No. 800,758. PATENTED OCT. 3, 1905.

J. H. NEVILLE.

PAINTING OR COATING MACHINE.

APPLICATION FILED DEC. 19, 1904.

2 SHEETS—SHEET 1.

FIG. 1.

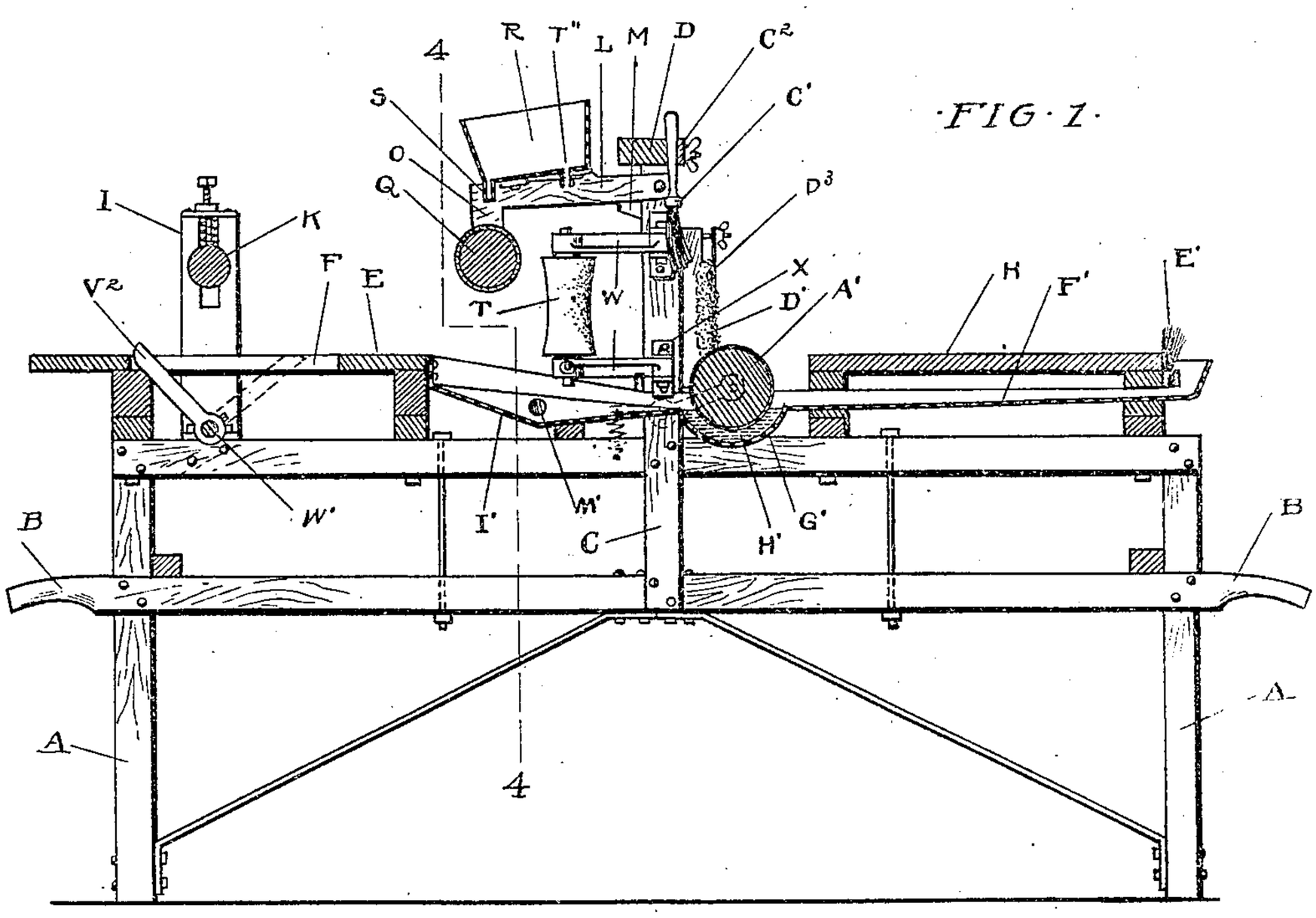
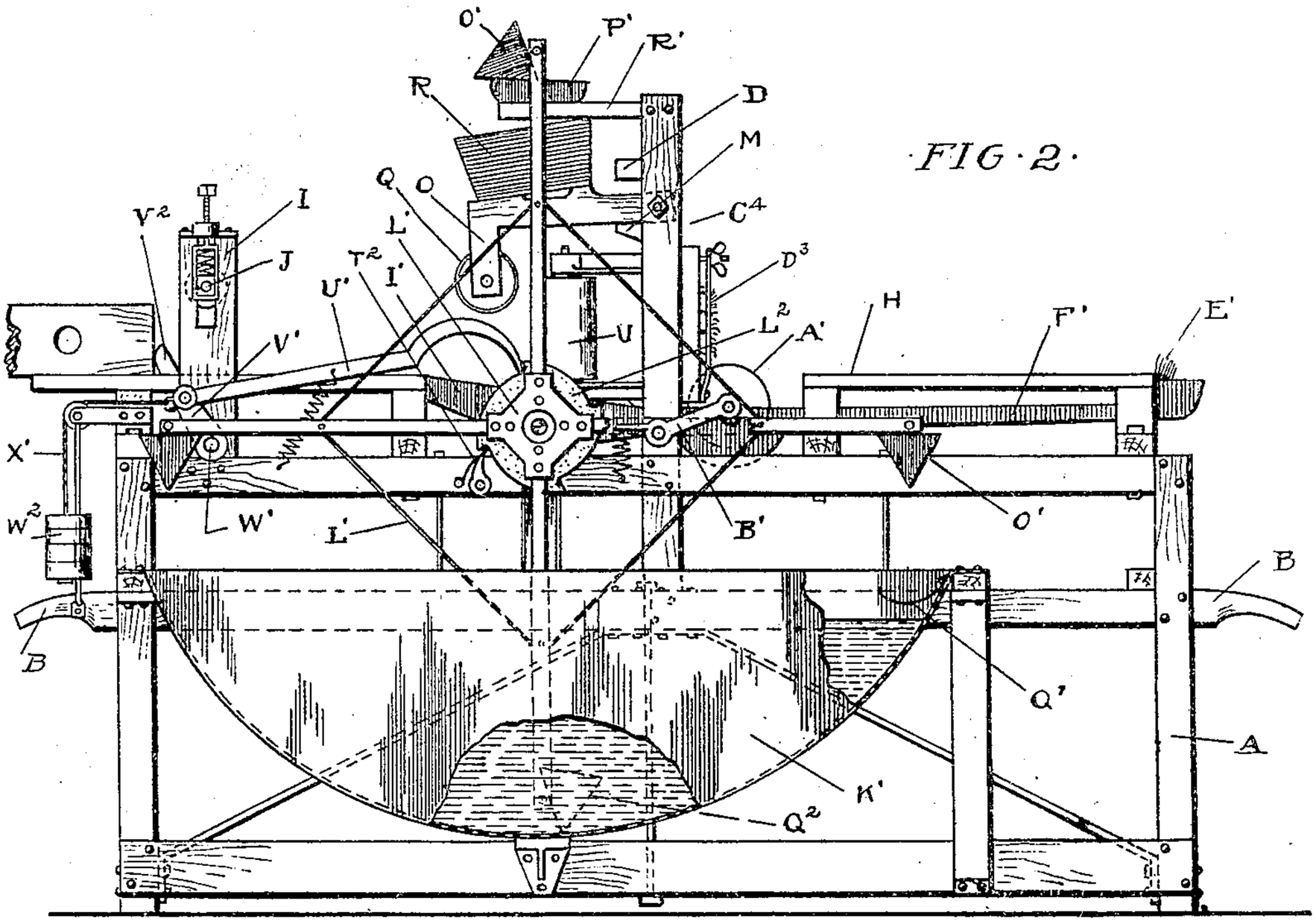


FIG. 2.



