

UNITED STATES PATENT OFFICE.

LEVI L. HILL, OF HUDSON, NEW YORK.

IMPROVEMENT IN COATING METALS WITH SILVER.

Specification forming part of Letters Patent No. **17,040**, dated April 14, 1857.

To all whom it may concern:

Be it known that I, LEVI L. HILL, of the city of Hudson, county of Columbia, and State of New York, have invented a new and Improved Mode of Coating Metals with Silver; and I do hereby declare that the following is a full and exact description of the same.

The nature of my invention consists in giving to a metallic surface, especially brass, copper, German silver, britannia, iron, and steel, a surface of pure silver of any desired thickness, without the use of an amalgam or a galvanic battery, but by the simple act of rubbing the surface of the metal to be coated with a solution of silver prepared in the manner hereinafter described.

To enable others skilled in the art to use my invention, I will proceed to describe it.

I first dissolve a given quantity of silver in nitric acid and dilute the solution with several parts of water, or I dissolve a given quantity of nitrate of silver in water, and stir into either solution a sufficiency of chloride of sodium. The resulting precipitate—chloride of silver—I wash several times with water, or until there is left no trace of salt or acid, and I then add, portion-wise, a sufficiency of a strong solution of cyanide of potassium to exactly dissolve the chloride of silver. I then add an excess, preferring one-third, of the said solution of cyanide of potassium and agitate the mixture. I next add a certain quantity (preferring one-fourth, by weight, of the silver employed) of grape-sugar previously mingled with an alcoholic solution of oil of sassafras. The essence of sassafras I prepare by adding to strong alcohol

one-twentieth its volume of sassafras-oil. I prefer to use exactly one ounce of this essence to every four ounces of silver employed; but it will work in various proportions. The above mixture should be thoroughly filtered.

In bottling for use I add about one-third the bulk of the fluid of a mixture in nearly equal proportions of clay and paris-white.

For silvering brass, copper, German silver, and britannia, I simply rub the pasty liquid on the article with a brush, a piece of buckskin, or, better still, a piece of buckskin previously well rubbed with plumbago. To silver iron or steel, I cleanse and brighten the article and coat it with copper by means of rubbing upon it an acid solution of sulphate of copper. I then rinse it in water and proceed with the silvering as above. The finish should be given by thorough rinsing with water and rubbing or polishing by any of the usual methods.

I do not claim the use of cyanide of silver, for this has been used in the electrotype art, nor the use of the grape-sugar or paris-white, separately considered; but

I do claim—

The combination of cyanide of silver, grape-sugar, essence of sassafras, clay, and paris-white, or any of their equivalents respectively, substantially in the manner and for the purpose herein described.

LEVI L. HILL.

Witnesses:

ALVIN BUSHNELL,
GEORGE J. COLEMAN.