

(No Model.)

3 Sheets—Sheet 1.

E. ARMITAGE.
PAINTING MACHINE.

No. 468,145.

Patented Feb. 2, 1892.

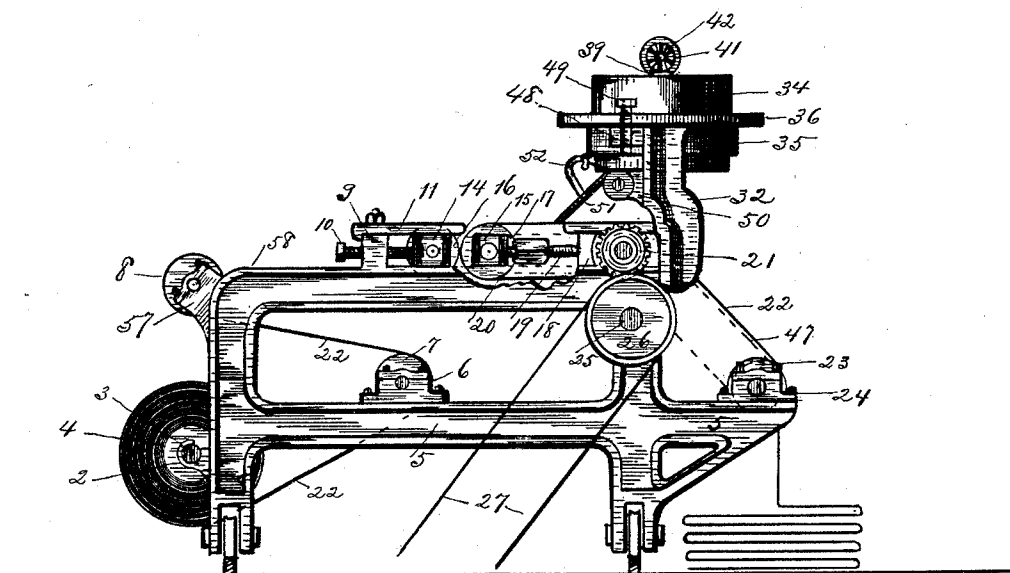


Fig 1.

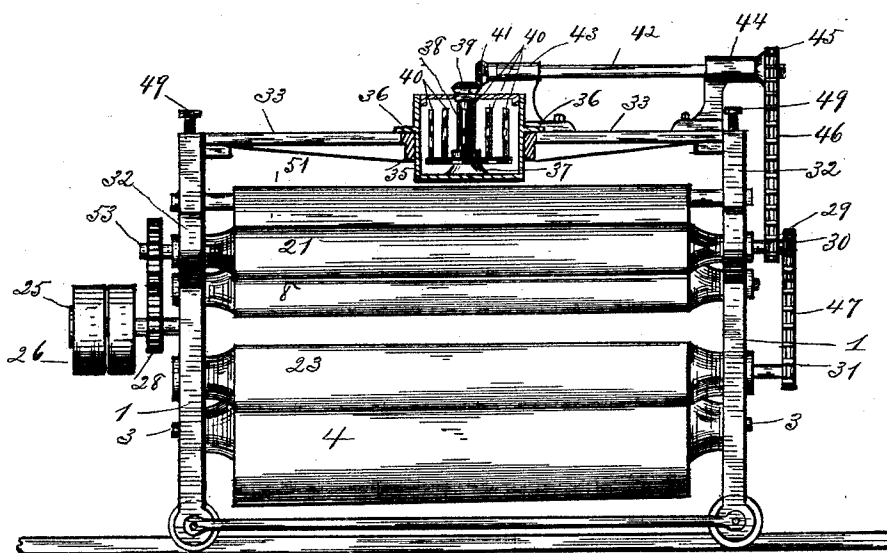


Fig 2.

WITNESSES:
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W. S. Boyd.

