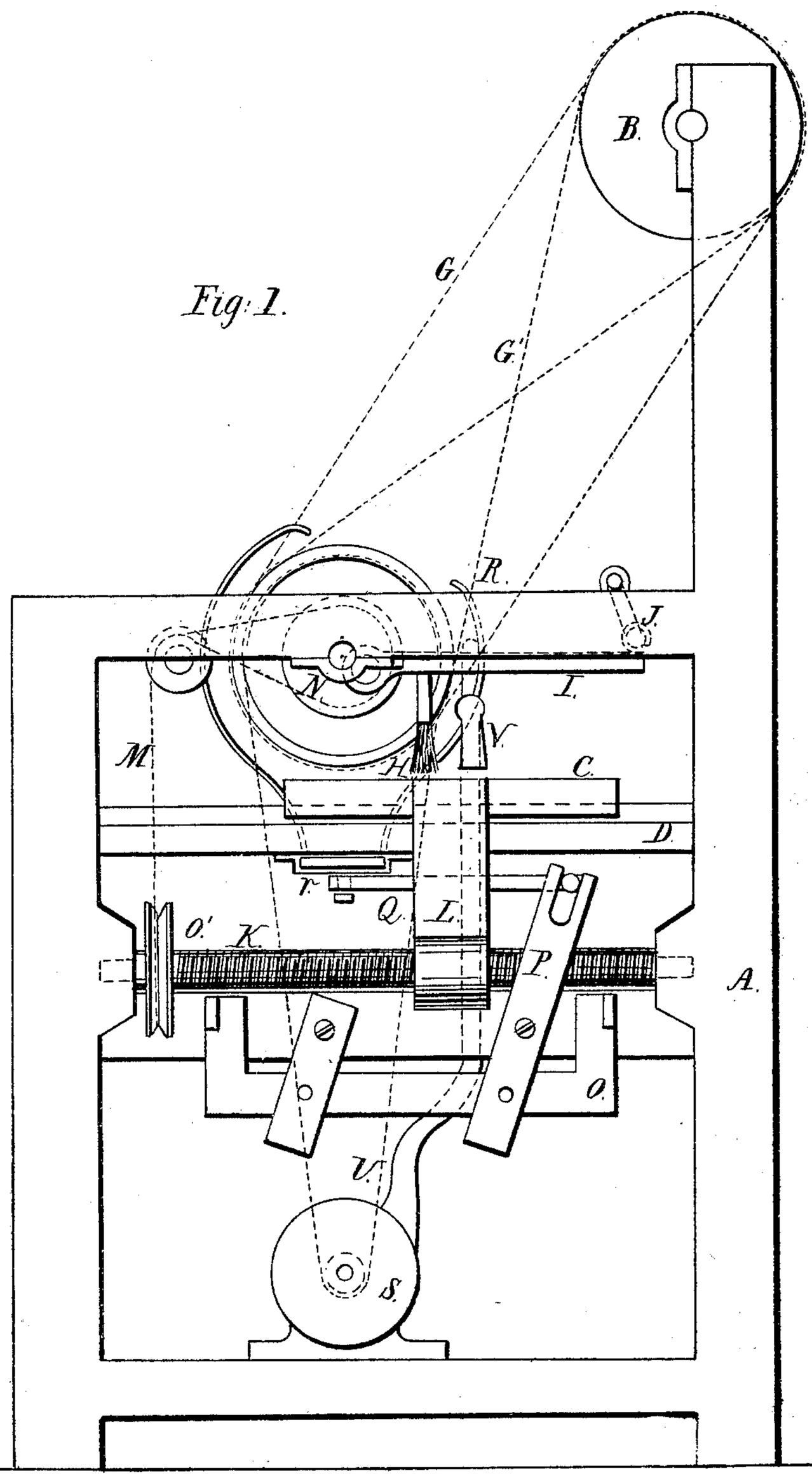
3 Sheets—Sheet 1.

