J. WARNER.

Painting Machine for Flat Surfaces.

No. 203,393. Patented May 7, 1878.

Fig. 1.

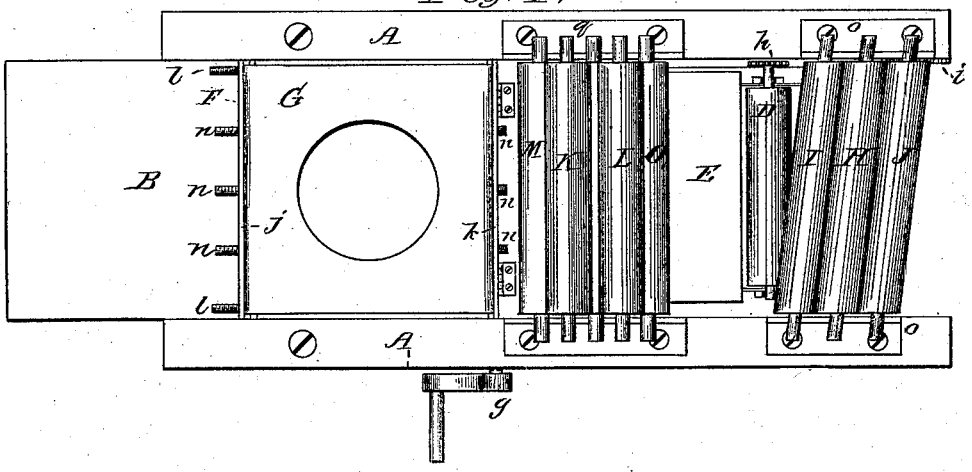

Fig. 2.

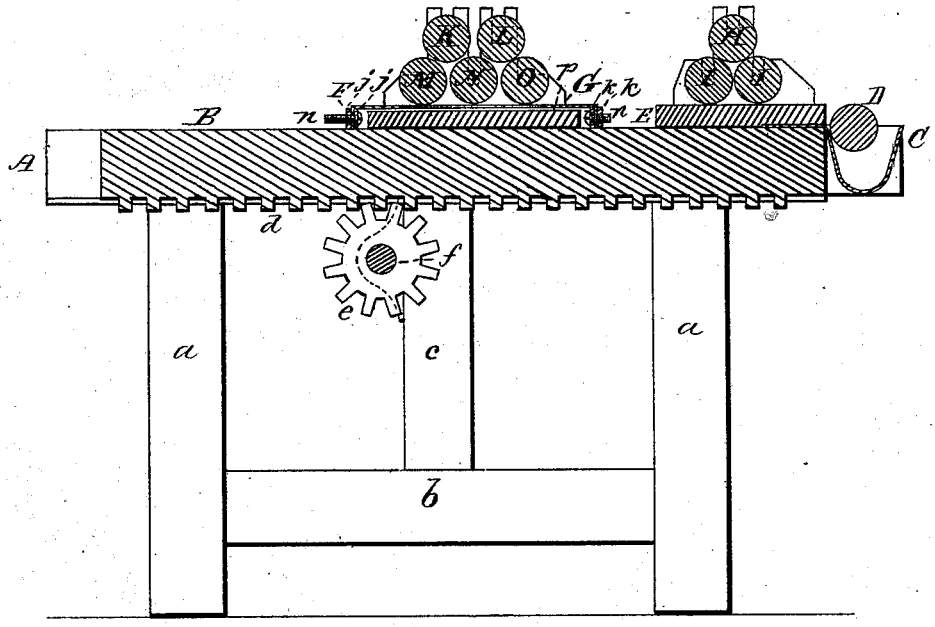

Fig. 3.

WITNESSES

Nat. E. Oliphant

E. S. Sargent.

INVENTOR

James Warner,

per Chas. H. Fowler,

Attorney.

UNITED STATES PATENT OFFICE.

JAMES WARNER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PAINTING-MACHINES FOR FLAT SURFACES.

Specification forming part of Letters Patent No. **203,393,** dated May 7, 1878; application filed March 18, 1878.

To all whom it may concern:

Be it known that I, JAMES WARNER, of Brooklyn, in the county of Kings and State of New York, have invented a new and valuable Improvement in Machines for Coating Flat Surfaces with Color; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a top-plan view of my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a detailed view of a modification of one of the distributing-rollers.

This invention has relation to a machine or device for spreading or laying on a coat or body of paint or other compound upon the flat surface of sheets of tin or other material, to prepare the same for receiving prints, designs, or ornamental figures, such as trade-marks, labels, patterns, &c.

Previous to my invention it was the practice to cover the surface of the metal by the ordinary painter's brush. It was found, however, that, notwithstanding the care with which the color was laid on, there would invariably be an uneven surface after the color had become dry, and the brush-marks would also become perceptible, adding to the roughness of the surface, as well as making a very inartistic sign or show-card after having been printed upon.

