

E. GATHMANN.  
 INGOT MOLD.  
 APPLICATION FILED NOV. 24, 1915.

1,170,629.

Patented Feb. 8, 1916.

Fig. 1.

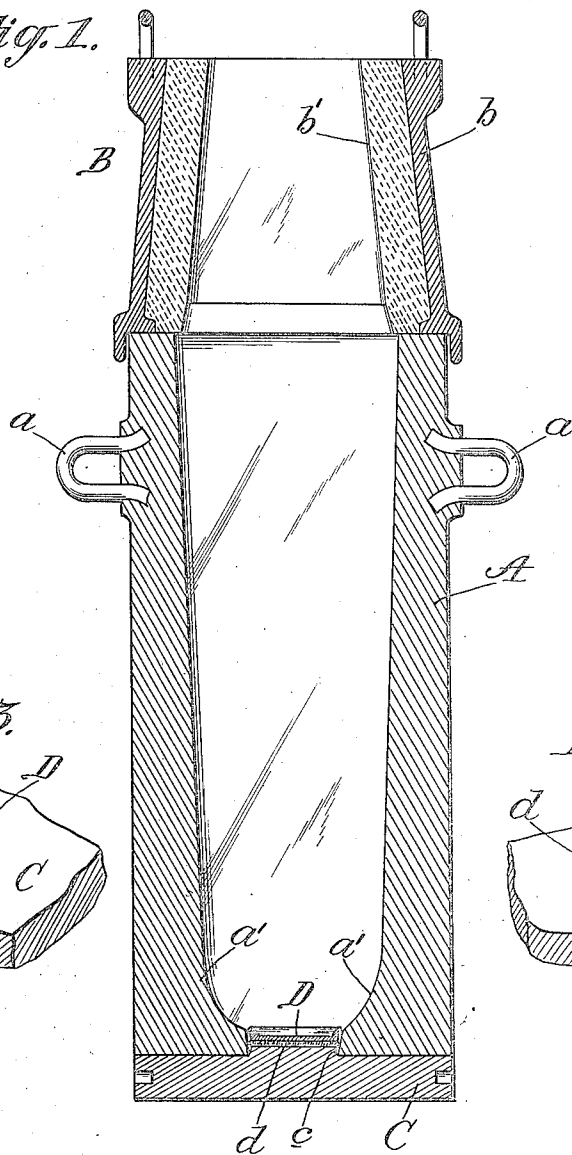


Fig. 3.

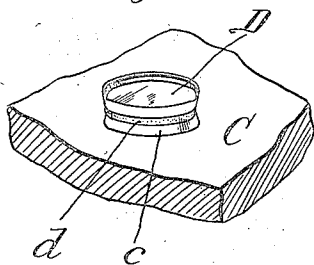


Fig. 4.

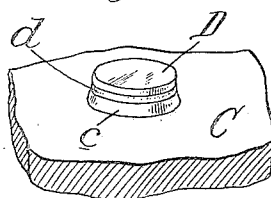
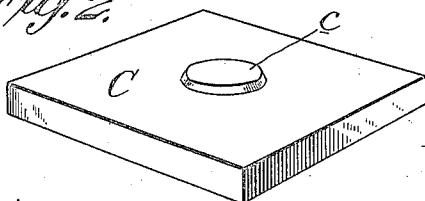


Fig. 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

EMIL GATHMANN, OF BALTIMORE, MARYLAND.

INGOT-MOLD.

1,170,629.

Specification of Letters Patent.

Patented Feb. 8, 1916.

Application filed November 24, 1915. Serial No. 63,166.

To all whom it may concern:

Be it known that I, EMIL GATHMANN, a citizen of the United States, residing in Baltimore, Maryland, have invented certain new and useful Improvements in Ingot-Molds, of which the following is a specification.

This invention relates to certain improvements in the construction of ingot molds and in stools for supporting said molds and sealing the lower end of the mold chamber.

The invention relates particularly to molds of this class in which the larger part of the mold is uppermost. Molds of this kind are generally open at both top and bottom, the bottom being closed while casting by means of a stool on which the mold rests and which is usually provided with a short projection which enters the opening in the bottom of the mold.

The object of my present invention is to efficiently seal the bottom portion of the mold chamber in such manner as to prevent the escape of the molten metal therefrom and in such manner also as to protect the stool and thus prolong its usefulness.

