E. B. Larcher.

Intagliotype Plate.

No. 48290. Patented Jun. 20. 1865.

Fig: 1 Fig: 2

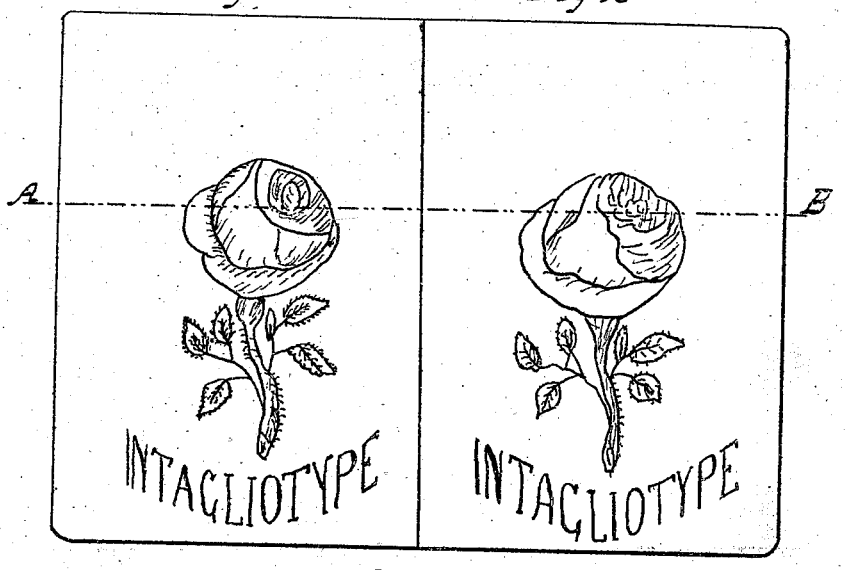

Fig: 3

Metal Plate Sectional View at A B

Witnesses

Geo. F. Haywood

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EDWIN B. LARCHAR, OF NEW YORK, N. Y.

IMPROVEMENT IN INTAGLIOTYPE PLATES.

Specification forming part of Letters Patent No. **48,290**, dated June 20, 1865; antedated April 5, 1865.

To all whom it may concern:

Be it known that I, EDWIN B. LARCHAR, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Intagliotype Plates, my improvements consisting in the said plates as a new article of manufacture, when manufactured in the mode hereinafter described, and in the method of treating the same after they are manufactured, so that designs may be drawn upon the same, and in the mode of enabling the same to be duplicated in metallic castings, of which the following is a specification.

One advantage of my invention is that I am enabled thereby to make metallic plates having upon them designs in intaglio, which plates can be used for embossing and printing on paper, cloth, leather, fibrous materials, and other substances, such plates containing such designs being formed by casting, thereby dispensing with the manual labor of engraving the designs on the metallic plates.

Another advantage of my invention is, that the most delicate intaglio designs, and lines can be reproduced and cast in metal with accuracy and facility.

Having thus stated the general nature and object of my inventions, I proceed to state the methods in which I have practiced the same, premising that I state the best methods known to me, but that I do not mean to limit myself to those methods narrowly, but to include the use of all methods that are substantially equivalent to those which I describe.

I take a metallic plate, of zinc, copper, iron or other suitable metal, and of any desirable size, and of the thickness of, say, one-thirty-second of an inch. I cover that plate with a coating of the saturated solution of sulphate of copper, commonly called "blue vitriol," the saturated solution being made by dissolving in water that substance as known in commerce. The solution is applied to the plate by means of a brush. On this wet surface I then sift oxide of zinc in the shape of the flour of zinc, to the depth of, say, half an inch. Instead of the saturated solution of sulphate of copper the saturated solution of any equivalent substance may be used, and the oxide of iron or the oxide of lead, or any other equivalent substance, may be used instead of the oxide of zinc. The thickness of the layer of sifted oxide is to be such as to leave such layer, after it has been subjected to the hydraulic pressure hereinafter mentioned, of the average thickness over the surface of the plate of, say, one thirty-second of an inch. I then subject the plate having the sifted oxide upon it to hydraulic or other severe pressure to a sufficient extent and for a sufficient length of time to harden the oxide and compact it, and leave it as nearly as may be of an uniform thickness over the surface of the plate, and so that the plate, with the hardened oxide upon it, may be handled without danger of the oxide being removed, and so that the coating of oxide may be subjected to the process hereinafter mentioned. I then draw or paint upon the hardened surface of the oxide with a brush or other suitable instrument any desired design with an ink or pigment made of olive oil or any other suitable oleaginous substance and any coloring substance, the object of the coloring substance being merely to form a contrast with the surface of the oxide, so as to enable the eye of the operator to draw with accuracy and distinctness. The use of the oil or oleaginous matter is indicated hereinafter. I then spread over the entire surface of the oxide a liquid solution of the sulphate of copper or any other liquid substance that will harden or indurate or coat the exposed surface of the oxide—that is, all the surface except so much of it as has been touched with the oleaginous ink or pigment—the effect of the oil in the ink or pigment being to repel the coating substance, and thus prevent its coating the part that has been touched with the oleaginous ink or pigment. In this condition the plate presents the appearance represented by Figure 1 of the annexed drawings. As the portion of the oxide which has been touched by the oleaginous ink or pigment is not hardened like the rest by the coating-solution, I then take a suitable brush and by brushing over the place where the drawing is made the oxide which was touched by the oleaginous ink or pigment, and was thus protected from being coated by the coating-solution, will be removed by the brushing and brushed out to any desired extent pro-

portionate to the violence and duration of the brushing. When the brushing ceases the drawing will be left sunken in the oxide, and forming in it an intagliotype, or a drawing hollowed out, in contradistinction to a raised design. I then apply the hardening or coating solution last referred to to this intagliotype, and the oleaginous ink or pigment having been removed by the brushing, the exposed surfaces of the oxide which form the recesses of the drawing will then be hardened as the portions were which were not touched by the oleaginous ink or pigment. In this condition the plate, with the drawing, is in the state represented by Fig. 2 of the annexed drawings. In this condition it can be duplicated or multiplied in metal by stereotyping or electrotyping or any other mode of casting, so as to emboss or print from such casting, as an intagliotype, upon paper, cloth, leather, fibrous materials, and other substances, as distinguished from printing upon them from a raised design.

In the drawings hereto annexed, Figs. 1 and 2 are a representation of the plate in the different stages of the process, as described; and Fig. 3 is a sectional view of the same, taken at the line A B of Figs. 1 and 2.

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

1. The metallic plate with the hardened coating of oxide upon it, made substantially in the manner described, as a new article of manufacture.

2. The use of the oleaginous ink or pigment in drawing a design on the surface of the oxide, so as to protect the part drawn upon from being coated by the coating solution afterward applied.

EDWIN B. LARCHAR.

Witnesses:
GEO. F. HAYWOOD,
JOSEPH GUTMAN, Jr.