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ROYALTYPE PLATE

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Fig. 1.



Fig. 2.

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ROYALTYPE PLATE.

Original applications filed November 7, 1924, Serial No. 748,413, and April 14, 1927, Serial No. 183,738. Divided and this application filed July 9, 1927. Serial No. 204,581.

My invention relates to electrotypes which may be either positive or negative.

In general practice lead molded electrotypes require for their production a copper original engraving which is almost universally of .063 thickness.

The main purpose of my invention is to provide hard-metal-backed duplicate originals in the form of master electrotypes from which electrotypes may be made in quantity and to the best advantage.

A further purpose is to duplicate engravings and photo engravings, cuts of any kind and also type metal, separately or together in such form as to be equally as effective as original engravings and even harder than original engravings, well suiting them for the production of electrotypes.

A further purpose is to provide an electrotype with a cohesively united backing of hard metal to bring it to normal thickness of plates to be reproduced.

A further purpose is to back an electrotype surface by hard material cohesively united to the electrotype and in rigid and uninterrupted engagement therewith and to utilize the hard plates so produced for the production of electrotypes, making the thickness of the plate equal to the thickness of the backed electrotypes so that, when it does not include the entire printing surface, it may be used along with other cuts to complete the printing surface.

Further purposes will appear in the specification and in the claims.

I have preferred to illustrate my invention by one main form only, selecting a form which is practical, efficient, reliable and eminently satisfactory, and which at the same time well illustrate the principles of my invention.

Figure 1 is a front face view of an electrotyped plate, which may be either printing plate or master electrotype.

Figure 2 is a section corresponding to line 2—2 of Figure 1 showing a master plate.

In the drawings similar numerals indicate like parts.

Reproduction of electrotypes from other electrotypes where lead moulding (for color work, for example) is required has been unsatisfactory because of the soft character of the backing of the initial electrotypes, softer spots in the backing, the distortion of the pictor caused by the pressure incident to lead molding and the consequent impossibility of making successive electrotypes which are exact duplicates. Electrotypes from electrotypes have therefore been limited to such as electrotyped type matter, and composite matter in which the distortion will not be noticed and in which no registration is required. The initial plate has usually been made by wax process or had contained a wax process plate.

I have discovered that an electrotype plate can be backed with hard material, cohesively united to it and finished to uniform thickness without injury to the face of the plate, and have described a method of manufacture of such a plate in my applications for patent, for electrotype and method of making it, Serial No. 748,413, filed November 7, 1924, and royaltype plate and machine for milling it, Serial No. 183,738, filed April 14, 1927, of which applications the present application is a division.

These applications show suction clutch holding methods, and cutter and tool finishing methods for holding and surfacing the backs of the plates to secure uniformity of thickness and the exact thickness required. At the same time they protect the face of the electrotype.

Though the best results are obtained by lead molded electrotype work, as in the case of all electrotyping where the lead sheet can be used, my invention is applicable to electrotypes which have been made by wax molding processes also and offers special advantages with these for some classes of work.

Because of the prior inability to make successful duplicates or master electrotypes or other copies, the making of a large order for electrotyped work to be used in different places about the country has generally required the reproduction of an original engraving or photo-engraving for each locality

in which the electrotypes are to be used in order that electrotypes may be made from these, or the supply from one locality of all of the electrotypes intended to be used.

I provide master electrotypes which are exact duplicates of the original engravings, of cuts of any character, or of type, or of a combination of these and which are capable of standing the same pressures and treatment as those to which original engravings may be subjected. The master electrotypes which I produce are more rugged and will withstand more severe pressures and treatment than the cuts and type metal will stand.

In carrying out my invention I make an impression in lead or in wax and hang this impression in the electrotyping bath to coat it, as in the case of an electrotype, making the wax surface conductive in the case of a wax mold as in all wax molded electrotyping work. However, instead of stopping the electrolytic deposit at the usual thickness of approximately seven-thousandths of an inch and backing up the copper shell thus made with electrotype metal to the printing thickness required, I deposit upon the electrotype a thickness of metal, preferably copper, such that there shall be room to take a finish cut from the back and leave a final thickness equal to the standard thickness of an engraved plate, that is sixty-three thousandths of an inch. I find that seventy-three thousandths of an inch at the low spots is ample thickness to allow for this finish cut.

It must be remembered that I am dealing with printing surfaces which are peculiarly subject to injury by reason of pressure against them and that I must therefore take special care to prevent injury to the face in finishing the back, which injury to the face has been the controlling difficulty in prior efforts to produce such a plate.

In the plate seen in Figures 1 and 2 the printing surface is shown at 10 and the back of the plate is deposited to a thickness in excess of that shown at 11. The back of the plate is then cut off to the level 11 to produce the finished thickness desired.

Where the master plate finished is that of an engraving or cut and is intended to take the place of the engraving or cut in a complete plate made up in part of other electrotypes, it is very desirable that the master plate produced by my process shall have the same thickness as that of other engravings and this has led me to standardize the thickness of my finished plate as engraving thickness, notwithstanding that the greater part of my invention is independent of this.

It will be sufficiently obvious that the type of metal used for the backing will determine the character of cutting tool most suitable for cutting the matel from the back to bring the plate to the required thickness.

It will be evident that my backing method will apply to negatives as well as positives making finished backed negative or positive plates.

It will further be evident that my invention in the plate whether positive or negative is independent of the method by which the hard backing material is applied provided it be integrally united to the metal of the electrotype; and that the two metals need not be the same metal even where, as in the illustration given, the means of backing is by electroplating.

The master electrotypes described correspond absolutely with the engravings or other matter from which they have been produced and make it possible to combine with them cuts or other electrotypes and to reproduce with the same fidelity as from engravings.

It will be evident that I have made it possible to duplicate in lead molding for any number of printing electrotypes matter which must be wax molded initially or which will stand a single lead mold impression only, with perfect registration securing good results from typed matter and from composite plates; and that I can duplicate these as well as engraved originals in the form of master electrotypes, which duplicate originals can be distributed to electrotypers throughout the country for the production from each of as many electrotypes as may be desired with agreement of the reproductions from the different duplicate originals sufficiently not only for the reproductions from the same originals to register for color work but for the reproduction from different originals to so register.

Where I refer in my claims to "positive printing plates" it is my intention to indicate plates which print from a raised surface as distinguished from plates of the intaglio class which print from a sunk design in which design the ink is deposited and left for the printing operation after cleaning off the ink from the non-printing surface of the plate.

It will be obvious that in view of my invention others skilled in the art will be able to secure all or a part of the advantage of my invention without using the same form of the invention and it is therefore my intention to include herein all modifications and changes which come within the reasonable spirit and scope of my invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. As an article of manufacture, an electrotype integrally backed with hard metal to normal engraved plate thickness.

2. As an article of manufacture, a master electrotype adapted for lead process repro-

duction of positive printing plates and comprising an electrotype face and a backing of hard metal as distinguished from the normal electrotype metal backing.

3. As an article of manufacture, a copper positive printing plate having a stiff hard metal backing electrically deposited upon it.

4. As an article of manufacture, a copper positive printing plate having a copper backing cohesively united to it.

5. An electrotype shell provided with a cohesively or integrally united backing of hard metal to bring it to normal engraved plate thickness.

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