

UNITED STATES PATENT OFFICE.

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METHOD OF TREATING MOLDS USED IN THE ART OF ELECTROTYPING.

1,002,658.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, GEORGE E. DUNTON, residing at New York city, county of New York, State of New York, a citizen of the United States, have invented certain new and useful Improvements in Methods of Treating Molds Used in the Art of Electrotyping; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to a new and improved method of treating molds, and more especially the wax molds used in the manufacture of electro-type printing plates in the art of electrotyping.

The material of which the molds are formed for the production of printing plates in the electrotyping art is generally bees-wax, ozokerite wax or like substance which contains an appreciable percentage of grease, oil or oily substance in its composition. In bees-wax, the grease is due to the presence of palinitin and in ozokerite wax, mineral wax, it is due to the presence of petroleum.

When pressure is applied to a form or cut in making the impression in the mold, it causes any grease or oily substance therein to be expressed or forced out and appear on the face of the mold in the form of a thin coating or film, and said coating or film is very troublesome and annoying to the electrotyper as it causes imperfect and faulty reproductions. Especially in case where the so-called half tone illustrations are being made, which are composed or made up of a collection of very fine dots, or in the duplicating of color plates where three or four or even more printings are necessary, the least variation from the original plate, such as the filling up of the minute indentations made by each dot in the wax mold, would result in a thickening of the duplicate or reproduction and ruin the same.

More trouble has heretofore been experienced in the uncertainty of reproducing faithfully duplicates of the original half tone plates and by all the common well known processes, the finer dots of electro-type duplicates from half tones do not have their proper height or face surface, that is, instead of having a well defined flat, clear cut or sharp printing surface the points are

rounded and lacking in height from one-fourth to one-half of the original.

After a very careful study and extensive experiments, I have demonstrated the fact that the above conditions are due to the grease or oily matter impregnating the black lead used to polish the surface of the wax molds, and that the grease was incorporated in the black lead from the wax mold. The deeper portions of the impressions in the mold, the points of the dots penetrating further into the wax, receive and retain a larger proportion or percentage of this grease and when the black lead is applied to the surface of the mold the retained grease in the dots distributes itself throughout among the particles of lead, with which it comes in contact, and holds the particles firmly together and in contact with the sharp edges of the bottom of the dot recesses made in the wax. The use of a machine, either an air blast, wet method or brush type serves to pack the black lead firmly into the dots in the wax mold, and the grease serves as a binder to cement the particles of the black lead together and hold the mass at the bottom of the dot recess.

Experiments have shown me that no amount of brushing, blowing or washing, by using a spray of water under pressure, will loosen or remove the congested particles of black lead from the wax mold, consequently when the deposit takes place instead of the metal going to the fullest depth of the dot recess it deposits over the accumulated film of black lead at the bottom of the dot recess, producing as a result round headed dots which have lost just that value the accumulated black lead has acquired at the bottom of the dot recess in the wax mold. The only manner whereby this surplus accumulation of black lead can be dislodged or removed is to dissolve the grease, oil or oily substance, which as has been said before is forced out of the mold, by treating it chemically when it may be easily removed.

Experiments have demonstrated the fact that the grease, oil or oily substance expressed from the mold can be removed by mixing a grease converting substance, preferably a chemical substance, with the black lead which is used to render the mold conductive, and that when the combined black lead and grease converting substance is ap-

plied to the mold it will convert the grease and also render the mold conductive, after which the converted substance can easily be rinsed or washed off by water, chemical, mechanical or other suitable means.

5 By my method, before applying the black lead to the mold, I mix a grease converting substance with the black lead and then apply said combined substance to the mold, and
10 after the grease has been converted into another substance, for instance, a saponaceous substance, I remove said converted saponaceous substance from the mold by washing said mold with water, when the black lead
15 and mold will be free from grease and ready to go through the other necessary operations well known in the art, which are not necessary to enumerate, when the mold will be in condition for use.

20 By the above method, which removes all the grease, oil or oily substance, the dots and recesses of the mold are left clear, and unobstructed and a duplicate or reproduction taken from the same it will be a clear cut
25 perfect plate.

What I claim is:—

1. The method of treating molds used in the art of electrotyping, consisting in mixing a grease converting substance with a
30 conducting substance, designed to render the mold conductive, applying the resultant combined converting and conductive substance to the mold to simultaneously render it

conductive and convert the grease expressed therefrom and finally removing the converted substance, substantially as described. 35

2. The method of treating molds used in the art of electrotyping, consisting in mixing a grease converting substance with a
40 conductive substance, designed to render the mold conductive, applying the resultant combined converting and conductive substance to the mold to render it conductive and convert the grease expressed therefrom and finally removing the converted substance by chemical means, substantially as
45 described.

3. The method of treating molds used in the art of electrotyping, consisting in subjecting the mold to the action of a combined
50 grease converting and electric conducting substance and then removing the converted substance, substantially as described.

4. The method of treating molds used in the art of electrotyping, consisting in subjecting the mold to the action of a combined
55 grease converting and electric conducting substance and then removing the converted substance by chemical means, substantially as described. 60

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

GEORGE E. DUNTON.

Witnesses:

H. BECKER,
F. S. DUFF.