No. 716,648. Patented Dec. 23, 1902.

N. STAFFORD.

DIE FOR LETTERING AND ORNAMENTING METALLIC ARTICLES.

(Application filed Jan. 14, 1902.)

(No Model.)

Fig. 3.

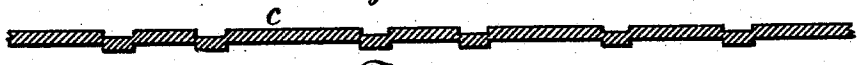


Fig. 2.

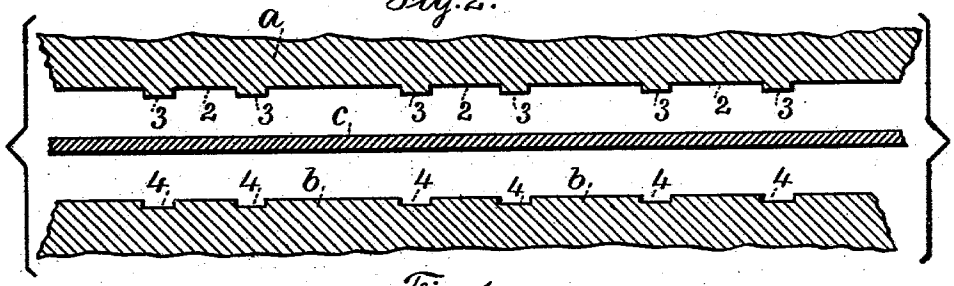


Fig. 1.

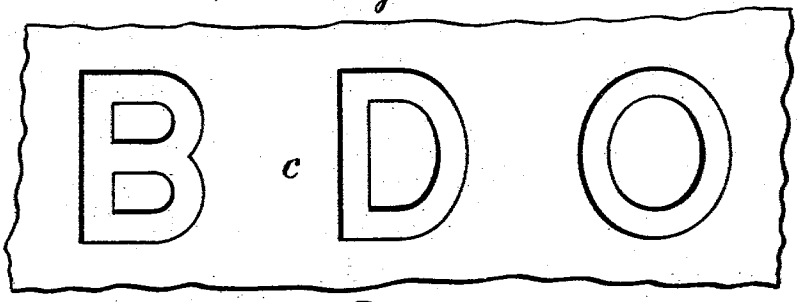


Fig. 4.

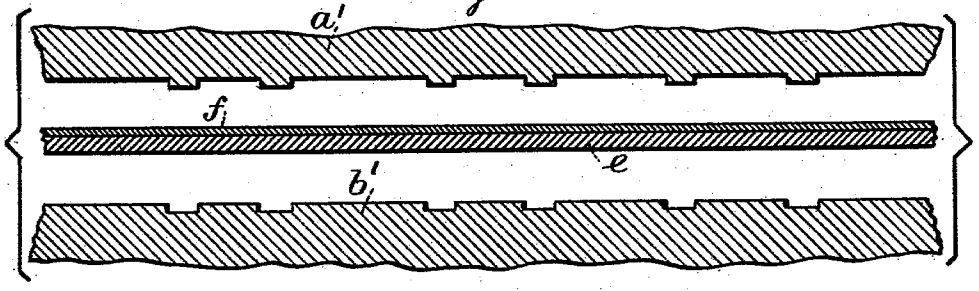
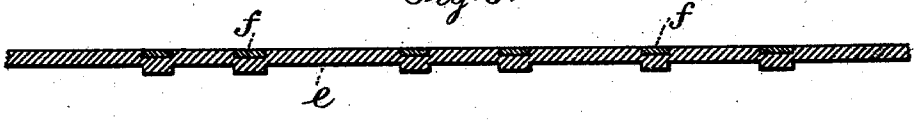


Fig. 5.