WITNESSES

Geo. H. Graves

H. E. Smith

INVENTOR
JOHN H. NEVILLE.

BY James Whittemore
ATT'Y.

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2 SHEETS—SHEET 2.

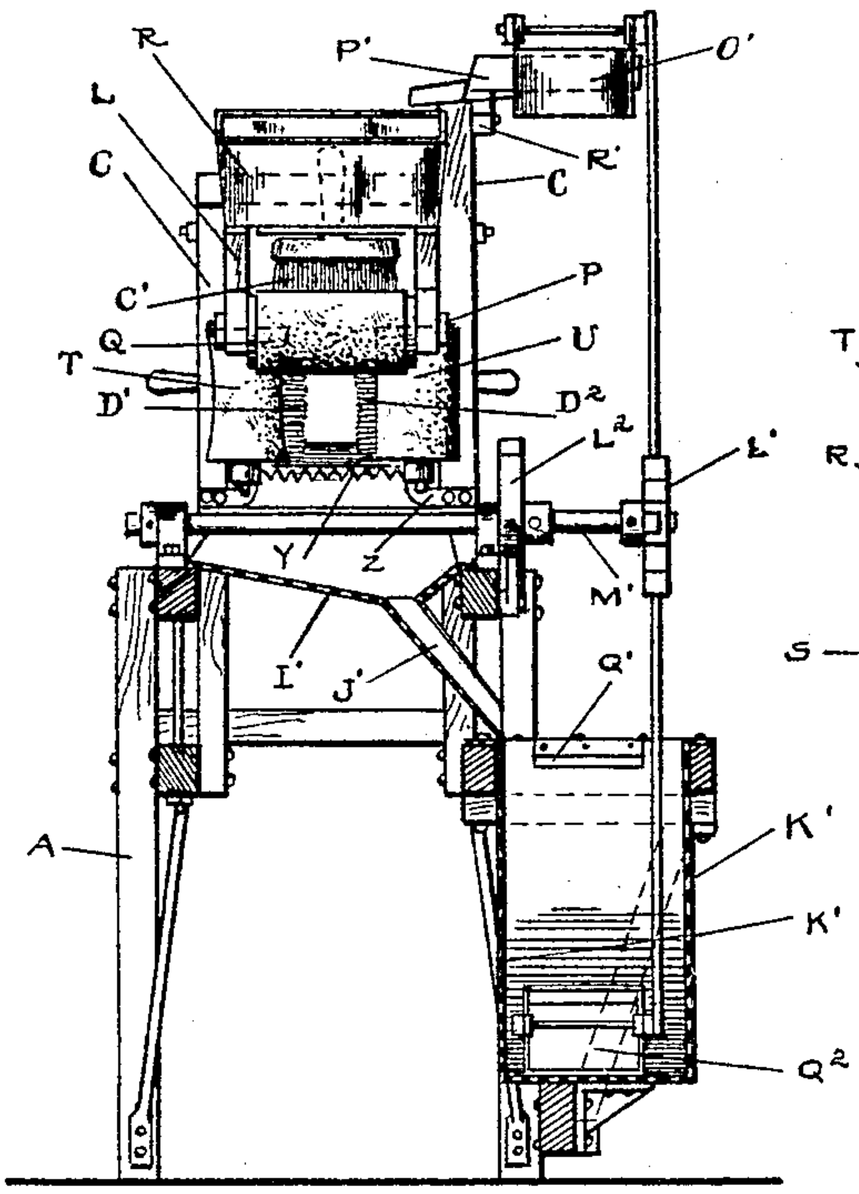

FIG. 4.

