W. H. FORBES & N. HALLOCK.

Bronzing-Machine.

No. 162,161. Patented April 20, 1875.

FIG. I.

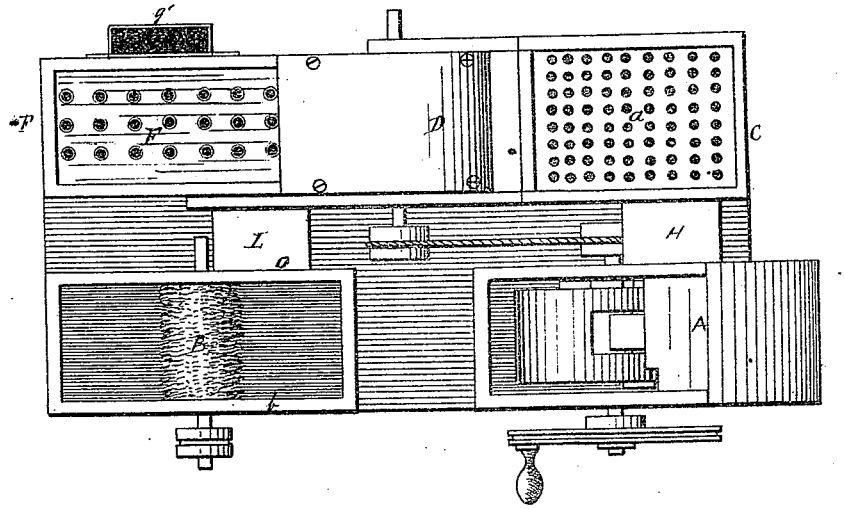


FIG. II.

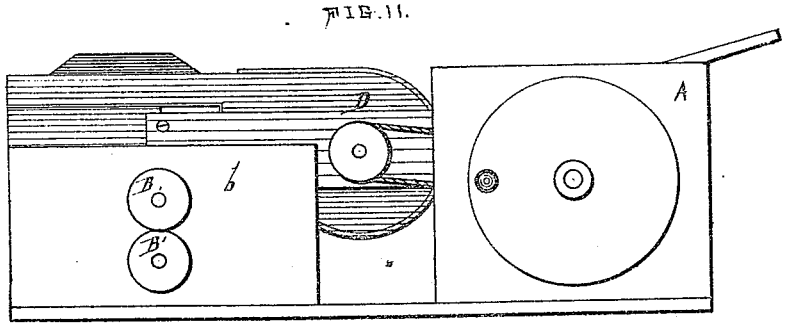
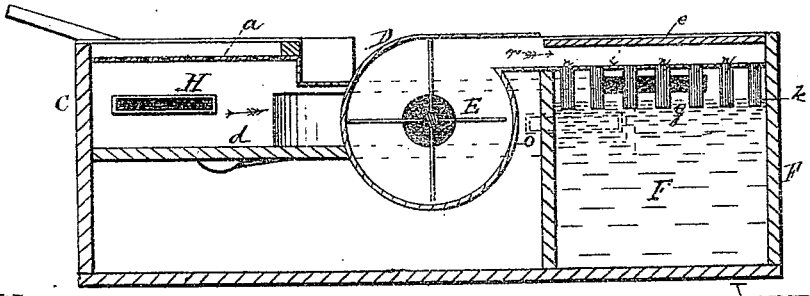


FIG. III



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UNITED STATES PATENT OFFICE.

WILLIAM H. FORBES AND NICHOLAS HALLOCK, OF BOSTON, MASS.

IMPROVEMENT IN BRONZING-MACHINES.

Specification forming part of Letters Patent No. **162,161**, dated April 20, 1875; application filed March 19, 1875.

To all whom it may concern:

Be it known that we, WILLIAM H. FORBES and NICHOLAS HALLOCK, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Apparatus to be used in Applying Bronze-Powder to Printed Surfaces and Preserving the Waste Bronze; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a plan of the apparatus. Fig. 2 is a side elevation. Fig. 3 is a vertical section.

Heretofore, in using bronze-powder in fancy printing it is applied to the sheets direct from the press, the bronze adhering to the ink permanently. Much of the fine dry powder also adheres to the general surface, and has to be removed by rotary brushes or hand-brushes. In either case, the flying powder causes very serious inconvenience by settling upon the stock and machinery in a room, and by the unhealthy effect of its inhalation by operatives. The brushes used soon become filled with the powder, and cause delays for cleansing. The object of our invention is to overcome the difficulties named by directing the superfluous bronze-powder to one particular point, and there collecting it. Our invention consists in a perforated spreading-table and removing-wheels, in combination with an exhaust-fan and water-bath, as more fully hereinafter described.

In order that those skilled in the art may make and use our invention, we will proceed to describe the manner in which we have carried it out.

In the said drawings, A is the machine for applying the bronze, and B B′ are rotary brushes for removing the surplus bronze-powder. These are swung on journals in a box, *b*, and rotated in any convenient manner. A table for removing the surplus bronze-powder by hand-brushes is located at C, and is constructed with a perforated diaphragm, *a*, and a solid bottom, *d*. A cylinder, D, containing an exhaust-fan, E, is located between the table C and a water-reservoir, F, and has communication with the space between the diaphragm *a* and bottom *d* of table C, and the top of the water-reservoir F. This water-reservoir or condensing-chamber is constructed as follows: A box or case, F, constitutes the chamber, having a cover, *e*, made air-tight and preferably transparent, though not essential. A short distance below the cover *e* is a perforated diaphragm, *i*, having short tubes *n n* depending from the perforations. An opening, *g*, immediately below the diaphragm, communicates with a pipe, *g′*, which leads to the open air. The reservoir or chamber is filled with water, or other fluid, to the line *k*, so as to cover the mouths of the tubes *n n*. A pipe, H, leads from the rear of the bronzing-machine A into the space between the bottom *d* and diaphragm *a* of the table C. A pipe, L, with its mouth at *o*, immediately in front of the brushes B B′, in the box *b*, passes along the side of the cylinder D, and terminates in between the bottom of the table C, as seen in Fig. 3. The operation is as follows: The fan being set in motion, it creates a draft from the table C through perforations in the diaphragm, and pipes H and L opening into it, as indicated by the arrows. After the air has passed through the cylinder D it is forced through the passage *r* into the condensing-chamber, down the tubes *n n*, up through the water, and out at the opening *g* through the pipe *g′*. As these various currents pass the points where the bronze-powder is being manipulated all the surplus powder is taken up and by them conveyed through the cylinder and into the water in the condenser where it is taken up, while the pure air passes off through the pipe *g′*.

We are aware that exhaust-fans have been used heretofore to convey dust from operatives, and hence we do not claim this broadly; but, having thus described our invention—

What we claim as new, and desire to secure by Letters Patent, is—

1. The perforated table, in combination with the exhaust-fan and condensing-reservoir F, substantially as set forth.

2. In combination with a bronze-printing machine, the exhaust-fan E and condenser F, provided with the tubes *n n*, and water

or other liquid, substantially as and for the purpose described.

3. The reservoir or condenser F, constructed with the perforated diaphragm *i*, and pipes *n n*, as specified.

4. The process herein described of preserving waste bronze-powder by forcing the air containing it through water, substantially as described.

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Witnesses:
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