(No Model.)

LeR. S. WHITE.

Mold for Casting Hollow Ingots.

No. 235,476. Patented Dec. 14, 1880.

Fig1.

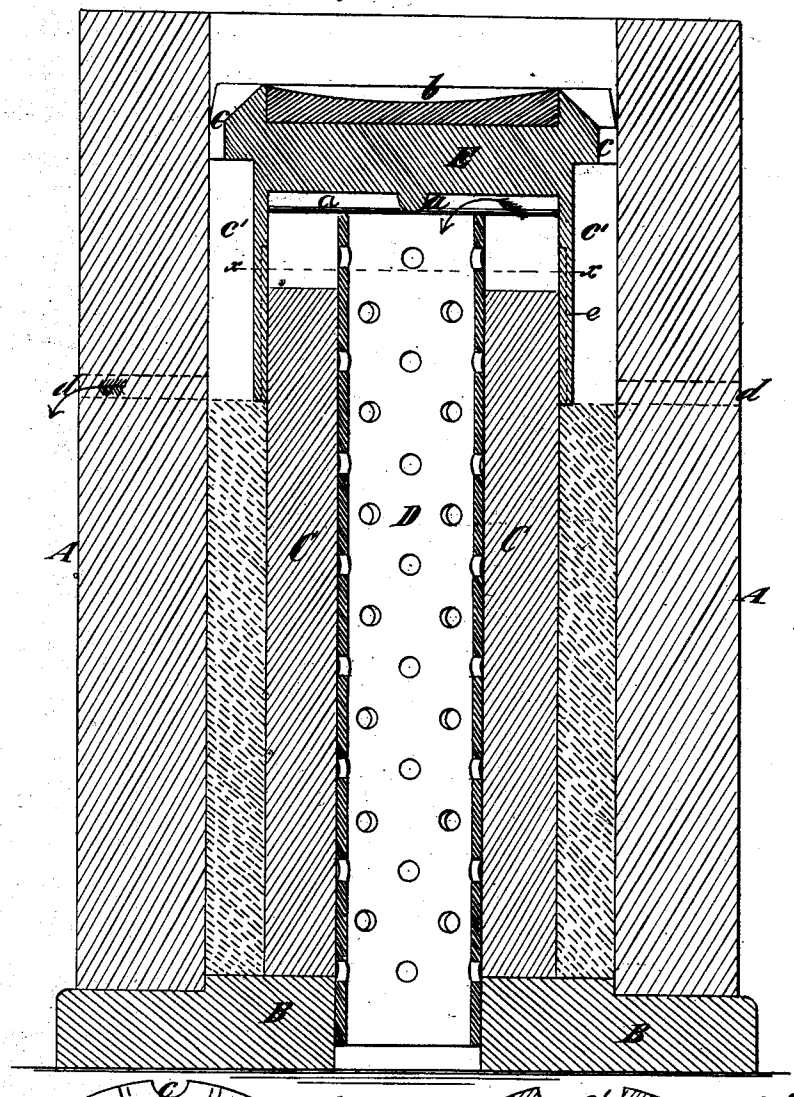


Fig2.

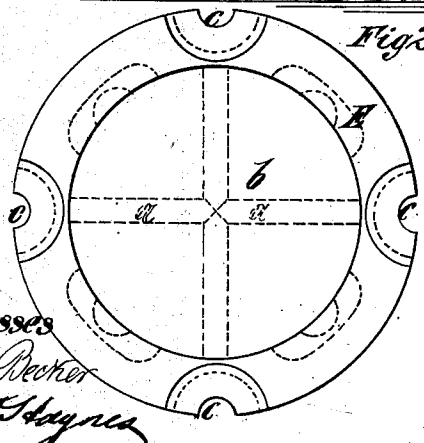
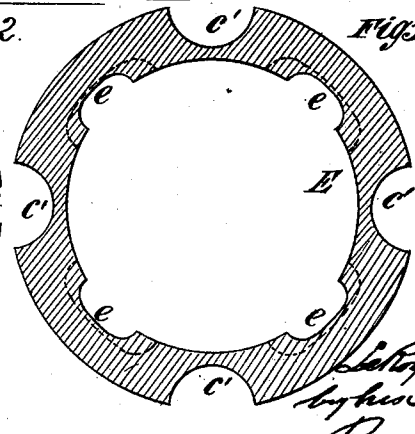


Fig3.



Witnesses
John Becker
Fred. Haynes

Inventor
LeRoy S. White
by his Attorneys
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N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LE ROY S. WHITE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO BROWN & BROTHERS, OF SAME PLACE.

MOLD FOR CASTING HOLLOW INGOTS.

SPECIFICATION forming part of Letters Patent No. 235,476, dated December 14, 1880.

Application filed October 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, LE ROY S. WHITE, of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Molds for Casting Hollow Ingots, of which the following is a specification.

My invention relates more particularly to the molds employed in casting hollow copper or brass ingots which are to be drawn out into pipes or tubes; and its object is to aid in supporting the coil centrally in a mold and to provide for delivering the molten metal at an even temperature at all parts of the circumference of the mold when the metal is poured from a single ladle.

