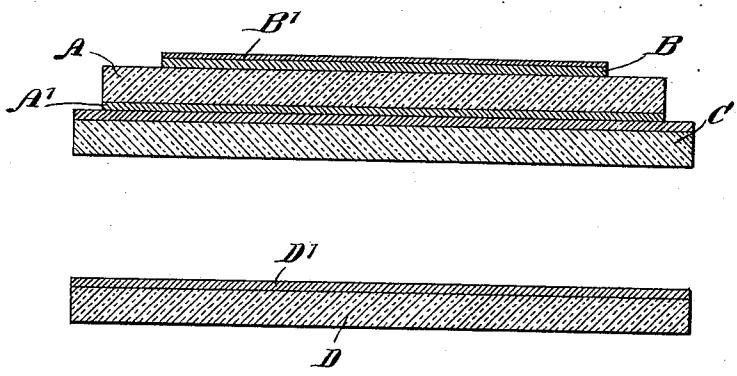
No. 687,107. Patented Nov. 19, 1901.

M. R. D'ASAR.

METHOD OF PRODUCING PLASTIC ARTICLES BY THE AID OF PHOTOGRAPHY.

(Application filed Feb. 18, 1901.)

(No Model.)



WITNESSES:

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MARIO RUSSO D'ASAR, OF GENOA, ITALY, ASSIGNOR TO JOHANNES ZELTNER-DIETZ, OF NUREMBERG, GERMANY.

METHOD OF PRODUCING PLASTIC ARTICLES BY THE AID OF PHOTOGRAPHY.

SPECIFICATION forming part of Letters Patent No. 687,107, dated November 19, 1901.

Application filed February 18, 1901. Serial No. 47,791. (No specimens.)

To all whom it may concern:

Be it known that I, MARIO RUSSO D'ASAR, a subject of the King of Italy, and a resident of Genoa, Italy, have invented a new and Improved Method of Producing Plastic Articles by the Aid of Photography, of which the following is a full, clear, and exact description.

My invention relates to the production of reliefs or intaglios by the aid of photography, and has for its object to provide a method yielding satisfactory results with greater certainty and rapidity than the methods in general use at present.

The invention will be fully described hereinafter and the features of novelty pointed out in the appended claims.

Reference is to be had to the accompanying drawing, which shows in cross-section the different plates or films employed in my process.

Briefly described, the method consists in first making a photographic negative and a transparent positive of the picture or other article it is desired to produce plastically, then putting this positive and negative or portions thereof together, with their details in registry and with the sensitized surfaces at a slight distance from each other, exposing a light-sensitive plate or medium to light passed through said combined positive and negative, developing and fixing said plate and using it for the exposure of a plate sensitized with bichromated gelatin, this plate upon development in water yielding an uneven surface from which a plaster cast or the like may be made, said cast then serving for the reproduction of the relief or intaglio.

In detail I proceed as follows: I first make a negative A, and from this a positive B, of the picture or article to be reproduced. The positive and negative should be of about the same density or strength. These two plates or portions thereof are brought together with the details in perfect registry and with the sensitized layers or films A′ B′ at a distance of about one-sixteenth of an inch from each other. To the light passing through the two combined plates I expose a sensitive plate C, thus obtaining (after the customary manipulation of developing and fixing) a transparent plate produced by the action of the positive and the negative. This transparent plate C is then placed upon a plate D, coated with bichromated gelatin D′, of appropriate thickness, and a print or copy is made by exposing the two plates to a strong light, either natural or artificial. After sufficient exposure the bichromated plate is laid in water, causing the parts of the sensitized coating to dissolve more or less, according to the smaller and greater action of the light on them, as is well known. An uneven or embossed surface is thus obtained, this surface being a faithful plastic reproduction of the original. This surface is then hardened by means of a solution of ferrous sulfate, ($FeSO_4$,) and a cast or matrix is made from the hardened plate, plaster-of-paris or other suitable material being used for this purpose. From this matrix a large number of copies may be made in the ordinary manner. Reproductions may also be obtained by electrodeposition, according to any one of the well-known processes.

The use of the transparent plate is of great advantage in that it allows of materially shortening the exposure of the bichromated gelatin-plate, and the result—that is, the action of the light upon the bichromated gelatin—can be ascertained in advance without difficulty and with certainty.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The herein-described method of making plastic reproductions, which consists in making a transparent positive and a transparent negative of the original article or picture, placing said positive and negative or portions thereof adjacent to each other with their details in registry, exposing a sensitive transparent plate to light passing through said combined positive and negative, developing and fixing said sensitive plate, exposing to light passing through said transparent plate, a plate coated with a sensitized layer which upon development becomes uneven or plastic, and making copies of said plastic sensitized layer after development.

2. The herein-described method of making plastic reproductions, which consists in making a transparent positive and a transparent negative of the original article or picture, placing said positive and negative or portions

thereof adjacent to each other with their details in registry, exposing a sensitive transparent plate to light passing through said combined positive and negative, developing and fixing said sensitive plate, exposing to light passing through said transparent plate, a plate coated with a layer of bichromated gelatin, dipping the last-named plate in water to produce an uneven or plastic surface owing to varying solubility of the exposed surface, and making copies of said plastic sensitized layer.

3. The herein-described method of making plastic reproductions, which consists in making a transparent positive and a transparent negative of the original article or picture, placing said positive and negative or portions thereof adjacent to each other with their details in registry, exposing a sensitive transparent plate to light passing through said combined positive and negative, developing and fixing said sensitive plate, exposing to light passing through said transparent plate, a plate coated with a sensitized layer which upon development becomes uneven or plastic, hardening said layer after development, and then making copies of said layer.

4. The herein-described method of making plastic reproductions, which consists in making a transparent positive and a transparent negative of the original article or picture, placing said positive and negative or portions thereof adjacent to each other with their details in registry, exposing a sensitive transparent plate to light passing through said combined positive and negative, developing and fixing said sensitive plate, exposing to light passing through said transparent plate, a plate coated with a sensitized layer which upon development becomes uneven or plastic, hardening said layer after development by treatment with ferrous sulfate, and then making copies of said layer.

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

MARIO RUSSO D'ASAR.

Witnesses:

ANTONIO FERRARI,

ANGELO BORAGNIO.