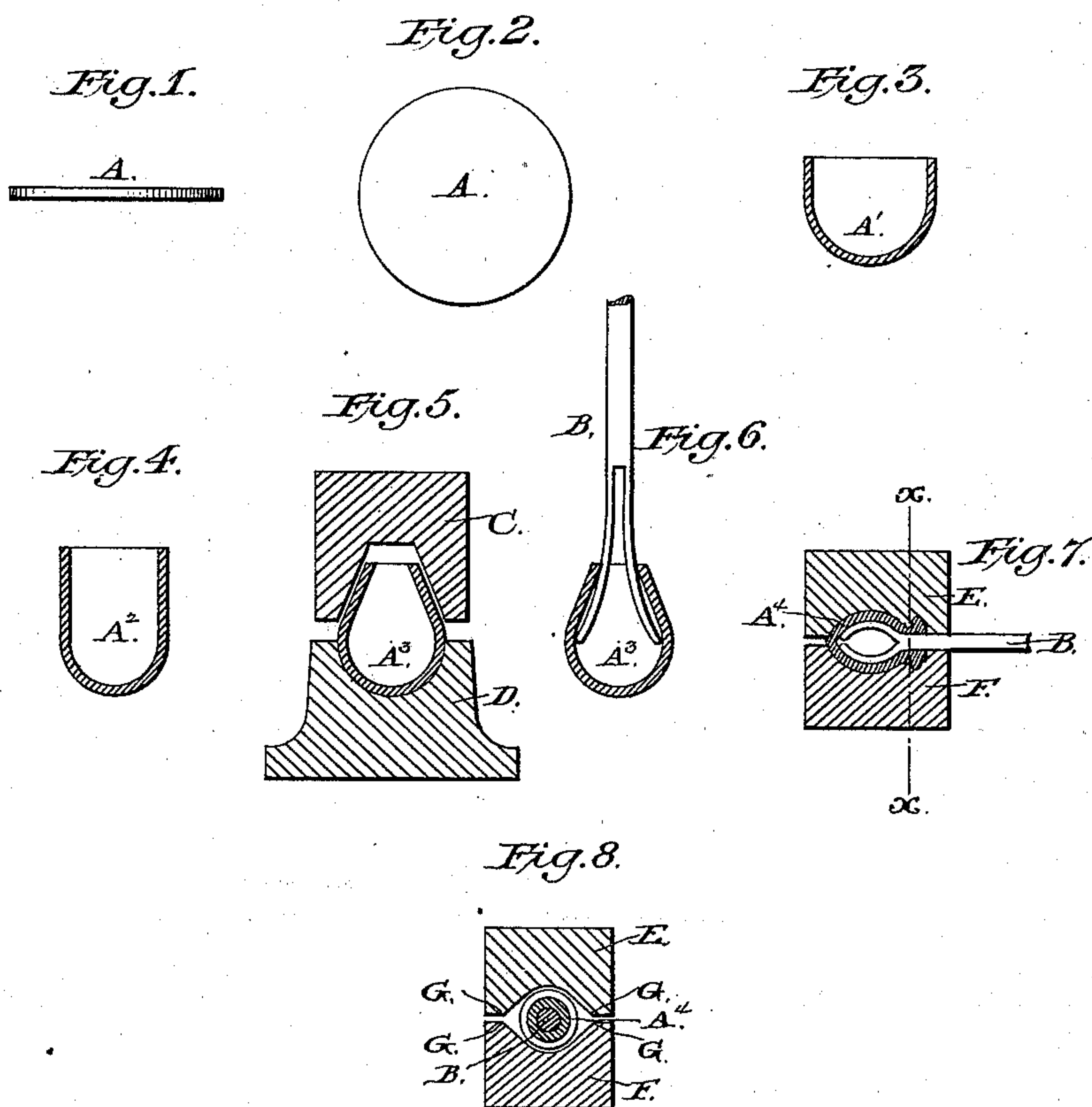


T. MUELLER.
 Mode of Manufacturing the Pendants of Watches.
 No. 219,595. Patented Sept. 16, 1879.



Witnesses:
 John A. Allen.
 D. P. Cowl

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UNITED STATES PATENT OFFICE

THEODORE MUELLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
THOMAS B. HAGSTOZ AND CHARLES N. THORPE, OF SAME PLACE.

