Jan. 29, 1935. O. L. JONES 1,989,096

INGOT MOLD

Filed Oct. 2, 1933

Fig. 1

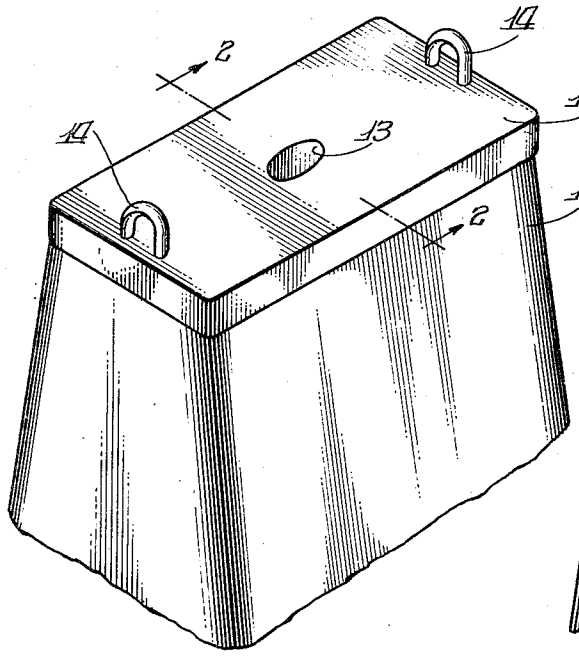


Fig. 2

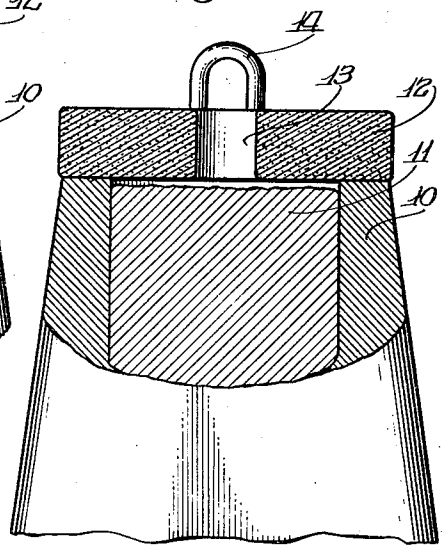


Fig. 3

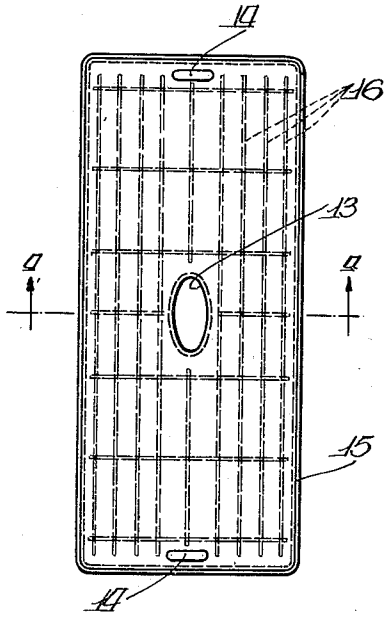
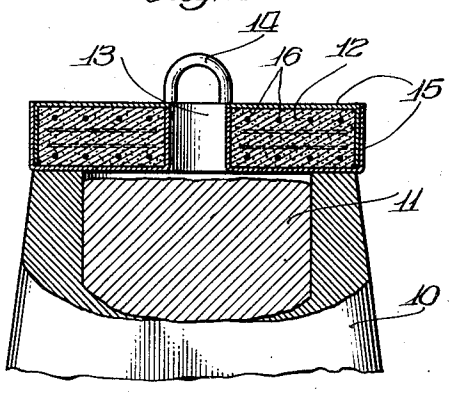


Fig. 4



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UNITED STATES PATENT OFFICE

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INGOT MOLD

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4 Claims. (Cl. 22—139)

The invention relates to improvements in ingot molds and has for its primary object the provision of an improved construction of this character especially constructed and arranged to facilitate the escape of gases from the top of the ingot and thereby minimize the formation of a spongy or porous top to the ingot.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which

Fig. 1 is a perspective view of the upper portion of an ingot mold embodying the invention;

Fig. 2 a partial transverse section taken substantially on line 2—2 of Fig. 1;

Fig. 3 a top plan view of a modified form of construction; and

Fig. 4 a partial transverse section thereof taken substantially on line 4—4 of Fig. 3.

The embodiment of the invention illustrated in Figs. 1 and 2 comprises an ingot mold body 10, of any usual or desired construction, normally open at the top and adapted to contain the usual ingot 11 as indicated. Associated with the mold body 10 is a cover plate 12, preferably in the form of a slab molded from a mixture of exfoliated vermiculite mixed with clay and asbestos, cattle hair or other suitable fibers. The cover 12 is provided with a comparatively small central gas escape opening 13 and with suitable hooks or handles 14 by means of which the same may be readily moved into and out of operative position.

In use and in operation, the cover 12 is removed and the molten metal poured into the mold 10 to form the ingot 11 therein in the usual way. As soon as the molten metal has been placed in the body 10, the cover member 12 is replaced in position thereon and the ingot allowed to cool in the usual way. The presence of the cover member 12 on top of the mold body tends to conserve the heat in the mold body and in the ingot cooling therein. This conservation of the heat has a tendency to prolong the time during which the metal at the top of the ingot will remain sufficiently liquid to permit of the escape of the gases entrapped or formed from combustion therein. This escape of gases prevents or minimizes the formation of bubbles or cavities in the top portion of the ingot and thereby prevents or reduces the extent of the usual spongy and defective top on the ingot. The central opening 13 is made of sufficient size to permit of the ready escape of the gases escaping from the body of the ingot but not large enough to permit the radiation or escape of any material amount of the heat in the molten metal.

In the modification illustrated in Figs. 3 and 4, the slab 12 is enclosed in a thin sheet metal casing 15 and is further reinforced by means of wires or rods 16 imbedded therein. As will be noted, the casing 15 is in the form of two shallow pans one fitting over the other so as to form a double side to the casing. In use the inner pan may be filled with the insulating mixture, the outer pan fitted over the inner pan and the two held together by the handle members 14. By this arrangement a cover is provided which will have greater strength and durability, although perhaps not as great heat insulating properties.

While I have illustrated and described the preferred forms of construction for carrying my invention into effect, these are capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details disclosed, but desire to avail myself of such variations and modifications as fall within the scope of the appended claims.

I claim:

1. An ingot mold comprising a body adapted to contain an ingot and normally open at the top; and a removable cover for said body in the form of a slab formed of a mixture of exfoliated vermiculite mixed with clay and fibrous material and provided with a comparatively small central opening.

2. An ingot mold comprising a body adapted to contain an ingot and normally open at the top; and a removable cover for said body in the form of a slab formed of a mixture of exfoliated vermiculite mixed with clay and fibrous material and provided with a comparatively small central opening, said slab being enclosed in a metal casing and provided with reinforcements imbedded therein.

3. An ingot mold comprising a body adapted to contain an ingot and normally open at the top; and a removable cover for said body in the form of a slab comprising two shallow metal pans, one of which fits over the other, and filled with heat insulating and resisting material.

4. An ingot mold comprising a body adapted to contain an ingot and normally open at the top; a removable cover for said body in the form of a slab comprising two shallow metal pans, one of which fits over the other, and filled with exfoliated vermiculite mixed with clay and fibrous material; and handle members at opposite ends of said slab and adapted to hold said pans together.

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