

(No Model.)

3 Sheets—Sheet 1.

R. E. MENZIE.
MACHINE FOR PAINTING CLOTH.

No. 579,067.

Patented Mar. 16, 1897.

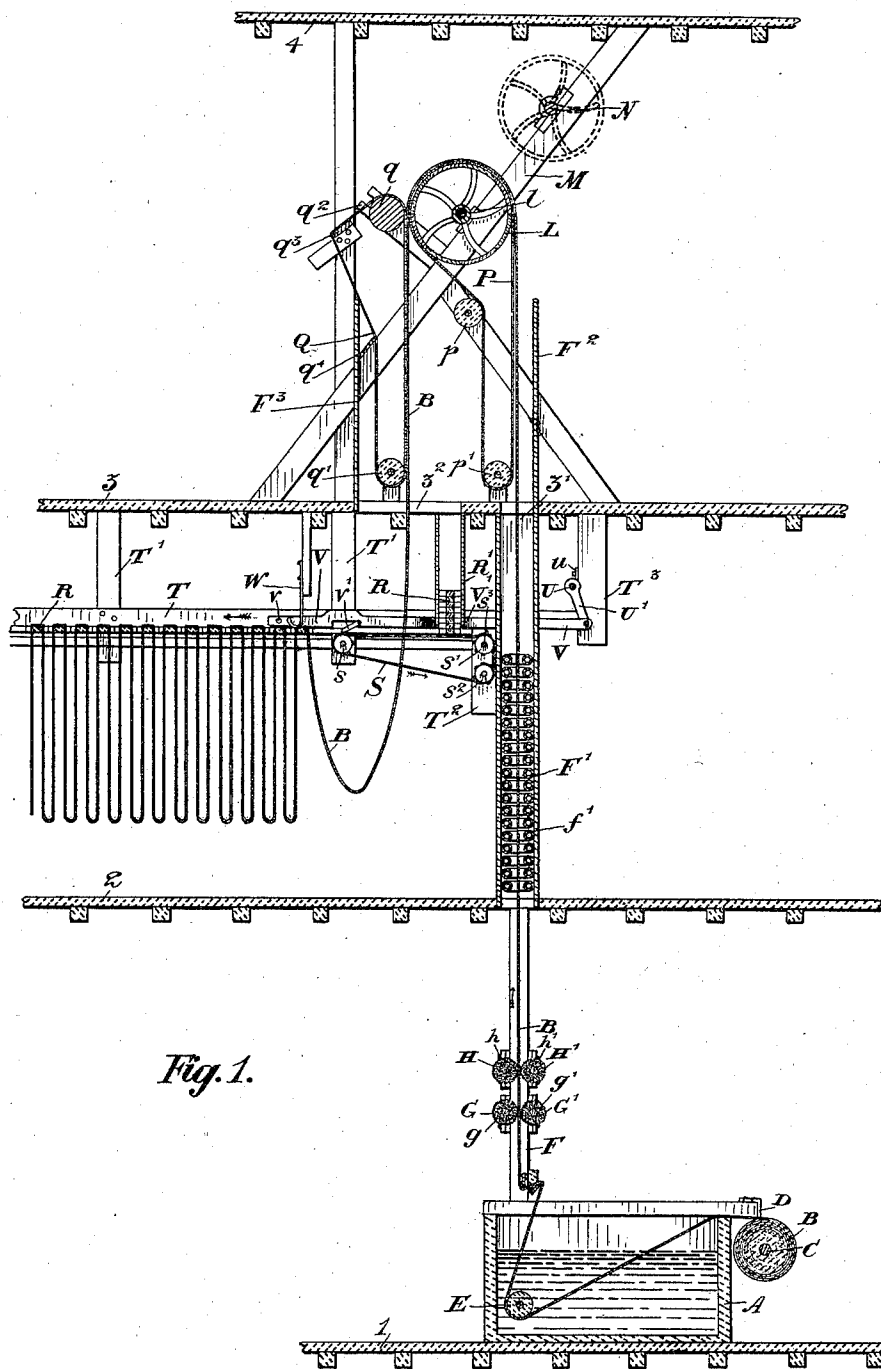


Fig. 1.