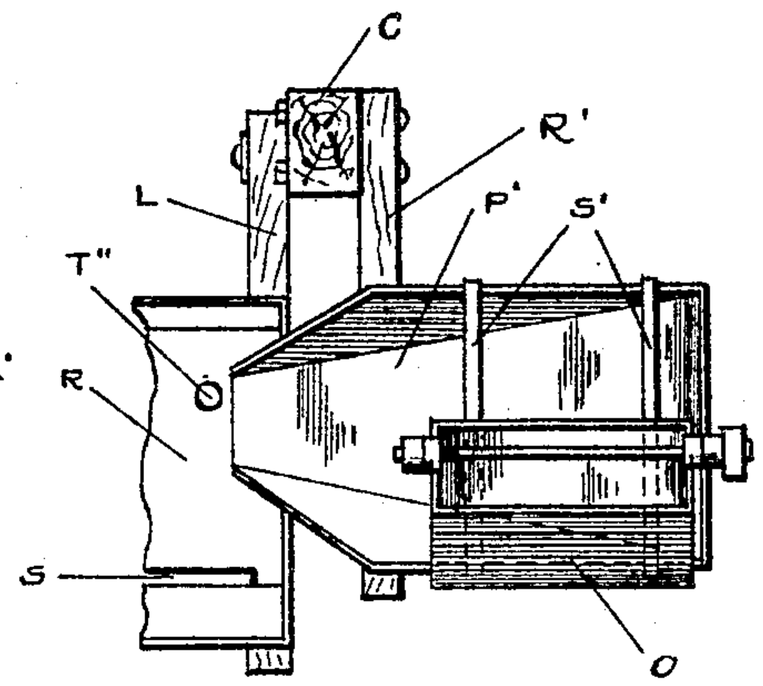

FIG. 5.

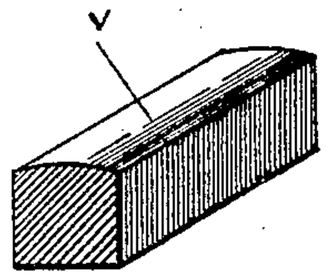

FIG. 6.

