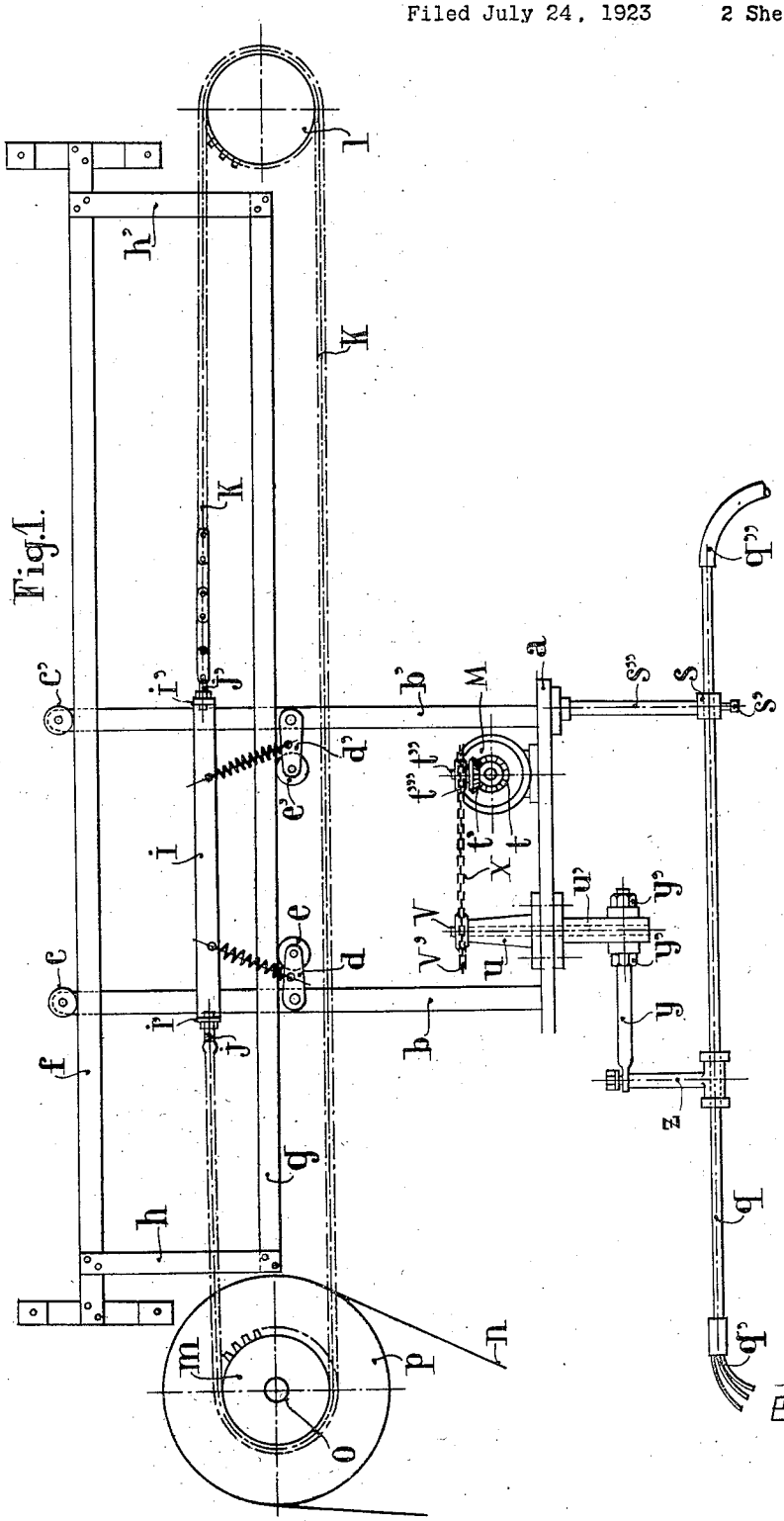
April 8, 1924. 1,489,516

L. BERTOLUS

COLOR PROJECTING MACHINE

Filed July 24, 1923 2 Sheets-Sheet 1

Fig.1.



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Fig. 3.