H. LOVEJOY & R. WHEELER.

MACHINE FOR COATING ELECTROTYPE PLATES.

No. 21,509. Patented Sept. 14, 1858.

Fig. 1.



3 Sheets—Sheet 2.

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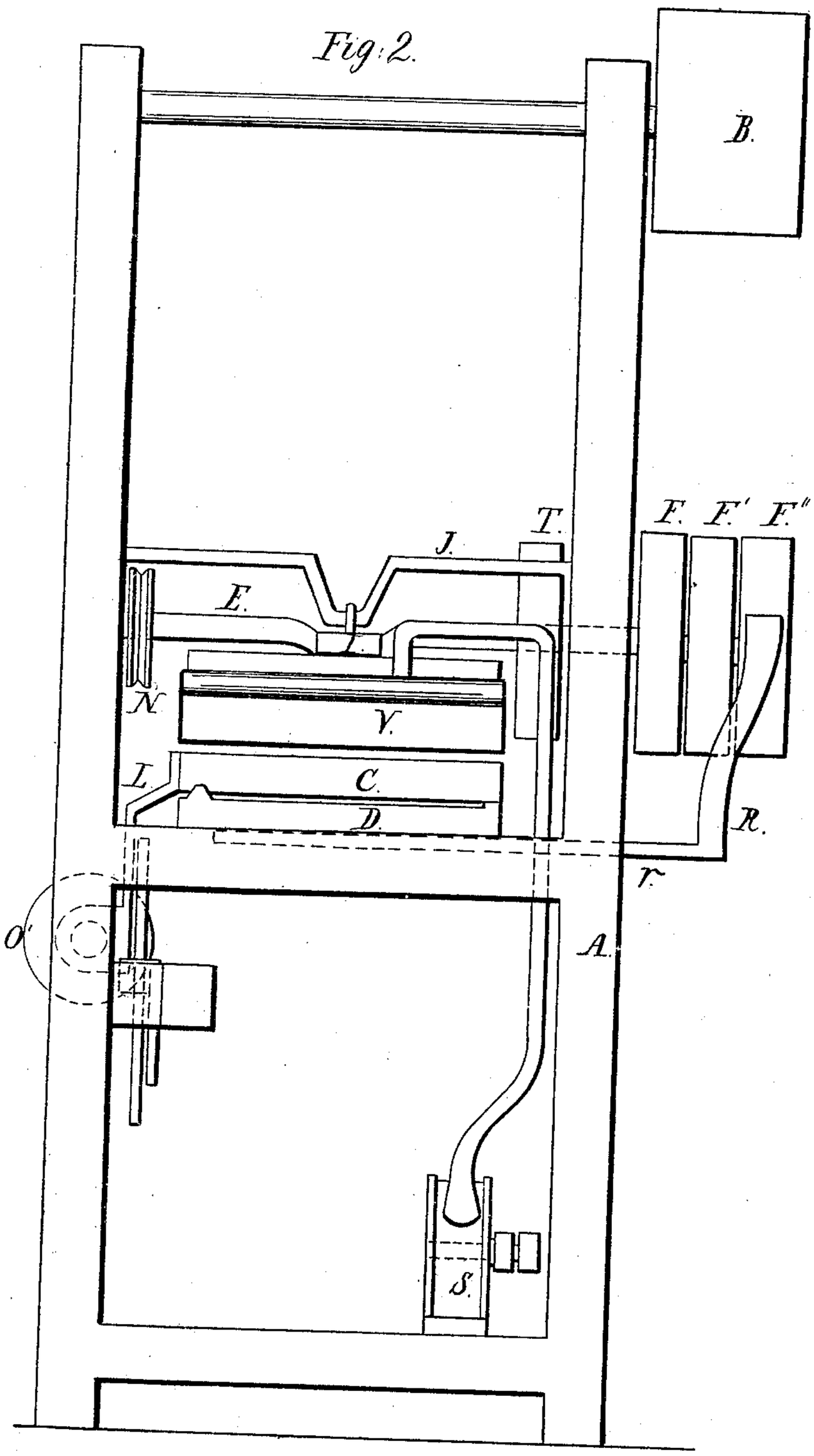
Fig: 2.



