

W. COVENTRY.

Process for Casting Hard Metal on Soft Cast Metal.

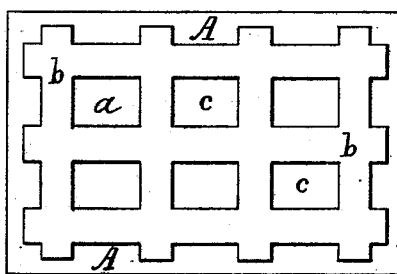
No. 215,210.

Patented May 13, 1879.

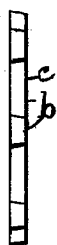
*Fig. 1.*



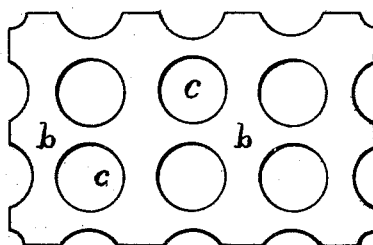
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



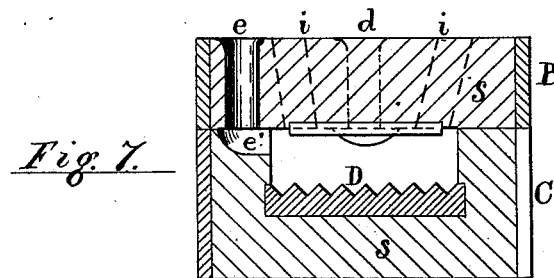
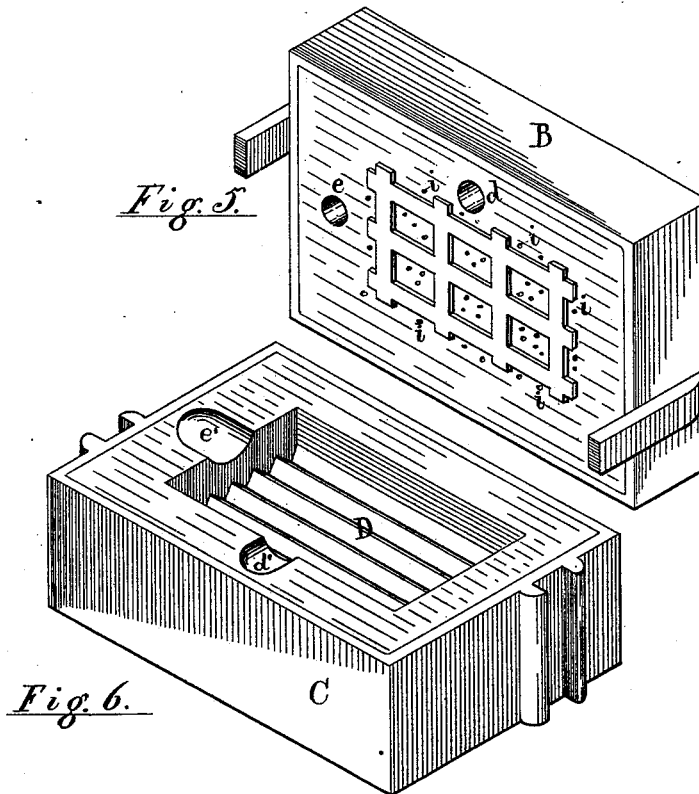
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# UNITED STATES PATENT OFFICE.

WILLIAM COVENTRY, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN PROCESSES FOR CASTING HARD METAL ON SOFT CAST METAL.

Specification forming part of Letters Patent No. **215,210**, dated May 13, 1879; application filed November 22, 1878.

*To all whom it may concern:*

Be it known that I, WILLIAM COVENTRY, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Processes for Casting Hard Metal upon Soft Cast Metal, which improvement is fully described in the following specification.

My invention relates to a new method of making jaws for stone-breakers and similar articles; and consists in forming a soft back upon a mass of hard iron by casting the same in two operations, in the following manner:

My method or process consists in first casting a plate of soft iron or steel with apertures formed through it for uniting the same to the body of the die or jaw, as well as for ventilating the mold, and then securing the same in the top of a mold, into which the harder metal is then poured, and with which the plate becomes firmly united in the operation of casting.

My invention is shown in the annexed drawings, in which Figure 1 is an end view of a jaw, A, for a stone-breaker, the hard working-face being marked *a* and the soft back *b*. Fig. 2 is a view of the back of the jaw; and Figs. 3 and 4 are detached views of a back plate, shown with round hole *c c* extending through it, to vent the casting and secure adhesion between the jaw and the plate. Figs. 5 and 6 are perspective views of the top and bottom of the mold with the soft plate secured in position, and Fig. 7 a transverse section of the mold across the middle of the inlet *d*.

B is the top of the mold; C, the bottom, shown with a chill, D, placed in it to chill the working-face of the jaw. SS is the sand forming the mold. *d* represents inlets for the melted metal, which may be placed at any part of the mold, and *d' d'* are channels conducting the metal from the inlet into the mold beneath

the plate secured in its top. *i i* are ventilating-holes pierced in the top B, which may be dispensed with if the sand is very porous. The holes *c c* in the plate are, however, indispensable, as no ventilation of the mold suffices if the top be closed by a solid plate.

The body of the die may be formed of steel or hard iron, and may have a chilled face or not, as may be desired; but the soft back is essential to form a fitting surface if the body of the die be too hard to plane easily.

While the casting of wrought-iron bars in the back of a die produces cracks, and leads to the breaking of the jaw when in use, I find that forming the jaw or die entirely of cast metal in two operations obviates this danger and produces a mass sound and solid throughout.

The size and shape of the holes in the soft plate are immaterial; but I generally make them smallest on the side next the jaw, that they may be dovetailed into the metal poured in contact with them.

Having thus shown the process of making my improvement and the advantage of the jaws produced by such process, I claim the same as follows:

The process of casting stone-breaker jaws and similar articles, by first casting a plate of soft metal having apertures therein, placing the plate in the top of a mold, introducing a harder metal into the mold below the perforated plate, and causing the metal to rise to enter the apertures of the plate, as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereto subscribe my name in the presence of two witnesses.

WILLIAM COVENTRY.

Witnesses:

THOS. S. CRANE,  
E. B. BURDETT, Jr.