W. STEPHANS.

Mode of Inlaying Jet with Metal.

No. 162,586. Patented April 27, 1875.

Fig. 1

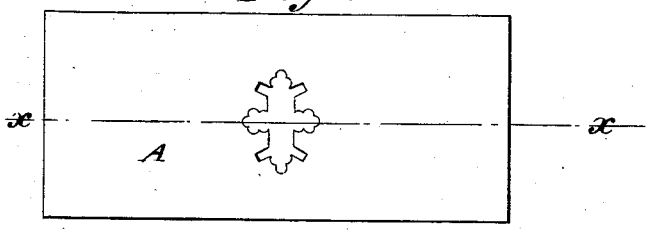


Fig. 3

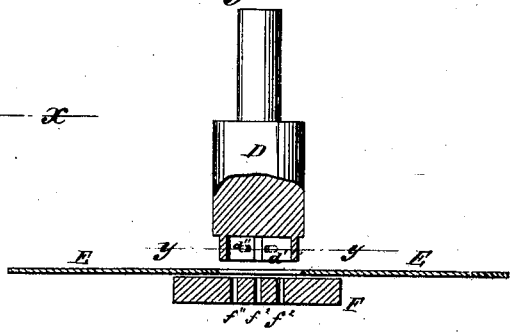


Fig. 2

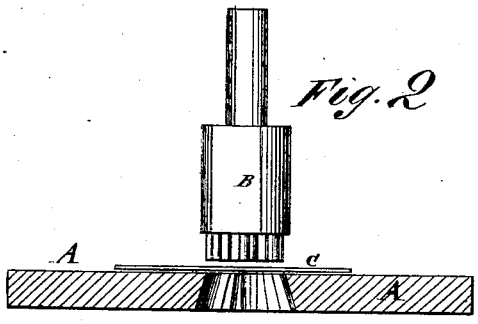


Fig. 4

Fig. 5

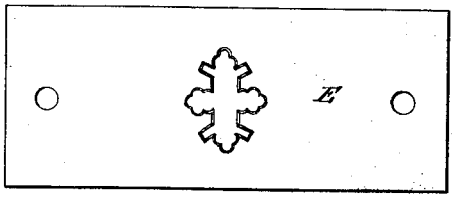


Fig. 7

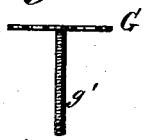


Fig. 8

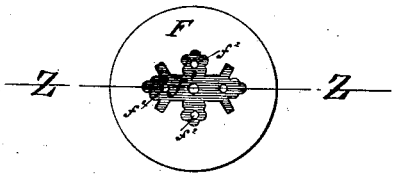


Fig. 6

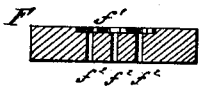
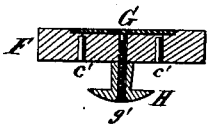


Fig. 9



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UNITED STATES PATENT OFFICE.

WILLIAM STEPHANS, OF NEW YORK, N. Y.

IMPROVEMENT IN MODES OF INLAYING JET WITH METAL.

Specification forming part of Letters Patent No. **162,586**, dated April 27, 1875; application filed October 31, 1874.

To all whom it may concern:

Be it known that I, WILLIAM STEPHANS, of the city, county, and State of New York, have invented a new and useful Improvement in Mode of Inlaying Jet with Metal, of which the following is a specification:

Figure 1 is a top view of the lower or female die for cutting out the metal plate to be inlaid in the jet. Fig. 2 is a detail section of the lower or female die, taken through the line *x x*, Fig. 1, showing the male die in side view, and the metal plate in position to be operated upon. Fig. 3 is a detail section of the jet and of the guard-plate, and the die for recessing the jet. Fig. 4 is a detail cross-section of the recessing-die, taken through the line *y y*, Fig. 3. Fig. 5 is a top view of the guard-plate. Fig. 6 is a detail cross-section of the recessed jet, taken through the line *z z*, Fig. 8. Fig. 7 is an edge view of the plate to be inlaid, shown as having the screw-pin attached. Fig. 8 is a top view of the recessed jet. Fig. 9 is the same view as Fig. 6, but showing the inlaid plate and a stud-shank applied to the jet.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved mode of inlaying metal in jet, for studs, buttons, pins, and other articles of jewelry, by means of which irregular and complex forms may be inlaid in jet, and which will enable the work to be done quicker and neater than is possible when done in the old way.

The invention consists in the mode of inlaying jet with metal, hereinafter described—that is to say, by burning a recess of the proper size and form in the jet, by means of a recessed die and a sheet metal guard-plate, as set forth.

A represents the lower or female die, in which is formed an opening of the exact form of the metal piece to be inlaid in the jet. B is the upper or male die, which is made of the exact form of the opening in the die A. C is the metal plate from which the piece to be inlaid is to be cut. D is the die with which the recess is to be formed in the jet. The outline of the die D is the same as that of the die B, but its face has recesses d^1 formed in it, from which holes or openings d^2 lead out through the sides of the die D, as shown in Figs. 3 and 4. E is a plate of thin sheet metal, having a hole formed through it of the exact form of the die D. F represents a piece of jet, in which the metal G is to be inlaid, and through it, directly beneath the place where the recess f^1 is to be formed to receive the plate G, are formed several small holes, f^2, as shown in Figs. 6, 8, and 9.

In recessing the jet F it is placed upon some support that will support it squarely, and will not cover the holes f^2. The sheet-metal plate E is then placed evenly upon the face of the jet. The die D is heated to a dull red heat, and is inserted in the opening in the plate E, and pressed down upon the jet F until the recess f^1 has been burned to the required depth.

The cavities and holes d^1 d^2 of the die D, and the holes through the jet F, allow the smoke and gases developed by the burning to escape, and thus prevent the jet from being cracked or broken. At the same time the plate E absorbs the heat that would otherwise burn down the edges of the recess f^1, and prevent said edges from being clean and sharp. The bottom of the recess f^1 is then covered with wax or cement to such a depth that the surface of the piece G, when inserted, may be flush with the surface of the jet F.

To the center of the jet F, when a stud is to be made, is secured a pin, g', which is passed through the center hole f^2, and has a screw-thread cut upon it, so that the shank H can be screwed upon it, and thus held securely in place.

The open ends of the holes f^2 may be filled with wax, or small screws c' may be screwed into them.

In this way pieces G of metal of any desired form, no matter how irregular or complex, may be easily and quickly inlaid in jet, and the work may be done without danger of cracking or chipping the jet. When the pieces G are large, pins g' may also be appied to their ends to assist in securing them in place.

The above-described process can be applied with equal facility and advantage for inlaying hard rubber, tortoise-shell, and other materials with metal.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The process of inlaying jet with metal, consisting in the application of a guard-plate perforated with the desired design to the article of jet, the burning of a matrix in the jet by heated dies, which are passed through the guard-plate perforations, and the application of cement and an ornamental device immediately after the removal of said instruments, all substantially as set forth.

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