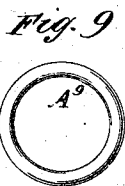
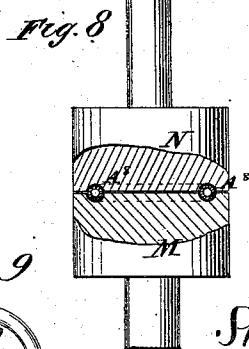
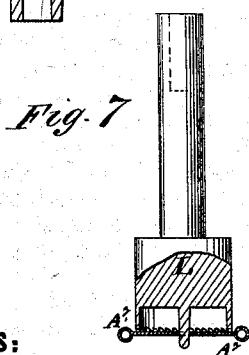
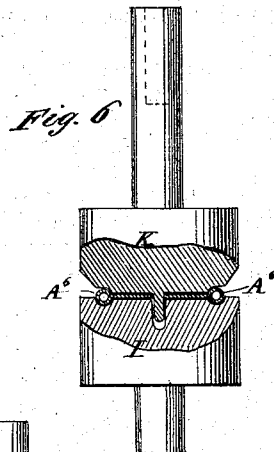
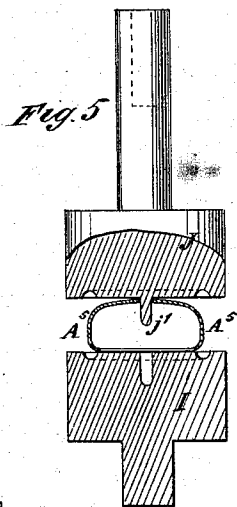
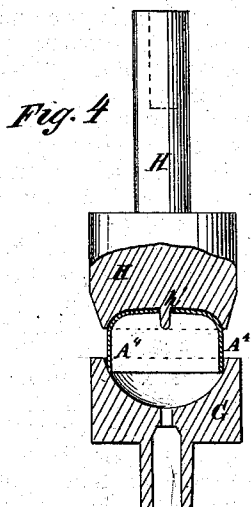
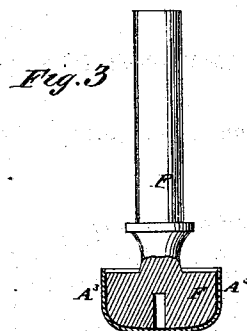
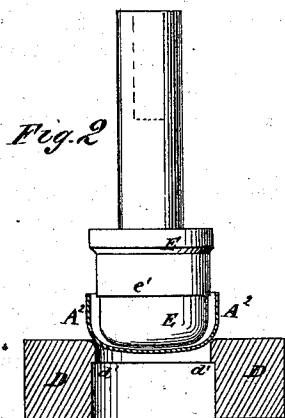
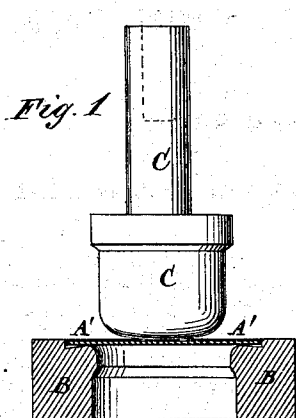


S. COTTLE.

Dies for Making Hollow Rings.

No. 158,914.

Patented Jan. 19, 1875.



WITNESSES:
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UNITED STATES PATENT OFFICE.

SHUBAEL COTTLE, OF NEW YORK, N. Y., ASSIGNOR TO MULFORD, HALE & COTTLE, OF SAME PLACE.

IMPROVEMENT IN DIES FOR MAKING HOLLOW RINGS.

Specification forming part of Letters Patent No. 158,914, dated January 19, 1875; application filed October 10, 1874.

To all whom it may concern:

Be it known that I, SHUBAEL COTTLE, of the city, county, and State of New York, have invented a new and useful Improvement in Forming Circular and Oval Hollow Rings, of which the following is a specification:

Figures 1 to 8, inclusive, represent the dies and tools for performing the successive steps of the operation. Fig. 9 represents a completed ring.

Similar letters of reference indicate corresponding parts.

My invention has for its object to produce circular and oval hollow rings from a disk of sheet metal, and without any cross-seam, for use in manufacturing chains, buttons, studs, and other articles of jewelry.

The invention will first be fully described, and then pointed out in the claim.

A represents a circular gold plate, which fits into a rabbet or recess in the face of the die B, and which is forced through the cavity of the said die B by the die C, bringing it into cup shape. The lower part of the cavity of the die B is enlarged, as shown in Fig. 1, so that the blank may readily drop through it as the die C is withdrawn. The cup-shaped blank A², as it comes from the dies B C, is placed upon the die D, through the cavity of which it is forced by the die E. The die E has a shoulder, e', formed upon it, of the same thickness as the gold plate being operated upon, and which cuts or pinches off the upper part of the cup-shaped blank A² against the sides of the die D as the said blank is forced through. The lower part of the cavity of the die D is enlarged, forming a shoulder, d', which acts as a stop to push the blank A³ from the die E as the said die is withdrawn. The blank A³, as it comes from the second operation, is placed upon the holder F, upon which it fits snugly, and its upper edge is turned off, the said holder serving as a gage, and a hole is then drilled in the center of the said blank. The blank A⁴ is removed from the holder F, and is placed upon its edge in the cup-shaped cavity of the die G, and is operated upon by the die H, the face of which is concaved to fit upon the convex side of the blank A⁴, and is provided with a center-pin, h', to enter the hole in said blank and hold it in position while being operated upon. This operation bends the edge of the blank A⁴ inward, producing the blank A⁵. The blank A⁵

is placed edge downward upon the face of the die I, which has a semi-cylindrical ring-groove formed in it, of such a diameter that the blank A⁵ may rest upon the face of the said die I upon the inner side of the said groove. The blank A⁵ is then operated upon by the die J. The face of the die J has a semi-cylindrical ring-groove formed in it, of the same diameter as the groove of the die I, and concentric with it. The face of the die J is also provided with a center-pin, j', which enters the hole in the blank A⁵, and thus holds it exactly in position while being operated upon by the dies I J. The effect of the dies I J is to roll the edge of the blank A⁵ inward and force down the convex body of the blank, forming a tubular ring around the said edge, and producing the blank A⁶. The die J is then removed, and the blank A⁶, while still upon the die I, is operated upon by the die K, the face of which is so formed as to fit into the blank A⁶ and bring its tubular edge to a sharp angle with its flat center, forming the blank A⁷. The blank A⁷ is then operated upon by the tool L, which operates as a crown-saw and cuts out the flat center of the blank A⁷, leaving the blank in the form of a tubular ring, A⁸. The tubular ring A⁸ is then placed in a semi-cylindrical ring-groove in the face of the die M, and is operated upon by the die N, which has a corresponding semi-cylindrical ring-groove formed in its face. The effect of this operation is to true the ring A⁸ by reducing any imperfections there may be in it, and thus produce a perfect hollow or tubular ring without any cross-seam. The dies, blanks, and ring have been described and shown in the drawing as being circular; but oblong or oval rings may be formed by giving the proper shape to the dies.

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

The combination of the dies, holder, and cutting-tool B C, D E, F, G H, I J, I K, L, and M N, constructed as described, and operated successively, and in connection with each other, for forming tubular rings without cross-seams from flat metallic disks, substantially as herein shown and described.

SHUBAEL COTTLE.

Witnesses:

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