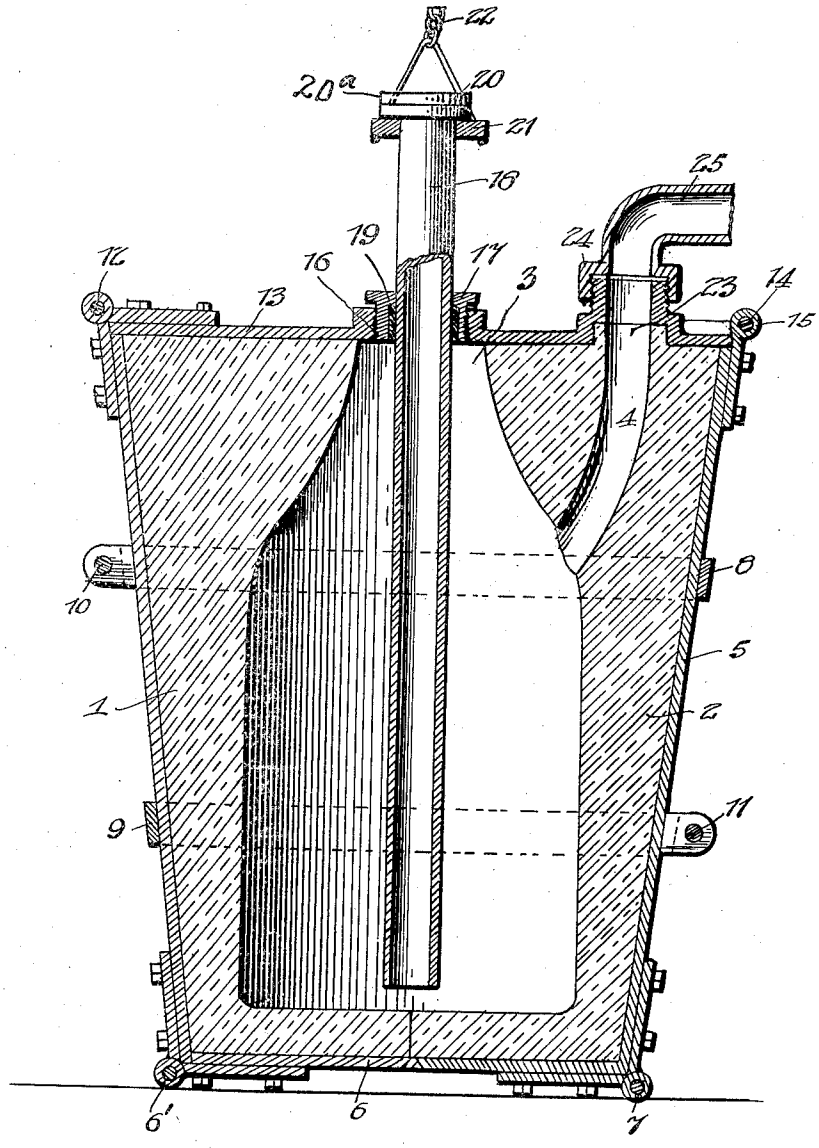
W. F. M. McCARTY.

MOLDING PROCESS.

APPLICATION FILED AUG. 2, 1907.

901,361.

Patented Oct. 20, 1908.



WITNESSES

Chas. K. Davies.

Myron G. Clear

INVENTOR

William F. M. McCarty

by C. C. Parker

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM F. MASON McCARTY, OF PLEASANTVILLE, NEW YORK, ASSIGNOR OF ONE-FOURTH TO GEORGE O. EATON, ONE-FOURTH TO THOMAS M. ACKEN, AND ONE-THIRTIETH TO ALEXANDER J. GUTTMAN, OF NEW YORK, N. Y.

MOLDING PROCESS.

No. 901,361. Specification of Letters Patent. Patented Oct. 20, 1908.

Application filed August 2, 1907. Serial No. 386,742.

To all whom it may concern:

Be it known that I, WILLIAM F. MASON McCARTY, a citizen of the United States, residing at Pleasantville, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Molding Processes, of which the following is a specification.

This invention relates to an improved molding process which, while adapted for molding any metal or alloy is particularly adapted for the production of iron and steel ingots which are homogeneous in composition and texture and wholly free from flaws, blow holes or other like imperfections.

