(No Model.)

F. H. WEBSTER.

ART OF ORNAMENTING METAL HOLLOW WARE.

No. 430,816. Patented June 24, 1890.

Fig. 1.

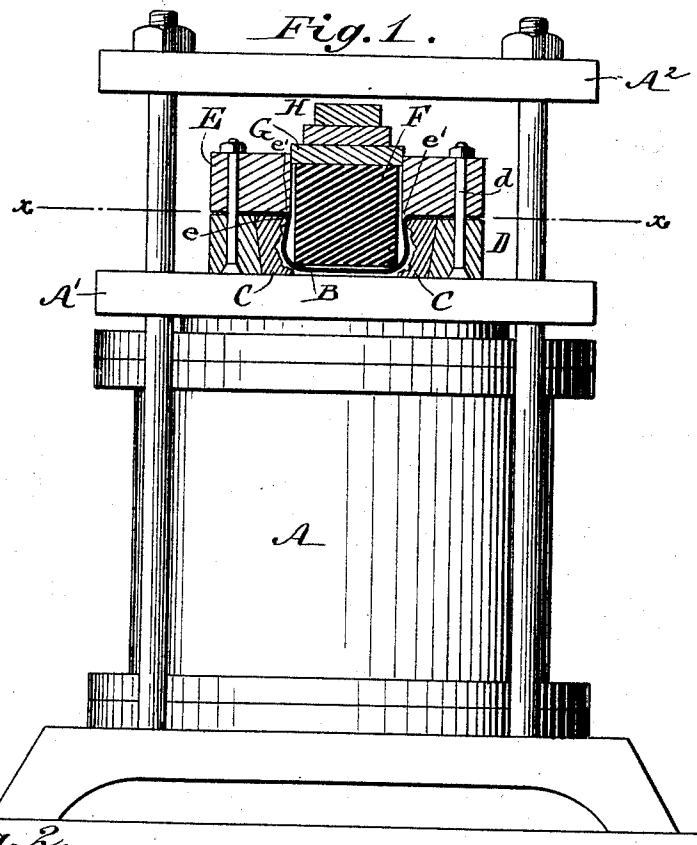


Fig. 2.

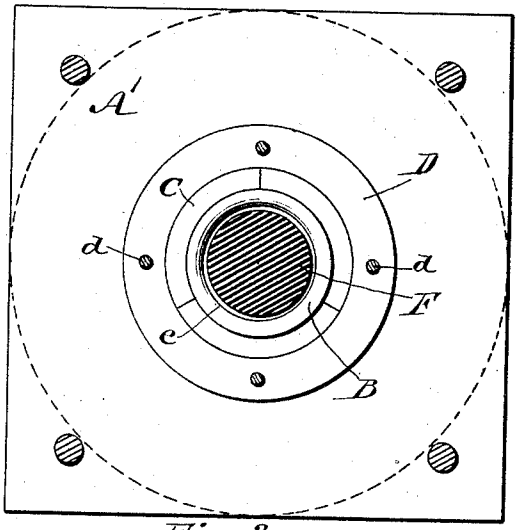


Fig. 4.

Fig. 5.

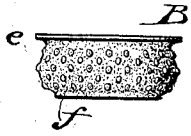
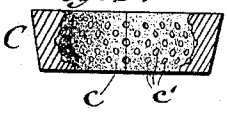


Fig. 3.



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ART OF ORNAMENTING METAL HOLLOW WARE.

SPECIFICATION forming part of Letters Patent No. 430,816, dated June 24, 1890.

Application filed March 21, 1890. Serial No. 344,721. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. WEBSTER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in the Art of Ornamenting Metal Hollow Ware, of which the following is a full, clear, and exact description.

My invention relates to the ornamentation in relief or intaglio, or both, of metal hollow ware by mechanical means, the finish being equal to *repoussé* work and hand engraving and chasing now practiced in ornamenting solid silver plated and metal ware.

The invention consists principally of a process of expanding the body of the "form" or hollow blank into an ornamenting or embossing die by means of a block of soft india-rubber to which pressure is applied.

The invention also consists of a means for retaining the rubber and applying the pressure thereto to effect the desired end.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of an ordinary hydraulic press, showing in sectional elevation the die, the hollow block, the block of india-rubber, and the means for retaining the same, and the die and blank. Fig. 2 is a sectional plan view on the line x x of Fig. 1. Fig. 3 is a sectional elevation of the die. Fig. 4 is a side view of a hollow blank; and Fig. 5 is a similar view of the ornamented dish, showing relief ornamentation and chasing on its outer surface.

A represents an ordinary hydraulic press with a platen A′ and resistance-plate A^2.

In carrying out my invention I take a metal blank B, shaped by spinning or otherwise to approximate the ultimate outline of the completed article B′, but of less internal capacity or measurement. This blank I place in a die C, which is open at the bottom and composed of three sections, each cut upon the inner surface with chasing c, and other ornamental designs c' of any desired shape or form. The exterior of the die is slightly tapering from top to bottom, as shown clearly in Figs. 1 and 3. The sections of the die are placed about the blank B, and the die and blank are placed in the ring or annular die-holder D, whose inner wall is beveled to fit the taper of the die. Upon the ring D is bolted the upper ring E, whose central opening is the size, or thereabout, of the entrance to the blank B. It overlaps the flange e of the blank and binds it upon the upper edge of the die, as shown clearly in Fig. 1, and the lower inner edge of the said ring E is, by preference, formed with a downwardly-projecting lip e', which enters the mouth of the blank and retains it and shapes the top of the dish. In the ring E and blank is then placed a block F of soft india-rubber, which is much greater in thickness than the depth of the disk and of a diameter about equal to that of the blank. Upon the block of rubber is placed a follower G, which accurately fits the passage through the ring E. The two rings E D are bolted together by the bolts d, and the whole is placed on the platen A′ of the hydraulic press, and on the follower G are placed numerous blocks H. The press is now set in operation and the rubber block in the blank is subjected to enormous pressure, often as high as two hundred and eighty tons. The block under this pressure expands the blank and shapes it to the interior of the die, and the metal of the blank is forced into the ornamentation of the die, and so effectively is this done that the finest engraving and chasing, as shown at f, may be wrought into the outer surface of the blank.

The process is very expeditious and effective, and the rubber may be used many times and in no manner mars or injures the interior of the disk, but leaves it perfectly smooth as before pressing, and by this process there is no danger of cutting the blank through, as with hand chasing and engraving.

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

1. The process herein described of ornamenting metal, which consists in expanding the hollow blank in an ornamenting-die by internal pressure applied to a block of soft india-rubber held in the blank, substantially as described.

2. The ornamenting-die C, made in sections and tapered at its outer surface throughout from top to bottom, in combination with the

die-ring D, having its entire inner wall tapered to correspond with the taper of the die, and the annular ring E, bolted to the top of ring D and overlapping the top of the die, substantially as described.

3. The hollow ornamenting-die C, made in sections, and the die-ring D, in combination with the upper annular ring E, the block F, of soft india-rubber, and the follower G, the passage in the ring E serving as a holder or guide for the rubber block and the follower, substantially as described.

FREDERICK H. WEBSTER.

Witnesses:
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