In carrying out my invention, I employ a stool of the usual kind and on that portion immediately below or within the opening in the mold bottom I place a layer of loam or similar material which will serve to efficiently seal the connection of the mold chamber with the stool. Upon this layer of sealing material I place a plate which covers the sealing material and receives the molten metal when it is poured into the mold.

In the accompanying drawings: Figure 1 shows a vertical central section through an ingot mold with my improvements applied. Fig. 2 is a perspective view of the stool. Fig. 3 is a detail view in perspective showing the manner of applying a cupped plate to a layer of sealing material. Fig. 4 is a similar view showing how a flat plate may be used for the same purpose.

The mold A may be of usual construction but is preferably of the kind shown, *i. e.*, a "big-end up" mold having the mold walls thicker in the lower portion of the mold than in the upper portion thereof for purposes now well understood. Devices *a* may be attached to the mold to which the mold-fitting mechanism may be applied and the mold may be provided with a sink head or

feeder B, comprising a metallic shell or casing *b* and a lining *b'* of suitable material, such as loam.

The lower portion of the mold cavity is preferably "necked in," as shown at *a'* to prevent the ingot from sticking in the mold during the stripping operation. The stool C may be merely a block of metal but preferably it has a projection *c* which enters the opening in the bottom of the mold. To seal the joint between the stool and the mold at the bottom opening thereof I employ a sealing material which is plastic when wet and hard, air-tight and able to resist high temperatures when dry. I have found ordinary loam to be best suited for this purpose. It serves not only to seal the joint but also to protect the stool. A thin layer only is required. It is indicated at *d* in Figs. 1, 3 and 4.

The molten metal is poured into the mold in the usual way and in order to protect the sealing material during the pouring operation I employ a plate D of metal which rests on and covers the sealing material. This may be a flat disk, as indicated at Fig. 4, or it may be a cupped disk, as indicated in Figs. 1 and 3. Experience has demonstrated that in this way the joint between the stool and the mold is sealed and the sealing material is not broken or injured during the pouring of the mold, the protection as a whole being such that the life of the stool is considerably prolonged. The sealing material is so applied as to prevent the metal from forming horizontal fins which would interfere with the stripping of the ingot when the latter is lifted out of the mold or when the mold is reversed for stripping purposes.

It will be understood that loam acts as an efficient sealing means but as the steel is poured into the mold the loam is apt to mix with the liquid steel and cause what is termed "dirty steel." By using a plate on the top of the loam this entering of the loam into the liquid steel is prevented. The plate naturally sticks to the bottom of the ingot and therefore a new plate is preferably used for every ingot cast.

I claim as my invention:

1. A metallic mold open at top and bottom, in combination with a stool for supporting the mold and which is provided with refractory plastic sealing material be-

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low the bottom opening of the mold cavity, and a relatively thin metallic plate resting on said sealing material for protecting it.

2. A metallic mold open at top and bottom, in combination with a supporting stool having a projection extending into the bottom opening of the mold, a layer of refractory, plastic sealing material spread on top of said projection, and a relatively thin metallic plate resting on the sealing material to protect the latter while the mold is being poured.

3. A metallic mold open at top and bottom, in combination with a supporting stool, refractory sealing material closing the joints between the stool and the mold and covering that portion of the stool immediately below the mold cavity, and a relatively thin cup-shaped metallic plate resting on said sealing material.

4. A metallic mold open at top and bottom in combination with a stool for supporting the mold and which is provided with a layer of refractory plastic sealing

material below the bottom opening of the mold cavity, and a relatively thin metallic plate resting on and removable from said sealing material and which is adapted to be welded to the ingot and to be withdrawn therewith from the mold.

5. A metallic mold open at top and bottom, in combination with a stool for supporting the mold having a projection extending upwardly into the bottom opening of the mold, a thin layer of stationary hard refractory sealing material spread on the top of said projection and a relatively thin metallic plate resting on the sealing material to protect the latter while the mold is being poured and to prevent the sealing material from adhering to the ingot.

In testimony whereof, I have hereunto subscribed my name.

EMIL GATHMANN.

Witnesses:

M. MENSCHAW,  
CORRIGTON F. ALLEN.