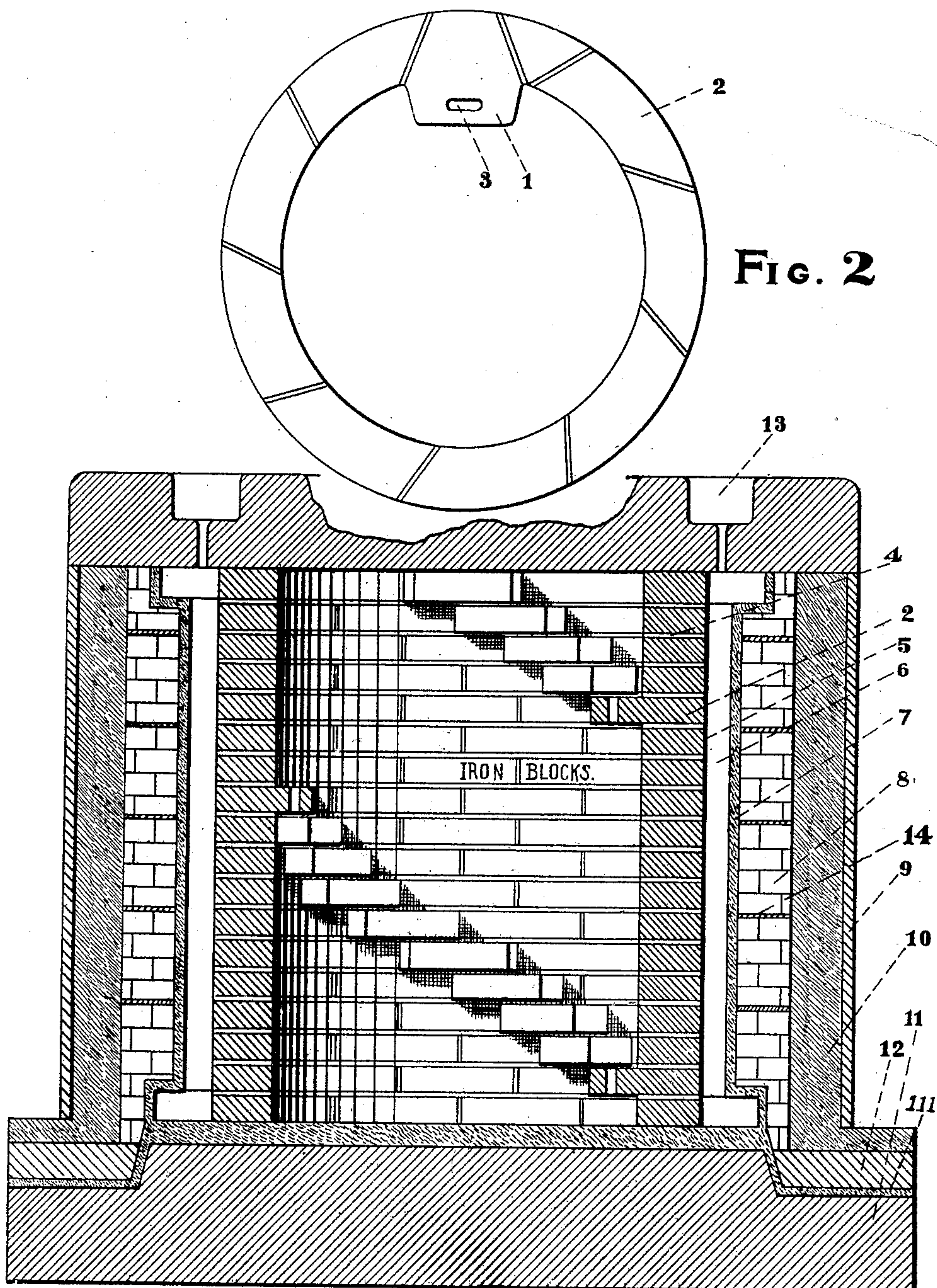


A. E. HARRISON.
CHILL MOLD.
APPLICATION FILED OCT. 17, 1904.

924,612.

Patented June 8, 1909.



WITNESSES:
Ella Brickell
Max Potter

FIG. 1 A. E. HARRISON. INVENTOR.

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UNITED STATES PATENT OFFICE.