3 Sheets—Sheet 3.

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Fig: 3.

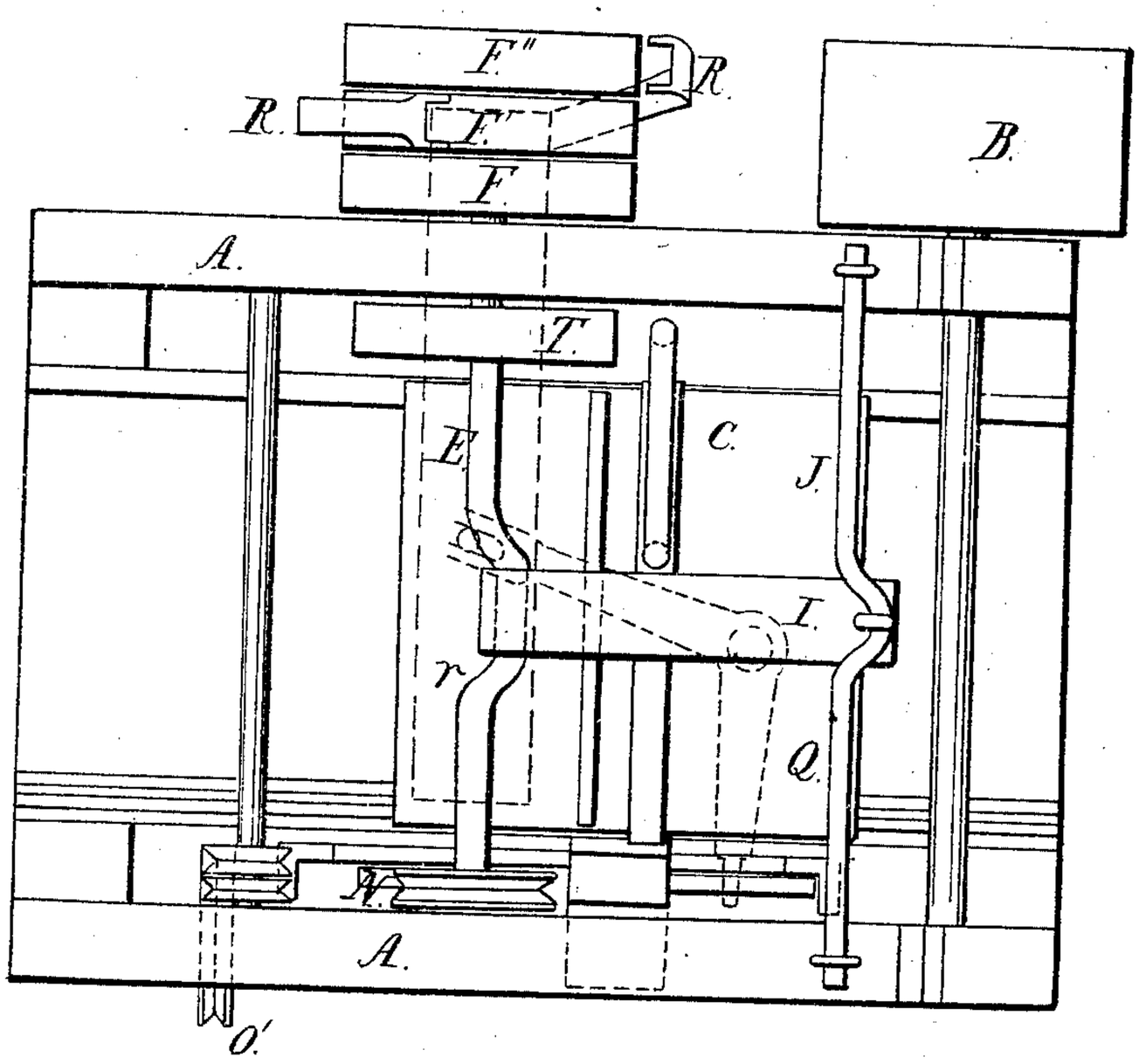


Fig: 5.