The success of this class of advertising-signs depends greatly in the distinctness and sharpness of the lines composing the figures or type, or whatever class of ornamentation used, and this sharp effect of the printing is due wholly to the perfect evenness of the surface-color. This invention therefore consists in a machine that will lay the color upon the surface of the metal sheet in an even manner over the entire portion designed to be covered, the arrangement and combination of the several parts of the machine being hereinafter described, and subsequently pointed out in the claims.

In the accompanying drawing, A represents the frame of the machine, supported by suitable standards or legs *a*, braced by cross-pieces *b* and vertical strips *c*. Any other means, however, may be used to form a support for the frame A. The frame, upon its under side, has secured to it metal plates to form a support for a sliding table, B; or, if desired, the frame, upon its inner sides, may be grooved to receive flanges upon the sides of the table. The table B has upon its under side a rack-bar, *d*, running lengthwise of said table, by which the same is moved backward or forward upon the frame A through the medium of a pinion-wheel, *e*, keyed to a shaft, *f*, under the frame A, said shaft having its bearings in boxes secured to the vertical side strips *c*, and operated by a crank-handle, *g*, or other suitable driving-power.

To one end of the table B is secured a trough or reservoir, C, which is partially filled with color, and within the reservoir is a color-roller, D. The roller D has upon one end of its shaft a toothed wheel, *h*, which engages with the teeth upon a plate, *i*, secured to the inner side of the frame A. By this arrangement, when the table A is moved a certain distance the roller D is caused to rotate within the reservoir C and take up the desired quantity of color therefrom.

Directly following the reservoir C is a color-slab, E, rigidly secured to the table A, and a short distance beyond the slab is a frame, F, hinged to the table at one of its sides. This frame F consists of clamping-plates *j k*, arranged in pairs, which receive the flanged edges of pattern-plate G, which are held between the clamping-plates by screw-rods *l* and suitable screw-nuts, also short screw-bolts *n*.

This frame and pattern-plate are only required for use when a portion only of the metal sheet is to be coated with the color, and the size or configuration of the coating may be changed by substituting a different pattern-plate, that shown being simply for one circular in form. The plate to be coated is placed upon a panel, *p*, and the pattern placed over it; or when the entire surface of the metal sheet is to be coated the frame, with its pattern-plate, is removed by disconnecting the hinges from the table.

Near one end of the frame A, and upon each side thereof, are standards *o*, which support the journals of rollers H I J, said rollers being

arranged at an angle with the table, as illustrated in Fig. 1 of the drawing, to insure a better distribution of the color upon the slab E. Similar standards *q* are secured to the frame A a short distance in front of standards *o*, which support rollers K L M N O.

The operation of the machine is very simple. The metal sheet to be coated is first placed upon the panel *p*, and, if a pattern-plate is used, the frame F is placed over the metal sheet, after which the table B is moved toward and under the color-rollers. The roller D, during this movement of the table, rotates within the reservoir C, taking up the color and delivering it to the rollers I J, which are preferably coated with gum, leather, or other similar material, the color being equalized and distributed over the surface of the rollers by an upper roller, H. The rollers I J having now distributed sufficient color to the slab F, as the table moves in the direction of the rollers M N O the slab, with its supply of color, is brought under said rollers, and transfers its color thereto, while the upper rollers K L distribute the color over the periphery of the rollers M N O. As said rollers are now ready to transfer the color to the metal sheet, the table B is moved back in the direction first described, again supplying the slab E with the color.

It will be seen by this means of coating the metal sheet a very even printing-surface is obtained, far superior to the surfaces formed by the painter's brush.

The upper rollers H K L may be made to press down upon the lower rollers by the employment of springs placed above the journals of the upper rollers; but it is thought the weight of the rollers themselves, being constructed of metal, will be sufficient to keep the lower rollers pressed down to their work, and cause the color to work evenly.

When the pattern-plate and frame are not in use, and a very small space is only required to be covered, or several very narrow spaces upon a single sheet are required, the rollers H I J are withdrawn from the frame A, and replaced by rollers Q, having two separate color-surfaces, *r*, as will be seen in Fig. 3 of drawing, which, by its use, saves material.

In place of the rack-bar and pinion-wheel, other means may be employed for operating the table; and in place of the hand-crank, the shaft may be rotated by belts and pulleys, driven by steam or other power; but this is not considered necessary, and would only be found advantageous where machines are constructed of extraordinary large size.

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

1. In a machine for coating flat surfaces with color, the trough C and roller D, provided with the toothed wheel *h*, in combination with the rollers I J K, reciprocating table B, frame A, and toothed plate *i*, substantially as and for the purpose set forth.

2. The frame A and rollers H I J K L M N O, in combination with the reciprocating table B, trough C, roller D, and slab E, substantially as and for the purpose specified.

3. The frame F, consisting of the clamping-plates *j k* and screws *l n*, said frame being hinged or pivoted to the table B, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES WARNER.

Witnesses:
CHARLES D. PETERS,
WILLIAM FANAN.