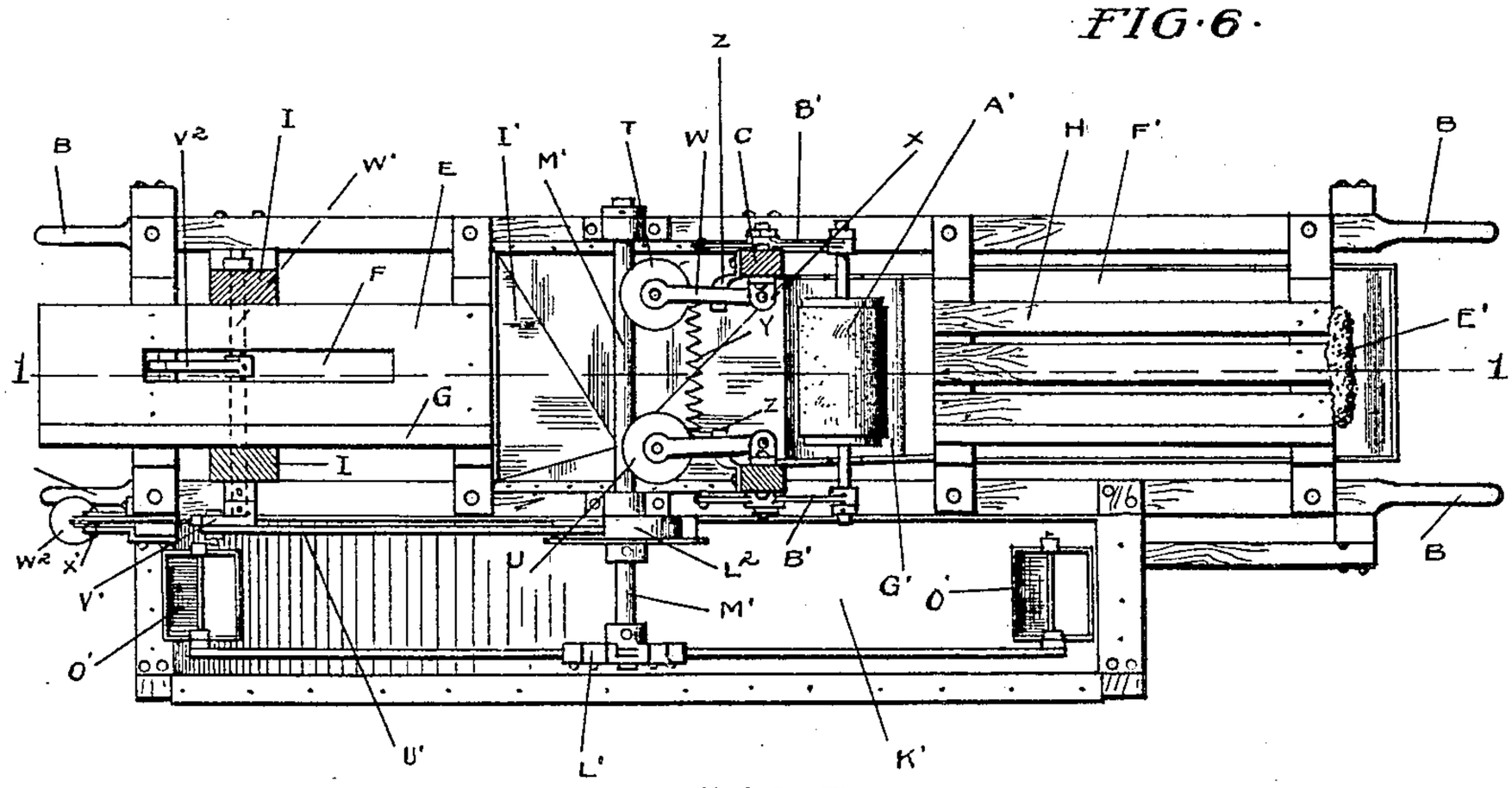

FIG. 3.

WITNESSES
Geo. H. Graves
H. R. Smith

INVENTOR
JOHN H. NEVILLE.

BY. James Whittemore
ATTY.

UNITED STATES PATENT OFFICE.

JOHN H. NEVILLE, OF BAY CITY, MICHIGAN.

PAINTING OR COATING MACHINE.

No. 800,758. Specification of Letters Patent. Patented Oct. 3, 1905.

Application filed December 19, 1904. Serial No. 237,452.

To all whom it may concern:

Be it known that I, JOHN H. NEVILLE, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Painting or Coating Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates generally to a machine for rapidly and evenly coating or painting articles of substantially the same size and form—as, for instance, cross-arms for telegraph-poles, for which the machine in this instance is especially designed; and it consists in the novel and simple construction of the machine and in the peculiar arrangement and combination of its various parts, all as more fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a longitudinal section through a machine embodying my invention, taken on line 1 1 of Fig. 3. Fig. 2 is a view in side elevation. Fig. 3 is a top plan view. Fig. 4 is an end elevation. Fig. 5 is a sectional plan view of the upper portion of the machine, illustrating the distributer for the coating material and part of the supply mechanism; and Fig. 6 is a sectional perspective view of an article to be coated.

In the drawings thus briefly described the reference-letter A represents a suitable support, in this instance a frame provided at each end with a pair of handles B, by means of which it may be readily transported.

C represents a pair of uprights at the center of the support, connected, preferably, by a cross-bar D, which forms in connection with the uprights a vertically-extending frame C^4. Upon opposite sides thereof are the work-receiving tables E, provided with a central opening F and a guide-flange G and a work-delivery table H, preferably in the form of a grating, as illustrated in Fig. 3. Interposed between the tables described and supported upon the vertical framework is the coating mechanism, comprising a plurality of coating-rolls so grouped as to operate successively upon the faces of the work for a purpose hereinafter disclosed. At the forward end of the main support A is a second pair of uprights I, carrying spring-bearings J, in which is journaled a transverse guide-roller K for holding the work upon the table as it is fed to the coating mechanism.

