

UNITED STATES PATENT OFFICE.

DAVID RAIT, OF NEW YORK, N. Y., ASSIGNOR TO SAMUEL I. GLASSEY.

IMPROVEMENT IN PREPARING METALLIC SUBSTANCES FOR ENAMELING, JAPANING, AND INLAYING.

Specification forming part of Letters Patent No. 44,046, dated August 30, 1864.

To all whom it may concern:

Be it known that I, DAVID RAIT, of the city and county and State of New York, have invented an Improvement in the Manufacture of Enameled and Inlaid Jewelry and Ornamental Articles, of which the following is a specification.

In the preparation of metals for receiving enamels the process heretofore in use has been to make a pair of dies for the desired pattern. By means of the dies the pattern is "struck up" upon a thin plate of gold or metal desired, which elevates the portion which is intended to be seen in relief and depresses the portion which is to be covered by enamel. As the plate of gold or metal must be very thin in order well to receive the impression from the die, it is necessary to strengthen it before receiving the enamel by the addition of metal upon the inner surface. This addition is made by running or "flushing" with metal the back or under surface or by fusing enamel thereupon. The enamel is then spread upon the upper surface and fused. For goods of very fine quality the process is to engrave or stamp upon solid plates of gold the pattern desired to be enameled.

My improvement consists of cutting, by means of dies or otherwise, the pattern intended to appear in relief, leaving the vacant spaces intended to be filled with the enamel. The pattern is then to be placed in a mold of wax or other substance, which fills the interstices even with the under side or surface of the pattern. The portions of the wax exposed through the pattern are then covered with plumbago or other conductor of electricity, and the mold placed in a solution of any desired metal and subjected to the action of a galvanic battery. By this means an article to be enameled may be constructed with the pattern in relief composed of gold and the back or base of a different metal safely and securely attached thereto, without being subjected to any heat or of incurring the expense and risk attending the process of flushing or strengthening.

Another mode of operating is to strengthen the back or under surface of the article in-

tended to be enameled without the action of heat and avoiding altogether the presence of solder, thereby rendering it practicable to use thinner sheets of gold than can be used in any other way and of the cheapest possible quality, which may be adapted to receive the particular enamel required. No solder being present, the great risk of solder running under the heat requisite to fuse the enamel is entirely avoided. The risk of "perishing" and of eating through, while strengthening with metal the reverse or under side is also completely obviated.

It is not, by my method of preparing metals for enameling, inlaying, japaning, &c., requisite to use a sheet of gold heavy enough to stand striking-up full, but a thinner sheet may be used, (thus saving the expense of a portion of the metal,) and partially struck up. It is then covered on the side intended for the enamel with a coating of wax or other non-conductor, and placed in a solution of copper or of any other desired metal, and subjected to the action of the galvanic battery until upon the inner or under side a deposit of metal is obtained sufficient to strengthen the plate of gold or other metal used, so that it will stand "striking up full and sharp," without being cracked or broken. It is then to be struck up full and sharp, and again placed in solution if a still heavier deposit of metal be required.

This process is equally applicable to the preparation of articles intended to be japaned or inlaid with preparations of india-rubber, gutta-percha, or other gums, enamels, and substances adapted for the purpose.

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

The process of preparing metallic substances for enameling, japaning, or inlaying by depositing metals by the action of the galvanic battery upon the reverse of the pattern to be enameled, japaned, or inlaid, substantially as above described.

DAVID RAIT.

In presence of—

LEWIS S. THOMAS,
PHILIP BELLRUSH.