S. E. HITT & J. I. PEYTON.

INGOT MOLD.

APPLICATION FILED JAN. 27, 1915.

1,139,284.

Patented May 11, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

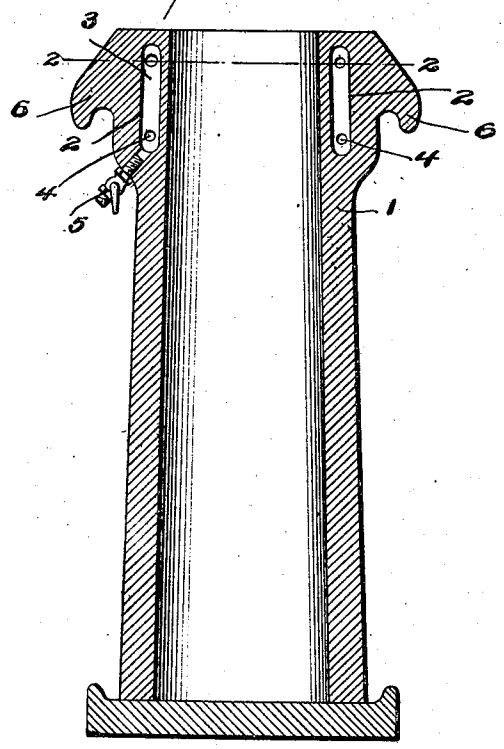


FIG. 2.

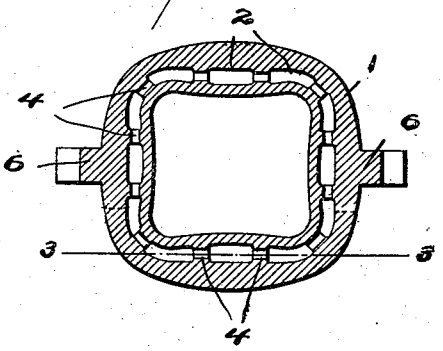


FIG. 3.

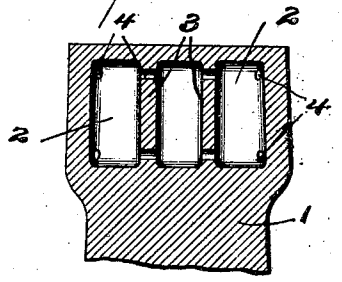


FIG. 4.

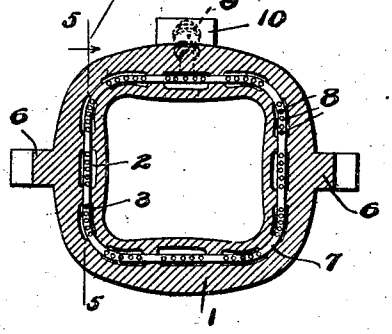
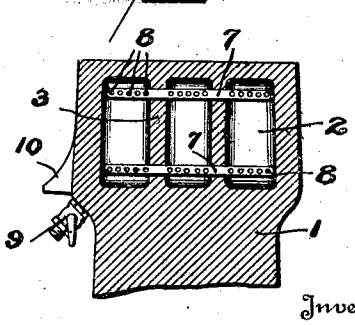


FIG. 5.



Witnesses

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2 SHEETS—SHEET 2.

FIG. 6.

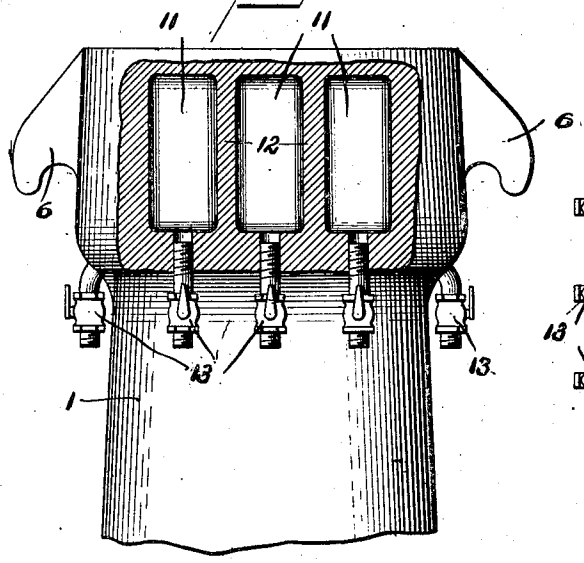


FIG. 7.