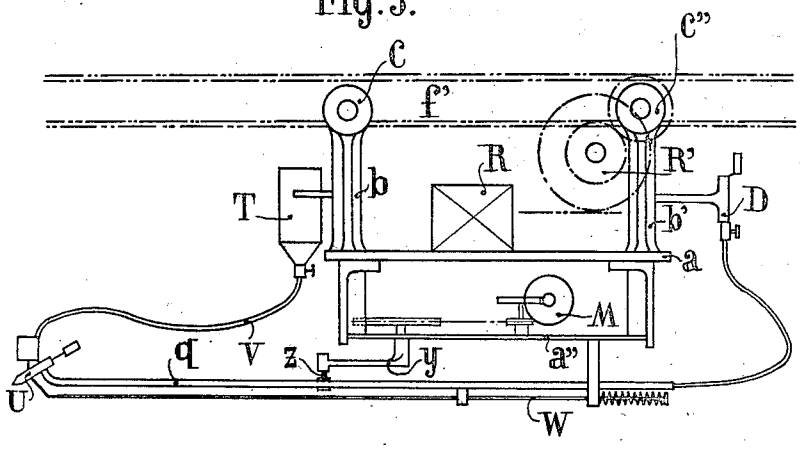
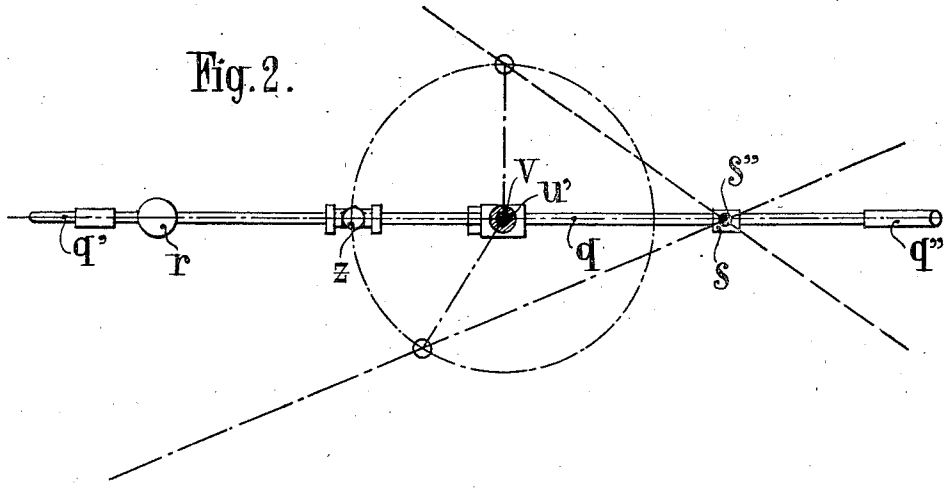


Fig. 2.



INVENTOR:
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Patented Apr. 8, 1924. 1,489,516

UNITED STATES PATENT OFFICE.

LOUIS BERTOLUS, OF LYON, FRANCE, ASSIGNOR TO ALPHONSE EMILE VERGÉ, OF PARIS, FRANCE.

COLOR-PROJECTING MACHINE.

Application filed July 24, 1923. Serial No. 653,615.

To all whom it may concern:

Be it known that I, LOUIS BERTOLUS, citizen of France, residing at Lyon, Rhone, France, have invented certain new and useful Improvements in or Relating to Color-Projecting Machines, of which the following is a specification.

The despositing of colors on textile material may be effected by hand or by using a machine fitted with sprayers, the textile material to be coloured being fed past the said machine and receiving the color or colors. High class work however could not be done hitherto by means of machines of this kind because the area over which the colors are sprayed was not sufficiently definite. Consequently highly finished work had to be done by hand.

The present invention has for its object to provide an improved apparatus by means whereof the spraying of the color is effected as accurately as by hand, and with an output which can be attained by machinery only. According to the invention, a carriage is utilized and is suspended from a supporting track along which it travels forward and backward over the material to be coloured. The spraying device is connected to the carriage to move therewith, and a motor is mounted on the carriage and connected with the spraying device to constantly oscillate the same about a fixed axis and through a definite angular path or stroke; the means or devices whereby this oscillating movement is accomplished beng included in the essential features of the invention.

The invention also resides in the provision of an improved feeding system for the color, according to which the latter is contained in a receptacle or tank secured to the carriage and is supplied therefrom by gravity to the sprayer proper where it comes in contact with the compressed air and is atomized and projected upon the work; the aforesaid sprayer having a device whereby it may be opened and closed, and the air supply pipe being equipped with a manually operated valve or the like to control the air supply and to permit the air to expand.

