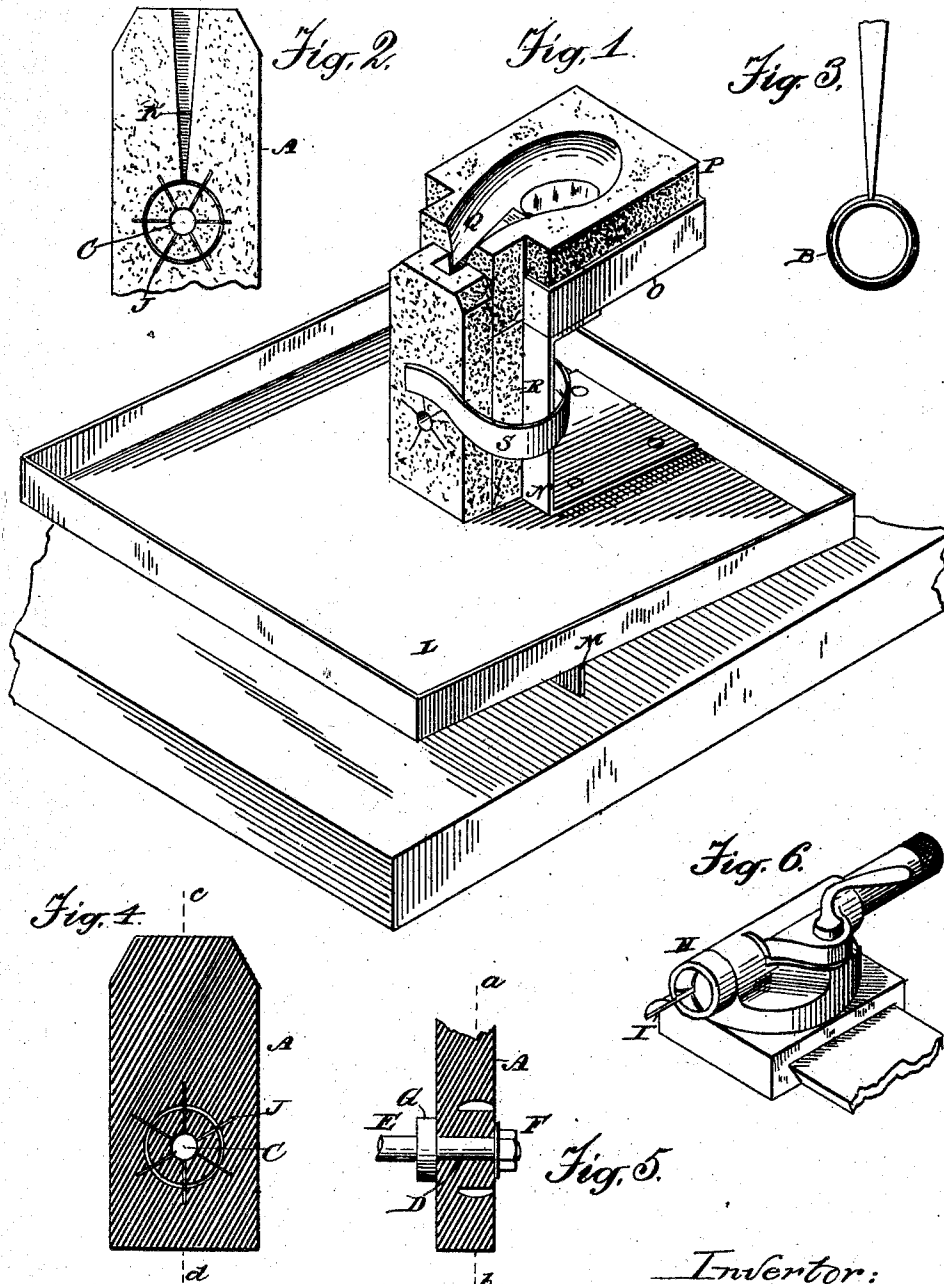


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MOLD FOR CASTINGS OF PRECIOUS METAL.
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981,033.

Patented Jan. 10, 1911.



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UNITED STATES PATENT OFFICE.

LAWRENCE W. SWEM, OF WEST LIBERTY, IOWA.

MOLD FOR CASTINGS OF PRECIOUS METAL.

981,033.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Application filed October 19, 1908. Serial No. 458,451.