Witnesses.

E. R. Case.

H. W. Wesson

Inventor.

Robert E. Menzie
by Jethro Stambaugh & Co
attys.

(No Model.)

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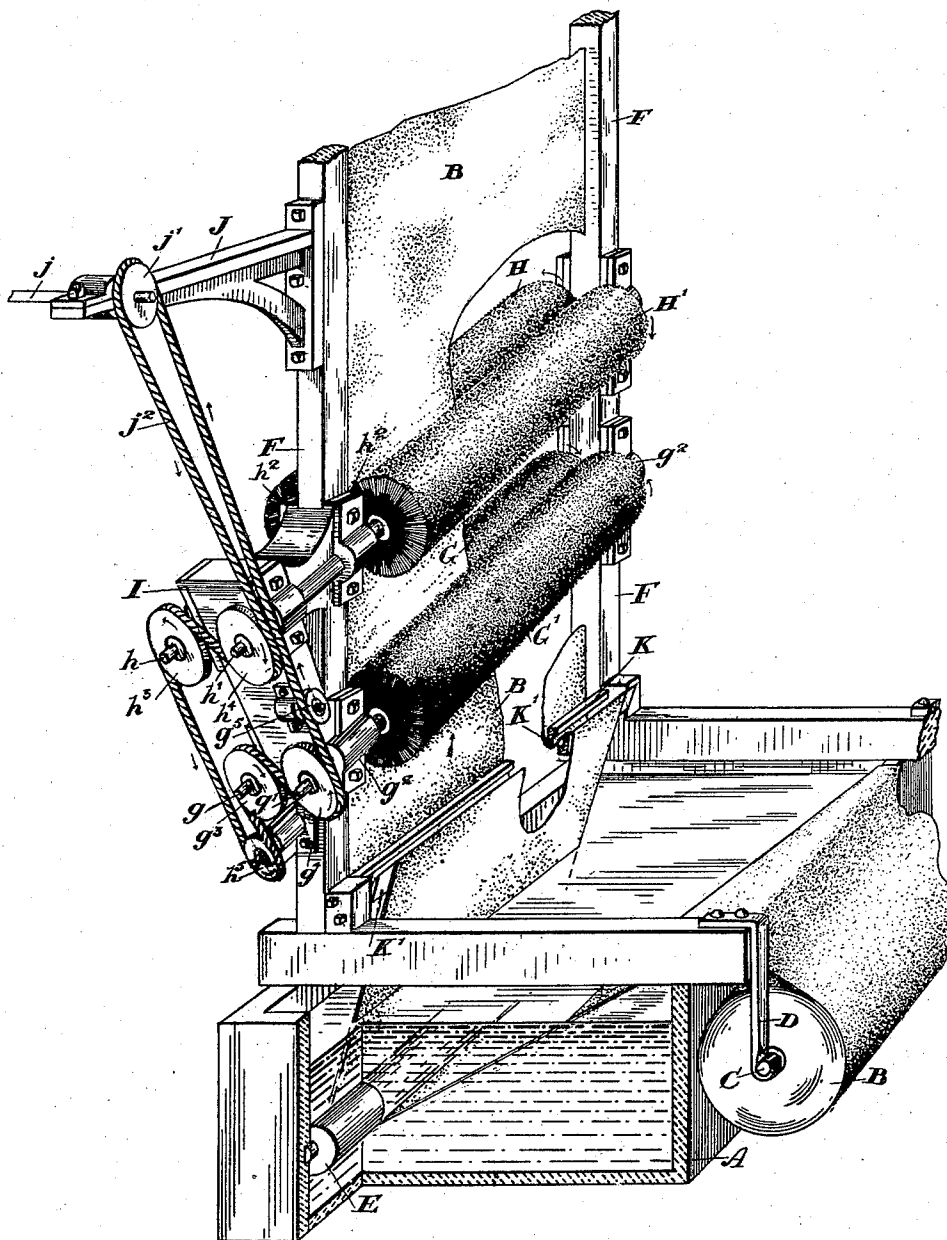


Fig. 2.

