UNITED STATES PATENT OFFICE.

WILLIAM H. GUILLEBAUD, OF HOBOKEN, NEW JERSEY.

PROCESS OF PRODUCING PHOTO-MOLDS.

SPECIFICATION forming part of Letters Patent No. 242,412, dated May 31, 1881.

Application filed January 25, 1881. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM H. GUILLEBAUD, a citizen of Switzerland, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in the Production of Photo-Molds, of which the following is a specification.

This invention relates to certain improvements in the well-known gelatine process; and it consists in the production of photo-molds with rounded or slanting edges, whereby such molds are rendered suitable for embossing and other purposes.

In the manufacture of photo molds or types by the various gelatine and other similar processes at present in use, the chief object has been to obtain very sharp edges and details; but said sharp edges render said molds entirely unfit for the purpose of producing embossing-dies, since such dies, on account of their sharp edges, cut through the material to be embossed whenever a distinct impression is desired, and the retouching and softening of all the edges of a mold or die by an artistic hand is not practical, is incorrect, and almost as costly as the production of the entire mold or type by hand.

My invention is based on the discovery that by using diffused light and placing the picture at a certain distance from the surface of the sensitized gelatine or other analogous substance, such as albumen, from which the mold is to be produced while exposed to the light, the edges and details of the mold become rounded or slanting to a greater or less degree, according to the distance of the picture from the sensitized medium.

To properly diffuse the light I discard altogether the use of a transparent glass for the purpose of taking the required negative or positive picture, and in place of the transparent glass generally used for this purpose I use a ground glass, which is only translucent and more or less opaque according to the result desired. By these means the glass acquires the property to diffuse the light, and if a stronger diffusion is desired, the glass may be ground on both sides, and for sun or strong light exposures a milky glass can be used with very good results. The diffusion of light will be the greater the nearer the diffusing-surface is brought to the picture.

The photo-negative or positive picture, after having been produced upon or transferred to the ground glass, is varnished, as usual, with a coat of thin varnish, which leaves the face of the picture visible. After this has been accomplished, the sensitized gelatine or analogous substance is adjusted at a suitable distance from the picture; but since diffused light will at too great a distance give a blurred and indistinct mold, some experience is required in order to judge how far apart the gelatine or other medium must be placed from the face of the picture in order to produce a distinct mold with the requisite roundness of the edges. If the light is much diffused, about one-sixteenth of an inch will be the limit at which the gelatine or other medium must be placed from the face of the picture in order to produce a clear mold representing all the details. For very diffused light I separate the face of the picture from the gelatine or other medium by applying to the picture one or more coats of thick copal or shellac varnish, clear and white. If greater distance is required, I interpose between the face of the picture and the gelatine or other medium a sheet of insoluble gelatine or collodion, of more or less thickness; or if the distance is to be still greater, I use a sheet of clear mica or a pane of glass of the required thickness.

After the sheet of gelatine or other medium has been adjusted in the proper relation to the picture, the exposure takes place in the usual manner, the light being thrown through the ground glass and the picture fixed thereon upon the gelatine; then the sheet of gelatine is exposed to action of water in any of the methods well known by the term "gelatine process."

By these means a mold is obtained with rounded edges, and from this mold I obtain, by well-known processes, counter-molds in plaster-of-paris and beeswax or any other suitable material, and by electrotype or stereotype processes I obtain from the counter-mold of wax a metal mold, die, or plate, which can be used for embossing, molding, pressing, and in various other ways.

One great advantage is also gained by my

process when using liquid or only jellied or set gelatine—viz., the gelatine not being in direct contact with the picture, can be readily removed after exposure without destroying the picture, so that if an exposure is not satisfactory, another can be had at once from the same picture.

When the gelatine is separated from the picture by a film or layer of copal or shellac varnish covering the picture, it can be removed simply by passing a thin, flat steel blade between it and the film of varnish without injuring the picture, and a number of molds may be produced from one and the same picture.

I do not claim as my invention the interposition of any transparent medium or mat between the negative-film and the printing-surface during the process of printing photographs; neither do I claim, broadly, as my invention, the use of diffused light in the process of printing photographic pictures, my invention being based simply on the action of diffused light on such mediums as bichromated gelatine, which when kept in the dark are soluble in water, but when exposed to the light become insoluble.

What I claim as new, and desire to secure by Letters Patent, is—

1. The within-described process for producing photo-molds, which consists in transferring the picture to a pane of ground or translucent glass, then applying thereto a sheet or layer of sensitized gelatine or analogous substance, then exposing the gelatine to diffused light through the ground or translucent glass, and then exposing the gelatine to the action of water, substantially as set forth.

2. The within-described process for producing photo-molds, which consists in transferring the picture to a pane of ground or translucent glass, then adjusting a sheet or layer of sensitized gelatine or analogous substance at a suitable distance from the picture, then exposing the whole to the action of light, and finally treating the sheet or layer of gelatine with water, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

W. H. GUILLEBAUD. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.