J. S. PALMER.

Manufacture of Stock-Plate for Jewelry.

No. 217,398. Patented July 8, 1879.

Fig. 1.

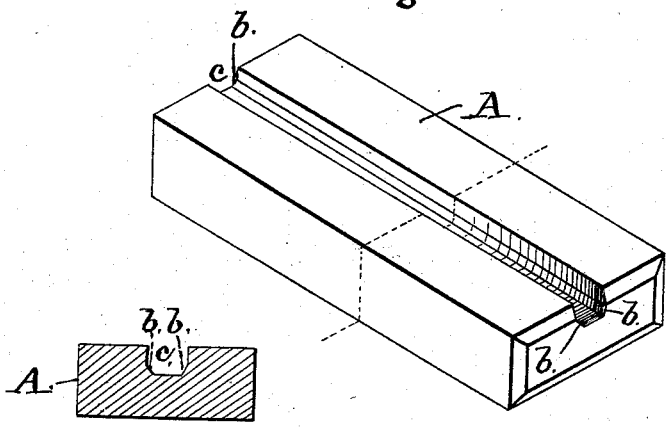
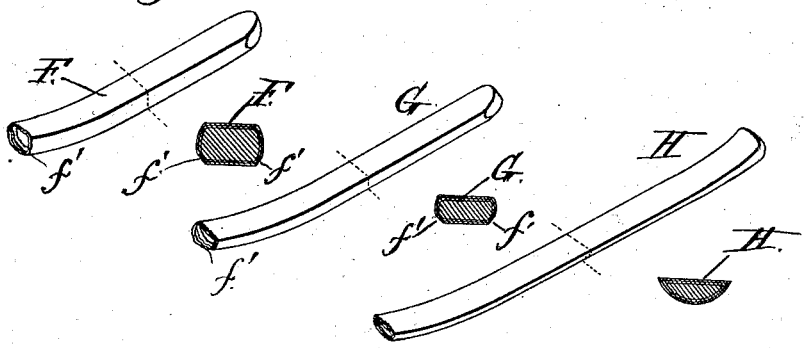
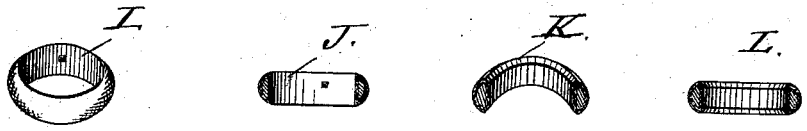


Fig. 2.

Fig. 3.





WITNESSES:

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JOHN S. PALMER, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN THE MANUFACTURE OF STOCK-PLATE FOR JEWELRY.

Specification forming part of Letters Patent No. **217,398**, dated July 8, 1879; application filed November 23, 1878.

To all whom it may concern:

Be it known that I, JOHN S. PALMER, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Die-Blocks for Rolling Stock-Plate for Jewelry and other articles; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to the construction of a die or channeled bed-block for rolling stock-plate suitable for the manufacture of finger-rings or other articles of jewelry, parts of musical or surgical instruments, or other articles, in which a plate or body of softer and baser metal is plated, covered, or overlaid with a harder and more precious metal, such as an alloy of gold, &c.; and it further consists in the method hereinafter described of rolling and reducing such stock in such die without injuring it, and without making fins, requiring to be afterward removed.

The invention is a further improvement on the die or bed blocks, and on the method shown in my Patent No. 124,971. In that patent the die-blocks, when passed with the stock between the pressure-rollers, caused a fin or thin film of the metal to be pressed out laterally upon opposite sides of the reduced stock, and in excess of the figure or form sought to be imparted by the act of rolling. This excess was not only so much waste stock, but it had also to be cut or filed away, thus exposing a base-metal edge, and with considerable expense, loss, and labor, and the edges left by such removal have to be afterward burnished together to complete the work and make a tolerable finish.

By my present invention I avoid destroying the integrity of the stock in the act of rolling, and I also avoid all such fins in rolling, and therefore avoid also all the waste, &c., consequent thereon and make better work.