Other and further features of improvement involved in the invention will be set forth in the course of the following detailed description of the invention and will be specifically recited in the appended claims.

Two constructional examples of the apparatus for carrying the invention into practice are illustrated in the accompanying drawings, the said apparatus being open to modifications in details without departing from the invention.

Figure 1 is a side elevation of the apparatus.

Figure 2 is a diagrammatic plan view showing two of the positions into which the color-spraying means may be moved.

Figure 3 illustrates a second construction of the apparatus.

Referring to Figures 1 and 2, the carriage or slide is formed by a table a depending from two hangers b—b^1 fitted at their free upper ends with rollers c and c^1 respectively. The two hangers are also provided with two pivoted arms d and d^1 carrying two rollers e and e^1 respectively. The two rollers c and c^1 are adapted to roll on a stationary supporting bar f, the other two rollers e and e^1 being pressed by suitable means against the lower edge of a guiding bar g rigidly secured to the supporting bar f by means of the frame members h and h^1. The hangers b and b^1 are braced to each other by a cross-tie i the two ends i^1 of which are bent at right angles to carry tensioning means j and j^1 to which the two ends of a chain k are suitably secured. The said chain passes over a loosely mounted sprocket l and a driving sprocket m keyed to a shaft o which also carries a pulley p rotated by a belt n.

The color-projecting device is mounted on the table a and comprises a tube q carrying at one of its ends the color-projecting means q^1 to which color is supplied from containers conveniently disposed on the slide or carriage. Compressed air is supplied to the apparatus through a hose or pipe q'' secured to the other end of the tube q which is held in position by a screw s^1 in a bush s pivoted to the end of a support s'' fixed to the table a. The latter carries an electric motor M which rotates the sprocket t''' keyed to a vertical stub shaft t'' integral with the bevel gear wheel t^1 meshing with and driven by the bevel gear wheel t keyed to the shaft of the motor. A shaft v fitted with a sprocket v^1 driven through the medium of the chain x from the sprocket t''', is rotatably mounted in a stand u fixed in position at a suitable point of the table a. The lower end of the

shaft v projects beyond the lower face of the table a and is fitted with a sleeve u^1 carrying a horizontal rod y provided with lugs, the length of which rod may be varied by suitably manipulating the adjusting nuts y^1. The end of the rod y carrying the lugs is pivotally connected to the stem of a slide z movably mounted on the tube q.

The apparatus according to the invention is operated by two separate sources of power. The first source of power, which may be of any desired kind, is adapted to rotate the pulley p through the medium of the belt n, the said pulley rotating the sprocket m keyed to a common shaft o. The said sprocket imparts linear motion, through the medium of the chain k, to the carriage supporting the table a; the rollers c, c^1 and e, e^1 rolling along the supporting bar f and the guiding bar g respectively. The direction in which the pulley p is rotated being reversible, the sprocket m causes the table a to move from left to right and conversely. Thus by automatically or manually reversing the direction of rotation of the pulley p at the end of each travel of the slide or carriage, the table a is uniformly reciprocated over the whole of the length of the textile material treated.

The second source of power is preferably the electric motor M which rotates the sleeve u^1 and moves the rod y through the medium of the bevel gear-wheels t and t^1, the chain x and the sprocket t''' and v^1. The length of the rod y may be varied by means of the nuts y^1, for the purpose of varying the size of the circle described by the slide z about the sleeve u^1. The slide z sliding along the tube q and moving continuously in a circle causes the said tube to be angularly reciprocated about a fixed point, which is the bush s. Figure 2 illustrates positions taken up by the tube q owing to the revolving motion of the rod v. The amplitude of the oscillatory movement of the nozzle-carrying end q^1 of the tube q is the greater the farther the said q^1 is from the centre of oscillation s. It is thus easy to cause the end q^1 of the tube q to sweep across the whole of the width of the foundation on which the color is deposited. This is obtained by suitably adjusting the length of the rod y and the distance between the end q^1 of the tube q and the bush s. Owing to the combination of the linear motion of the carriage and the transverse motion of the color-projecting means the said nozzle-carrying end q^1 may be moved above the work at a uniform speed, whereby the color is uniformly projected thereon.