To all whom it may concern:

Be it known that I, LAWRENCE W. SWEM, a citizen of the United States, residing at West Liberty, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Molds for Castings of Precious Metal, of which the following is a specification.

The object of this invention is to make it convenient to cast small objects, such as finger rings and the like, of gold or silver to produce a perfect cast without forcing the molten metal into the mold under pressure.

The nature of the invention will fully appear from the description and claims following, reference being had to the accompanying drawing, in which:—

Figure 1 is a view in perspective illustrating my improved casting apparatus as in use. Fig. 2 is a fragmentary view of a finger ring mold, as seen from the inner side. Fig. 3 shows a ring as taken from the mold. Fig. 4 is a section of the mold in the line *a b* of Fig. 5, but made for a thin, flat ring. Fig. 5 is a section in the line *c d* of a counter bored mold adapted for a round topped or crowned ring. Fig. 6 shows the tool for forming the mold, and the manner in which it may be mounted for use.

In the drawing A denotes the mold, which in practice is made of a small slab of fine charcoal, which does not chill, but holds the heat of the molten metal and thus enables it to flow freely and fill the mold. In this is shaped a matrix for the article to be cast, a finger ring B being here shown. In casting this, or any other object, it is of course desirable that the cast be clean and smooth. This is done by forming the entire matrix, except one edge, in a single block or slab. It is evident that if this be done and the flat face of the mold be closely abutted against a flat surface, the ring will cast clean and whole, with no fins and no possible offsets. Such a cast is very easily and quickly finished, and with practically no waste in filing and polishing. The method by which these results are attained will now be described.

In the slab of charcoal is bored a small hole C of a suitable size to fit the spindle of a driver D having a suitable shank E to be held in a lathe chuck. The slab is held by a nut F against a shoulder G, as shown. In a chuck H, which is here shown as a part of a lathe slide-rest, but might be attached to the tail-stock spindle, is secured a thin,

semi-circular tool I, the blade of which corresponds to a cross section of the ring. The stem of this tool should be no thicker in any direction than the back of the blade, and this corresponds to the thickness of the edges of the ring. While the slab is revolved rapidly, this blade, back edge up, is used as a parting tool, and forced straight into the slab. When it has reached the proper depth it is carefully turned on the axis of its slender stem. In this way the matrix may be counter-bored either outwardly or inwardly, to produce the desired curving or "crowning" of the ring. This done, the tool is turned to its original position and withdrawn. The matrix so formed is vented by sawing thin slits J from the central hole outwardly. In practice the molten metal does not enter these slits. A gate K is formed by sawing a tapered channel from the matrix outwardly, the material between the saw-kerfs being split out with a knife or chisel. It is now only necessary to clamp a flat slab against this side of the mold, and pour the molten metal in at the gate from any suitable crucible.

In Fig. 1 is shown a device by which melting and casting is facilitated. L is a rectangular pan, provided with a foot M near its middle. N is a bracket attached to the inside of the pan, and supporting a tray O, which holds a crucible P composed of a block of charcoal cupped at the top to take a small charge of metal, and provided with a suitable spout Q by which the cup may be emptied. A small slab of charcoal R fits against the face of the bracket under the spout and flush with the outer end thereof. The mold is held against both by a clamp S, the mold gate registering with the groove in the crucible spout. When resting in its natural position, as shown, the metal is melted by a torch or blow-pipe. The pouring is done in a moment, and without spilling over, by simply depressing the front edge of the pan. After casting, no attempt is of course made to preserve the mold, but its cost is so trifling as to be much more than compensated for by the smooth and perfect casting produced by it.

Having thus described my invention, I claim:

1. The herein described method of producing a mold in which to cast objects of precious metal, which consists in forming the entire configuration of the object except one

face or edge, in a single block of charcoal, by cutting and undercutting, gating the matrix in a similar manner, closing the open side of the mold with a plane slab, and pouring the molten metal into the gate.

2. The described method of forming a mold for finger-rings, consisting in spinning a slab of charcoal, cutting the ring channel therein with a thin parting tool having a semi-circular lip and a slender shank not

thicker than the parting tool, and undercutting or counterboring to crown the matrix inside, by turning said tool on the axis of its stem.

In testimony whereof I affix my signature in presence of two witnesses.

LAWRENCE W. SWEM.

Witnesses:

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