

# UNITED STATES PATENT OFFICE,

JACOB ENGELHARDT, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS  
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## PROCESS OF MAKING PRINTING-PLATES.

No. 801,140.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, JACOB ENGELHARDT, a subject of the King of Prussia, German Emperor, residing in the borough of Manhattan, city and State of New York, have invented new and useful Improvements in Processes of Making Printing-Plates, of which the following is a specification.

The object of my invention is to provide certain new and useful improvements in the production of printing-plates for reproducing pictures, prints, and similar work, whereby the cost in producing such plates is vastly reduced and an entirely new result is obtained. In order that my invention may be fully understood, it will be necessary for me to previously explain the methods of producing printing-plates heretofore by hand and by the light process. By the light process the so-called "half-tone" plates were produced, and to make such a plate the plate or stone was first rendered sensitive by applying a coating of sensitive asphaltum upon the stone. For applying the asphaltum in the usual manner it was dissolved in chloroform, benzin, ether, &c., and floated on the plate, and a screen-plate was then placed between the negative and the prepared surface of the stone and the same exposed to light, and wherever the light acted on the asphaltum the solubility of the latter was destroyed, and of course as the light had to pass through the screen the surface of the plate was completely covered with small dots. The plate was then washed with turpentine, the soluble parts remaining. The plate was then etched, and of course the etching-fluid had no effect wherever the asphaltum remained. The plate obtained was a so-called "half-tone" plate and produced dots throughout its surface on the parts that were to print practically white, as well as on the parts to print deeper tints.

Plates are also made by hand and are known as "stipple-plates," in which lithographic ink is applied by a skilled artist direct on the stone by means of a pen. The stipple-plates do not have any dots on the parts that are to be printed white, as in a half-tone plate, and as the shades deepen the number and size of the dots increase.

In producing a printing-plate according to my new and improved method the plate or stone is first ground off and cleaned and pol-

ished to a high degree, and it is then provided with an extremely fine grain on its surface in any suitable manner. I now apply a layer of dissolved sensitized asphaltum by means of a gelatin roller. The asphaltum dissolved in fatty oils or etheric oils cannot be used, because when dissolved in fatty oil the asphaltum dries slowly and spreads to such a degree that all the interstices of the grain in the plate are filled and the etheric oils are so volatile that they render uniform spreading impossible. It is most essential, however, that such spreading should be absolutely uniform. By dissolving the asphaltum in nitrobenzene it can be spread uniformly upon the grained surface by means of a roller and without filling the grain. This plate is then exposed to light through a negative, the light passing directly to the sensitive plate without the use of a screen-plate. Wherever the light strikes the asphaltum on the plate, the solubility of the asphaltum is destroyed, as usual, and where no light strikes it it remains soluble. When the asphaltum is dry, the soluble parts are washed off with turpentine and then the plate is etched, and a stipple-plate is thus obtained by the photographic-light process in contradistinction to a half-tone plate, as described above.

My improved plate has a grain, as stated, and as the dissolved asphaltum does not fill up and close the interstices between the grain when dissolved in nitrobenzene it can be easily removed by washing the plate with turpentine. If, on the other hand, the asphaltum is floated on, as on half-tone plates, and not applied by means of a gelatin roller, all the interstices of the grain are filled, and exposing the sensitive film to light through a negative without the use of a screen would not produce a printing-plate that could be used.

In order to produce a grain-plate direct from the negative, the dissolved asphaltum must be applied by means of a roller, and so far I have found that only when dissolved in nitrobenzene can the asphaltum be applied by means of a roller.

I thus produce by the light process a plate which is as clearly distinguished from the half-tone plate made by means of a screen as the hand stipple-plate is distinguished from such half-tone plates.

Having described my invention, what I

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

5 The process of producing printing-plates from negatives by the action of light, consisting in rolling a substance sensitive to light upon the grained surface of a plate, whereby the sensitized coating is applied merely to the high portions of the grain in such a manner as not to fill the interstices and the depressed  
10 portions subjecting the layer of sensitized substance which has thus been transferred upon

the plate, to light, directly through a negative, removing the soluble sensitized substance from the plate after the exposure to light, and then etching the plate, substantially as set forth. 15

In testimony whereof I affix my signature.

JACOB ENGELHARDT.

In presence of—

BENJAMIN WOLFF,  
ARTHUR LANDAUER.