No. 761,887. PATENTED JUNE 7, 1904.

J. JACOBSON.

METHOD OF PHOTOGRAPHICALLY PRODUCING PLATES.

APPLICATION FILED NOV. 23, 1901.

NO MODEL.

Fig. 1.

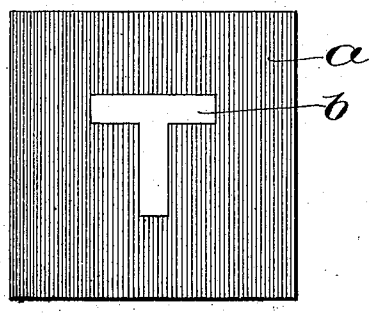


Fig. 2.

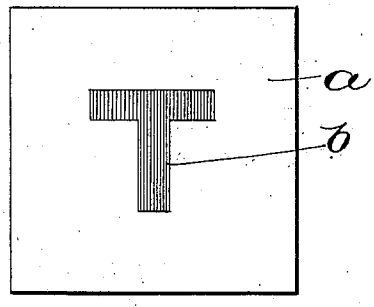
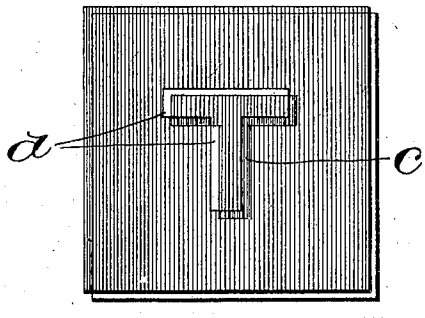


Fig. 3.



Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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UNITED STATES PATENT OFFICE.

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METHOD OF PHOTOGRAPHICALLY PRODUCING PLATES.

SPECIFICATION forming part of Letters Patent No. 761,887, dated June 7, 1904.

Application filed November 23, 1901. Serial No. 83,478. (No model.)

To all whom it may concern:

Be it known that I, JOHN JACOBSON, of New York, county of New York, and State of New York, have invented an Improvement in Methods of Photographically Producing Plates, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a method of producing photographically plates for printing or otherwise reproducing designs—such as letters, &c.—with relief effects, and is mainly intended for the production of plates for printing advertising matter, letter-heads, &c., although the same process may obviously be employed to obtain artistic effects for other purposes. To illustrate the invention, however, the process will be shown as applied to reproducing a plate from a pattern or original containing, for example, a plain block letter, the object being to produce a plate which will print or otherwise reproduce a letter having a shaded effect giving the appearance of high relief.

In carrying out the process a sensitized plate is first exposed to obtain a negative of the design or letter which is to be reproduced, and without intensifying the plate after exposure another plate is printed therefrom by contact exposure, the second plate being a positive of the object to be reproduced. The plates not being intensified, the dark parts will not be wholly opaque so as completly to obscure the light, so that if after the two plates have been produced and developed they are placed one over the other so as to register the two combined will obstruct the passage of light to an equal extent throughout, but will let enough light through to produce a neutral tint. If, on the other hand, the two plates are arranged so as to be slightly out of register with each other, it is obvious that more light will be obscured where the semi-opaque portions overlie each other and less light will be obscured where there is only one semi-opaque portion for the light to pass through, while practically no light is obscured where the transparent portions overlie each other. If from the two plates matched in this way a third plate is made and developed, it is obvious that a print from the third plate will show a reproduction of the design in which the main portion of the reproduction and the background will be of the same neutral tint, while the borders of the outline will be darker or lighter in parts than the said neutral tint, according to the position of the original plates.

Figure 1 is a view of a negative taken, for example, from a reproduction of the letter **T** in block letter. Fig. 2 is a representation of a positive plate taken by printing from the plate shown in Fig. 1. Fig. 3 is a view of the two plates combined for the purpose of obtaining the plate which is to be used as the result of the process.

Assuming that the plate shown in Fig. 1 has been exposed and developed, without, however, being intensified, it will be seen that the part *a*, which has been affected by the light, will be semi-opaque, while the part *b*, which corresponds to the black or solid part of the design reproduced, will be transparent. In the positive, which has been taken from the plate as indicated in Fig. 2, the reverse will be true and the part *b* will be semi-opaque, while the part *a* is transparent. If, therefore, the said plates are superimposed so as to match, it is obvious that the entire extent of such matched plate will be semi-opaque, the semi-opaque part of one overlying the transparent part of the other. If, however, the said plates are mismatched, as shown in Fig. 3, it is obvious that at the parts *c*, for example, the semi-opaque portions of both plates will overlap, thus obscuring a greater amount of light, while at the parts *d* the transparent portions of the plate will overlap, thus obscuring no light. If, therefore, from a combined plate made of the positive and negative superimposed, as shown, a third plate is taken, it is obvious that the said third plate will show a background of a neutral tint, the body of the design in the same neutral tint, and a light tint along one or more sides of the design and a darker tint along the corresponding opposite sides thereof. If, therefore, a reproduction is made from the said finished plate by any

suitable photographic process, such as the half-tone process, the design will be reproduced with a shaded outline which gives the desired relief effect. As a further step in the process, in order to obtain a more rounded effect one of the plates can be gradually shifted with relation to the other during exposure, the two plates, for example, being exactly matched when first placed over the plate which is to be produced, and then while exposed to the light one of the said plates can be moved with relation to the other until, for example, the two plates are positioned as indicated in Fig. 3. In this way it is obvious that the outer edges of the design will receive a longer exposure, the result being that the outline which affords a contrast with the body of the design and the background will be shaded, thus giving a softer and more rounded effect to the reproduction from the finished plate. To obtain an intaglio effect, it is necessary only that the direction of shifting should be reversed, it being practicable, of course, to mismatch the plates in any way suitable for obtaining such light-and-shadow effect as may be desired.

I claim—

That improvement in the art or method of producing a photographic plate which consists in first producing a negative; then producing therefrom a positive; superimposing said negative and positive so as to match the outlines of the design; exposing a third plate to light transmitted through said superimposed positive and negative; and gradually shifting the position of one of the said plates relative to the other during such exposure to mismatch the outlines of the design, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN JACOBSON.

Witnesses:

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HELEN HEROLD.