(Model.)

E. A. BARNES.

MOLD BOTTOM FOR CASTING STEEL INGOTS.

No. 264,847. Patented Sept. 26, 1882.

Fig. 4.

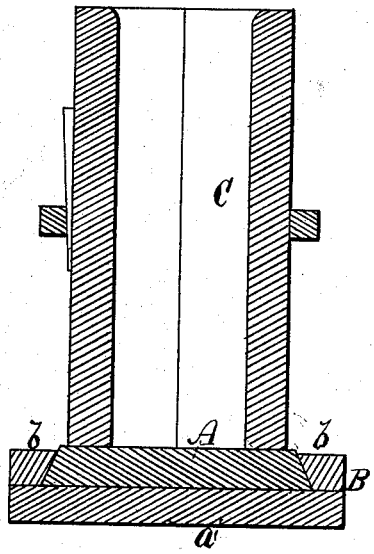


Fig. 1.

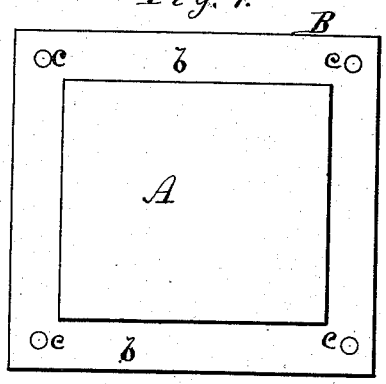


Fig. 2.

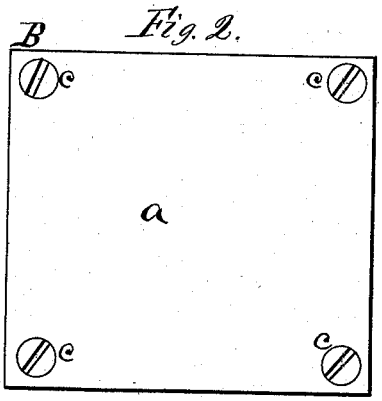
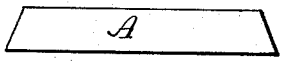


Fig. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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MOLD-BOTTOM FOR CASTING STEEL INGOTS.

SPECIFICATION forming part of Letters Patent No. 264,847, dated September 26, 1882.

Application filed May 5, 1882. (Model.)

To all whom it may concern:

Be it known that I, ELMORE A. BARNES, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented an Improvement in Mold-Bottoms for Casting Steel Ingots; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of my improved mold-bottom; Fig. 2, a bottom view of the same; Fig. 3, a side view of the removable block of the mold-bottom; Fig. 4, a vertical section through the mold-bottom and mold-sides together.

Like letters designate corresponding parts in all of the figures.

In the use of the ordinary cast-iron bottoms for the molds employed in casting steel ingots serious troubles occur. The melted steel as it is poured into the mold and strikes the bottom rapidly cuts the bottom away at the center, and when thus a cavity is formed in the bottom and the melted steel fills the same at each casting a burr or excrescence is formed on the lower end of the ingot, which is a waste of so much metal; but this is not the most serious result. This excrescence, when the ingot is heated for subsequent rolling, cools more quickly than the body of the ingot, so that it hardens sufficiently before passing between the rolls to indent the surfaces thereof, greatly to their injury, so that they frequently require redressing. The rapid destruction of the mold-bottoms from the cause specified also is an item of considerable expense.

My invention is designed to obviate the foregoing objections to and imperfections of the cast-iron mold-bottoms.

It consists in a removable and replaceable block, A, of any suitable material that will sufficiently withstand the abrading action of the molten steel poured into the mold, this block being secured in the middle of the bottom B of the mold and of sufficient size to receive the lower end of the mold-body C, with a proper margin around the body.

Included in my complete invention, also, is an improved means of securing the refractory block in the mold-bottom.

The mold-body C simply rests on the plane upper face of the block A for casting ingots, and there is no peculiarity in its construction.

The refractory block A is preferably made of plumbago, or the mixture of plumbago and clay which is employed in making crucibles for melting cast-steel in. It may, however, be made of fire-brick materials or any other that will serve the purpose of resisting heat and abrasion. For securing this block in the bottom or base B so that it cannot be drawn any by the ingot clinging to it, (as sometimes would happen if not guarded against, since when the mold-body C is carelessly placed on the bottom some molten steel is apt to leak out underneath it and flow over the edge of the block A, causing such adhesion of the ingot to the block as to involve the destruction of the block in separating it from the ingot,) I make the edges of the block somewhat inclined, like the sides of a pyramid, as shown in Fig. 3. This form prevents the adhesion of the outflowing steel to the edges of the block; but especially this form is suited to my method of securing the block in the bottom or base B, which is made in two parts, *a b*, the lower part, *a*, being a simple plane block, and the upper part, *b*, being a rim-piece, with a space in the middle just of the size and shape to hold the refractory block A, as shown in Fig. 4. The two parts *a b* are united after the insertion of the refractory block A by screws *c c*, Fig. 2, or any equivalent means, which readily allows the separation of the parts and reuniting of the same.

Any variation in the construction of the parts employed in my invention which does not depart from the principle and purpose thereof may be made, and the employment of the invention for any analogous purpose which may be useful is contemplated herein.

A separate removable and replaceable block, even if not of refractory materials, may be used to advantage, though of course the refractory block is much the best.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a mold for casting ingots, a block, A, forming the bottom of the mold, made of plumbago or equivalent refractory material or composition, held in a holder, B, above which it projects, and its edges being inclined, in combination with the mold-body C, which rests on the said block, substantially as and for the purpose herein specified.

2. The bottom B, composed of the parts *a b*, constructed as described, in combination with the refractory block A, substantially as and for the purpose herein specified.

ELMORE A. BARNES.

Witnesses:
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