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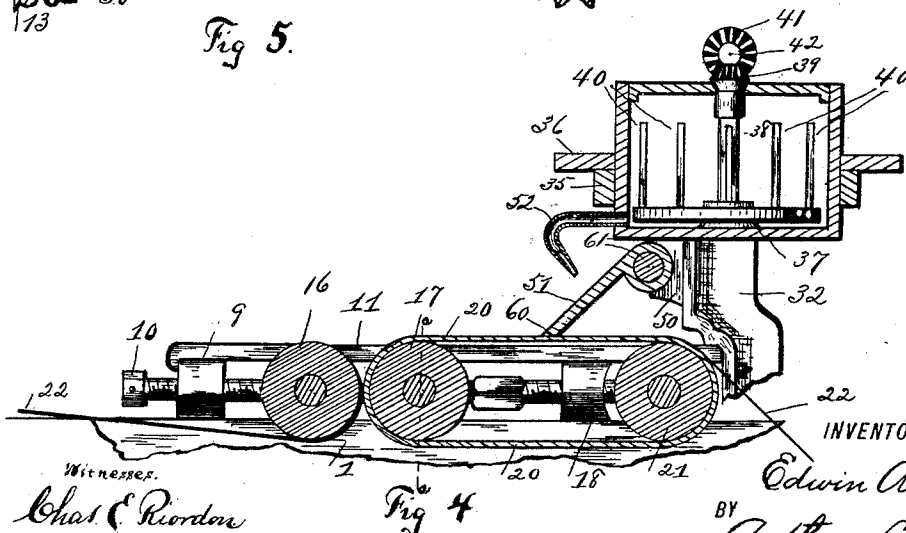
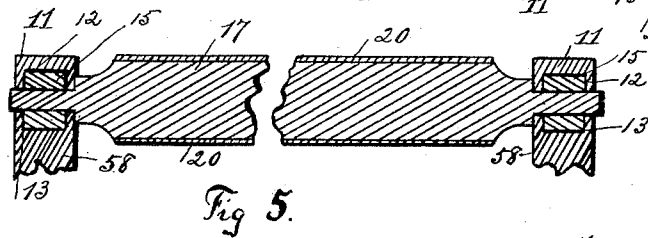
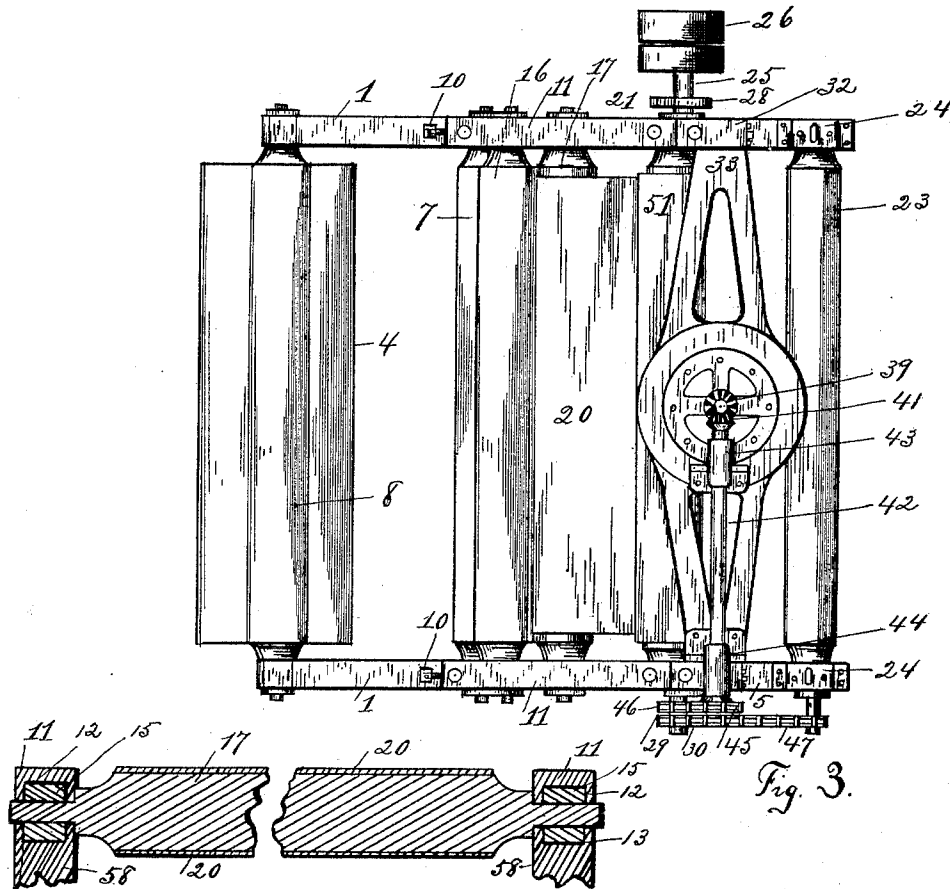
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Witnesses.
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Fig 4

