UNITED STATES PATENT OFFICE.

JOSEPH SCHEDLER, OF JERSEY CITY HEIGHTS, NEW JERSEY.

IMPROVEMENT IN METHODS OF MAKING CRYSTALLOTYPES.

Specification forming part of Letters Patent No. **209,521**, dated October 29, 1878; application filed August 24, 1878.

To all whom it may concern:

Be it known that I, JOSEPH SCHEDLER, of Jersey City Heights, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Crystallotype Prints, which invention is fully set forth in the following specification.

This invention consists in a crystallotype print representing a layer of crystals spread over a flat surface; also, in the process of producing a crystallotype by spreading a compound made of a concentrated solution of a suitable salt—such as sulphate of magnesia, acetate of soda, sulphate of zinc—and of gum-arabic, dextrine or other adhesive substance over the surface of a flat metallic plate, from which coated plate, when dry, an electrotype is taken, the surface of which electrotype is rendered fit for printing by spreading over it a protecting layer of asphaltum or other suitable material, then removing such layer from the low portions of the electrotype and adding thereon a fresh deposit of copper, such process being repeated, if necessary, until the entire surface of electrotype-plate becomes fit for printing therefrom on paper or other material.

Attempts have been made to produce crystallotypes by spreading on the surface of a metal plate a solution of sulphate of magnesia or other crystallizable salt, then taking an electrotype forming a counterpart of the crystals deposited on the metal plate, and finally printing from this electrotype. Such attempts have failed, because the deposit of crystals on the metal plate forms high and low places, which are reversed in the electrotype, so that no perfect print can be obtained, since the low places in the electrotype do not appear on the print.

This difficulty I have overcome by covering the surface of the electrotype with a thin protecting layer of asphaltum or other equivalent material, then removing such protecting layer from the low places of the electrotype, and finally adding a fresh deposit of copper, which will adhere to such parts only from which the protecting layer has been removed. This process is then repeated, if necessary, until the surface of the electrotype becomes level and fit to produce a perfect print.

In removing the protecting layer of asphaltum from the low places of the electrotype great care must be taken not to disturb the configuration of the original deposit of crystals, which can easily be done by scraping on the low places of the electrotype only just enough to remove the protecting layer from the upper surfaces or edges of the original configurations produced by the crystals, so that by the fresh deposit of copper such surfaces or edges are raised without changing their contours.

The low places of the electrotype can readily be detected by a magnifying-glass or by taking from such electrotype an impression, and when the surface of the electrotype has been finally prepared to present a uniform printing-surface it produces perfect impressions, showing fac-similes of the crystals originally deposited on the metal plate.

The principal advantage of my invention is that by its use bank-bills, checks, bonds, and other documents of value are rendered absolutely safe against fraudulent alterations or imitations.

My electrotype can also be used with advantage for the manufacture of fancy papers in various colors.

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

The within-described process of producing a level-surfaced crystallotype by spreading on a metal plate a layer of a compound made of a concentrated solution of sulphate of magnesia or other suitable salt and of gum-arabic or other suitable adhesive substance, leaving this layer to dry, then taking an electrotype, and rendering the surface of this electrotype fit for printing by spreading over it a protecting layer of asphaltum or other suitable material, then removing such layer from the low portions of said electrotype and adding thereon a fresh deposit of copper, such process being repeated, if necessary, until the entire surface of the electrotype becomes fit for printing therefrom on paper or other material.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 20th day of August, 1878.

JOS. SCHEDLER. [L. S.]

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