

UNITED STATES PATENT OFFICE.

LINCOLN HAUSMANN, OF NIAGARA FALLS, NEW YORK.

MANUFACTURE OF METAL GOODS FOR ARTISTIC PURPOSES.

SPECIFICATION forming part of Letters Patent No. 514,070, dated February 6, 1894.

Application filed April 14, 1893. Serial No. 470,376. (No specimens.)

To all whom it may concern:

Be it known that I, LINCOLN HAUSMANN, of Niagara Falls, in the county of Niagara, in the State of New York, have invented new and useful Improvements in the Manufacture of Metal Goods for Artistic Purposes, of which the following is a full, clear, and exact description.

My invention relates to the manufacture of metal goods primarily designed for ornamental or artistic purposes.

It consists in the method or process of producing such articles from sheet metal thinner than the body of the article to be produced, yet of sufficient thickness to stretch under pressure till it assumes the desired shape, then reducing the thickness of the plate until sufficiently thin to permit the reproduction upon its surface of the finest lines or engraving, upon being subjected to a slight pressure. The metal plate so formed can then, if desired, be strengthened by any suitable means, as hereinafter set forth.

In carrying out my invention I make use of metal sheets as ductile as possible. These sheets are then to be embossed or pressed up to take the rough shape of the article to be produced. For this purpose dies are employed which may be made of any material. An iron casting is suitable as only the shaping is intended to be performed at this stage in the process, and, therefore, the dies are not required to have a smooth surface or finish. I next subject the metal sheet so formed or shaped to the influence of chemicals for reducing its thickness. If the metal plate is of copper a solution of ninety per cent. nitric acid to ten per cent. of sulphuric acid may be employed. The plate being subject to the action of these acids, the copper is thereby dissolved and its thickness reduced. The same result is attained by placing the metal sheet or shell in a solution of blue vitriol and sending an electric current through it. After the thickness of the metal plate has been reduced to the desired point, I place the same between dies having the same design or shape as the dies first used, whereby the finest lines and engraving upon the said dies are reproduced upon the metal sheet. As the shape

of the article has already been given to the metal sheet, it is not subjected to any considerable stretch in its thin state. The dies last used need not be made of steel, which is a very important point as steel dies cannot be cast, but must be engraved and are therefore very expensive. Dies suitable for this purpose may be made of any material, such as brass, type metal, papier maché, gutta percha, asphaltum or plaster. One die may be made of hard material while the other may be made of soft and yielding material, such as rubber, if a suitable retaining box is provided. The shaped article is now of such thinness that a comparatively small pressure will transfer to it the finest lines of the dies. If desired the article so produced is then strengthened by a layer of paper, plaster, papier maché, or similar material. Metal may also be cast or pressed into the back of the shell or deposited thereon by an electric current. In case of pressing or casting the strengthening layer, the article is placed in the dies so that the embossing and engraving will not be flattened. If the article is strengthened by the galvanoplastic or electrotyping process the surface of the finished article should preferably receive a protective coating of some kind to prevent a deposit of metal upon the face. The same protective coating can be used, when the metal plate or shell is reduced in thickness by acid or the electric current, to protect the polished side of the metal sheet so that the dissolving of the metal is only taking place on the back. This protective coating may be formed of a sheet or layer of gutta percha, wax, or varnish either pressed, brushed or otherwise applied to the metal.

The hereinbefore described method of operation is especially adapted to the reproduction in quantity of metal plaques of suitable shape or design, useful, ornamental and artistic as, for instance, fac-similes of heads, and my invention enables the finished articles to be made in quantities with the surface of the design bearing the finest details of the original without requiring any special skill on the part of the workman.

By my above described method or process ornamental metallic articles can be produced

at comparatively small cost and on a large scale with perfect designs of high artistic qualities.

Having thus described my invention, what I claim is—

1. The method of producing a shaped metal article, consisting of pressing, embossing, or stamping, by means of dies, a metal sheet of sufficient thickness to take the desired shape without breaking, then reducing the thickness of the sheet by subjecting it to the influence of chemicals, and then imparting the final finish by placing the metal sheet between dies having the same design as the dies first used, substantially as described.

2. The method of producing a shaped metal article from a metal sheet of sufficient thickness to take the desired shape without breaking, consisting in shaping the sheet by means of dies, then reducing its thickness by subjecting it to the action of chemicals, then imparting the final finish by placing the metal sheet between dies having the same design as the dies first used, and then applying to the sheet thus formed a strengthening layer of suitable material, substantially as described.

3. The method of producing a shaped metal article, consisting of pressing, embossing, or stamping, by means of dies, a metal sheet of sufficient thickness to take the desired shape without breaking, then reducing the thickness of the sheet by subjecting it to the influence of an electric current, and then imparting the final finish by placing the metal sheet between dies having the same design as the dies first used, substantially as described.

4. The method of producing a shaped metal article from a metal sheet of sufficient thickness to take the desired shape without break-

ing, consisting in shaping the sheet by means of dies, then reducing its thickness by subjecting it to the action of an electric current, then imparting the final finish by placing the metal sheet between dies having the same design as the dies first used and then applying to the sheet thus formed a strengthening layer of suitable material, substantially as described.

5. The method of producing a shaped article from a metal sheet of sufficient thickness to take the desired shape without breaking, consisting in shaping the sheet by means of dies, then reducing its thickness by subjecting it to the action of chemicals, then imparting the final finish by placing the metal sheet between dies having the same design as the dies first used, then electro depositing a strengthening layer of metal on the back of the sheet, substantially as described.

6. The method of producing a shaped metal article from a metal sheet of sufficient thickness to take the desired shape without breaking, consisting in shaping the sheet by means of dies, then reducing its thickness by subjecting it to the action of an electric current, then imparting the final finish by placing the metal sheet between dies having the same design as the dies first used, and then electro depositing a strengthening layer of metal on the back of the sheet, substantially as described.

In testimony whereof I have hereunto signed my name this 12th day of April, 1893.

LINCOLN HAUSMANN. [L. S.]

Witnesses:

GEO. G. SHEPARD,
G. J. COLPEYS.