The invention thus provides an apparatus whereby work can be produced which has as high a finish as that done by hand with the difference that the output is far higher since the operator may attend to preparatory work or to another apparatus while colour or colors are projected as just described.

Referring to the construction of Figure 3, the rollers c and c'' of the hangers b and b^1 supporting the table a roll on the bars f^1. The carriage is moved linearly, for the purpose hereinbefore set forth, by means of a motor R rotating the roller c'' for instance through the medium of suitable power transmission means R^1. As in the previously described construction, the color-projecting device is operated by a motor M supported on a second table a'' for example.

In this construction the color-projecting device has the following features: The hanger b^1 is adapted to carry a manually operated valve or the like D for controlling the supply of compressed air. The air expands at D and is led (through the tube q sliding in a bush hung by its stem z to the rod or arm y) to an atomizer or sprayer U of any convenient type in which the color is atomized and projected onto the work. The color is fed by gravity to the said sprayer from a container T secured in any appropriate way to any point of the carriage; for instance to the hanger b. The sprayer U is opened or closed by means of the rod W. The elements of this construction work in a manner substantially similar to those of the construction described with reference to Figures 1 and 2.

The mechanical and controlling elements of the constructions hereinbefore described may be combined or varied as desired. The apparatus according to this invention yields faultless work very efficiently and need not be operated by skilled labour.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A color-spraying apparatus, comprising a supporting track; a traveling carriage suspended therefrom; means for reciprocating the carriage; a spraying device connected to said carriage to move therewith; a motor mounted on the carriage; and connections between the motor and the spraying device for constantly oscillating said device laterally.

2. In a color-spraying apparatus, the combination of a carriage adapted to travel over the work; a supporting track for the carriage; means for reciprocating the carriage; a spraying tube connected to the carriage to move therewith and adapted to oscillate about a fixed axis; a motor mounted on the carriage; a shaft mounted in said carriage and connected with the motor to be driven thereby; an arm attached to said shaft; and a member slidable along the spraying tube and connected with said arm to effect the oscillation of the former.

3. In a color-spraying apparatus, the combination of a traveling carriage; a spraying tube connected to the carriage to move therewith and adapted to oscillate about a fixed axis; a motor mounted on the carriage; a shaft mounted in said carriage and connected with the motor to be driven thereby; an arm attached to said shaft; and a member slidable along the spraying tube and connected with said arm to effect the oscillation of the former.

4. Color-spraying apparatus, comprising an elevated track; a traveling carriage suspended from the track and having rollers adapted to move therealong; a vertical shaft journaled in the bottom of the carriage; a motor mounted on the carriage and connected to rotate said shaft; an arm attached to said shaft; a spraying tube connected to the carriage to move therewith; and a slide mounted on said tube and loosely connected to said arm to constantly oscillate the tube laterally when said shaft is rotated.

5. Color-spraying apparatus, comprising a track; a traveling carriage having rollers adapted to move thereon; a motor mounted on the carriage and connected to drive one of said rollers, to effect the traveling movements of the carriage; a spraying tube carried by said carriage; and means for constantly oscillating said tube laterally during the movements of the carriage.

6. Color-spraying apparatus, comprising a track; a traveling carriage having rollers adapted to move thereon; a motor mounted on the carriage and connected to drive one of said rollers, to effect the traveling movements of the carriage; a spraying tube carried by said carriage; a second motor mounted on the carriage; a member slidable along the tube; and operating connections between the second motor and said member to constantly oscillate said tube laterally during the movements of the carriage.

7. Color-spraying apparatus, comprising a traveling carriage; a track therefor; a spraying tube carried by the carriage and provided with an atomizer; means, including an expansion valve, for supplying compressed air to the spraying tube; means for supplying liquid color to the atomizer; a device for opening and closing the atomizer; and means for constantly oscillating said tube laterally during the movements of the carriage.

8. Color-spraying apparatus, comprising an elevated track; a carriage suspended from the track and having rollers adapted to travel therealong; a motor on the carriage connected to drive one of said rollers, thereby to effect the movements of the carriage; a spraying tube attached to the carriage to move therewith; a second motor mounted on the carriage; a shaft journaled in the carriage; a driving connection between the second motor and said shaft; an arm fixed to said shaft; and a slide mounted on the spraying tube and loosely connected with said arm to constantly oscillate the tube laterally when the shaft is rotated.

In testimony whereof I affix my signature.

LOUIS BERTOLUS