

M. G. WHEELER & W. A. CHAPMAN.
Mode of Plating Metals.

No. 234,736.

Patented Nov. 23, 1880.

Fig.1.

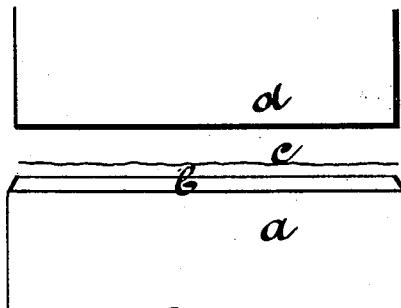


Fig.2.



Witnesses:

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UNITED STATES PATENT OFFICE.

MARSHALL G. WHEELER AND WILLIAM A. CHAPMAN, OF WINSTED, CONN.

MODE OF PLATING METALS.

SPECIFICATION forming part of Letters Patent No. 234,736, dated November 23, 1880.
Application filed February 23, 1880.

To all whom it may concern:

Be it known that we, MARSHALL G. WHEELER and WM. A. CHAPMAN, of Winsted, in the county of Litchfield and State of Connecticut, have invented a certain new and useful Improvement pertaining to Plating Metals, whereof the following is a description, reference being had to the accompanying drawings, which are illustrative merely of the process and product wherein our invention consists—

Figure 1 being a side view of dies and stock for putting our process in practice, and Fig. 2 being a face view of a product of the process.

Our invention relates to the union of plates of gold, silver, and the softer metals and alloys of metals.

The state of the art of plating this class of metals and alloys one with another is, so far as we know it, as follows: The oldest common method of plating or uniting this class of metals is that used in making what is known as "Sheffield plate," which consists in soldering or brazing a sheet of gold or silver on a base of brass or the like, and then rolling and forming the two to desired form and thickness. The present most common method of plating metals is the process known as "electroplating."

It has also been proposed, we know not with what measure of success, to unite metals by a process called "sweating," which consists in placing together plates of metal of differing degrees of refractoriness and submitting the plates to a heat sufficient to cause the less refractory metal to fuse to the more refractory.

It has also been proposed, we know not with what measure of success, to heat the plates of metal which are to be united in an air-tight metallic box to a red heat, and then pass them through rolls or a powerful press—a process which seems to be akin to the common process of welding iron and steel.

Our invention consists in the discovery that plates of metal of the class referred to can, under suitable conditions, be permanently united or plated one upon another without the use of heat, solder, brazing, or electroplating, in the discovery of what suitable conditions are, and in the devising of process and means for carrying the discovery into practical use and effect.

The said conditions are, that one or both the metals shall be put into the form of a very

thin plate or plates; and the process consists in superimposing one metal upon another and applying pressure sufficient to make the metals interpenetrate—that is, to make parts of one of the metals enter the pores of the other metal.

The letter *a* denotes a lower die, on which rests a suitable metallic base, *b*, in the present case Britannia metal with a silver-plated surface.

The letter *c* denotes the sheet of metal of another color, in the present case a piece of so-called "Dutch metal" reduced to the thinness of foil.

The letter *d* denotes the upper die, which is to be moved by appropriate means and be capable of coming down upon the lower die with great power.

The corresponding faces of the dies may be plain or may be shaped and designed to produce some ornamental figure in relief. In the latter case the raised parts will not be pressed or pinched by the dies, and consequently the superimposed metal will not appear thereon and will not adhere thereto.

The dies must close together under great power. Where the surface covered with the superimposed metal amounted to about two and one-half square inches we have found one hundred and twenty-five tons a good working pressure, using any of the ordinary thicknesses of foil on a base of silver-plated britannia.

In Fig. 2 we show a product of this process—a plate stamped in relief, the parts in solid black representing the raised surfaces on which the superimposed metal does not adhere.

Where in the following claim we mention metals we mean thereby gold, silver, and the softer metals and alloys thereof.

We claim as our invention—

The process of plating or uniting gold, silver, and the softer metals and alloys thereof without heat or electricity, consisting in subjecting the metals—one of them reduced to the thinness of foil—to a pressure sufficient to make the metals interpenetrate, substantially as shown and described.

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Witnesses:

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