HALFTONE PLATE AND PROCESS OF PRODUCING SAME

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Fig. 1.

Glass

Fig. 2.

Copper
Glass

Fig. 3.

Sensitized Emulsion
Copper
Glass

Fig. 4.

Exposed + Fixed Surface
Copper
Glass

Fig. 5.

Exposed + Fixed Surface
Copper (etched)
Glass

Fig. 6.

Surface Corrected for Tone + Color
Copper (etched)
Glass

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By his Attorney
To all whom it may concern:

Be it known that I, Ellis Bassist, a citizen of Hungary, and a resident of Westwood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Halftone Plates and Processes of Producing Same, of which the following is a specification.

The invention relates to the art of preparing a negative (positive) plate for use in making lithographic printing plates, and to the novel negative or positive produced thereby. It has for its object to simplify the procedure now in common use and to greatly reduce the number of steps now required in the preparation of a negative of this character.

A further object of the invention consists in a novel form of halftone negative or positive plate, which is finished as to tone and color values and is suitable for making directly therefrom the zinc or aluminum printing plate used in lithographic printing.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings which are diagrammatic views illustrating the invention, and in which—

Fig. 1 represents a transparent base upon which a photographic reproduction is to be provided.

Fig. 2 represents the said base with a covering of opaque material provided thereon.

Fig. 3 represents a similar view, but in which said covering has been coated with a sensitized emulsion.

Fig. 4 represents the reproduction after exposure and fixing.

Fig. 5 is a similar view after the preliminary etching operation.

Fig. 6 represents the negative in its final form, ready for use in making a lithographic printing plate therefrom.

Similar characters of reference designate corresponding parts throughout the several views.

Referring to the drawings, 10 designates a suitable transparent base, preferably of glass; but which may consist of a film of any suitable material as gelatine or celluloid, or paper or other material in the nature of a plate and transparent. This plate is provided on one surface with a thin opaque covering 11 of copper, zinc or other suitable material which may be deposited thereon, for example by electrochemical means, or as a sheet thereof glued thereto. Over same is provided a thin coating 12, (Fig. 3) of a sensitized emulsion such as the dichromate glue solution commonly employed by photo-engravers. To this end, the surface 11 is carefully cleaned and a sensitized emulsion, for example composed of fish glue, chromic acid, water and ammonium bichromate, flowed uniformly thereover and allowed to dry thereon.

In accordance with the invention, the plate thus prepared is exposed to light, face to face with a suitable halftone positive (negative), then bathed in cold water and washed with spray of water. This results in the dissolution and removal of the unexposed portions of those areas of the sensitized emulsion on the plate which were under the dark areas of the positive during exposure. The remaining portions 13, (Fig. 4) are fixed thereby, and are allowed to dry and harden. The fixed portions 13 are then subjected to heat to inultrate the field, as by burning in with gas flame to carbonize the fixed glue solution and make it thoroughly resistant to the etching solution subsequently applied. When a base of inflammable material is employed, a cold treatment may be applied for this purpose.

The plate is then etched, as by bathing in any well-known etching solution, which will cut thru to the transparent base 10 and outline the design on the transparent bed or support. The plate may then be subjected to further operations, including etching and re-etching to correct the same, by staining, as to tone and color values, as is well understood in the art. The operations may be repeated, if required, a suitable acid resisting substance, such as asphaltum varnish being applied to the finished portions.

In this manner, a finished negative of a positive, Fig. 6, or the reverse as the case may be, is secured and which is suitable for direct reproduction upon a zinc or aluminum plate and out of which the final lithographic printing plates are made in manner well understood. Thereby, a number of steps of an intricate and highly technical nature, as well as a number of plates, are eliminated and a very satisfactory re-etched or color corrected halftone negative obtained.
I claim:—

1. The process of preparing a plate for use in making lithographic printing plates, which consists in covering a base of transparent material with an opaque substance, sensitizing the surface of said covering, exposing the sensitized surface to light thru the object to be reproduced and fixing the exposed portion, removing the portions of the opaque coating under the unexposed portion and correcting for the desired tone and color values.

2. The process of preparing a plate for use in making lithographic printing plates, which consists in coating a base of glass with an opaque substance, sensitizing the surface of said covering, exposing said surface to light thru the object to be reproduced and fixing the exposed portion, etching away the opaque covering at the unexposed portion, and correcting the plate for tone and color values.

3. The process of preparing a plate for use in making lithographic printing plates, which consists in covering a base of transparent material with metal, sensitizing the surface of said metal, exposing said sensitized surface to light thru the object to be reproduced and fixing the exposed portion, etching away the metal at the exposed portion, and correcting the plate for tone and color values.

4. The process of preparing a plate for use in making lithographic printing plates, which consists in covering a base of glass with metal, sensitizing the surface of the metal, exposing said sensitized surface to light thru the object to be reproduced and fixing the exposed portion, indurating same, etching away the metal at the unexposed portion, and correcting the plate for tone and color values.

5. A finished halftone plate for use in making directly therefrom lithographic printing plates, comprising a transparent base, and an etched, opaque, metallic covering with exposed and tone and color value corrected photographic surface, portions of the metallic covering being absent to outline the design to be reproduced.

Signed at New York, in the county of New York and State of New York, this 10th day of February, A. D. 1922.

ELLIS BASSIST