W. M. HEDGES.

Process of Manufacturing Ornamented Metallic Plate.

No. 221,231. Patented Nov. 4, 1879.

Fig. 1.

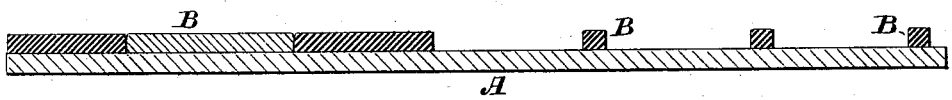

Fig. 2.

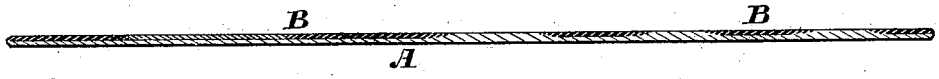

Fig. 3.

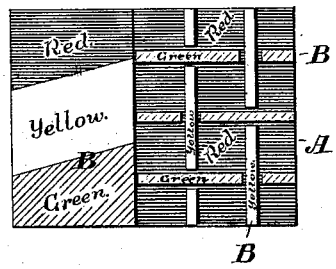

Fig. 4.

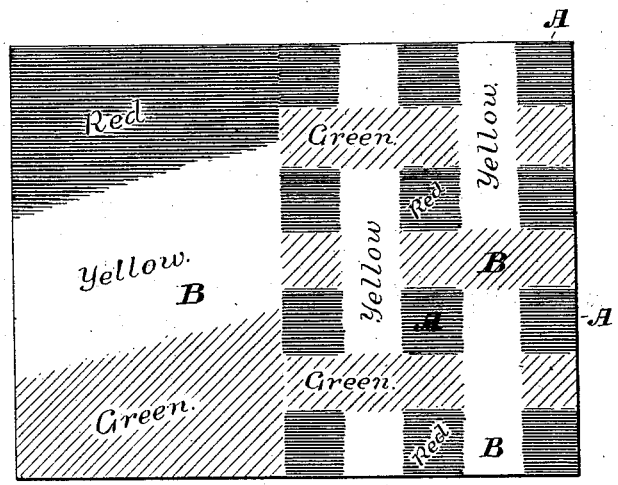

Fig. 5.

ATTEST:

Edwin A. Kennedy

Arthur C. Fraser

INVENTOR:

Wallace M. Hedges.

By his Attorneys,

Burke, Fraser & Bonnett

UNITED STATES PATENT OFFICE.

WALLACE M. HEDGES, OF NEWARK, NEW JERSEY, ASSIGNOR TO A. J. HEDGES & CO., OF NEW YORK, N. Y.

IMPROVEMENT IN THE PROCESSES OF MANUFACTURING ORNAMENTED METALLIC PLATES.

Specification forming part of Letters Patent No. **221,231**, dated November 4, 1879; application filed January 17, 1879.

To all whom it may concern:

Be it known that I, WALLACE M. HEDGES, of Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in the Production of Ornamented Metal Plates, for use in the manufacture of jewelry and similar articles, of which the following is a specification.

My invention relates to the production of a metallic plate having a face composed of two or more metals or alloys of different colors; and it consists in overlaying upon a back-plate of one kind of metal a number of pieces of metal or alloys of different colors, so arranged as to produce the desired design, joining each of said pieces directly to the back-plate, and rolling or stamping the whole down until a plate is produced having a plane multicolored face, and a substantially uniform thickness.

In the accompanying drawings, Figures 1 and 2 are sections, on an enlarged scale, of the compound plate, the former before and the latter after the operation of rolling. Figs. 3 and 4 are plans on a smaller scale, the former illustrating the plate before and the latter after the operation of rolling. Fig. 5 represents an article of jewelry, in imitation of an autumn leaf, manufactured from my improved plate.