The peculiar arrangement of the rolls is as follows: Upon the uprights C are pivoted a pair of transverse supporting-arms L, the downward movement of which is limited by suitable stops M upon the uprights. These arms carry at their extremities depending sections O, provided with suitable bearings P, in which is journaled the upper transverse coating-roll Q of the group. The arms described constitute a vertically-rocking horizontal support for the coating-roll, permitting the latter to rise the desired amount to allow the work to pass therebeneath, while the weight of the arms and roll produce the necessary pressure upon the work. As an additional means, however, of holding the roll in contact with the article to be coated I preferably arrange upon this rocking support a distributer R for the coating material, consisting of a receptacle having a discharge-opening S above the coating-roll and a pair of discharge-openings T″, arranged one over each side roll. Mounted in laterally-swinging bearings at a point distant from the upper coating roll, preferably to the rear of the latter, is a pair of vertically-extending side rolls T and U, the former being concaved to properly contact with the chamfered face or side V of the cross-arm to be coated. (See Fig. 6.) Preferably the bearings for each side roll are carried by a pair of swinging arms W, pivoted in suitable brackets X upon the uprights C. Means are employed for causing the side rolls to approach so that they will properly bear upon the article passing therebetween, and further means are used for limiting their approaching movement. Preferably the rolls are drawn together by a spring Y connecting the lower roll-arms, while suitable stops Z upon the uprights C afford the necessary means for limiting their approaching movement. To the rear of the side rolls is journaled the lower coating-roll A′ in yielding bearings, preferably spring-pressed arms B′, pivoted to the uprights C below the brackets X and on the outside of the upright C. By thus grouping the rolls the coating is applied successively to the faces of the work, so that while any quantity of coating may be fed to the rolls only a minimum amount will be used, thus reducing the expense to a minimum. This result follows, as the rolls by their successive contact with the work press off first at the top, then from the sides, and finally from the bottom all of the coating-material that does not naturally cling to the article and pass under the surface

of the rolls. The coating pressed off by the top roll applies itself to the sides of the article, together with what material is supplied to the side rolls direct, and the surplus material is applied to the lower or bottom face of the work and is constantly squeezed back by the bottom roll to the unpainted surface as the work progresses. As an additional safeguard I preferably employ a wiper in the form of a brush C′, secured by a clamp C^2 to the cross-arm D of the framework, which is adapted to engage over and wipe the top of the article during its passage through the rolls. I also may use brushes D′ and D^2, secured in suitable clamps D^3, to wipe the sides of the article, and, finally, a brush E′ at the rear of the grating H to collect any surplus material upon the bottom of the work upon its delivery from the machine.

Beneath the coating-rolls described, and preferably extending beneath and beyond the grating H, is a drain pan or tray F′, inclined from the rear of the machine to the center thereof and having at the center a concavity G′ filled with the coating material H′, in which the lower coating-roll A′ constantly revolves. The forward end of the tray extends upwardly, as indicated at I′, and is attached in any suitable manner to the receiving-table. The tray is provided with a drain-pipe J′, which leads to the main reservoir, consisting in this instance of the semicircular tank K′, means being thus provided for collecting all of the surplus material for future use.

I have further provided means for conveying the coating material in the main reservoir to the distributing-receptacle R, preferably intermittently and in sufficient quantities to properly coat or paint each piece of work as it passes through the coating-rolls. The means preferably employed consists of an elevator L′, in this instance a reel mounted upon a transverse shaft M′, journaled in suitable bearings upon the main support A. Upon the reel-arms are pivoted triangular-shaped buckets O′, adapted upon the rotation of the roll to dip within the main reservoir and to discharge, preferably, in the receptacle P′ above the distributing-tank R. A spring-trip Q′, attached to the upper end of the tank, engages the buckets successively as they descend, causing them to turn into a gathering position, as indicated in dotted lines at Q^2. The receptacle P′ is mounted upon a transverse support R′ upon the upright C and is provided with guides S′, over which the buckets travel, the receptacle P′ being so arranged that the bucket upon its approachment thereto will strike and tip, so that as it passes over the guides S′ the bucket contents will be deposited in the receptacle P′, from which it passes to the distributer. For operating the elevator or conveyer described I have provided mechanism adapted to be operated by the work during its travel to the coating-rolls. It preferably consists of a ratchet L^2, mounted upon the shaft M′, provided with a spring-pressed pawl T^2, a spring-pressed lever U′ engaging the ratchet and extending forwardly to the front of the machine, a rock-arm V′ upon a transverse shaft W′, journaled in the frame, and a lever V^2 on the latter shaft that projects normally through the opening F in the receiving-table in the path of the work. The lever V′ has a pivotal connection with the lever U′ and is provided with a weight W^2, attached to it by a cord X′, passing over a suitable sheave for holding it in its forward position. (Indicated in full lines in Fig. 1.)

