficient tension on the material being dyed to make the outside roll 2 remain stationary until the metallic strip 28 reaches the groove in the other roll. In this movement in one direction the cords or linen will be wound into one of the rollers 2 and the material will be wound on to one of the rollers and the linen strip or cords drawn out of the other roll and vice versa. In either of these movements as soon as the metallic strip 28 arrives at the roller 2 and the silk is wound thereon power is then disengaged from this roll by releasing one of the clutches 10' from the adjacent clutch 9' of the adjacent gear wheel 9 and the other clutch 10' is moved into engagement with the adjacent clutch 9' of the adjacent wheel 9 so as to transmit power to the other roller 2 when the mechanism is again started.

What I claim is:—

1. In a dyeing apparatus of the kind described, a hollow roller having a longitudinal opening, a roller mounted within said roller, means wound upon said inner roller and projecting through said opening for suspending one end of the material to be dyed, and means connected to one end of said suspending means for connecting thereto one end of the material to be dyed.

2. In a dyeing apparatus of the kind described, a hollow roller having a longitudinal opening, a roller mounted within said roller, means wound upon said inner roller and projecting through the opening in the outer roller for suspending one end of the material to be dyed, a rod extending longitudinally of the outer roller and connected to one end of said suspending means, and adapted to be detachably connected with one end of the material to be dyed.

3. In a dyeing apparatus of the kind described, a hollow roller having a longitudinal groove and a longitudinal opening in said groove, a roller mounted within said hollow roller, and suspending means wound

upon said inner roller and projecting through the opening in the outer roller, a rod connected to said suspending means projecting through the outer roller and adapted to be
5 seated in the groove in said roller, and provided with means for attaching one end of the material to be dyed.

4. In a dyeing apparatus of the kind described, a hollow roller having a longitudinal
10 groove within its periphery, said groove being formed with an opening, a roller mounted within said hollow roller, cords wound upon said inner roller and projecting
15 through the opening in said groove of the outer roller, a tubular rod secured to the cords extending from said outer roller and having a longitudinal groove, said tubular
20 rod being adapted to be seated within the groove in the outer roller, and means for detachably securing to said tubular rod one end of the material to be dyed.

5. In a dyeing apparatus of the kind described, a dye vat, a hollow roller on which
25 material to be dyed is adapted to be wound, said roller having a longitudinal groove within its periphery and adapted for the passage of suspending means located within
30 said roller, a shaft extending through said roller and having its ends mounted in the walls of said vat, a roller mounted on said shaft within said hollow roller and rotatable within said roller, the hollow roller being
rotatable on said inner roller, means for

suspending one end of the material to be dyed within the vat, said means being wound
35 upon said inner roller and extending through the longitudinal groove of the outer roller, a rod attached to said suspending means and adapted to be seated within said groove in
40 the outer roller, and provided with means to detachably connect therewith one end of the material to be dyed.

6. In a dyeing apparatus of the kind described, a hollow roller on which the material to be dyed is adapted to be wound,
45 said roller being formed with a longitudinal groove within its periphery, and openings in said groove, a roller rotatably mounted within said hollow roller and in frictional
50 engagement therewith, a shaft secured to and extending through said inner roller and beyond the ends of the hollow roller, cords wound upon said inner roller and extending
55 through the openings in the groove of the hollow roller, a tubular rod adapted to be seated in said groove in the hollow roller and having a longitudinal slot, and means for
detachably engaging one end of the material to be dyed within said tubular rod.

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

WILLIAM MORRIS ROSSITER.

Witnesses:

GEO. E. DEPPEN,
L. H. GUYON.