

No. 657,293.

Patented Sept. 4, 1900.

J. T. MORGAN & W. MENZIES.
DYEING MACHINE.

(Application filed July 20, 1900.)

(No Model.)

3 Sheets—Sheet 1.

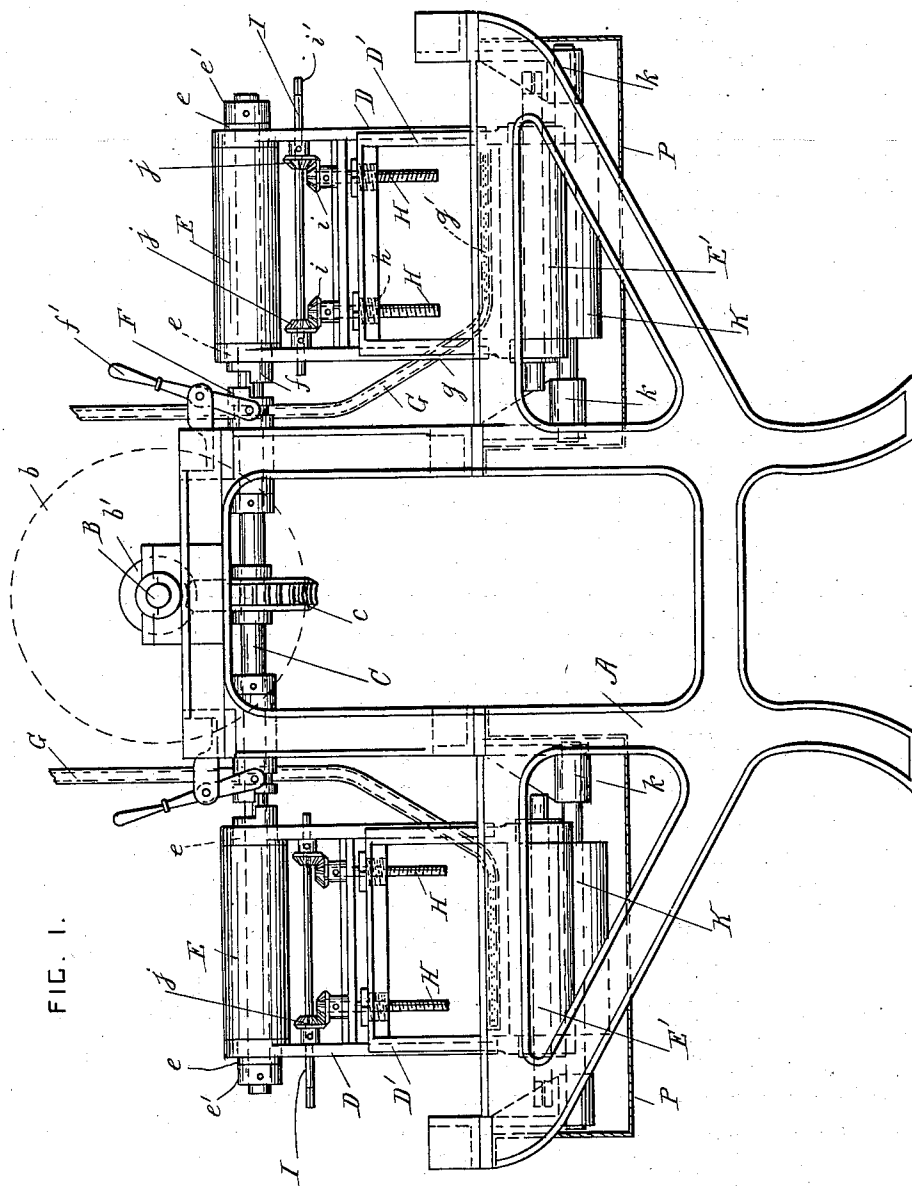


FIG. 1.