Ordinarily two persons operate the machine, one the "feeder," passing the work from the receiving-table to and partly through the rolls, and the other a "tailer," drawing it the rest of the distance and off from the delivery-table. As the work passes over the receiving-table against the guide G thereon it engages and forces forwardly in the position indicated in dotted lines in Fig. 1 the rock-arm V^2, causing through the mechanism previously described the operation of the reel through a quarter-revolution in advance of engaging the rolls. This movement of the reel carries an empty bucket partly through the reservoir and the filled bucket to the receptacle P′, the bucket contents eventually being distributed to the upper and side coating-rolls. Upon further advancement the work passes through the coating-rolls, is coated in the manner previously described, and is drawn off from the table H to be piled. The surplus coating material is collected in the drain-tray, fills the cavity G′, affording the necessary supply for the lower roll, and the overflow is discharged through the conductor into the main reservoir. The rock-lever of the reel-operating mechanism is returned automatically to its initial position by the weight and the machine is in readiness to receive the next cross-arm.

From the description of my invention the simplicity of the machine will be readily apparent and through the peculiar grouping of the rolls it will be obvious that necessarily a minimum amount of coating material will be applied to the work. Attention is further directed to the fact that the arms of the reel are of a length to extend in proximity to the bottom of the main reservoir, so that the buckets in passing through the latter will scrape upon the bottom, thus collecting practically all sediment which may happen to accumulate in the tank and collecting practically all the coating material in the reservoir before additional material need be added. It is also to be noticed that the conveying and coating mechanisms are operated at different periods, the supplying of coating material being entirely finished before the operation of coat-

ing commences, which permits the machine to be operated with a minimum amount of power.

What I claim as my invention is—

1. In a painting or coating machine, the combination with a support, of a plurality of coating-rolls mounted in bearings thereon to operate successively upon the faces of the work, and means operable by the work for supplying coating material to the rolls.

2. In a painting or coating machine, a support, a plurality of coating-rolls thereon grouped to operate successively upon the top, sides and bottom of the article to be coated, and means operable by the work for distributing coating material to the rolls.

3. In a painting or coating machine, mechanism for applying coating material to the work, a reservoir for the coating material, a distributer for said material in operative relation to the coating mechanism, means for supplying said distributer from the reservoir, and means operable by the work for actuating the supply mechanism.

4. In a painting or coating machine, mechanism for applying coating material to the work, a reservoir for the coating material, a distributer for said material in operative relation to the coating mechanism, means for supplying said distributer from the reservoir, and actuating means for the supply mechanism extending in the path of travel of the work to the coating mechanism.

5. In a painting or coating machine, the combination with a support, of coating-rolls thereon, a reservoir for the coating material, a distributing-receptacle above said reservoir in operative relation to the rolls, an elevator for supplying said distributing-receptacle from the reservoir, and means extending in the path of and operable by the work for intermittently actuating the elevator.

6. In a painting or coating machine, the combination with a suitable support, of a plurality of coating-rolls thereon, a reservoir for the coating material, a distributing-receptacle in operative relation to the rolls, a reel in operative relation to both the distributing-receptacle and reservoir, pivoted buckets upon the reel adapted upon the rotation of the latter to dip within the reservoir and convey the coating material therein to the distributing-receptacle, and means for actuating the reel.