Witnesses:
J. Staiby
Chas. H. Smith

Inventor:
Nelson Stafford
per L. W. Serrell & Son
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

NELSON STAFFORD, OF BROOKLYN, NEW YORK, ASSIGNOR TO N. STAFFORD COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

DIE FOR LETTERING AND ORNAMENTING METALLIC ARTICLES.

SPECIFICATION forming part of Letters Patent No. 716,648, dated December 23, 1902.

Application filed January 14, 1902. Serial No. 89,673. (No model.)

To all whom it may concern:

Be it known that I, NELSON STAFFORD, a citizen of the United States, residing at the city of New York, in the borough of Brooklyn, county of Kings, and State of New York, have invented an Improvement in Dies for Lettering and Ornamenting Metallic Articles, of which the following is a specification.

In the manufacture of name-plates, badges, &c., where the lettering or design on articles of metal is to be filled in with soft filling material it has been customary to use a steel stamp with raised letters or designs and by a blow or pressure to force the stamp into the surface of the sheet metal deep enough to allow the lettering or design to be filled in. By this means, however, the displacement of metal necessary to leave an indentation sufficient to hold the filling material causes the plate to bulge on the back and buckle between the lettering or design to such an extent that it is necessary to straighten out the whole surface of the plate before it can be made use of, and in doing this the metal which has been displaced in stamping is frequently forced back into the openings so far as to disfigure the letters or designs, and the outlines of the lettering or design are not sharp and regular, and hard-rolled metal cannot be used successfully. The same difficulties arise, particularly where hard enamel is to be used, in cases where the letters or designs are sunk in a steel die and the metal forced into the die to bring the letters or design up in relief by the use of a drop-hammer or a roller.

The object of my invention is to overcome these difficulties and to produce superior work in a less expensive manner.

In carrying out my invention I make use of a two-part steel die, the face of each part being cut with such parts of the letters, characters, or designs as will coact to give the desired form, the one in relief and the other depressed. The edges of the letters, characters, or designs in each section are sharp, and all the surfaces fit each other closely, and the depth of the characters upon such die-faces is less than the thickness of the material operated on, so that when the parts are forced together with a piece of metal between them the characters are cut into the metal and a raised part of corresponding outline and depth is forced out at the back. For instance, where the metal to be lettered or ornamented is one-sixteenth of an inch thick I sink the depressions one thirty-second of an inch, so that when the two sections of the die are forced together, with the metal between them, the raised portions of the letters or design on the one section penetrate the metal one thirty-second of an inch and force the letters or design into the depression in the other section of the die one thirty-second of an inch, making a clean cut at the edges, leaving them sharp, without disturbing or buckling the plate, and the inside of such letters as "D" and "O" being formed in one section of the die the same act as a punch, passing in the depressions in the other section of the die, thereby keeping the inside of such letters or the corresponding parts of any design flush with the surface of the metal plate.

It is obvious that dies constructed as herein stated may be used upon a composite sheet for inlaying metals.

In the drawings, Figure 1 represents part of a plate of metal upon which are the letters "B D O." Fig. 2 is a vertical section of the upper and lower die-sections and an intervening sheet of metal. Fig. 3 is a section of the sheet of metal after the same has been acted on by the dies. Fig. 4 is a vertical section of upper and lower die-sections and an intervening composite or two-part sheet of metal; and Fig. 5 is a section of the sheet of metal after the die-sections, Fig. 4, have acted thereon.

a is the upper section of the die, and *b* the lower section.

c is the metal plate to be lettered or ornamented.

When it is desired to form letters or ornaments in the metal plate *c*, the said plate is placed between the upper and lower die-sections, and the two parts of the die are then forced together by any suitable power, when the letters or design on the one die-section penetrate the metal and force the letters or design into the openings in the other die-section, and the surfaces of the die-sections contact with the

metal being operated upon, making a clean cut at the edges, leaving them sharp without disturbing or buckling the plate, and the parts 2, representing the insides of such letters as the letters "B," "D," and "O" or the corresponding parts of any desired design, act upon the metal plate to maintain the true even surface thereof, and the parts 3 act in a downward direction, penetrating the metal and forcing it into the openings 4 in the die-section, while the edges at the openings 4 act upward and simultaneously cut into the opposite face of the metal and make a clean cut at the respective edges. The metal plate must in all cases be of greater thickness than the depth of the characters upon the die-faces and preferably as thick again.