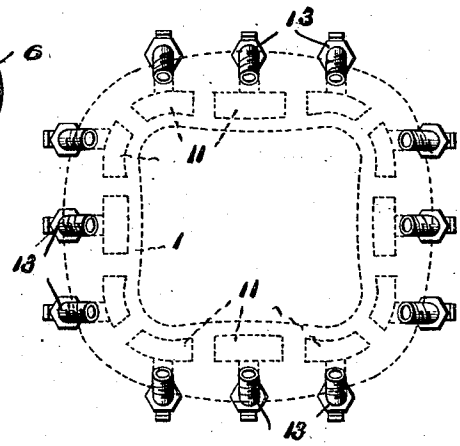


FIG. 8.

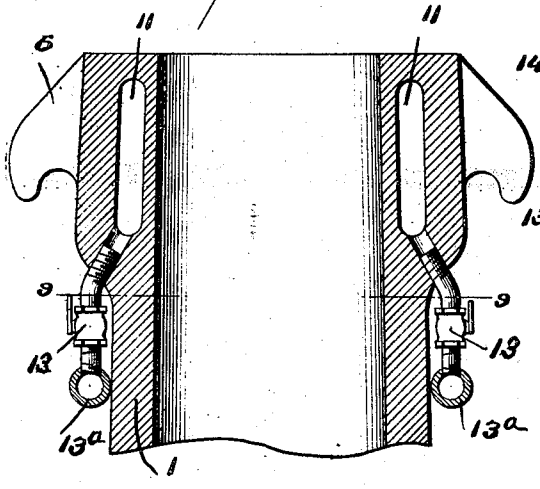
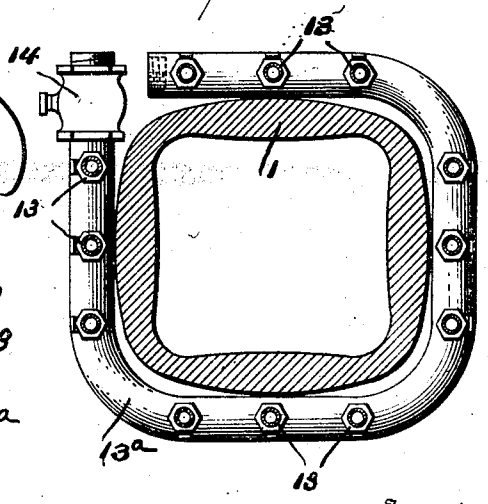


FIG. 9.



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UNITED STATES PATENT OFFICE.

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INGOT-MOLD.

1,139,284. Specification of Letters Patent. Patented May 11, 1915.

Application filed January 27, 1915. Serial No. 4,741.

To all whom it may concern:

Be it known that we, SAMUEL E. HITT, residing at Elyria, in the county of Lorain and State of Ohio, and JOSEPH I. PEYTON, residing at Washington, District of Columbia, both citizens of the United States, have invented certain new and useful Improvements in Ingot-Molds, of which the following is a specification.

Our invention relates to improvements in ingot molds, and it consists in the constructions, combinations and arrangements herein described and claimed.

An object of our invention is to provide an improved ingot mold which will insure a homogeneous ingot of high quality at a reduced cost per ton.

A further object of our invention is to provide an improved ingot mold adapted to minimize the defects due to pipes, blow holes, cavities and segregation usually found in cast ingots.

A further object of our invention is to provide a strong and durable metallic ingot mold formed with heat-insulating chambers adapted to efficiently retard the cooling of the upper portion of the cast ingot.

In the accompanying drawings: Figure 1 is a central, vertical section of an ingot mold, illustrating one embodiment of our invention; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a view similar to Fig. 2, illustrating a modified construction; Fig. 5 is a section on the line 5—5 of Fig. 4; Fig. 6 is a fragmentary elevation of an ingot mold, showing a modification, with the outer walls of the heat-insulating chambers broken away; Fig. 7 is a plan view of the valved connections to the chambers shown in Fig. 6, the position of the mold being indicated in dotted lines; Fig. 8 is a central, vertical section of a modified construction of ingot mold; Fig. 9 is a section on the line 9—9 of Fig. 8.

