

UNITED STATES PATENT OFFICE.

SILAS P. KNIGHT, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN ELECTROTYPE-MOLDS.

Specification forming part of Letters Patent No. 114,447, dated May 2, 1871.

To all whom it may concern:

Be it known that I, SILAS P. KNIGHT, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in the Process of Obtaining and "Metallicizing" Electrotypes-Molds; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to the preparation of the surface of the wax or other composition of which molds for electrotypes for printing or other purposes are made for the reception of the impression and to the metallicizing of the mold for the reception of the electro-deposit; and

It consists in effecting such preparation and metallicizing by the use of plumbago or other metallic powder mixed with water, whereby I am enabled to effect a great saving in the quantity of plumbago or other metallic powder used, and a great saving of time, besides rendering the process much cleaner and less prejudicial to health, and obviating the danger of injury to delicate portions of the mold, which is likely, especially in hot weather, to occur in metallicizing with dry powder.

To enable the effect and advantages of my improvement to be more readily understood I will, before describing it, briefly describe the ordinary process of preparing the surface and metallicizing the mold with dry plumbago.

The molding-case having been filled with melted wax or molding composition, the surface of the latter is, when cooled, brushed over with dry plumbago. The impression is then taken upon the surface, and the mold thus produced is, for the purpose of being metallicized, put into a covered box, in which dry plumbago is applied to its face by means of a brush or brushes.

The mold, after having been subjected to this treatment for a considerable time, is removed from the box, and its face exposed to the action of a bellows to blow away all loose particles of plumbago. It is then immersed in alcohol, and finally washed by a stream of water applied with considerable force.

The metallicizing thus performed consists of four distinct operations, viz:

First, applying the dry plumbago with the brush;

Second, blowing away the loose particles;

Third, immersing in alcohol; and

Fourth, washing with water.

The largest proportion of the plumbago is wasted by being blown into the air, rendering the business very dirty and prejudicial to the health of those engaged in it; the process is tedious, and the more delicate portions of the impression in the mold are liable, especially in hot weather, to be effaced by the action of the brush.

In my process the surface of the wax or composition in the molding-case is first brushed over with a mixture of plumbago and water, and after this it is washed and the impression is taken upon it in the usual way.

The face of the mold is then, for the purpose of being metallicized, treated with a mixture of plumbago and water, which is thrown regularly and evenly upon it, through a rose or other distributing apparatus capable of directing it in numerous fine streams, by means of a force-pump.

This operation should be performed in a trough or vat, in which the mold is placed face upward, and from which the mixture of black lead and water is taken by the pump, and back into which the mixture is allowed to flow from the face of the mold.

A sufficient film of plumbago having been obtained upon the face of the mold in this way to obtain a perfect conducting surface, the blank space surrounding the impression may be scraped, or have a little of some greasy substance rubbed over it, to render it non-conducting to electricity; and the mold is then dipped in clean water, or has a gentle stream of water passed over it, to remove any surplus plumbago and wet its entire surface, and is then ready for immersion in the decomposing-cell of the battery.

If found necessary, the mold, after having been treated with the mixture of plumbago and water as above described, and before being washed, may, without injury to the impression, have passed over its face a bristle brush having the ends of the bristles unclipped.

The mixture of plumbago and water used in the above-described operation may consist of about one pound of plumbago for every

gallon of water, though this density may be varied.

To prepare the mixture, enough alcohol may be first applied to the dry plumbago to moisten it, and then the water may be added. The alcohol facilitates the mixture.

Bronze powder or other fine metallic powder may be substituted for plumbago, though I consider plumbago preferable.

It is possible that in some cases the use of the force-pump for distributing the mixture of plumbago or other metallic powder and water may be dispensed with, and that the metallicizing of the face of the mold may be effected by pouring the mixture thereupon and afterward working it in with a bristle brush such as I have hereinabove referred to.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The preparation of the surface of the wax or molding composition of which an electrotype-mold is made for the reception of the impression by treatment with a mixture of plumbago or other metallic powder and water, substantially as herein described.

2. The metallicizing of electrotype-molds by treatment with a mixture of plumbago or other metallic powder and water, substantially as herein specified.

SILAS P. KNIGHT.

Witnesses:

HENRY T. BROWN,
FRED. HAYNES.