WITNESSES

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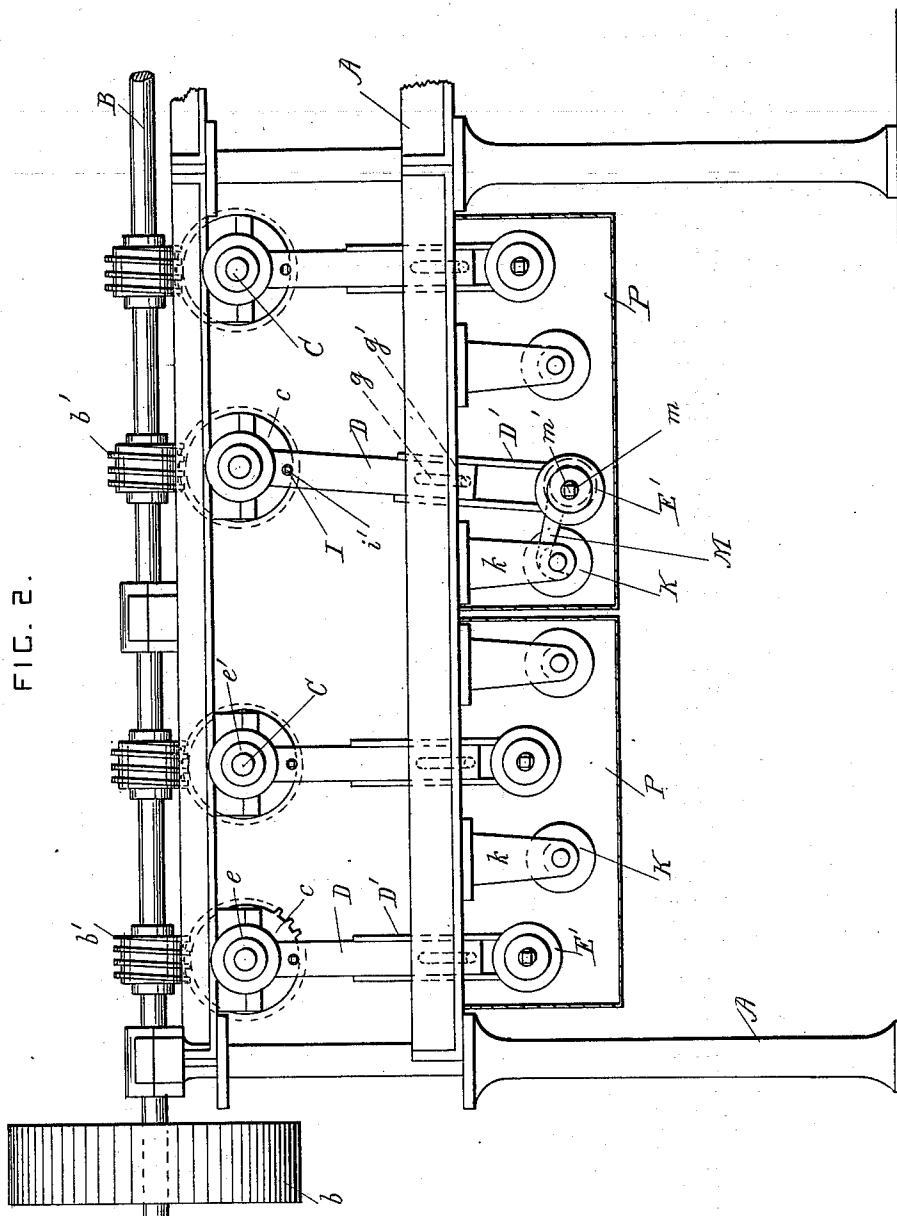
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3 Sheets—Sheet 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

JESSE T. MORGAN AND WILLIAM MENZIES, OF WILKES-BARRÉ,
PENNSYLVANIA.

DYEING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,293, dated September 4, 1900.

Application filed July 20, 1900. Serial No. 24,320. (No model.)

To all whom it may concern:

Be it known that we, JESSE T. MORGAN and WILLIAM MENZIES, citizens of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Dyeing-Machines; and we 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.

This invention relates to machines for dyeing, washing, mercerizing, or otherwise treating hanks of yarn; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is an end view of the machine. Fig. 2 is a partial side view thereof. Fig. 3 is a partial plan view of the same. Figs. 4 and 5 are details.

A is the main frame of the machine.

B is the driving-shaft, journaled in the frame A and provided with a driving-pulley *b*. Worms *b'* are secured on the shaft B.