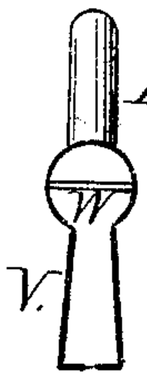
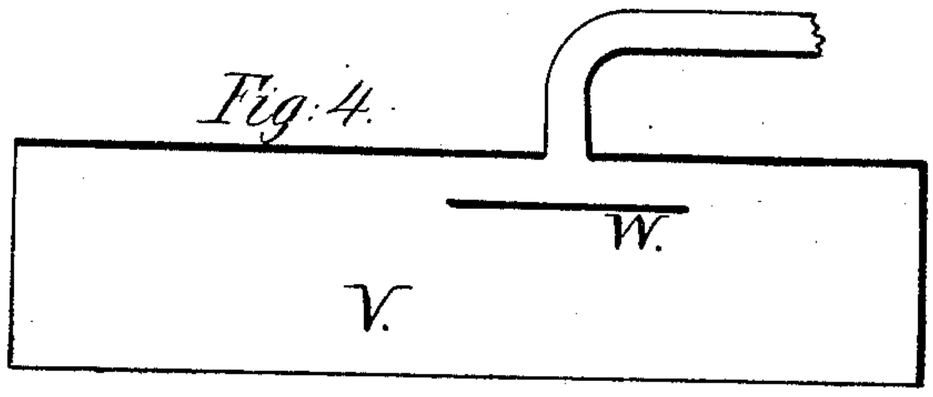


Fig: 4.



UNITED STATES PATENT OFFICE.

HENRY LOVEJOY AND ROBERT WHEELER, OF BROOKLYN, NEW YORK.

MACHINE FOR COATING ELECTROTYPE-MOLDS.

Specification forming part of Letters Patent No. **21,509.** dated September 14, 1858.

To all whom it may concern:

Be it known that we, HENRY LOVEJOY and ROBERT WHEELER, both of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Coating Electrotype-Molds; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a side and Fig. 2 an end elevation of the machine. Fig. 3 is a plan view of the same, and Figs. 4 and 5 are longitudinal and transverse sections of the wind-chest of the machine detached.

Our invention consists in giving to the brush of the machine a peculiar motion by which its operation is rendered more thorough and perfect, and in combining with the operation of the brush a wind-blast for the removal from the mold of the superfluous coating material.

A is the frame of the machine, made of sufficient height to bring the bed upon which the wax mold is placed to an elevation where it can readily be reached by the operator of the machine, and to allow room below the bed for the working parts hereinafter described.

B is the driving-pulley, attached to a shaft running in boxes upon the frame A, as shown, or to a line, or to a counter-shaft, as may be best adapted to the circumstances in which the machine is used. It is made of sufficient width to allow two belts to be used on it and be changed in position upon it, as hereinafter described.

C is the bed upon which the wax mold is laid to be coated, and which runs back and forth upon suitable guides attached to the ways D.

E is the crank-shaft that gives to the brush its motion, and from which motion is given to the fan-blower and to the bed C. It has three pulleys, F F′ F″, upon its outer end, the first and last of which are loose and revolve freely upon it, and the other or middle one is keyed or secured fast. The belts G G′ communicate to these pulleys the motion of the driving-pulley B, the belt G being a straight one, which revolves the crank-shaft in the same direction as the driving-shaft, and the belt G′ a cross one, which operates the crank-shaft in a reverse direction. When either of them is running upon the fixed pulley on the crank-shaft the other operates one of the loose pulleys and turns it in a contrary direction.