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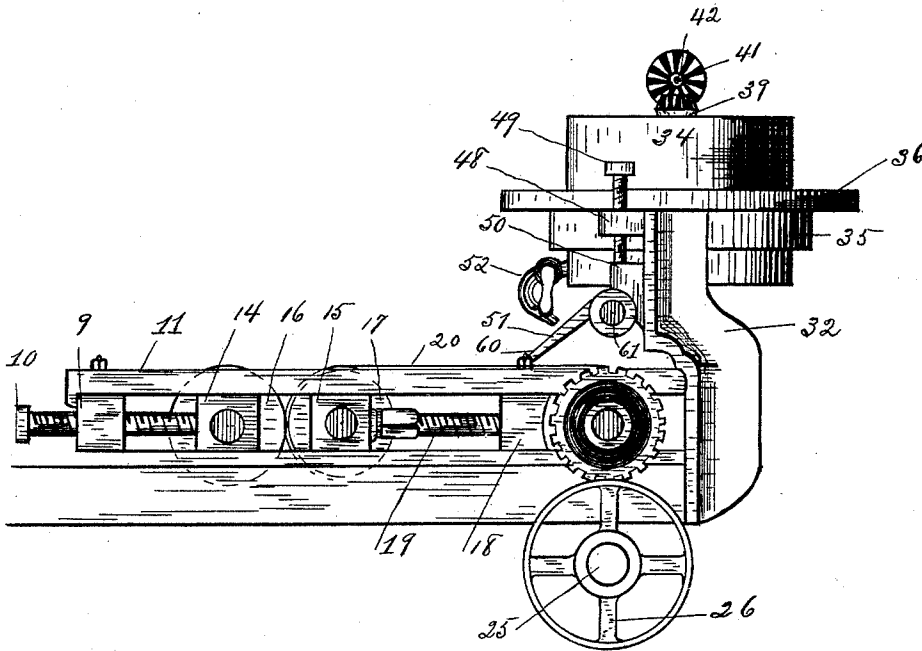


Fig. 6.

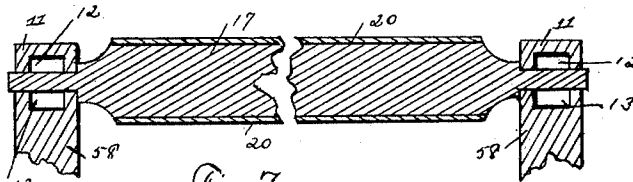


Fig. 7.

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UNITED STATES PATENT OFFICE.

EDWIN ARMITAGE, OF TORONTO, ASSIGNOR OF THREE-FOURTHS TO
ALEXANDER GRANT COLE, OF OTTAWA, AND THOMAS DILL, OF
TORONTO, CANADA.

PAINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,145, dated February 2, 1892.

Application filed April 20, 1891. Serial No. 389,717. (No model.)

To all whom it may concern:

Be it known that I, EDWIN ARMITAGE, manufacturer, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Painting-Machines; and I hereby declare that the following is a full, clear, and exact description of the same.

