

UNITED STATES PATENT OFFICE.

CHARLES THOMAS IAGO, OF 55 RIVERSDALE ROAD, Highbury, COUNTY OF MIDDLESEX, ENGLAND.

PROCESS OF PHOTO-ENGRAVING.

SPECIFICATION forming part of Letters Patent No. 339,423, dated April 6, 1886.

Application filed March 11, 1885. Serial No. 158,454. (No specimens.) Patented in England October 15, 1884, No. 13,640; in France February 19, 1885, No. 167,159, and in Belgium February 21, 1885, No. 67,970.

To all whom it may concern:

Be it known that I, CHARLES THOMAS IAGO, of 55 Riversdale Road, Highbury, in the county of Middlesex, England, wood-engraver, have invented a new and useful Improvement in Process of Engraving, of which the following is a full, clear, and exact description.

The invention has been patented in the following countries: in England October 15, 1884, No. 13,640; in France February 19, 1885, No. 167,159, and in Belgium February 21, 1885, No. 67,970.

My invention relates to an improved process having for its object the ultimate production (by any known methods) of relief-blocks for surface-printing from paintings or drawings, (whether executed with the brush, pencil, or pen,) whereby the touch of the artist may be more faithfully reproduced, and all the refinement, delicacy, and other effects of a steel or copper plate may be obtained at a cost less than that of ordinary wood-engraving, and with a less expenditure of time and artistic skill.

The process consists, essentially, in first engraving the subject upon wood in the reverse way to an ordinary wood-engraving—that is to say, in intaglio, in the manner of a steel or copper plate engraving—and then obtaining a photographic negative, either directly from the wood-engraving (after preparing it in such a way as to produce the necessary contrast of color for photographic purposes) or indirectly by taking an impression from the wood-engraving (or from an electrotpe reproduction of the same) either by surface-printing or by printing in the manner of a copper-plate, and then photographing such impression, the relief-block being in either case subsequently obtained from the photographic negative by any of the usual methods of producing such blocks from photographic negatives; or, instead of a photographic negative, I may produce a mechanical negative by taking a transfer-impression by surface-printing and transferring the same to a varnished plate of glass; or, I may obtain a transfer-impression from the engraving by printing from it (or from an electrotpe reproduction of the same) in the

manner of a copper-plate, the impression so obtained being then transferred directly to zinc.

I will describe the various methods in the order mentioned, the first or direct photographic process being the one preferred. In any case the subject is either drawn on, transferred to, or photographed onto the wood block in the usual way, and the subject is then engraved in intaglio in the manner of a steel or copper plate, all the lines being cut out and the whites left standing, washes and other broad effects in the original subject being translated by line or other tints in a manner well understood by engravers.

To enable the engraver to judge of the effect of his work as it progresses, a little powdered charcoal may be rubbed into the lines.

For the purpose of photographing direct from the block, the lines of the engraving and the surface of the block would be respectively prepared by partially filling, or by staining the former and rolling up the latter, so as to produce the necessary contrast for the purpose of photography. By preference I first roll the surface up with white ink and then stain the lines with a black—such as ebony-stain used for staining wood.

From the negative obtained by photographing directly the engraved and prepared block a relief-block for surface-printing is obtained by any of the usual methods of obtaining relief-printing blocks from photographic negatives, which it is unnecessary to describe.

For photographing indirectly from the wood-engraving, I may either print from the wood block (or from an electrotpe reproduction of the same) in the manner of a copper-plate, the impression being then photographed and a relief block obtained from the negative by the usual method; or I may roll up the surface of the wood block and take a surface-print in white lines on black ground, photograph the print, and from the negative produce a reverse negative, which would then be similar to and used in the same way as the negatives above referred to for producing the relief-block.

To make a mechanical negative, I roll up the surface of the wood block with transfer-

ink and take an impression on transfer-paper, which I transfer to a plate of glass varnished with ordinary transparent varnish used by photographers, this mechanical negative being used in the same way as a photographic negative for the production of relief-blocks by any known method.

In carrying out the direct-transfer method, the lines of the wood-engraving (or preferably the lines of an electrotpe reproduction of the wood-engraving) are filled with transfer-ink, the surface cleaned off, and the wood block or the electrotpe (as the case may be) printed from, as from a plate, the impression being taken on transfer-paper and transferred to zinc, which is then bitten up or engraved by chemical action in the ordinary way.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The process of producing relief-blocks for surface-printing, which consists in first engraving the subject on wood in intaglio (*i. e.*, in the manner of a copper-plate) and then producing the necessary contrast of color between the lines and the surface of the block, as described, then photographing direct from the block so prepared, and producing the relief-block from the photographic negative by any known photochemical or other method, substantially as specified.

2. The process of producing relief-blocks for surface-printing, which consists in first engraving the subject on wood in intaglio (*i. e.*, in the manner of a copper-plate) and then taking an impression, in the manner of a copper-plate, from the lines of the wood-engraving (or from an electrotpe reproduction of the same) and photographing the impression and producing the relief-block from the negative by any known photochemical or other method, substantially as specified.

3. The process of producing relief-blocks for surface-printing, which consists in first engraving the subject on wood in intaglio (*i. e.*, in the manner of a copper-plate) and taking a surface-print from the wood block, photographing such print, obtaining a reversed negative, and producing the relief-block from such negative by any known photochemical method, substantially as specified.

4. The process of producing relief-blocks for surface-printing, which consists in first engraving the subject on wood in intaglio (*i. e.*, in the manner of a copper-plate) and taking a transfer-print by surface-printing from the wood block, transferring the same to varnished glass, and using the mechanical negative thus produced in the same way as a photographic negative for producing a relief-block by any known photochemical method, substantially as specified.

5. The process of producing relief-blocks for surface-printing, which consists in first engraving the subject on wood in intaglio, (*i. e.*, in the manner of a copper-plate,) taking an impression in transfer-ink from the wood-engraving (or from an electrotpe reproduction of the wood-engraving) by the copper-plate-printing process, transferring the impression to zinc, and engraving the zinc by chemical action in the ordinary way.

The foregoing specification of my improved process of engraving signed by me this 21st day of February, 1885.

CHARLES THOMAS IAGO.

Witnesses:

I. W. KENNARD,
53 Chancery Lane, Clerk.

E. W. HUGGINS,
53 Chancery Lane, Clerk to A. M. and Wm. Clark, Patent Agents.