Witnesses.
E. R. Case.
H. H. H. H. H.

Inventor:
Robert E. Menzie
by Fethurst & Co.
attys.

(No Model.)

3 Sheets—Sheet 3.

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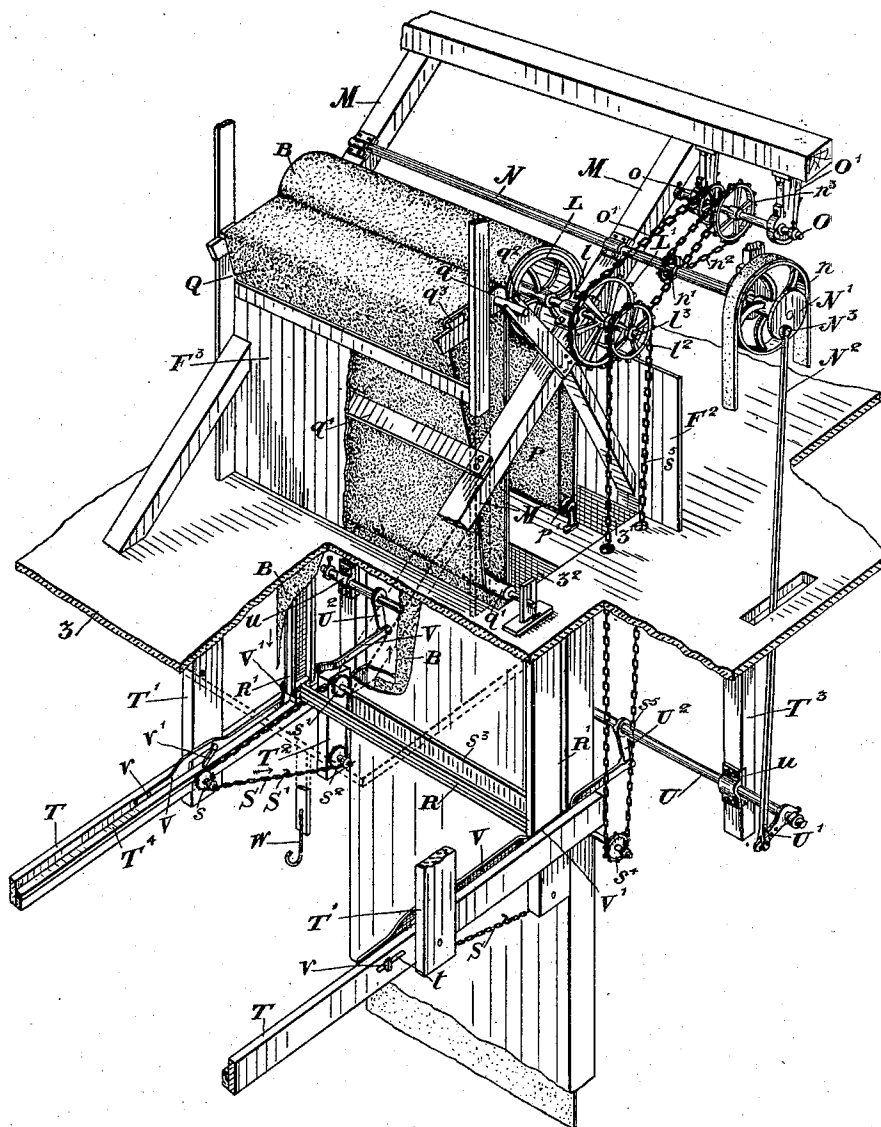


Fig. 3.

Witnesses.

E. R. Case.

A. Harrison

Inventor:

Robert E. Mungie
by Jethurstonshaugh & Co.
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UNITED STATES PATENT OFFICE.

ROBERT E. MENZIE, OF TORONTO, CANADA.

MACHINE FOR PAINTING CLOTH.