I construct my die A with beveled edges or corners *b* at the bottom of its groove or channel *c*, and then placing in such channel a drawn cylindrical shell, *d*, of plated stock-plate above mentioned, of proper size, either with or without a piece of wire, *e*, inside the shell, I pass this die and the stock together between the rolls, and the resulting action with the first die is to give to the under side of the shell the beveled form corresponding to that at the bottom of the die, and as shown at *f'* in Fig. 3, while the upper face of the stock having been curved in cross-section will simply have become flattened more or less, but without any liability, by reason of its form, to spread out laterally or to cause any fins.

At the next rolling, to reduce the shell, a die is used having its groove of, say, the same width and with similar bevels, but shallower as to its depth; and in it I place the same shell, but turned over or upside down, so that its new beveled surface, which has just been resting on the bottom of the groove, shall be uppermost, and its opposite face shall now rest in the bottom of the groove, to be similarly fashioned to the bevels. On now passing this second die and this inverted shell between the rollers the bevels at the top surface permit the reduction of the metal without producing any fin, because the breadth of the metal at its top surface is, by reason of its two bevels, enough less than the breadth of the body of the shell to permit all the flattening and reduction possible to be given by the rollers, it being understood that each successive die is made as much shallower in depth than its preceding one as to permit the desired reduction without fully obliterating these beveled edges.

With each succeeding die the stock is inverted, so that at each successive rolling new beveled edges are placed uppermost, being those made by the bottom of the die at the last preceding rolling, so that at no stage of the operation can any surplus metal be forced outward beyond the sides of the stock or rolled over upon the face of the die, as no sharp corner is produced to allow this; nor is there the usual liability of separating the plating of the precious metal from the baser metal, to which it was originally soldered, during the successive reductions.

It will be seen also that with my dies the stock can be reduced at each strain or rolling very nearly down to the depth of the bevels

on the stock, and always with an unbroken shell of the outer metal surface.

In the manufacture of finger or other rings, and in some other articles, the final shape desired may be half-round—that is, plano-convex in cross-section; in others square-edged or rectangular in cross-section.

In making the half-round rings I propose, before passing the stock to the half-round die, to turn the stock over in the last-used beveled die, which would leave the inner corner (after being rolled in the finishing-die) slightly rounded, and therefore more comfortable on the finger.

It will be observed that one set of my improved dies will answer for almost any kind or style of ring requiring the corresponding width.

The die-blocks have advantages whereby they are superior to grooved rolls for the treatment of stock-plate, as, for instance, they cost less; and as the open end of the shell or stock is confined in the groove of the die, it is not liable to split down, whereas when die-rolls only are used for reducing, the stock at each succeeding strain or reduction is always apt to keep splitting farther and farther down at the open end of the shell, occasioning great waste.

The shells upon which I employ my die to the best advantage are such as are first made by drawing down a disk of plated metal or stock-plate into a cylindrical form, closed at one end and open at the other, as shown at *d;* and, preferably, these shells are drawn by the aid of a series of improved drawing-tools, called "punches," invented by me, having roughened conical ends, and which form the subject-matter of an independent application for Letters Patent, such tools producing shells with but little if any defects or breaks, and consequently admirably adapted for giving very satisfactory results when rolled in my novel die-block and by my method used in such rolling.

F illustrates a shell after it has been reduced in the first die; G, the same after being rolled in the last of the series of dies having beveled corners; H, the same after being subsequently rolled in a half-round die. I represents a finished ring made from a shell rolled by my method; J, a section of such ring; and K L, sections of ring made with their inner edges beveled or slightly rounded.

I claim—

1. A die-block for rolling plated shells, having the bottom of its channel or groove *c* made with beveled corners *b*, and adapted to receive the material to be treated and to be passed with it between flat-surfaced rolls, as and for the purpose set forth.

2. The described method of reducing plated shells and avoiding lateral fins by rolling bevels on the under side of the shell, and then inverting the shell and reducing such beveled side while rolling bevels on its opposite side, and repeating such action as may be desired.

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Witnesses:

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