UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING GRAIN ETCHINGS

1,407,303. Specification of Letters Patent. Patented Feb. 21, 1922.

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To all whom it may concern:

Be it known that I, CHARLES W. SAALBURG, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented a certain new and useful Improvement in Processes of Making Grain Etchings, of which the following is a specification.

This invention relates to a process of making grain etchings in rotogravure printing, and more specifically to a process of making grain etchings on metal cylinders wherein a plurality of grains are made.

In prior methods of providing suitable grains on metallic rolls in the rotary photogravure printing art, difficulty has been experienced in obtaining a full range of tints, for either the light tints or the heavy tones have suffered, and good and sufficient depths have not been obtained. In such processes the acid used for etching would eat through the sensitized film so rapidly that a proper grain, a cleanliness of tone, and an even and deep etching could not be obtained.

This invention has as an object the provision of processes for etching in rotogravure art, whereby perfect tones and a full range of tints may be attained. It also has for an object the securing of deeper printed depths, and also the securing of even and deep etchings with cleanliness of tones. A further object is to devise such a process which will be simple and comparatively inexpensive in operation and very efficient from a technical standpoint.

The invention accordingly broadly comprises a process of making grain etchings comprising depositing a plurality of grains on a roll in conjunction with a carbon or similar print. More specifically stated, it comprises such processes in which the several grains may be of varying degrees of fineness and quality.

Although the invention may be carried out in various forms and receive various embodiments, the following described method constitutes a preferred embodiment.

A grain is deposited on a copper or similar roll by spraying thereon asphaltum or equivalent material, and a plain, unscreened sensitized carbon print is placed over the grain to adhere thereto and is then dried. The paper backing is stripped off and the soluble gelatine washed away in the usual manner and the roll is then dried.

A second grain is now deposited on the carbon print with a gum solution of any kind, but, for example, gum mastic dissolved in turpentine to the consistency of a cream, and this is allowed to dry. On top of this second grain the second carbon print is secured, which print has been printed over a fine grained screen. This second print, of course, contains no image except that of a screen in order to provide this type of grain. It is treated in the usual manner to fix the hardened gelatine tissue properly upon the roll as in the case of the other above mentioned print.

There are thus superimposed three different grains, namely, the first grain of asphaltum, the second grain of gum solution, and a third grain consisting of the screened carbon print. These grains are securely held in place by this process and provide a thick grain so that depth and good printing qualities may be developed and a full range of tints and perfect tones may result. The grains need not be of the same qualities or degrees of fineness, so that it will be possible to obtain fine differences in the qualities of the etching by properly adjusting the nature and properties of each grain used.

It will be seen by the above described process, that the usual method of exposing the carbon negative with a screen is done away with and only a plain, unscreened print needs to be used. The multiplicity of grains provides a strong combined grain which will cause a very fine shading in tones and tints to result in final prints. The etching acid will eat more slowly through this combined print so that the results desired will be obtained. A printing surface is produced which is even and deep and possesses good and sufficient depths and clean, open, fine, and easy printing qualities. Moreover, the so-called devils or little spots formed in single grain printing are avoided by this multiple grain process. It will, therefore, be apparent that the objects of the invention have been achieved.

I claim:

1. The process of making grain etchings comprising depositing a plurality of grains on a metal printing roll on both sides of a carbon print, and then etching the printing surface.

2. The process of making grain etchings comprising depositing a plurality of grains

of different degrees of quality on a printing surface on both sides of a carbon print, and then etching the printing surface.

3. The process of making grain etchings comprising depositing a plurality of grains, including a screened carbon print, on a printing surface in conjunction with an unscreened carbon print, and then etching the printing surface.

4. The process of making grain etchings comprising depositing a plurality of grains on a printing surface on both sides of the carbon print, and then etching the printing surface.

5. The process of making grain etchings comprising depositing a grain on a printing surface, positioning an unscreened carbon print over said grain and depositing another grain over said carbon print, and then etching the printing surface.

6. The process of making grain etchings comprising depositing a grain on a printing surface, positioning an unscreened carbon print over said grain, depositing a number of grains over said carbon print including a screened carbon print, and then etching the printing surface.

7. The process of making grain etchings comprising depositing a grain on a printed surface, positioning an unscreened carbon print over said grain, depositing a second grain on the print, placing a screened carbon print over said second grain, and then etching the printing surface.

8. The process of making grain etchings comprising depositing a grain on a printing surface, transferring an unscreened carbon print over the first grain, soaking and stripping off the paper backing and drying the print, depositing a second grain on the print and drying it, placing another carbon print which has been printed over a fine grained screen in position over the above mentioned print, soaking and stripping off the paper, drying the printing surface, and then etching it.

9. The process of making grain etchings comprising depositing a grain by spraying on a copper roll, transferring an unscreened carbon print over the first grain, soaking and stripping off the paper backing and drying the print, depositing a second grain of gum solution on the print and drying it, placing another carbon print which has been printed over a fine grained screen in position over the above mentioned print, soaking and stripping off the paper, drying the roll, and then etching it.

In testimony that I claim the foregoing, I have hereunto set my hand this 11th day of February, 1921.

CHARLES W. SAALBURG.