SPECIFICATION forming part of Letters Patent No. 579,067, dated March 16, 1897.

Application filed June 19, 1896. Serial No. 596,189. (No model.)

To all whom it may concern:

Be it known that I, ROBERT E. MENZIE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Machines for Painting Cloth, of which the following is a specification.

My invention relates to improvements in machines for painting cotton or other cloth more particularly adapted for window-blinds; and the object of the invention is, first, to provide a simple means by which the cloth may be perfectly and evenly painted and all streaks avoided, and, secondly, to provide a means for perfectly drying the cloth after being painted; and it consists, essentially, first, of two pairs of circular brushes, which are set above the dipping-tank obliquely to the roll of cloth with which they are designed to come in contact as such cloth passes from the dipping-tank, the brushes being preferably rotated in opposite directions, and, secondly, of a steam-lined conduit through which the cloth passes upwardly from the painting-brushes, and of a feeding-roll and festoon-carrier arranged to carry the cloth as it passes away from the dipping-tank, the parts of the machine being preferably arranged on different floors of the building for convenience, as hereinafter more particularly explained.

Figure 1 is a sectional elevation showing my apparatus complete. Fig. 2 is a perspective view of the dipping-tank and roll of cloth as it passes from the same, showing the position of the brushes and the tank partially in section. Fig. 3 is a perspective view of the upper portion of the apparatus.

In the drawings like letters and figures of reference indicate corresponding parts in each figure.

1, 2, 3, and 4 are the several floors upon which my apparatus is supported and through which the cloth is carried in the various stages of its treatment.

A is the dipping-tank; B, the roll of cloth, which is supported on a rod C, journaled in bearings D at each end of the tank and at one side thereof.

E is a roller which extends through the tank longitudinally and in proximity to the bottom. The cloth B passes out, as indicated by dotted lines, under the roller E and up be-

tween the standards F F at the opposite side of the tank from the roll B to the conduit F'.

G G' are the lower pair of circular brushes, the spindles g g' of which are journaled in suitable bearings g^2 and g'^2 on the standards F and F'. The circular brushes G and G' are set obliquely across the cloth B, which passes vertically in the direction indicated by arrow and is carried off in any suitable manner.

H and H' are the second pair of circular brushes, situated above the brushes G and G', also set obliquely to the roll of cloth and parallel to the brushes G and G'. The spindles h and h' of the brushes H and H' are journaled in bearings h^2 and h'^2 .

I is a supporting-bracket which is secured to the standard F and the end of which is at right angles to the spindles g and h .

h^3 and h^4 are grooved pulleys secured on the ends of the spindles h and h' , respectively. g^3 and g^4 are grooved pulleys secured on the ends of the spindles g and g' , respectively. All of these pulleys are of the same diameter.

g^5 is a grooved guiding-pulley situated above the pulley g^4 , as shown, and h^5 is a grooved guiding-pulley situated beneath the pulley g^3 .

J is a bracket secured to the standard F and having journaled in the end the driving-spindle j , upon the end of which is secured a driving-pulley j' . The pulley j' is connected by an endless rope j^2 to the other pulleys mentioned, the course of the rope being as follows: It passes from the pulley j' down around the pulley h^4 , and then up over the pulley h^3 , then down around the pulley h^5 and up over the pulley g^3 , then down around the pulley g^4 up onto the pulley g^5 , thence to the pulley j' again. This course is clearly indicated in the drawings and the direction of the drive is as indicated by arrow. It will thus be seen that the circular brushes G and G' and H and H' are caused to rotate in the direction indicated by arrow; that is, the brushes G and G' rotate against the cloth while the brushes H and H' rotate with the cloth as to direction.

K and K' are the doctors over which the cloth passes from the dipping-tank, such doctors being designed to remove the major portion of the surplus paint from the cloth.

The conduit F' hereinbefore mentioned is lined with steam-pipes f' and extends, preferably, from floor No. 2 to floor No. 3, one of

the side walls F^2 extending above floor No. 3, as indicated. The roll of cloth passes up through an opening $3'$ in the third floor over a drum L, journaled in suitable bearings l , secured to the obliquely-set supporting-beams M.