H is a brush made of soft and pliable material, so that the wax mold shall be uninjured by its movement over and upon it, which is made as wide as the bed C, and is attached to the brush-bar I at such distance below the bar as will allow the lower end of it to enter all the cavities of the mold. The bar is attached at one end to the crank of the crank-shaft E, to be moved by the rotation of the crank, and is suspended at the other end by the crank J, to allow that end to vibrate laterally as the other end is carried around by the crank. By the brush being thus suspended and operated it moves upon and over the face of the mold in an elliptical track, which gives to it its greatest efficiency to enter and leave the interstices of the mold without injuring the delicate lines of its wax-impression. The bed C is moved back and forth by the screw K, operating upon and in a nut in the arm L, attached to the bed. The screw is rotated by the belt M, running over the pulley N on the crank-shaft and the pulley O′ on the end of the screw. The sides of the arm L, as the arm is moved in either direction, are brought in contact with lugs on the shifting frame O when the bed has moved to its extent in either direction to change the belt which has been operating on the fixed pulley of the crank-shaft to one of the loose ones, and the belt which was on the loose pulley onto the fixed one for the purpose of reversing the direction of the bed. This is effected by the frame O moving the lever P, the bell-crank Q, the bar *r*, and the shifters R R′.

S is a fan-blower located beneath the bed and operated from the pulley T on the crank-shaft through the belt U, by which a blast of air is blown through the wind-chest V upon the face of the mold to clear from the mold the superfluous coating material. The blower is only operated during the forward movement of the bed, (or from left to right in Fig. 1,) so as to blow off the superfluous coating material from the mold as the bed and mold move backward, at which time the coating operation is ordinarily completed. The blower is operated by its belt being thrown from a loose to a fixed pulley on its shaft by the same shifting apparatus that shifts the belts on the pulleys of the crank-shaft, and is by the same means thrown

out of operation by its belt being moved onto its loose pulley when the movement of the crank-shaft is reversed. The wind-chest V is made as long as the width of the bed C, and has a narrow aperture in its lower edge, through which the wind is evenly distributed over the mold, a diaphragm-plate W being placed beneath the pipe from the blower to disperse the blast throughout the chest.

The frame of the machine is incased, suitable doors being made in the case, through which the mold can be put into and taken out from the machine, and through which the machinery can be got at to oil and adjust it, to keep the material used for coating the mold from flying about the room during the coating operation.

The mold to be coated is first dusted or covered with the coating (powdered plumbago or black-lead being generally used for that purpose) and then placed upon the bed C. The crank-shaft is then revolved, causing the brush H to move upon and over the face of the mold rapidly, while the bed and mold are moved slowly backward under it. When the bed has reached the extent of its travel in that direction the arm L causes the belts on the pulleys of the crank-shaft to be shifted and the motion of the crank-shaft and bed to be reversed. At the same time the fan-blower S is put in operation, blowing upon the face of the mold, as it passes beneath the wind-chest V, a blast of air which removes from the mold all the superfluous coating material, so that the mold is ready for use when it is taken out of the machine. The mold can be moved back and forth under the brush more than once, if it is found necessary for the successful result of the coating operation; but ordinarily it will be found to be completed by passing a single time.

The present means of coating these molds are by brushing the coating material into them, either by hand or by a machine which gives to the brush a vertical or nearly vertical motion, and in both cases the operation is incomplete, as the superfluous material has afterward to be removed by the slow and tedious process of blowing it off from the mold by a hand-bellows. The hand process is slow, wasteful, and unhealthy, and the process by the vertically-moving brush does not insure a perfect coating to the sides of the depressions of the mold, and does not remove the superfluous coating material from the mold.

We do not claim operating a brush by mechanical means to coat electrotype-molds with coating material; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. Suspending the brush-bar I by the crank J at one end, and attaching it to and operating it by the crank of the crank-shaft E at the other end, in the manner and for the purpose set forth.

2. The combination of the brush H and bed C with the blower S and wind-chest V, in the manner and for the purpose described.

HENRY LOVEJOY.
ROBERT WHEELER.

Witnesses:
FRANCIS S. LOW,
IRA BUCKMAN, Jr.