C are roll-shafts the middle parts of which are journaled in the frame A crosswise under the shaft B. Worm-wheels *c* are secured on the shafts C in gear with the worms *b'*, so that all the roll-shafts C are revolved continuously as long as the shaft B is rotated.

D are extension-frames which are pivotally supported by the projecting end portions of the shafts C. As all these frames and the parts coöperating with them are alike the description will be confined to one of them.

Each extension-frame consists of two parts, of which the upper part is pivoted on the hubs *e* of the upper roll E, which is journaled on the said roll-shaft C. A collar *e'* is provided at the free end of the shaft to prevent the roll from sliding off it. The lower part D' of the extension-frame is slidable in or on the upper part, the two parts being provided with suitable guides for retaining them in their relative positions and permitting the frame to be extended.

E' is the lower roll, which is journaled in the lower part D' of the extension-frame.

F is a slidable clutch member which is splined to the shaft C, and *f* is a clutch member on the adjacent hub *e* of the upper roll E

for the said slidable clutch member to engage with. A suitable operating device, such as the lever *f'*, is provided for sliding the clutch member F into and out of engagement with the clutch member *f*.

G is a spray-pipe for the liquid used in treating the yarn. This spray-pipe projects through a slot *g* in the lower part of the extension-frame and has its perforated portion *g'* arranged a short distance above the lower roll. The spray-pipe is engaged by the said slot, so that the perforated portion *g'* is always held over the lower roll and moves laterally with the frame when the frame is moved pivotally.

The hanks of yarn are slipped over the ends of the rolls before the roll-frame is extended. The frame is extended by means of screws H, which are journaled in the upper part of the frame. Nuts *h* are carried by the lower part D' of the frame and engage with the screws *h*. Two screws *h* are preferably used and are arranged one near each end of the frame, so that the lower roll is always kept parallel with the upper roll, and all the hanks are stretched to the same extent when the frame is extended. The screws H have beveled toothed wheels *i* secured on them.

I is a shaft journaled in the upper part of the extension-frame and provided with a square end *i'* for a crank-handle. Beveled toothed wheels *j* are secured on the shaft I in gear with the wheels *i*. The frame is extended or contracted by revolving the shaft I.

K is a pressing-roll arranged to one side of the roll E'. The roll K is journaled in brackets *k*, secured to the main frame A. The yarn is pressed between the rolls E' and K by moving the extension-frame pivotally of its supporting-shaft C toward the roll K and securing it by any approved catch mechanism.

M is a hooked catch for holding the extension-frame so that the yarn is pressed between the rollers E' and K.

Figs. 4 and 5 show the preferred catch mechanism for drawing together the rolls E' and K. The roll E' is journaled on a shaft *m*, which is journaled in the frame D'. N is an eccentric secured on the shaft *m*, and *m'* is an angular portion on the said shaft for receiving a wrench or handle. The hook M is

pivoted on the eccentric, and p is a stop on the hook which bears on a lug p' on the eccentric and normally holds the hook in its raised position. The roll E' is moved toward the roll K , and the hook is dropped over the shaft of the roll K . The eccentric is then turned so as to press the rolls together, thereby squeezing the yarn between them.

The liquid with which the yarn is treated is sprayed onto the hanks and is pressed into the yarn by the rolls E' and K .

P is a tank or receptacle for catching the surplus liquid which is squeezed out of the yarn. The rolls E' and K are arranged within the tank P , and, if desired, they can be submerged in liquid held by the tank, according to one method of using this apparatus.

All the roll-shafts C are constantly in motion, and the rolls are thrown into and out of connection with their shafts as occasion requires. Some rolls are revolved while the hanks of yarn are being placed on or removed from other rolls, so that the machine as a whole is kept in constant operation.

What we claim is—

1. The combination, with a main frame, and a shaft journaled therein; of a series of roll-shafts having their middle parts journaled in the main frame and arranged crosswise of the driving-shaft, driving mechanism connecting the said roll-shafts with the driving-shaft, and extension-frames provided with rolls for supporting hanks of yarn and carried by the overhanging end portions of the said roll-shafts, substantially as set forth.