N is the main driving-shaft, which is provided with a pulley n , which derives motion by a belt from a suitable source of power. The main shaft N has secured to it a sprocket-pinion n' , which is connected by a sprocket-chain n^2 to a sprocket-wheel n^3 on the counter-shaft O, which is supported in suitable hanger-bearings O'.

O is a sprocket-wheel secured on the shaft O and connected by sprocket-chain o' to a sprocket-wheel L' on the drum-shaft l^3 .

P is an endless belt of the same width as the cloth passing over the drum L and the guiding-pulleys p p' . One portion of the belt is located in proximity to the upwardly-moving cloth, and such belt moves with the cloth over the drum underneath such cloth. The guiding-pulleys p p' are suitably journaled, as indicated.

Q is an endless belt which is supported and moves upon end rollers q and q' , which are suitably journaled. The end roller q is preferably journaled in loose forked journal-boxes q^2 and is located, preferably, opposite the center of the drum-shaft.

q^3 and q^4 are tightening-bars arranged, as shown, one inside and the other at the outside of the belt Q.

F^3 is an inclosing side board.

R are a series of I-bars, which are fed into end guideways R' from the floor 3 by any suitable means, but preferably by hand. The I-bars R are supported directly above the carrying-chains S.

T are longitudinal bars supported on the down-hangers T' on the outside of the guideways R'. The longitudinal bars T extend underneath the third floor for any desired length and are parallel throughout.

The carrying-chains S are preferably sprocket-chains and extend around three sprocket-wheels s , s' , and s^2 , a set on each side, the sprocket-wheel s being supported on the down-hanger T' and the sprocket-wheels s' and s^2 being supported one above the other on the supplemental down-hanger T². The sprocket-wheels s' and s^2 are journaled in suitable studs, as indicated, and the sprocket-wheels s' have a shaft s^3 extending through the same, which shaft is driven through a sprocket-wheel s^4 and chain s^5 from a sprocket-wheel l^2 on the end of the shaft of the drum L.

U is a counter-shaft journaled in bearings u in the hangers T³, suspended from the floor 3.

N' is a disk secured on the end of the shaft N.

N² is a connecting-rod connected to the disk N' by a crank-pin N³, and having the lower end connected to the end of the arm U', secured to one end of the shaft U, as indicated.

U² are arms secured on the shaft U, and V

are bars connected at their outer ends to the arms U² and at their inner ends to the longitudinal bars T through the retaining-pins v , extending through slots t , as indicated.

The bars V have an offset V' of sufficient length to permit of sufficient freedom of movement past the end guideways R'.

v' are carrying-dogs pivoted on the inner sides of the bars V. The carrying-dogs v' normally rest upon the supporting-bars T⁴.

The carrying-chains S hereinbefore mentioned are provided with fingers S', which as the chains travel in the direction indicated by arrow carry the I-bars, one at a time, forward to a position in front of the carrying-dogs v' . The carrying-dogs now being on the bars V derive a reciprocating movement, so as to shove the I-bars close together.

W is a spring-finger which extends down from the floor 3 and is provided with a lower curved end, which normally rests upon the top of the last-adjusted I-bar on the bars T⁴.

As the cloth passes up over the drum L and endless belt P any dampness on this side of the painted cloth will be precipitated upon the endless belt, which is preferably made also of cotton cloth. The drum L serves to draw the cloth upwardly through the drying-chamber F'.

The opposite side of the painted cloth is relieved of any dampness by the endless belt Q, which is held pressed against the surface of the cloth in the manner indicated. The cloth passes down now through an opening 3^2 in the floor 3 to between the longitudinal bars T. One end of the painted cloth would be fastened on the bar R, supported on the side bars T⁴, and such painted cloth would be held in position for finally drying in festoons supported by a succession of I-bars, the ends of which abut each other. These I-bars are fed in the manner hereinbefore described, so that by the time a loop of cloth extends the requisite distance down an I-bar is brought forward by the carrying-chains S and fingers S' against the cloth, which, as it is being continuously fed, as hereinbefore described, by the drum L, loops over the top of the I-bar and is thrown into the position shown by the succession of festoons in the drawings.

