UNITED STATES PATENT OFFICE.

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METHOD OF TREATING MOLDS USED IN THE ART OF ELECTROTYPING.

1,005,007. Specification of Letters Patent. **Patented Oct. 3, 1911.**

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To all whom it may concern:

Be it known that I, GEORGE E. DUNTON, residing at New York, 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 electro-typing art is generally bees-wax, ozocerite 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 palmitin and in ozocerite 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.

Much 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 electrotype duplicates from half tones do not have their proper height or face surface, that is, instead of having a well defined flat printing surface the points were 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 were due to the presence of 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 farther 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 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 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 also have demonstrated that the grease could be removed more easily and with better results, before the black-leading of the wax mold subsequently to the deposition of the metal.

By my method I dissolve and remove all of the grease or oily substance from the wax mold by subjecting the surface of the

same to a solution composed of the following ingredients in about the proportions stated:—

Methyl alcohol	9 parts
Chlorin water	3 parts
Water saturated with sodium chlorid	2½ parts
Hydrochloric acid	½ part

Having prepared a solution of the above named ingredients, I place it in a dipping trough or other suitable receptacle, and then place the wax mold therein and let it remain for about seven minutes, when the grease will be dissolved and can be readily removed by any well known means. After this the wax mold is ready to be treated with the black lead and go through the other necessary operations well known in the art which are not necessary to enumerate. The avidity of black lead for water is as great as it is for grease or oil and it can be saturated with either and when saturated with one will repel the other.

What I claim is:—

1. The method of treating molds used in the art of electrotyping to remove the grease therefrom, consisting in subjecting the mold to the action of a grease dissolving substance prior to treating it with a conducting substance, substantially as described.

2. The method of treating molds used in the art of electrotyping to remove the grease therefrom, consisting in subjecting the mold to the dissolving action of a grease dissolving substance, which has an affinity for the grease expressed from the mold but which does not affect the composition of the mold, prior to treating said mold for the deposition of metal used to produce a printing plate, substantially as described.

3. The method of treating molds used in the art of electrotyping, consisting in forming a mold of material containing wax, subjecting the mold to pressure and then treating it with a grease dissolving substance, prior to treating it for the deposition of metal used to produce a printing plate, substantially as described.

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

GEORGE E. DUNTON.

Witnesses:
FRANCIS S. DUFF,
H. BECKER.