7. In a painting or coating machine, the combination with a receiving-table for the work, of coating-rolls adjacent thereto, a reservoir for the coating material, a distributing-receptacle for said material in operative relation to the rolls, an elevator for conveying said coating material from the reservoir to the receptacle, a rock-lever projecting normally through the receiving-table in the path of the work and adapted to be operated by the latter, and a drive connection between said lever and elevator.

8. In a painting or coating machine, the combination with a support provided with a work-receiving table, of suitably-journaled coating-rolls upon the support, a reservoir for the coating material, a distributing-receptacle above the rolls, a drain pan or tray below the rolls having communication with the reservoir, a reel mounted for rotation adjacent to the distributing-receptacle and within the reservoir, pivoted buckets upon the reel for conveying the coating material from the reservoir to the distributing-receptacle, a ratchet upon the reel, an operating-lever engaging the ratchet, and a rock-lever upon the frame pivoted to the ratchet-lever and extending normally through an opening in the receiving-table in the path of the work.

9. In a painting or coating machine, the combination with a suitable support having a receiving-table for the article to be coated, of a reservoir for the coating material, a distributing-receptacle thereabove, an elevator for conveying the coating material from the reservoir to said receptacle, a trip extending above the table in the path of the work and adapted to be actuated by the latter upon its travel to the coating-rolls, a drive connection between said lever and the elevator, and coating-rolls arranged in operative relation to the distributing-receptacle and at a determined distance from the trip for the purpose set forth.

10. In a painting or coating machine, the combination with a support, of coating-rolls journaled in suitable bearings thereon, a reservoir for the coating material, a distributing-receptacle above the reservoir in operative relation to the rolls, a conveyer for supplying the distributing-receptacle from the reservoir, and actuating mechanism for the conveyer including an operating member extending normally in the path of the work at a distance from the rolls to compel actuation of the conveyer prior to the operation of coating.

11. In a painting or coating machine, the combination with a work-receiving table, of an upper transverse coating-roll in operative relation thereto, a pair of vertically-arranged side rolls journaled in laterally-yieldable bearings spaced horizontally from the upper roll, and a lower transverse roll mounted in yielding bearings beyond the side rolls.

12. In a painting or coating machine, the combination with suitable uprights, of a horizontal support pivoted to the uprights for limited vertical rocking movement, a transverse coating-roll mounted in depending bearings on said support, vertically-extending side rolls beneath the support, a lower coating-roll, and a distributer for coating material mounted upon the horizontal support above and in operative relation to the upper and side coating-rolls.

13. In a painting or coating machine, the combination with a support, of suitable up-

rights thereon, a pair of vertically-arranged coating-rolls, laterally-swinging bearings for said rolls secured to the uprights, means for causing said rolls to approach and for limiting their approaching movement, and an upper and a lower coating-roll respectively upon opposite sides of and in operative relation to the vertical rolls.

14. In a painting or coating machine, the combination with a support, of a work-receiving table and a delivery-table thereon, coating-rolls journaled in bearings upon the support intermediate of the tables, a drain-tray beneath and extending beyond the delivery-table, and a wiper at the end of said table beyond which the tray extends.

15. In a painting or coating machine, the combination with a support, of a work-receiving table and a delivery-table in the form of a grating thereon, coating-rolls upon the support between the tables, a tray for surplus coating material beneath the rolls and grating, and means for draining said tray.

16. In a painting or coating machine, the combination with a support, of an upper coating-roll thereon, an inclined tray for surplus coating material thereon having a transverse concavity formed therein, and coating mechanism above the tray, including a lower coating-roll mounted for rotation within the concavity.

17. In a machine of the character described, a coating-roll, and means for feeding the coating material to said roll, said means being intermittently operable by the work.

18. In a machine of the character described, a coating-roll, an endless feed for the coating material, said feed being intermittently operable by the work.

19. In a machine of the character described, a coating-roll, an outlet-receptacle arranged adjacent thereto, and means for intermittently supplying material to said receptacle, operable by the work.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. NEVILLE.

Witnesses:
FLORENCE PIGOTT,
LILLIAN NURNKE.