It will be readily understood that when it is desired to form letters or designs in relief upon the metal plate it is only necessary to reverse the arrangement of the letters or designs upon the die-sections.

It is obvious that these dies may be employed for inlaying metals, and in performing this operation I place two sheets of different metals one upon the other—say a sheet of brass *e* and sheet of copper *f*—which sheets may or may not be soldered together. These I place between the die-sections *a' b'*, and where the sections are forced together the copper sheet *f*, which is preferably thinnest, is cut through, and the portions cut out are forced down into the other and preferably thicker sheet, and this sheet is forced into the opening or depressed portion in the one die-section, thus leaving the lettering or other design embedded in the sheet, the inlaying being thus accomplished by one and the same operation, it only being necessary to remove the remains of the copper sheet and polish the surface to complete the work. In this composite sheet the thinner metal should be of a thickness exactly agreeing with the depth of the characters upon the surfaces of the die-sections, and the other metal sheet should be appreciably thicker or approximately twice as thick, so that the thinner metal is exactly cut through and the piece forced down into the thicker piece and the under surface of the thicker sheet of metal forced out or raised to a corresponding outline and extent.

With my improvement a clean cut is made at the edges, leaving them sharp and perfect on both sides of the metal, and there is no spreading or thinning of the metal plate nor any buckling action whatever, and thicker and harder metals can be lettered or ornamented than has heretofore been possible.

While the foregoing description has special reference to lettering or ornamenting metals, it is obvious that it would be but substitution to employ other materials to be acted upon by the same dies. In fact, I have employed such other materials as cardboard, celluloid, and other compositions in sheet form, leather, wood, and combinations thereof. These may be employed to advantage in special uses in the arts.

I claim as my invention—

1. A die for lettering or ornamenting metal, consisting of two sections, the face of each section being cut with such parts of the letters, characters or designs as will coact to give the desired form, the one in relief and the other depressed, and the edges of the letters, characters or designs in each section being sharp and fitting each other closely on all surfaces, and the depth of the characters upon such die-faces being less than the thickness of the material operated on so that when the parts are forced together with a piece of metal between them the letters or designs are cut into the metal and a raised part of corresponding outline and depth is forced out at the back thereof, substantially as specified.

2. A die for lettering or ornamenting metal, consisting of two sections, the face of each section being cut with such parts of the letters or designs as will coact to give the desired form, the edges of the letters or designs in each section being sharp and fitting each other closely on all surfaces, the depth of such dies being less than the material operated on, so that when the parts are forced together with a piece of metal between them the letters or designs are cut into the metal, substantially as set forth.

3. A die for lettering or ornamenting metal, consisting of two sections adapted to act upon two superimposed strips of metal, the upper of which is approximately one-half the thickness of the under piece, the face of each section being cut with such parts of the letters, characters or designs as will coact to give the desired form, the one in relief and the other depressed, and the edges of the letters, characters or designs in each section being sharp and fitting each other closely on all surfaces and the depth of the characters upon such die-faces being less than the thickness of the material operated on, and not less than the thickness of the upper piece of metal so that when the parts are forced together with the two pieces of metal placed between the said sections the letters or designs are cut out of the upper thinner strip of metal and forced down into the lower and thicker strip of metal and a raised part of corresponding outline and depth is forced out at the back thereof, substantially as specified.

Signed by me this 10th day of January, 1902.

N. STAFFORD.

Witnesses:
GEO. T. PINCKNEY,
S. T. HAVILAND.