A further important object accomplished by this invention is the prevention of explosions of ingots or castings which not infrequently result in injury to molders handling the metal, and, in the production of large castings, in serious loss of life.

Blow holes, flaws, fissures and seams in cast metal, and particularly in iron and steel are caused by the presence of gas or vapor in the molten metal, caused by occlusion, entrainment or the presence of moisture in the mold used.

It is the object of this invention to accomplish the hereinbefore recited purposes by the removal of these gases and vapors, during the pouring operation and prior to the setting or hardening of the metal in the mold.

In the practice of my process I employ molds, from which air and other gases or vapors may be withdrawn while the mold is being filed and while the molded metal is hardening and cooling and in order to provide that every portion of the metal introduced into the mold shall, during the pouring operation, be directly under the influence of the vacuum, I employ a movable or slidable pouring tube which is gradually withdrawn as the mold is filled.

In the accompanying drawing I have shown a vertical cross sectional view of my improved mold which is used and operated in the practice of my process.

The mold proper comprises two semi-cylindrical sections 1 and 2 of suitable material, adapted to fit together and be substantially hermetically sealed at their points of contact. An opening 3 is provided through which the metal is introduced and adjacent thereto is a second opening 4 through which air is exhausted by means of a suitable air pump (not shown).

Surrounding the mold proper is a supporting frame or casing 5 comprising a base 6 and two hollow semi-cylindrical sides hinged thereto by hinges 6′ and 7. The two sides are held securely around the mold proper by means of adjustable hoops or bands 8 and 9 having adjusting screws 10 and 11 engaging within outstanding portions of the hoops or bands. Pivoted to one side of the frame or casing by a hinge 12 is a top 13 which is secured in position after the frame or casing is in place, by means of a pin or bolt 14, carried by the top, and adapted to engage within the eye 15, carried by the side. Within a centrally disposed screw threaded opening 16 in the top 13 is a bushing 17 adapted to receive and support a filling tube 18, as illustrated. The bushing is provided with a recess around the tube for the reception of suitable packing 19 to secure a substantially air tight joint between tube and bushing. The top of the filling tube is provided with a flange 20 and below this a yoke or bar 21 to which may be secured suitable means, as derrick chains 22 for raising the tube as the mold is filled. It is to be understood that means may be provided for closing the top of the filling tube, such for example as a metal plate 20ª to cover it. The top 13 is also provided with a screw threaded nipple 23 above and in alinement with the opening 4. Secured to this nipple by means of the flanged ring 24 is a pipe 25 connected with an exhaust pump and serving as a source of vacuum.

In the practice of my invention the mold is set up as hereinbefore described, the vacuum pump being in operation. Metal is then gradually introduced into the mold through the filling tube 18, the lower end of the latter being in close proximity to the bottom of the mold. As the mold is filled the tube 18 is withdrawn so that the lower end thereof is at all times at or in proximity to the level of the metal; preferably slightly below it to insure the metal entering the mold smoothly and without spattering. It will thus be seen that as the metal is introduced into the mold it will spread out upon the surface thereof and be immediately brought directly under the influence of the

vacuum produced by the exhaust pump. All of the molten metal will thus come directly under the influence of the vacuum and will not be isolated from this influence by incoming metal until the gases and vapors therein contained have been withdrawn.

By the use of my invention the gases and vapors whose presence in the metal to be molded is the cause of explosions, flaws, seams and the like are removed, thereby enabling the molder to readily and safely produce homogeneous ingots of fibrous or lamellar structure wholly free from blow holes and other similar imperfections.

Having thus described my invention what I claim is:

1. The hereindescribed process which consists in continuously discharging molten metal, into a hermetically sealed mold, at or near the surface of the metal introduced, until said mold is filled and simultaneously withdrawing air from said mold.

2. The hereindescribed process which consists in introducing molten metal into a substantially hermetically sealed mold through a movable conduit, the discharge end of which is maintained at or near the surface of the metal, until the mold is filled and simultaneously withdrawing air from said mold.

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

WILLIAM F. MASON McCARTY.

Witnesses:

WILLIAM H. TROXELL,

E. LEWIS HIGBEE.