In constructing my improved plate for use in the manufacture of fine jewelry I proceed as follows: I first take a plate or sheet of gold, preferably of low carat, such as red fourteen-carat gold, to be used as the foundation of the future compound plate, as shown at A in the drawings. I then take pieces of gold plate or wire of different colors, and preferably finer or of higher carat than the plate A, and of such shapes and sizes as to produce the desired pattern, and join each of them directly to the surface of the plate A in any suitable manner. These superimposed or overlaid pieces are shown at B in the drawings.

In case the pieces B B are of higher carat than the plate A, I prefer to unite them to the latter by the process of sweating—that is, by placing them in contact and subjecting the whole to a degree of heat sufficient to soften the plate A without affecting materially the pieces B B, (which are more refractory,) whereby the latter are caused to adhere to the former; or, in lieu of this method, they may be soldered together, or joined in any other desirable manner. The pieces B B may entirely cover the surface of the plate A, as shown at the left in each of the first four figures of the drawings, or they may only partially cover the same, as shown at the right in said figures. In either case the plate A is ordinarily covered by but one thickness of the pieces B B, so that the resultant compound plate is composed of but two thicknesses of metal.

The plate is next passed between rollers, under pressure, until it is reduced to the thickness desired, and preferably to a uniform thickness throughout. In the operation of rolling, such of the pieces B B as stand alone are first forced down into the substance of the plate A, being also simultaneously spread out laterally to some extent until the face of the compound plate becomes plane, smooth, and uniform. The operation may then be further continued until the plate has been compacted to the desired degree and reduced to the desired thickness. In rolling, the pattern is, of course, spread out and enlarged. To cause it to spread uniformly in both directions, it is usually necessary to pass the plate through the rolls first in one direction, and then in a direction at right angles to the first, proceeding thus alternately until the rolling is completed.

In the practice of my process it is not essential that the plate A be composed originally of one continuous sheet of metal, as it may be composed of two or more smaller sheets joined or soldered together at their edges, edge to edge; and it is also unessential whether the superimposed pieces B B are joined to the upper surfaces of said smaller sheets before the latter are soldered together or afterward.

By my process a plate is produced having a uniform continuous back and a multicolored face, and one which has the same strength and can be worked in the same manner as ordinary gold plate. The face of the plate is usually finished by matting or roughening it, by which means the colors, which have, prior to this operation, been dull and almost indistinguishable from each other, are brought out and rendered apparent and brilliant. The article

may also be chased or engraved, or finished in any known and desirable manner.

As the colored metals of the face extend to a considerable depth, the chasing may be quite deep without danger of reaching the back-plate. The colors, also, after matting appear to blend or run into each other, producing an agreeable effect.

In Fig. 5 I have shown an ornament for jewelry made in imitation of an autumn leaf, having a face of differently-colored gold, constructed by my process. The back is uniform, being preferably of red gold of fourteen carats, while the face is composed of several colors, as of red, green, and yellow gold.

My process is adapted to the production of all ornaments made from sheet metal or metal plate used in the manufacture of jewelry and for similar purposes.

It is not essential to my invention that gold alone be used as the material of my compound plate. The superimposed pieces B B may be of any suitable metal or alloy, and the back-plate A may also be of any preferred metal, silver or brass being, for some purposes, equally advantageous with gold. I prefer to roll out the plates as above described; but in some cases stamping, pressing, or hammering may be employed as well.

I am aware that ornamental metal surfaces have been produced by rolling together several superimposed plates of differently-colored metals, and then, in engraving, producing the design in the desired colors by cutting down through one or more of the layers until such colors are reached, after the manner of a cameo.

I claim as my invention—

The process of manufacturing compound ornamented metallic plate, which consists in mounting pieces of metals or alloys of different colors directly on a back-plate of metal, and rolling down the same into the back-plate to produce thereby a plate having a smooth, uniform, multicolored face, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WALLACE M. HEDGES.

Witnesses:

HENRY CONNETT,

N. E. WHITESIDE.