2. The combination, with a main frame, and a driving-shaft journaled therein; of a series of roll-shafts journaled in the main frame crosswise of the driving-shaft, driving mechanism constantly connecting the said roll-shafts with the driving-shaft, extension-frames provided with rolls for the yarn and carried by the said roll-shafts, and clutch mechanism for connecting one of the rolls of each said extension-frame with the roll-shaft to which it pertains, substantially as set forth.

3. The combination, with a main frame, and a driving-shaft journaled therein; of a series of roll-shafts having their middle parts journaled in the main frame and arranged crosswise of the driving-shaft, driving mechanism constantly connecting all the said roll-shafts with the driving-shaft, extension-frames provided with rolls for the yarn and carried by the overhanging end portions of the said roll-shafts, and clutch mechanism for connecting one of the rolls of each said extension-frame with the roll-shaft to which it pertains, substantially as set forth.

4. The combination, with a roll-shaft, and means for revolving it; of a roll mounted on the said shaft and provided with a clutch member at one end, a slidable clutch member which revolves with the said shaft, an extension-frame pivoted concentric with the said roll, and a roll journaled in the lower part of the said frame, substantially as set forth.

5. The combination, with a roll-shaft, and means for revolving it; of a roll mounted on the said shaft and provided with hubs at its ends one of which has a clutch member, a slidable clutch member which revolves with the said shaft, an extension-frame pivoted on the said hubs, and a roll journaled in the lower part of the said frame, substantially as set forth.

6. The combination, with an upper roll, and means for revolving and supporting it; of an extension-frame pivoted concentric with the said upper roll, two screws journaled in the upper part of the extension-frame one near each end thereof and engaging with the lower part of the said frame, a shaft for operating the extension-frame journaled in the upper part thereof, two pairs of beveled toothed wheels connecting the said shaft with the said screws, and a roll journaled in the lower part of the said frame, substantially as set forth.

7. The combination, with an upper roll, and means for revolving and supporting it; of a frame pivoted concentric with the upper roll, a roll journaled in the lower part of the said frame, a presser-roll journaled on one side of the said lower roll, and means for holding the said lower roll in operative relation with the presser-roll when the frame is moved pivotally toward it, substantially as set forth.

8. The combination, with an upper roll, and means for revolving and supporting it; of an extension-frame pivoted concentric with the upper roll, driving devices for sliding the lower part of the extension-frame in its upper part, a roll journaled in the lower part of the extension-frame, a presser-roll journaled on one side of the said lower roll, and means for holding the said lower roll in operative relation with the presser-roll when the frame is moved pivotally toward it, substantially as set forth.

9. The combination, with a frame, a roll in the upper part of the frame, and means for supporting the said frame and roll and revolving the roll; of a lower roll journaled in the lower part of the said frame, a spray-pipe arranged between the said rolls, and means for pressing the yarn as it passes over the said lower roll, substantially as set forth.

10. The combination, with an upper roll, and means for revolving and supporting it; of a frame pivoted concentric with the upper roll, a lower roll journaled in the said frame, a presser-roll journaled on one side of the said lower roll, a laterally-movable spray-pipe arranged over the lower roll, and means for holding the said lower roll in operative relation with the presser-roll, substantially as set forth.

11. The combination, with an upper roll, and means for supporting and revolving it; of a frame pivoted concentric with the upper roll, a shaft journaled in the lower part of the said frame and provided with means for moving it on its axis, a lower roll journaled on the

said shaft, a presser-roll journaled on one side of the said lower roll, an eccentric secured on the said shaft, and a hook pivoted on the said eccentric and operating to connect the lower roll with the presser-roll, substantially as set forth.

12. The combination, with an upper roll, and means for revolving and supporting it; of a frame pivoted concentric with the upper roll, a lower roll journaled in the said frame, a presser-roll journaled on one side of the said lower roll, a pivoted catch for holding the said

lower roll and presser-roll in operative relation, and an eccentric supporting the said catch and affording a means for adjusting the pressure between the said lower roll and the presser-roll, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JESSE T. MORGAN.
WILLIAM MENZIES.

Witnesses:

R. T. COUSART,
WILLARD L. POST.