UNITED STATES PATENT OFFICE.

NATHANIEL S. KEITH, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SOLUTIONS FOR ELECTROLYSIS OF LEAD.

Specification forming part of Letters Patent No. **215,463**, dated May 20, 1879; application filed July 17, 1878.

To all whom it may concern:

Be it known that I, NATHANIEL SHEPARD KEITH, of Brooklyn, in the State of New York, have invented a new and useful Improvement in Solutions for the Electrolysis of Lead, of which the following is a specification.

My improvement consists in making additions to solutions of lead salts of others salts, which increase their electric conductivity.

The solutions heretofore used in the electrolysis of lead are poor conductors of electricity.

To overcome this defect, and to make other lead salts available for electrolysis, I add to solutions of lead salts—notably those of the acetate, chloride, hyposulphite, nitrate, and sulphate of lead, varying proportions of either—one or more of the following-named salts: acetate, chloride, nitrate, or hyposulphite of aluminum, ammonium, barium, calcium, magnesium, potassium, sodium, strontium, or zinc; or the method herein mentioned may be reversed—*i. e.*, to the solutions of the last-named salts the dry lead salts may be added. As the metals of these salts are all electro-positive to lead, properly regulated electricity causes no deposition of metals other than lead. Of course, this is a necessity in electrolytic solutions for the exclusive electrolysis of lead. Small quantities of any of these salts of the electro-positive metals increase the conductivity of solutions; but the greatest conductivity is gained by adding the salts to near saturation.

I do not limit my invention to definite quantities.

I claim—

Electrolytic solutions composed of mixtures of one or more of the following-named salts: acetate, chloride, hyposulphite, nitrate, or sulphate of lead, or solutions of them, with one or more of the following-named salts: acetate, chloride, hyposulphite, or nitrate of aluminum, ammonium, barium, calcium, magnesium, potassium, sodium, strontium, or zinc, or solutions of them.

N. S. KEITH.

Witnesses:
JAMES H. HUNTER,
GEO. H. KEITH.