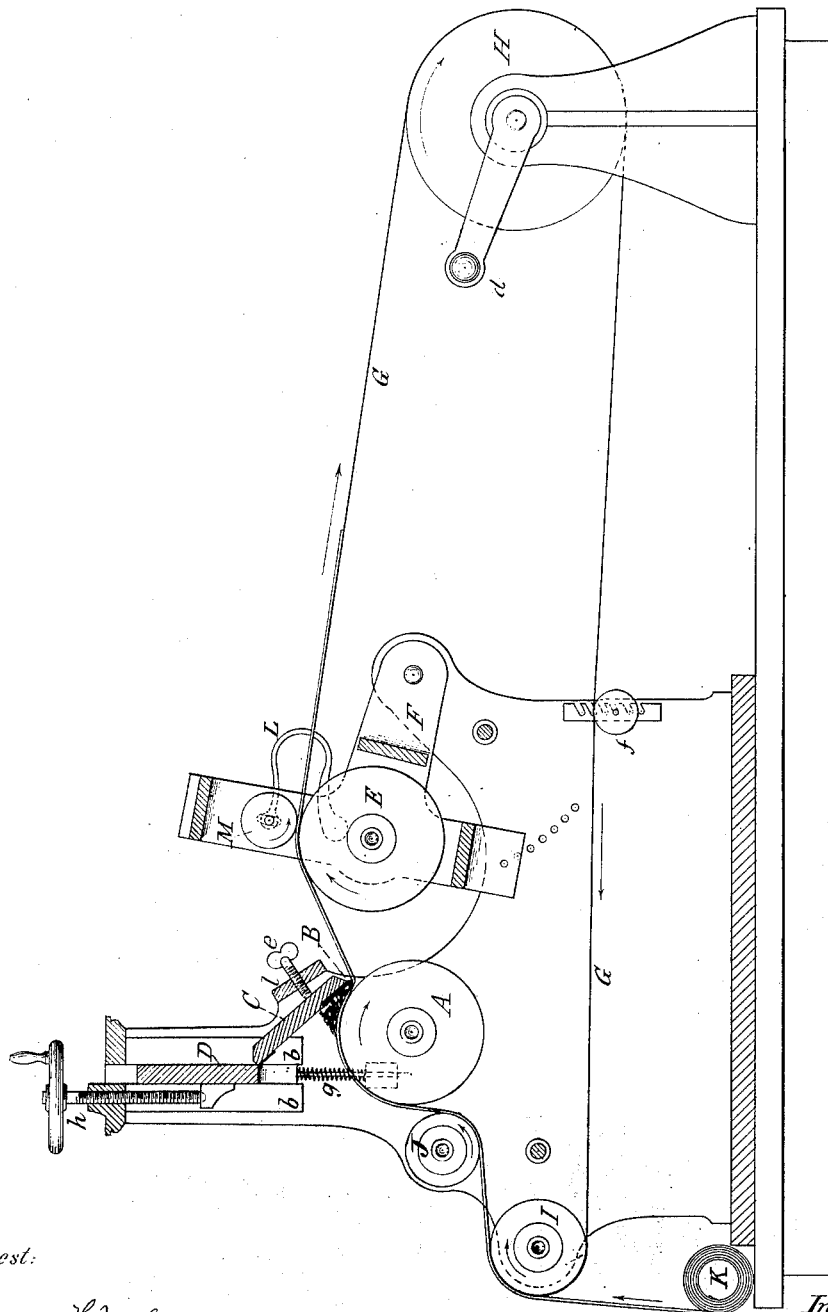


W. LEVIN.  
Machine for Painting Canvas.

No. 203,843.

Patented May 21, 1878.



Attest:

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MACHINES FOR PAINTING CANVAS.

Specification forming part of Letters Patent No. 203,843, dated May 21, 1878; application filed January 26, 1878.

*To all whom it may concern:*

Be it known that I, WILLIAM LEVIN, of New York city, in the State of New York, have invented an Improved Machine for Painting Canvas, &c., of which the following is a specification:

The object of my invention has been to devise an improved mode of applying the surfacing paint or composition to painters' canvas or similar fabric, instead of the slow and laborious modes of hand-labor heretofore employed.

To this end I have devised a machine the central feature of which consists in a distributing or paint-applying knife extending across the whole width of the canvas, in combination with an underlying movable band supported upon a series of rollers under the knife, the paint being deposited on the canvas in front of the knife, which uniformly spreads it upon the canvas as it is drawn under its edge by the movement of the band.

The invention also embodies a number of minor features, which will be hereinafter fully described, and each feature of novelty specifically indicated in the claims.

The annexed drawing is a longitudinal elevation of my improved machine, shown partly in section, or with one side of the frame removed.

The machine is made in two sections, the chief one of which, or machine proper, is shown on the left, and is fixed to one end of a long table. The other portion forms a winding-drum, and is fixed at the opposite end of the table, which is usually about eighteen feet long.

The painting-machine, as shown on the left of the drawing, is composed of two upright sides rising from a base, and which support between them a wide adjustable knife, and a series of rollers hung in pivot or center screws fixed in the sides of the frame.

The machine is made of sufficient width to take in the whole sheet of canvas, which is furnished thirty-eight inches wide and eighteen feet long. The sides are therefore about forty-three inches apart and the rollers forty-one inches long, the knife being about the same length as the rollers.