Referring especially to Figs. 1–3 of the drawings, 1 indicates an open top ingot mold having a plurality of heat-insulating chambers 2 formed in its side walls, and spaced from the top thereof sufficiently to provide a relatively thick upper wall to said chambers; the upper portion of the side walls of the mold 1 being thickened to provide said chambers 2 with substantial, heavy outer and lower walls.

The partitions, or webs, 3 between the several chambers 2 are shown provided with apertures 4, for maintaining free communication between said chambers; said partitions being preferably symmetrically disposed to provide a uniform and symmetrical arrangement of the chambers 2 in the mold walls. A valved outlet, or connection, 5 is secured to the outer face of the mold, in communication with one of the chambers 2 to provide a convenient connection for any suitable device, such as an air pump, for exhausting the air from said chambers 2. The connection 5 is preferably positioned below one of the stripping ears 6 of the mold, in order to protect said connection from slag or metal overflow.

By our above described improved construction, the relatively thick upper and lower walls of the heat-insulating chambers 2 act efficiently to conduct heat uniformly from the entire top and bottom portions of the inner walls of said chambers 2, and the symmetrically disposed partitions, or webs, 3 between the several chambers 2 conduct the heat uniformly from the adjacent side portions of the inner walls of said several chambers. This improved construction insures a continuous and uniform conduction of heat from the inner walls of the several heat-insulating chambers 2; thereby preventing deterioration or destruction of the mold by disadvantageously high heating of the inner walls of said chambers 2 from the hot cast metal in contact therewith, and avoiding injurious irregular or localized cooling of said inner walls. It will be obvious that the partitions, or webs, 3 can be readily spaced and positioned to provide heat conducting means of any desired extent and distribution, and that said webs constitute reinforcing supports for the inner walls of the chambers 2.

Figs. 4 and 5 illustrate a modification, in which a continuous pipe 7 extends through the several heat-insulating chambers and is provided with perforations 8 opening in said chambers for maintaining the latter in intercommunication; said pipe 7 being provided with a valved connection 9, which projects from the outer face of the mold below a protecting hood 10 formed on the latter. In practice, the cores for forming the heat-insulating chambers can be readily formed, or assembled, on the pipe 7, and the

ingot mold then cast about said pipe 7 and its connection 9.

Figs. 6 and 7 illustrate a modification in which the ingot mold is provided with a plurality of independent heat-insulating chambers 11 separated by imperforate webs 12; each of said chambers 11 being provided with a valved connection 13 for exhausting the air therefrom.

Figs. 8 and 9 illustrate a modification in which the several valved connections of the chambers 11 are connected to a common pipe 13^a provided with a valve 14, and adapted to be connected with any suitable device for exhausting the air; thereby providing means by which the air can be simultaneously exhausted from any desired number, or all, of the independent chambers 11.

We have illustrated preferred and satisfactory constructions, but changes could be made within the spirit and scope of our invention.

We claim:

1. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with relatively thick upper walls.

2. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with relatively thick upper walls and partitions connecting their inner and outer walls.

3. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with relatively thick upper walls and with symmetrically disposed integral partitions connecting their inner and outer walls.

4. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with heavy upper and lower walls.

5. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with heavy upper, lower and outer walls.

6. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with relatively thick upper walls, and connections for exhausting air from such chambers.

7. An ingot mold having a plurality of vacuum chambers formed in its side walls and provided with relatively thick upper walls, the upper portion of said mold being thickened to provide heavy outer and lower walls for such chambers.

8. An ingot mold having a plurality of intercommunicating vacuum chambers formed in its side walls and provided with relatively thick upper walls.

9. An ingot mold having a plurality of intercommunicating vacuum chambers formed in its side walls and provided with relatively thick upper walls, and connections to one of such chambers for exhausting air therefrom.

10. An ingot mold having a plurality of intercommunicating vacuum chambers formed in its side walls and provided with relatively thick upper walls, the partitions between such chambers being apertured.

11. An ingot mold having a plurality of intercommunicating vacuum chambers formed in its side walls, connections for exhausting air secured to the outer face of said mold in communication with one of such chambers, and a projection extending from said mold above said connections for projecting the latter.

12. An ingot mold provided with stripping ears and having a plurality of intercommunicating vacuum chambers formed in its side walls, and connections for exhausting air from such chambers secured to the outer face of said mold below said stripping ear.

In testimony whereof we affix our signatures in the presence of two witnesses.

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L. J. GEORGE.

JOSEPH I. PEYTON.

Witnesses:
G. AYRES,
C. M. MERCER.