To this end my invention consists in the combination, with an ingot-mold and a core supported at the bottom thereof, of a distributing-head conforming to the interior of the mold and fitting within the same at some distance below its mouth, having recesses in its circumference forming ducts, and receiving within it and centering the core, whereby molten metal poured upon the distributing-head immediately over the core is conducted to different points of its circumference and delivered into the mold.

It also consists in a distributing-head of the kind described constructed with grooves or recesses in its hollow interior for venting the mold.

The invention also consists in a novel construction or formation of the ducts through which the molten metal is conducted down around the head to the mold, whereby the surface with which the molten metal comes in contact is reduced as much as possible to prevent chilling the metal.

It also consists in certain other novel features in the construction of the said head and in the combination of said head with an ingot-mold and its core.

In the accompanying drawings, Figure 1 represents a central vertical section through an ingot-mold having my improved head applied thereto. Fig. 2 represents a plan of the head separate from the mold, and Fig. 3 represents a transverse section of the head upon the dotted line *x x*, Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A designates a cylindric mold, which may be of cast-iron and which rests upon a base-plate, B, which is provided with a face piece or projection which fits into the mold, thus holding the latter against lateral movement.

C designates an ordinary sand core, which is built up on a hollow core barrel or center, D, which fits in a recess in the base-plate B and is thereby held exactly concentric within the mold.

The mold A is made somewhat larger or higher than usual, and in the top or mouth thereof is a head, E, which is of cylindric form, to conform to and snugly fit in the mold at some distance below its mouth, the top of said head being somewhat below the top or mouth of the mold. The head E is made hollow inside, as shown in Fig. 1, and is open at the bottom and closed at the top. The inner diameter of the head is of sufficient diameter to receive the core or core-barrel within it, thus properly centering the core in the mold, and the head rests upon the top of the core-barrel D and is provided inside at the top with cross-ribs *a*, which leave a space between the top of the core-barrel and the under side of the top of the head for the escape of gas.

The top of the head E is preferably constructed with a central recess, *b*, which is faced or covered with crucible material, so as to prevent the molten metal, when poured in, from eating or wasting away the iron of which the head is composed.

In the circumference of the head E are a series of recesses, *c*, which lead outward from the central recess, *b*, and which, when the head is inserted in the mold, form ducts for the passage of the metal down past the head and into the mold. These ducts are formed at regular intervals around the circumference of the mold, and although only four are here shown, this number will be increased as the diameter of the mold is increased.

As clearly shown in Fig. 1 and in dotted outline in Fig. 2, the lower portions, *c'*, of the recesses or ducts *c* are deeper than the upper

portions thereof—that is, they are extended farther into the head or are undercut—and hence the molten metal drops clear of the sides of the ducts and is chilled as little as possible by contact with the cast-iron.

The gas which is given off by the sand core C as the molten metal is poured in escapes through the perforations in the core barrel or center D and down out the open lower end thereof.

The air and gas from the mold may escape through the holes *d* (shown dotted) in the sides thereof; but in lieu of these holes I preferably construct the head with grooves or recesses *e* upon its interior, as shown in Fig. 2 in dotted outline and in full outline in Fig. 3. These grooves or recesses are placed between the recesses *c c'*, and through them air and gas may escape from the mold up around the core, where it is supported in the head, and down through the hollow core barrel or center D.

By my invention I provide for properly centering the core, and also for distributing the molten metal at a uniform temperature around the circumference of the mold.

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

1. The combination, with an ingot-mold and a core supported at the bottom thereof, of a distributing-head conforming to the interior of the mold and fitting within the same at some distance below its mouth, having recesses in its circumference forming ducts, and receiving within it and centering the core, substantially as herein specified.

2. A hollow distributing-cap for a mold, adapted to fit within the mold and to receive within it the core or core-barrel, and constructed at its circumference with ducts to lead to the interior of the mold, and having grooves or recesses in its interior for venting the mold, substantially as and for the purpose specified.

3. The combination, with an ingot-mold and a core supported at the bottom thereof, of a distributing-head conforming to the interior of the mold and fitting within the same at some distance below its mouth, receiving within it and centering the core, and having recesses in its circumference forming ducts, the lower portions of which are recessed deeper or undercut back of the upper portions, substantially as and for the purpose specified.

4. The combination of the mold A, the core C, the core-barrel D, and the cap E, constructed with ducts *c* upon its exterior and recesses or grooves *e* upon its interior, substantially as and for the purpose specified.

LE ROY S. WHITE.

Witnesses:
G. H. CLOWES,
FRANK PARTREE.

Correction for Letters Patent No. 235,476.

It is hereby certified that in Letters Patent No. 235,476, dated December 14, 1880, for Improvement in "Molds for Casting Hollow Ingots," on page 1, line 12, of the Specification forming part of said Letters Patent, after the word "the" the word "core" was erroneously printed "coil;" that the proper corrections have been made in the records of the Office, and that the correction is hereby made in said Letters Patent.

Signed, countersigned, and sealed this 31st day of December, A. D. 1880.

[SEAL.]

A. BELL,
Acting Secretary of the Interior.

Countersigned:

E. M. MARBLE,
Commissioner of Patents.