ALBERT E. HARRISON, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO ALLIS-CHALMERS COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF NEW JERSEY.

CHILL-MOLD.

No. 924,612.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed October 17, 1904. Serial No. 228,777.

To all whom it may concern:

Be it known that I, ALBERT E. HARRISON, citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Chill-Molds, of which the following is a specification.

This invention relates to a chill mold.

The object of the invention is to produce metal castings, especially iron cylinders, with an inner surface free from blow holes and imperfections of any kind, and at the same time have the metal homogeneous and in such condition that it may be easily machined.

In the accompanying drawings, Figure 1 is a vertical section through the mold; Fig. 2 is a plan view of the iron block structure distinct from the remainder of the mold.

In forming the mold, the bottom plate 11 is used upon which is spread a layer of loam 111, and upon this loam at the outer edge of the bottom plate is placed a building ring 12. Brickwork 8 is built upon the building ring in such a way that a holding ring 14 is spaced every fourth course of brick. These holding rings serve to strengthen the mold on the outside. The inner surface of the brickwork is surfaced with loam 7. Around the brick-work is placed a wall of lacing plates 9, between which and the brick-work is tamped a wall of sand 10.

The inner surface or core of the mold is formed by a cylinder built up of iron blocks 2. This cylinder of iron blocks is formed by a series of rings placed one upon the other and spaced apart by a thin layer of loam 4. Each ring is built up of segment-pieces, or blocks, and has a key-block 1, having a lug projecting into the space within the cylinder of blocks. Each lug has a hole 3 therein, whereby the key-block may be conveniently drawn from the ring inwardly and in the plane of the ring in dismantling the mold. Upon the outer surface of the cylinder of blocks is placed a facing of plumbago or graphite 5. A top plate, within which are formed runners 13, is placed upon the mold to complete the same.

The process of casting by means of this chill mold consists in pouring the molten metal into the mold which is formed as hereinbefore described, so that the surface of the core which forms the inner surface of the cylinders, is formed of metal. This metal has a chilling effect upon the metal which in

practice is, with the subsequent slow cooling, highly beneficial in the production of sound, machinable castings. While the casting is still at a red heat, the iron key-blocks are pulled out which releases the full circle of blocks or chills and allows the proper shrinkage to take place.

Having thus described my invention, what I claim is,—

1. In a mold, a core formed of blocks arranged in a series of rings so constituted as to allow one of the blocks of a ring to move inwardly to compensate for shrinkage of the casting.

2. In a mold, a wall of metal blocks formed in a series of rings arranged to allow one of the blocks of a ring to move in the plane of the ring to compensate for shrinkage of the casting, and walls coacting with the wall of metal blocks.

3. In a mold, a wall of metal blocks formed in a series of rings arranged to allow movement in the plane of each ring to compensate for shrinkage of the casting, a facing of plumbago on the wall, and walls coacting with the wall of metal blocks.

4. In a mold, the combination of a shell and a core one of said parts being composed of a plurality of rings, each of the said rings being composed of a plurality of metal blocks so constructed and arranged that one of the blocks composing any one of said rings may be retracted at a time when the mold contains a casting.

5. A mold comprising in combination a bottom plate, a shell supported thereon, a core also supported thereon and spaced from said shell, said core being composed of a series of rings separated from each other by loam, each of said rings being composed of a plurality of metallic blocks the outer faces of which are formed approximately to a portion of a cylindrical surface, the ends of said blocks being disposed in planes other than radial planes of the cylinder to which their outer surfaces correspond, and a top plate supported by said shell and said core.

6. A mold comprising in combination a bottom plate, a shell supported thereon, a core also supported thereon and spaced from said shell, said core being composed of a series of rings separated from each other by loam, each of said rings being composed of a plurality of metallic blocks the outer faces of which are formed approximately to a por-

tion of a cylindrical surface, the ends of said blocks being disposed in planes other than radial planes of the cylinder to which their outer surfaces correspond, each of said blocks
5 composing a ring being separated from the adjacent blocks by loam, and a top plate supported by said shell and said core.

7. In a mold, the combination of a core composed of a series of rings, and walls co-
10 acting with the core, each ring yieldable

toward the axis of said rings for shrinkage of the casting and having a block removable to disassemble the ring.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT E. HARRISON.

Witnesses:

G. M. HUBBARD,

G. F. DE WEIN.