The object of this invention is to construct a simple and cheaply-manufactured machine for the purpose of automatically painting fabric material; and it consists, essentially, of the device hereinafter more fully set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is an end view of the same. Fig. 3 is a plan view. Fig. 4 is a cross-section of the painting mechanism. Fig. 5 is a cross-section on the lines *a a*, Fig. 4. Fig. 6 is an enlarged view of the upper part of the mechanism shown in Fig. 1; and Fig. 7 is a similar view to Fig. 5, with the exception that the journal-box 15 is omitted in order to clearly illustrate the grooves 12 and 13, formed, respectively, in the guide-bar 11 and upper side bar 58.

Like numerals of reference refer to like parts throughout the specification and drawings.

In the drawings the frame-work 1, made from any suitable metal, has formed in its front end a hooked bearing 2 to receive the journal 3 of the web-roll 4. On the web-roll 4 is wound a web of material to be painted. On the lower side bar 5 of the frame-work 1 is formed a bearing-box 6, in which is journaled a roll 7. On the upper front corner of the frame-work 1 is also formed a bearing-box 57, in which is journaled the roll 8. On the upper side bar 58 of the frame-work 1 is an inwardly-extending lug or short standard 9, in which is formed a threaded opening through which passes an adjusting-screw 10. The standard 9 supports one end of the guide-bar 11, while the opposite end of the said guide-bar is connected to the standard 32. A groove 12 is formed in the guide-bar 11, while a corresponding groove 13 is formed in the upper side bar 58 of the frame-work 1. In the grooves 12 and 13 slide brass journal-

boxes 14 and 15, in which are journaled, respectively, the tension-rolls 16 and 17. The adjusting-screw 10, passing through the standard 9, operates on the brass bearing-box 14 and moves the said box and the tension-roll 16 forward toward the roll 17. A standard 18, corresponding to the standard 9, is placed between the guide-bar 11 and the upper side bar 58 on the remote side of the roll 17, and through this standard 18 passes an adjusting-screw 19, corresponding to the adjusting-screw 10, operating against the brass bearing-box 15 and moving the said roll 17 toward the roll 16, tightening the rubber jacket 20, which passes around the said roll 17 and the roll 21. The roll 21 is journaled in stationary bearings (not shown) located between the guide-bar 11 and the upper side of bar 58. By using the adjusting-screw 19 I am enabled to tighten the jacket around the said rolls 17 and 21 until the jacket 20 becomes almost rigid and forms a table over which the material 22 passes.

The jacket 20 is made from rubber or other suitable material, and the joint connecting the two ends together is so neatly made that there is no unevenness whatever in its surface. The material 22 is taken from the web-roll 4, passed round the remote side of the roll 7, then over the roll 8, between the rolls 16 and 17, over the jacket 20, and then over the roll 23, journaled in the bearing-box 24, formed on an extension of the side bar 5, and then descends, if necessary, to the lower floor of the building. When the material 22 has been placed between the rolls 16 and 17, the adjusting-screws 10 are worked inwardly through the standard 9, pushing the roll 16 tightly against the material and the material tightly against the jacket 20, passing over the rolls 17 and 21. A shaft 25 is secured to the frame-work 1, and on this shaft is journaled a driving-pulley 26, to which is supplied power by means of a belt 27. On the shaft 25 is also rigidly journaled a gear-wheel 28, and this gear-wheel 28 meshes with a gear-wheel 53, journaled on the end of the roll 21. On the opposite end of the said roll 21 is fastened sprocket-wheels 29 and 30. On the end of the roll 23 is a sprocket-wheel 31, around which and the sprocket-wheel 30 passes a sprocket-chain 47.