The most essential portion of the machine consists of the central roller A and the knife

B, which overlies the roller, and is arranged at a tangent thereto, or nearly so. The roller is free to revolve in its pivots under the edge of the knife, and the knife is fixed to a swinging leaf, C, which is hinged to a vertically-moving slide, D. The slide is supported in guides *b b*, being raised by springs *g* and adjusted downward by screws *h*. The knife has thus a vertical and a radial adjustment relatively to the roller, so that it can be arranged at various angles thereto to regulate the thickness of the coat applied. A transverse bar, *l*, extends across the machine over the leaf C, and is provided with thumb-screws *e*, by which pressure is applied to the knife to adjust it to the work. A vertically-adjustable roller, E, is arranged in rear of the knife B and fixed roller A, over which the canvas passes after leaving the knife. The position of this roller regulates the angle at which the cloth leaves the knife, and this, together with the position of the knife, determines the thickness of the coat applied. This roller E is preferably mounted in a swinging or pivoted frame, F, which is capable of being raised and lowered, and held at the desired point, as will be understood from the drawing.

An endless band, G, of nearly the same width as the rollers, passes over the fixed roller A, under the knife B, over the adjustable roller E, around the winding-drum H, and, returning, passes around the roller I and under a small roller, J, arranged close to the central roller A. The edge of the knife is ground very straight and true and parallel with the surface of the roller A. The outer edge is beveled to an angle of thirty degrees, and the edge in contact with the canvas is also slightly beveled, so as to meet the main bevel in a rounded edge, the extreme edge being fine and smooth, but not sharp or cutting. Instead of arranging the edge to bear solidly against the roller, it is raised slightly therefrom, and tension is put on the band, which causes it to bear tightly and uniformly against the true edge of the knife, as represented in the drawing. This forms an elastic cushion for the knife to work against, and insures the band and the canvas bearing evenly along its whole edge. The winding-drum is provided with a crank, *d*, by which it is rotated and the band

moved, the band being tightened by the tension-roller *f*.

In the drawing, K represents the roll of canvas to be surfaced or painted, which is placed at one end of the table, and the end of the sheet is placed on the band G under the roller J. The band being now moved by turning the drum, the canvas is drawn over the roller A and under the edge of the knife B. The position of the knife is then adjusted, as also the roller E, according to the thickness of the coat to be applied, and the screws *e* are next adjusted to put the necessary pressure and final adjustment on the knife. A quantity of the paint or surfacing composition is now placed directly on the surface of the canvas and under or in front of the knife, as represented. The drum is then rotated and the band drawn over the rollers; this draws the canvas along with it and under the knife-edge, which distributes the paint with perfect uniformity over the whole width of the canvas, and in a coat of the thickness desired, this being accomplished as fast as the canvas is drawn through. A clamp may be used to hold the front end of the canvas to the band; but the frictional adhesion of canvas and band is found quite sufficient.

Before the piece of canvas passes entirely through, the machine is stopped, and the end of the next piece being placed under the end of the first piece, the movement is continued, when the second piece passes through, and becomes surfaced with the same accuracy as the first. This may be continued without any further adjustment of the machine till all the canvas on hand is exhausted, the paint being replenished on the roller A as required. The paint, thus resting in a mass directly on the surface of the canvas, works into the interstices, and the canvas emerges from under the knife with its hollows perfectly filled, its irregularities smoothed over, and with a perfectly smooth and uniform film of paint over its whole surface.

This machine is intended more especially to be used in connection with the process for treating the canvas described in a separate application of corresponding date. The canvas being first coated with size while stretched on a frame, it is removed therefrom when dry, and, its surface being pumiced, it is then passed through the machine, being first coated therein with a surfacing composition of glue, whiting, and linseed-oil. When this coat is dry it is passed a second time through the machine, being then coated with a finishing composition of white lead, whiting, and oil.

When the finishing coat is applied I prefer to pass the freshly-painted canvas, as it comes

from the knife, under a "texturing-roller," which forms one feature of my invention, and is shown at M in the drawing. It is preferably mounted in the movable frame F over the adjustable roller E and in movable bearings depressed by the springs L, which press it against the canvas. The effect of this roller, which is formed with a smooth surface, is that the adhesion between its surface and the surface of the freshly-painted canvas produces a grained or textured effect, which is desirable for a certain class of paintings. This roller, however, may be used or not, as desired, and it is not thrown into action except when the finishing coat is applied.

The saving effected by my invention over the usual method of surfacing canvas is estimated at fifty per cent., and this mode of surfacing is not only very accurate, but extremely simple and rapid and quite cleanly, and it accomplishes the object in a much more satisfactory manner than any arrangement of brushes could effect.

I do not wish to be understood as claiming, broadly, the mode of painting fabrics by means of a fixed distributing-knife under which the fabric is drawn, as this is not new; but

What I claim as my invention is—

1. A machine for painting canvas composed of a distributing-knife, B, in combination with an endless band or carrier and a series of supporting-rollers, the said band being adapted to support the canvas to be painted and to draw it under the knife, whereby paint is applied to the canvas, substantially as described.

2. In a machine for painting canvas, the combination of a paint-applying knife, B, a traveling band, G, supported under the said knife, and by which the fabric to be painted is drawn under the knife, together with a vertically-adjustable roller, E, over which the fabric passes after leaving the knife, substantially as and for the purpose herein set forth.

3. The mode herein described of texturing the surface of painters' canvas—viz., by passing the freshly-painted surface under a smooth roller free to roll thereon, substantially as herein set forth.

4. The combination of the paint-applying knife B, fixed roller A, adjustable roller E, winding-drum H, and endless band G, as shown and described.

5. The combination of the knife B, supporting-roller A, adjustable roller E, winding-drum H, endless band G, and roller I, substantially as shown and described.

WILLIAM LEVIN.

Witnesses:

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