It will of course be understood that the speed of the drum is regulated by the sprocket-gearing hereinbefore described, so that the carrying-chains with their fingers and the various parts coöperate with the cloth to bring it into the desired position for drying as quickly as it is painted by the rotary brushes. The I-bars are simply fed down by gravity and are caught by the carrying-fingers of the chains successively.

I find in practice that by such an apparatus as I describe the cloth is painted without any blotches or streaks or other defects. By the arrangement for drying the cloth as it is painted all danger of the paint being stripped or sealed off from the surface of the cloth is effectually avoided.

Heretofore circular brushes have been used which extended straight across the cloth and were parallel with the doctors; but it has been found in practice with such circular brushes, should any inequalities or blotches of paint pass the doctors on the roll, that the brushes instead of removing them would simply streak them out lengthwise and thereby disfigure to a great extent the painted cloth. By setting the rollers obliquely, as described, the blotch or streak is widened out or spread over the surface of the cloth, so that it is entirely smoothed over and rendered invisible.

As each pair of brushes rotates in opposite direction, it will be readily seen that the cloth will not have any tendency to slue to one side, but will be kept in place as it passes from the brushes.

What I claim as my invention is—

1. In a machine for painting cloth the combination with the dipping-tank and means for guiding the cloth as it passes out therefrom, of a pair of circular brushes suitably journaled and set obliquely to the edge of the cloth and caused to rotate as to direction against the cloth and a supplemental pair of brushes suitably journaled and set obliquely to the edge of the cloth and parallel with the other pair and caused to rotate with the cloth as and for the purpose specified.

2. In combination the dipping-tank, the brushes, the drying-conduit, feeding means for the roll, I-bars and guideways for feeding same, the longitudinal supporting-bars and a carrying-chain traveling on suitable brackets at each end of the I-bars, and fingers on the chain for carrying the I-bars one at a time forward against the depending cloth and pushers for carrying the supporting I-bars for the festoons away from the end of the carrying-chain as and for the purpose specified.

3. In combination the dipping-tank, the brushes, the drying-conduit, feeding means for the roll, I-bars and guideways for feeding same, the longitudinal supporting-bars, means for carrying the I-bars from beneath the guideways into proximity with the adjacent I-bars supporting the festoons, and a coun-

ter-shaft provided with arms connected to bars having movement within the longitudinal supporting-bars and pivoted carrier-dogs on the reciprocating bars for carrying each I-bar and its adjacent ones preceding forward as and for the purpose specified.

4. In combination the dipping-tank, the brushes, the drying-conduit, feeding means for the roll, I-bars and guideways for feeding same, the longitudinal supporting-bars, means for carrying the I-bars from beneath the guideways into proximity with the adjacent I-bars supporting the festoons, and a counter-shaft provided with arms connected to bars having movement within the longitudinal supporting-bars, pivoted carrier-dogs on the reciprocating bars for carrying each I-bar and its adjacent ones preceding forward, and an arm on the end of the counter-shaft, a crank-disk on the main shaft and a connecting-rod between the arm and crank-disk as and for the purpose specified,

5. In a drying apparatus for a cloth-painting machine, the combination with means for feeding the cloth of a drying-conduit, I-bars adapted to be fed by gravity into position, carrying means for said bars adapted to move each bar against the cloth and carry the same along the conduit in festoons, and a depending finger adapted to act as a detent for the last forwardly-fed bar, substantially as described.

6. In a drying apparatus for a cloth-painting machine, the combination with means for feeding the cloth, of a drying-conduit, I-bars adapted to be fed by gravity into position, carrying means for said bars adapted to move said bars successively against the cloth and carry the same along said conduit in festoons, and a depending spring-finger having a curved lower end adapted to come in contact with the last forwardly-fed supporting-bar, substantially as described.

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Witnesses:

B. BOYD,

H. T. S. YOUNG.