To the end of the frame-work 1 are rigidly secured standards 32, coupled by means of a cross-bar 33, having a circular opening in its middle of sufficient size to easily receive the paint-tank 34, provided with a downwardly-extending flange 35 to prevent any vibrating motion on the part of said tank 34. The tank 34 is also provided with a flange 36 to prevent the said tank slipping through the circular opening. In the paint-tank 34 is a bearing 37, in which is loosely journaled the lower end of a spindle 38. On the upper end of the said spindle 38 is a beveled gear 39, and on the said spindle 38, near its lower end, is rigidly secured an agitator 40, consisting of a plate provided with uprights. The beveled gear 39 meshes with a beveled gear 41, rigidly fastened to the end of a spindle 42, journaled in bearings 43 and 44, secured to the upper side of the cross-bar 33. On the end of the spindle 42, opposite to the beveled gear 41, is a sprocket-wheel 45. A sprocket-chain 46 passes over the sprocket-wheels 45 and 29, and the sprocket-chain 47 passes over the sprocket-wheels 30 and 31. Secured to the standard 32 is a lug 48, having a threaded aperture through which passes an adjusting-screw 49. The lower end of this adjusting-screw 49 is inserted in a threaded aperture formed in a movable block 50, sliding in guides formed in the said standards 32. Journaled in the movable block 50 is a paint-distributor 51, which extends to the rubber jacket 20. By operating the adjusting-screw 49 it is possible to raise and lower the paint-distributor 51, so that either a heavy or light coat of paint may be given the material 22. This is accomplished by reason of the adjusting-screw bearing upon the movable block 50. It is obvious that if the screw is turned so as to lower the movable block the latter will act upon the journal of the paint-distributor 51 and have the effect of turning the same in its bearings, thus raising the free end thereof from contact with the material.

It is obvious that so long as the material is in direct contact with the paint-distributor, as illustrated in the drawings, the paint will be spread evenly and in a thin sheet over said material, whereas if the free end of the distributor is raised slightly the paint deposited upon the material in front of the lower end of the distributor will be carried beneath said end and a thicker coating will necessarily be the result.

Connected to the bottom of the paint-tank 34 is a faucet 52, which supplies the paint-distributor 51 with the coating-liquid. The faucet 52, it will be noticed, supplies the paint-distributor 51 about midway between its toe 60 and the journal 61. When power is applied to the pulley 26 by the belt 27, the shaft 25 and the gear-wheel 28 are set in motion, and the gear-wheel 28, meshing with the gear-wheel 53, sets the roll 21 in motion. As the roll 21 revolves it moves the jacket 20 with it, causing the roll 17 to revolve. As the roll

21 revolves, the sprocket-wheel 29 also turns, causing the chain 46 to revolve and turn the sprocket-wheel 45, which turns the spindle 42 and beveled gear 41. As the beveled gear 41 revolves it meshes with the beveled gear 39, turning the spindle 38 and agitator 40, thus keeping the paint always properly mixed up. The revolution of the roll 21 also causes the sprocket-wheel 30 to revolve, and the sprocket-chain 47, connecting the sprocket-wheel 30 to the sprocket-wheel 31, causes the said sprocket-wheel 31 to revolve the roll 23. The material 22 passes from the web-roll 4 over the rubber jacket 20, then over the roll 23, and is moved forward by means of the motion supplied from the pulley 26 to the roll 21, and in its forward movement it is coated with paint distributed evenly over its upper surface by means of the distributor 51. As the distributor 51 is moved nearer to or farther away from the material 22 a lighter or heavier coat is applied to the said material 22, and by using a faucet supplied with a valve or tap a lighter or heavier stream is supplied to the distributor.

It will be noticed by reference to Figs. 2 and 3 that the distributor 51 extends entirely across the width of the material, and by using a means of this kind a coat of uniform thickness may be applied to the material without danger of in any way spoiling the work, and all marks which are usually caused with paint applied by brush are entirely avoided. The rolls 16 and 17, being so closely together when the material passes between them, serve not only as a driving-power, but also as a tension-block to keep the said material 22 properly stretched out to present an even and well-stretched surface to receive the paint.