IMPROVEMENT IN MODES OF MANUFACTURING THE PENDANTS OF WATCHES.

Specification forming part of Letters Patent No. **219,595**, dated September 16, 1879; application filed
November 20, 1878.

To all whom it may concern:

Be it known that I, THEODORE MUELLER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Mode of Manufacturing the Pendants of Watches, Locketts, and Medallions; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention, reference being had to the accompanying drawings, and the letters of reference marked thereon, which form a component part of this specification.

The object of this invention is to produce from ductile metal, especially plated metal, without abrading or destroying or removing the precious metal covering and exposing the baser metal, a pendant of great strength and durability at a very low cost for workmanship, without any undue waste of metal.

The nature of my invention may be concisely stated to consist in forming a thimble-shaped cup from a flat disk of metal, especially plated metal, with the plated side outward, by means of a punch and drawing-die, subsequently deepening and contracting such thimble in diameter by a further drawing operation, and afterward, by a swaging process between reciprocating dies, contracting the neck of the pendant and producing the shoulders and collars thereon.

Figure 1 shows an end view of a flat blank; Fig. 2, the same blank in plan; Fig. 3, the thimble as formed at the first drawing operation, in section; Fig. 4, a section of the thimble after the second drawing operation; Fig. 5, a vertical section of the first pair of closing or swaging dies; Fig. 6, a section of the thimble A^3 , with the rod therein, ready for the swaging process; and Figs. 7 and 8, vertical sections of the second pair of swaging-dies, used in finishing the swaging and determining the form of the pendant.

The same letters of reference apply to the same parts in the several figures.

A is a circular disk of metal, which may be plated. A^1 is a cup or thimble formed therefrom by forcing the blank A into a cup-shaped

die by means of a punch of corresponding form.

The cup or thimble A^1 is, by the action of the punch and die, of proper form, forced or drawn into the shape marked A^2 in Fig. 4. The open mouth of the thimble A^2 is contracted to the form shown in Fig. 5 by the dies C and D, after which a rod or wire, B, bent, split, or flattened upon the end, is inserted in the cup A^3 , as shown in Fig. 6, and the cup, held upon the wire B, is placed between the reciprocating dies E and F, and rotated by means of the wire B, so that the cup shown in Fig. 5 (marked A^3) assumes the form shown at A^4 in Fig. 7.

The object of the wire B is to form a handle, by means of which the pendant may be conveniently rotated in the swaging-dies, and the metal of the pendant is so compacted upon it that it becomes after this process firmly attached thereto.

After the pendant is fully formed its roughened inner edge is turned up smooth, and the rod is cut off, leaving only enough to pass into a hole drilled in the watch-center to steady it and hold it more firmly while the pendant is being soldered thereto.

The form of the swaging-cavities of the dies E and F is not circular in section, but is widened out or relieved toward the edges marked G in Fig. 8, so that the surface of the metal is not abraded or removed by corners G of the swages or dies E and F, but is compressed and compacted centrally together, the non-abrasion of the surface when plated metal is used being absolutely essential to prevent the exposure of the baser metal, and the pendant shown at A^4 in Fig. 7 is the resulting product.

I am aware that watch-pendants have been heretofore formed of sheet metal, stamped and swaged into the required shape; and I am also aware that mandrels have been inserted in them temporarily for the purpose of turning them under the swaging-dies during a portion of the shaping process.

Having described my invention, and the method of making the same, what I claim as my invention is—

The herein-described process of forming watch-pendants from sheet metal by cutting the blank or planchet, cupping it toward its base, contracting the open mouth, and finally swaging it under reciprocating swaging-dies upon a metallic rod inserted in the open end, said rod becoming thereby firmly fixed to the pendant, and serving to attach the pendant

to the watch-center and steady it and hold it more firmly while being soldered thereto, substantially as described.

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