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

1. In a machine for painting fabric material, the combination of a frame consisting of standards united at their upper ends by side bars said bars being each formed or provided with two projecting threaded standards or lugs and having their upper edges grooved, grooved guide-bars located above the connecting side bars, a roll mounted in boxes fitting the grooved guide and side bars, screws passing through the standards and bearing against said boxes, rolls also mounted between the guide and side bars in a line with the first-named roll and connected by an endless apron, the roll nearest said first-named roll being mounted in adjustable boxes, screws passing through the other standards of the side bars and adjusting the last-named boxes, mechanism located above said endless apron or table for automatically distributing a coat of paint upon the material as it passes over the table, and means for rotating the rolls, substantially as set forth.

2. In a machine for painting fabric material, the combination of a frame consisting of

standards united by upper and central side bars, said upper side bars being formed or provided each with two projecting threaded standards or lugs and having their upper edge grooved, a web-roll journaled in bearings at one end of the frame, a roll journaled in the central side bars, a roll journaled above the web-roll, grooved guide-bars located above the upper side bars of the frame, a roll mounted in boxes fitting the grooved guide and side bars, screws passing through the standards and bearing against said boxes, rolls also mounted between the guide and side bars in a line with the first-named roll and connected by an endless apron, the roll nearest said first-named roll being mounted in adjustable boxes, screws passing through the other standards of the side bars and adjusting the last-named boxes, a roll at the forward end of the frame, means for rotating the several rolls, and mechanism located above the endless apron or table for automatically distributing a coat of paint upon the material as it passes over the table, substantially as set forth.

3. In a machine for painting fabric material, the combination of a frame, standards located at the forward end thereof and provided with guides, a lug secured to the standard and having a threaded aperture, a movable block sliding in the guides formed in the standards, an adjusting-screw passing through the collar and having its lower end passing into a threaded aperture in the movable block, a paint-distributing plate journaled in the movable block, and a paint-tank provided with a faucet for directing the paint upon the distributor from which it is fed to the material operated upon, substantially as set forth.

4. The combination of the web-roll 4, rolls 7 and 8, journaled in the frame-work of the machine, a standard 9, extending upwardly from the upper side bar and having an aperture through which passes an adjusting-screw 10, the movable roll 16, the table formed by a continuous jacket passing over the periphery of two rolls 17 and 21, the roll 21 giving a rotary motion to the said jacket and roll 17,

the paint-distributor 51, adjustably connected to the standard 38 of the paint-tank frame, and the paint-tank 34, provided with a faucet and an agitator, substantially as and for the purpose specified.

5. In a painting-machine, the combination of the web-roll 4, journaled in the frame-work 1, the roll 7, journaled in bearings 6, formed on the side bar 5, the roll 8, journaled in bearings formed on the upper corner of the machine, the roll 16, journaled in movable bearings 14, sliding in guides formed between the guide-bar 11 and upper side bar of the frame-work, the roll 17, journaled in movable bearings 15, sliding in guides formed between the said guide-bar 11 and upper side bar of the machine, adjusting-screws 10 and 19 for moving, respectively, the bearings 14 and 15, the roll 21, journaled in stationary bearings 22, a continuous rubber jacket 20, passing over the periphery of the said rolls 17 and 21, the roll 23, journaled in suitable bearings 24, formed on the extension of the said side bar 5, a paint-distributor 51, journaled in bearings adjustably attached to the standard 32 and operated by means of an adjusting-screw 49, passing through a lug 48, rigidly secured to the said standard 32, a removable paint-tank 34, inserted in the frame-work and provided with a faucet to supply the paint to the distributor 51 midway between the toe and the journal, an agitator 40, rigidly secured to a spindle 38, journaled in the said paint-tank 34 and fitted on its upper end with a beveled gear 39, a beveled gear 41, fitted to the end of a spindle 42, journaled in bearings formed on the upper side of the frame-work supporting the paint-tank, and a sprocket-wheel on the end of the said spindle 42 and driven from the roll 21 by means of a sprocket-chain passing over the sprocket-wheel on the end of the said spindle and on the end of the said roll, substantially as and for the purposes specified.

Toronto, March 25, 1891.

EDWIN ARMITAGE.

In presence of—

CHAS. H. RICHES,
MAGGIE E. ANGELL.